

**PROCEEDINGS OF THE MEETING OF STATE LEVEL EXPERT APPRAISAL
COMMITTEE, ODISHA HELD ON 22ND SEPTEMBER, 2021**

The SEAC met on 22ND September, 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
2. Dr. K. Murugesan	-	Secretary
3. Dr. D. Swain	-	Member
4. Prof. (Dr.) H.B. Sahu	-	Member
5. Sri. J. K. Mahapatra	-	Member
6. Sri. K. R. Acharya	-	Member
7. Prof. (Dr.) B.K. Satpathy	-	Member
8. Prof. (Dr.) P.K. Mohanty	-	Member
9. Dr. K.C.S Panigrahi	-	Member
10. Dr. Sailabala Padhi	-	Member

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

ITEM NO. 01

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF 'SIKSHA 'O' ANUSANDHAN DEEMED UNIVERSITY" FOR CONSTRUCTION AND EXPANSION OF EXISTING CLINICAL AREA FROM 15669.32 SQM. TO 49881.63 SQM. OF SUM ULTIMATE MEDICARE WITHIN THE PREMISES OF CAMPUS-II HAVING INSTITUTIONAL AREA - 99961.04 SQM. OVER AN AREA 10.560HA. ON PLOT NO.268, 2685, 2686, 2671, 2672, 2673, 2674 & 2675 KHATA NO.2239 AT MOUZA- GHATIKIA, KALINGA NAGAR, BHUBANESWAR, ODISHA OF SRI BIBEKANANDA PRADHAN (DEPUTY MANAGER) - EC

1. The proposal is for Environmental Clearance of 'Siksha 'O' Anusandhan Deemed University" for construction and expansion of existing Clinical area from 15669.32 sqm. to 49881.63 sqm. of Sum Ultimate Medicare within the premises of campus-II having institutional area -99961.04 sqm. over an area 10.560Ha. on plot no.268, 2685, 2686, 2671, 2672, 2673, 2674 & 2675 Khata No.2239 at Mouza- Ghatikia, Kalinga Nagar, Bhubaneswar, Odisha of Sri Bibekananda Pradhan (Deputy Manager).
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. This project is construction and expansion of existing Clinical area from 15669.32 sqm to 49881.63 sqm of Sum Ultimate Medicare" within the premises of Campus-II having Institutional Area- 99961.04 sqm (Proponent had obtained approval from SEIAA in 2013 for a built-up area of 50553.11 Sqm vide letter no. 8743/SEIAA Dated-19.12.2013), over plot no, Plot No.2687,2685,2686,2671,2672,2673,2674 & 2675 Khata No.2239 at Mouza- Ghatikia under Bhubaneswar Development Authority.
4. Proponent had obtained approval from SEIAA in 2013 for & CTO in 2019 for 350 Hospital Bed vide letter no upto-31.03.2024.
5. **Location and Connectivity** - The Project Site is located at - Mouza-Ghatikia. The Geographical coordinates of the project site is: Latitude – 20° 16' 56.01" N to 20°17' 1.10"N

& Longitude – 85°46'20.41"E to 85°46'27.18"E. The Project Site is well connected to a network of existing SUM Hospital road running all the way from in N & W direction and Khandagiri- Chandaka road at New, while the Ghatikia Main road serves in the S direction. The hospital has two gates that serve the dual purpose of entry and exit. The same service road acts as connecting link between one part of the city with the other which is used by the patients and general public. Nearest Railway Station is Bhubaneswar Railway station is 7.43km. Nearest Airport is Biju Pattanaik Airport – 5.50km.

6. The site is coming under Bhubaneswar Development Authority. The total plot area is 105645.13 sqm / 26.096Ac. or 10.560 Ha. with total built-up area 149842.7 Sqm. Clinical built up area = 49881.63 Sqm. [Existing -15669.32 sqm + Proposed-34212.31sqm]. Institutional Built up area= Existing-99961.04 sqm. No. of clinical Beds=350

7. **The Building Details of The Project:**

Total Plot Area: 105645.13 m²/ 26.096Ac. or 10.560 Ha.
Total Built –Up Area: 149842.7 Sqm
Ground Coverage 29726.92 m² (28.15% of the Plot Area)
Maximum Height of Building = 21 mt
Parking Area– 42672.45 m² = (40 % Of total FAR Area
Open parking – 21005.83 (19.89%)
Internal Roads =12,468.36 m² (11.81 % of Plot Area)
Paved Area = 3,710.97 m² (3.51 % of Plot Area)
Green belt Area =24,298.38 m² (23.01% of the Plot Area)
Open space ,Other Services (Water tanker, STP, RWH, Waste Storage etc.) = 14396.29 (13.63 % of Plot Area)

8. **Water requirement:** During Operation phase the fresh water requirement is approx. 471 KLD (clinical area and institutional area), out of which total domestic water requirement for Clinical- 137.5 KLD, Hostel & Institutional is 333 KLD, and flushing water is 248 KLD. The potential water supply source for the project can be mainly classified as: Municipal Water Supply. /STP treated water which can be used for non-potable uses. The capacity of STP for existing & Expansion Hospital block is 200 KL including 50 KL ETP provisioned. For Institutional area Hostel block STP capacity provided-825 KL.
9. **Waste water details:** Waste Water Generation From Clinical : 185 KLD , Treated Waste Water Recovered & to be reused - 128 KLD (Zero Discharge). Waste Water Generation From Institutional Area : 443 KLD , Treated Waste Water recover -355 KLD & to be reused - 321 KLD (34 KLD discharge to nearest Municipal Drain). Excess Waste Water discharge to nearest drain – 124 KLD (During Rainy Season)
10. **Power requirement:** The total power requirement for Clinical, Institutional and Hostel Blocks are approx. 1890.25 KWH . MRS received power supply at 33KV from TPCODL. In order to provide 24 x 7 power supply for the clinical building and common area of campus-II, it is proposed to provide 100% emergency power back up in clinical area Common area enclosures. Emergency power back Capacity (Clinical)-2x1500 KVA & 1X500 KVA. Emergency power back Capacity (Hostel and Institutional Area)-2x500 KVA & 1X600 KVA. Recommended stack height is $=h+0.2*\sqrt{KVA}=28.7$ M (Highest Building), Stack height provided = 30 m.
11. **Rain Water Harvesting:** Total Run Off from Storm Water 4028.2 m³/Hr, Total runoff to be harvested for 15 minutes i.e. 1007 cum so based on 1no. Harvesting pit volume 43 cum we required 25 nos. Rain water Harvesting Pits..

12. **Parking Requirement:** The requirement of parking area is provided as per BDA guidelines. A total area of 42672.45 sqm (40 % of total FAR Area as per ODA planning standards) is earmarked for post project scenario for parking vehicles, two wheelers and four wheelers. Parking areas for cycles are provided. Parking lots are properly demarcated for two wheelers and four wheelers. Total 1707 ECS has been provided.
13. **Fire fighting Installations:** Fire fighting system will be installed as per recommendation of the Fire fighting Officer, Odisha and as per the guideline of NBC (part-4).
14. **Green Belt Development:** Total green area measures 24298.3799 sqm (approx. 23 % of total plot area area).
15. **Solid Waste Management:** Total quantity of Municipal Solid Waste : (Existing And Expansion) = 2885.85 kg/day. Bio-degradable waste=1815.4 kg/day. Non- bio degradable waste=1070.45 kg/day. Hand Over to Authorized Agencies. Hospital/Biomedical waste = 525 kg/day. General Waste =393 kg/day. Biomedical waste = 132 kg/day. Segregation, Storage & Disposal as per Bio-medical Waste Management Rules 2016.
16. The estimated project cost is ` 1330 Crores and cost for EMP is 1332 lakhs.
17. The project proponent along with the consultant **M/s Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar** made a detailed presentation on the proposal.

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

- i. Detailed land schedule with kissam of land in tabulated form along with supportive land documents of all academic/institutional/clinical buildings/parking space and physical features of the existing and proposed expansion showing the same in layout map including land use pattern.
- ii. Comparative table showing existing and proposed project in terms of environment features / parameters and physical features / parameters including safety with 3D pictures including the distance between the buildings as against the norm.
- iii. Separate STP and ETP units or brief write up for integrated setup.
- iv. Chemical analysis report on discharge of STP and ETP vis-à-vis norms and discharge of integrated setup of STP and ETP.
- v. Traffic study report from an institute of repute and decongestion plan at intersecting points of exit & entry with public road.
- vi. Provision for Incinerator to be made and if not, to justify, in absence of incinerator, how the organic wastes, infectious waste etc. would be deactivated to avoid further pollution and hazardousness.
- vii. Monitoring plan and measures to be taken for safely disposal of Bio-medical wastes.
- viii. Layout of DG set location with respect to wind direction.
- ix. Details of solar panel accommodated and utilised with power generation details vis-à-vis total power used per day.

- x. Details of 8 months zero discharge concept with water balance.
- xi. Building wise built-up area of existing and proposed expansion.
- xii. Permission/NOC from BMC for discharge of treated water to existing drain for existing and additional load
- xiii. Layout and breakup percentage for green belt and landscape.
- xiv. Fire-fighting and parking arrangements
- xv. Rain water harvesting and recharging details to be submitted.
- xvi. Parking provision in terms of space and ECS (both for two wheelers and four wheelers) in reference to present beds, OPD and proposed expansion in consideration of patients visitors, doctors, and medical staff be submitted.
- xvii. Permission/license of proposed HSD storage tank including details of the present arrangement.

ITEM NO. 02

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF SIKSHA O ANUSANDHAN UNIVERSITY FOR CONSTRUCTION AND EXPANSION OF EXISTING CLINICAL AREA FROM 13543 SQM. TO 69911SQM. OF “IMS & SUM HOSPITAL” WITHIN THE PREMISES OF CAMPUS- III HAVING INSTITUTIONAL AREA - 78855.7 SQM. OVER AN AREA 7.98HA. ON PLOT NO. F1,F2,F3,C1,C2,C3.C4 & C5 AT MOUZA-GHATIKIA, BHUBANESWAR OF SRI BIBEKANANDA PRADHAN (DEPUTY MANAGER) – EC

1. The proposal is for Environmental Clearance of Siksha O Anusandhan University for construction and expansion of existing Clinical area from 13543 sqm. to 69911sqm. of “IMS & SUM HOSPITAL” within the premises of campus- III having institutional area - 78855.7 sqm. over an area 7.98Ha. on Plot No. F1, F2, F3, C1, C2, C3.C4 & C5 at Mouza-Ghatikia, Bhubaneswar of Sri Bibekananda Pradhan (Deputy Manager).
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. This project is construction and expansion of existing Clinical area from 13543 sqm to 69911sqm of “IMS & SUM HOSPITAL” within the premises of Campus- III having Institutional Area-78855.7 sqm, over Plot No. F1, F2, F3, C1, C2, C3.C4 & C5 at Mouza-Ghatikia under Bhubaneswar Development Authority.
4. The project proponent had applied a proposal to SEIAA, Odisha on dated 05.07.2013 for construction of Siksha O Anusandhan University, IMS & SUM Hospital (Campus-I) bearing, khata no-Nil, plot no. C-2, C-3, C-4, C-5, C-1 & F-1 at village-Ghatikia, BBSR, Khordha of Mis Sikhya O Anusandhan University at Ghatikia, BBSR with total built-up area 74,219.189 sq.m. [68,012.05 sq.m of Built-up area was constructed before EIA notification 2006 and proposed built-up area after EIA notification 2006 is 10,072.52 sqm.]
5. The SEAC observed that the proposed built-up area after EIA notification, 14.09. 2006 is less than 20,000m². Hence, EC was not required at that time. The project proponent was communicated the same vide letter no. 8741/SEIAA, dated 19.12.2013 by SEIAA, Odisha.
6. Proponent had obtained approval from SEIAA in 2013 for a built-up area of 50553.11 Sqm (vide letter no. 8743/SEIAA Dated-19.12.2013) & CTO in 2019 for 350 HOSPITAL BED

vide letter no 7441-IND-I-CON-6685 With Concent Order No.-2883 on dated 23.07.2019 valid upto-31.03.2024.

7. **Location and Connectivity** - The Project Site is located at - Mouza-Ghatikia. The Geographical coordinates of the project site is: Latitude – 20°16'54.09"N to 20°17'2.78"N & Longitude – 85°45'57.44"E to 85°46'13.80"E. The Project Site is well connected to a network of existing SUM Hospital road running all the way from in N & E direction and Khandagiri-Chandaka road at N, while the Ghatikia Main road serves in the S direction. The hospital has two gates that serve the dual purpose of entry and exit. The same service road acts as connecting link between one part of the city with the other which is used by the patients and general public. Nearest Railway Station is Bhubaneswar Railway station is 7.65km. Nearest Airport is Biju Pattanaik Airport – 6.1km.
8. **The Building Details of The Project:**

Total Plot Area: 79808.72 m²/ 19.72116 Ac. Or 7.98 Ha. + Additional area for green belt 2.16 Ac

Total proposed Built –Up Area: 148766 m² (Existing Institutional area 126688 m²(proposed for convert teaching area 47833 m² to clinical area) + Existing Clinical area 13543 m²+ Proposed newly Construction of Clinical area 8535.1m²)

Ground Coverage 27879.2 m² (34.9 % of the Plot Area)

Maximum Height of Building = 21 mt

Parking Area–40409 sqm (40 % of total FAR Area For Clinical as per ODA planning standards)

Open parking –31483.0 (39.45 %)

Internal Roads =9896.3 m² (12.40 % of Plot Area)

Green belt Area =10550.7 m² (13.22% of the Plot Area)
9. **Water requirement:**. Total Water Requirement For Clinical -718 KLD [493 KLD (Domestic) + 225 KLD (Flushing) Total Water Requirement For Institutional-175 KLD [107 KLD (Domestic) + 68 KLD (Flushing) Source: PHD water supply. Waste Water Generation From Clinical : 569 KLD + 32 KLD(From ETP) , Treated Waste Water Recovered -541 KLD & to be reused-405 KLD. Waste Water Generation From Institutional Area : 146.3 KLD , Treated Waste Water recover -132 KLD & to be reused-Zero Discharge. Capacity of Sewerage Treatment Plant for Clinical and Institutional Area - 600 expand to 1500 KLD (MBBR Type). Capacity of Effluent Treatment Plant -50 KL (MBBR Type)
10. **Power requirement:** The total power requirement for Clinical, Institutional and Hostel Blocks are approx. 1425 KWH. MRS received power supply at 33KV from TPCODL. In order to provide 24 x 7 power supply for the clinical building and common area of campus-II, it is proposed to provide 100% emergency power back up in clinical area Common area enclosures. Emergency power back Capacity (Clinical)-2x1000 KVA. Emergency power back Capacity (Hostel and Institutional Area)-1x1000 KVA. Recommended stack height is $=h+0.2*\sqrt{KVA}=28.7$ M (Highest Building), Stack height provided = 30 m
11. **Rain Water Harvesting:** Total Runoff from Storm Water from Site is 1007 m³ so based on 1no. Harvesting pit volume 43 cum required 61 nos. Rain water Harvesting Pits.
12. **Parking Requirement:** The requirement of parking area is provided as per BDA guidelines. A total area of 40409sqm (40 % of total FAR Area as per ODA planning standards) is earmarked for post project scenario for parking vehicles, two wheelers and four wheelers.

Parking areas for cycles are provided. Parking lots are properly demarcated for two wheelers and four wheelers. Total 1606 ECS has been provided.

13. Fire fighting Installations: Hospital block- As per clause 3.1.4 of NBC-2016, the said Hospital is classified under group C; Institutional Buildings. Hostel block-As per clause 3.1.4 of NBC-2016, the said Hostel is classified under group A; in subdivision A-3 dormitories.
14. **Green Belt Development:** Total green area measures 10550.7 sqm (approx. 13.22 % of total plot area area).
15. **Solid Waste Management:** During the operation phase, waste will comprise domestic as well as Biomedical waste. The solid waste generated from the project shall be mainly MSW (Municipal solid waste) approx. 2885kg/day, Biodegradable solid waste = 1815.4 kg/day, Non -Biodegradable solid waste =1070.45 kg/day, Biomedical waste is 525 kg/day
16. The estimated project cost is ` 1505 Crores and cost for EMP is 1332 lakhs.
17. The project proponent along with the consultant **M/s Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar** made a detailed presentation on the proposal.

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

- i. Detailed land schedule with kissam of land in tabulated form along with supportive land documents of all academic / institutional / clinical buildings / parking space and physical features of the existing and proposed expansion showing the same in layout map including land use pattern.
- ii. Comparative table showing existing and proposed project in terms of environment features / parameters and physical features / parameters including safety with 3D pictures including the distance between the buildings as against the norm.
- iii. Separate STP and ETP units or brief write up for integrated setup.
- iv. Chemical analysis report on discharge of STP and ETP vis-à-vis norms and discharge of integrated setup of STP and ETP.
- v. Traffic study report from an institute of repute and decongestion plan at intersecting points of exit & entry with public road.
- vi. Provision for Incinerator to be made and if not, to justify, in absence of incinerator, how the organic wastes, infectious waste etc. would be deactivated to avoid further pollution and hazardousness.
- vii. Monitoring plan and measures to be taken for safe disposal of Bio-medical wastes.
- viii. Layout of DG set location with respect to wind direction.
- ix. Details of solar panel accommodated and utilised with power generation details vis-à-vis total power used per day.
- x. Details of 8 months zero discharge concept with water balance.

- xi. Building wise built-up area and proposed expansion.
- xii. Permission/NOC from BMC for discharge of treated water to existing drain for existing and additional load.
- xiii. Layout and breakup percentage for green belt and landscape.
- xiv. Rain water harvesting and recharging details to be submitted.
- xv. Fire-fighting and parking arrangements
- xvi. Parking provision in terms of space and ECS (both for two wheelers and four wheelers) in reference to present beds, OPD and proposed expansion in consideration of patients visitors, doctors, and medical staff be submitted.
- xvii. Permission/license of proposed HSD storage tank including details of the present arrangement.

ITEM NO. 03

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S EKOART TECHNOLOGY PRIVATE LIMITED FOR SETTING UP A COMMON BIO-MEDICAL WASTE TREATMENT FACILITY OVER AN AREA 0.918 AC./0.3715HA. LOCATED AT SOMNATHPUR INDUSTRIAL ESTATE, TAHASIL – REMUNA, DIST – BALASORE, ODISHA (CBMWTF) OF SRI DEBASIS SUARA (MANAGING 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.
2. The project falls under schedule 7 (da) “Biomedical Waste Treatment Facility” Category-B as per the EIA notifications, 2006 amendments dated 17th April, 2015.
3. M/s Ekokart Technology Private Limited has proposed for Setting up a Common Bio-Medical Waste Treatment Facility over an area 0.918 Ac./0.3715Ha. located at - Plot No.- D1/54,55,56 Somnathpur Industrial Estate, Tahasil – Remuna, Dist – Balasore, Odisha of Sri Debasis Suara.
4. Location and Connectivity - Geographical co-ordinates of the Project is Latitude 21°29'55.65"N & Longitude 86°51'3.14"E. Project site is falling in Survey of India Toposheet No. F45014 & F45015. Balasore Railway station -7.18 km. Chennai-Kolkata Highway-NH-5 - 4.01 Km. Bijupattanaik International Airport-182 Km.
5. The proposed CBWTF unit consist of Incinerator (250 kg/hr) - 2no.(1w+1s), Autoclave (300kg/batch) - 1no., Shredder (300 kg/hr) - 1 no. and ETP (10KLD) – 1 no.
6. Water Requirement – The total water requirement is 21 KLD and daily fresh water requirement would be 16 KLD which would be fetch from groundwater and necessary permission would be obtained from the Ground Water Department. The wastewater after treatment in the proposed 10 KLD ETP would be recycled to reduce the consumption of fresh water requirement. Rooftop rain water harvesting would be done to further reduce the consumption of fresh water.
7. Power Requirement - The electricity would be taken from the State Electricity Board with 100 KW of 11 KVA line and there would be 125 KVA DG set would be installed as a

backup.

8. Green Belt- 33% (0.332acre) of total plot area shall also be developed under Green Belt.
9. Employment Potential: Total 42 nos. of manpower is proposed to be required to run the facility smoothly. Required manpower shall be sourced from local area.
10. Solid waste generation -. During operation of the unit main waste will be Ash from incinerator and Sludge from ETP. Total 100-150 kg/day of Incineration Ash and 10-20 kg/day of Residues shall be generated from the Treatment Unit. Ash Residue from High Temperature Incineration and Other Material Residues from the process shall be collected into Containers / Bags and shall be stored at temporary ash storage shed and shall be disposed into the secured Landfill periodically after sufficient accumulation. Approx. 50-100 kg /month of Sludge will be generated from ETP. During Operation Phase 45 persons are engaged in operation phase and approx. 15 kg/day municipal solid waste is generated. All generated waste shall be disposed to secured Land Fill site as per the direction of OSPCB.
11. The project cost is ` 300 lakhs.
12. The project proponent along with the consultant **M/s Visiontek Consultancy Services Pvt. Ltd.**, Bhubaneswar made a detailed presentation on the proposal.
13. The project proponent requested for exemption of public hearing as the project is proposed to be located within industrial Estate. The SEAC opined that public hearing cannot be exempted as the industrial Estate has not obtained Environmental Clearance as per EIA Notification 2006 and amendment thereafter.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Visiontek Consultancy Services 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. Detailed land schedule with kissam of land in tabulated form.
- ii. Mathematical model of dispersion/inversion study to be submitted for the incinerator flue gas and to submit the basis of arriving at height of incinerator.
- iii. Provision for STP with design.
- iv. Brief write up on quenching effect with chemical analysis of flue gas.
- v. Mitigation measures and monitoring of treated elements not leached out to surroundings, if such elements are present.
- vi. Supporting documents/agreement made by private owners for taking up the waste treated residues.
- vii. The project area is in High flood plain area. A disaster management plan may be submitted.
- viii. Dense Greenbelt plantation should cover from all sides of project instead of two sides only confirming to minimum 33 percentage coverage of green belt of total area and thus layout to be revised and resubmitted.
- ix. Arrangement for collection of wastes from health centres with safety measures to be adopted.
- x. Half yearly awareness campaign should be organised by project proponent.

- xi. Bio-medical wastes to be collected from individual health centres to the common collection centres by the project proponent only. This is to be confirmed by project proponent.
- xii. Diesel to be used as fuel for incinerator. Details of storage facility.
- xiii. Study report on Occupational community health hazards and mitigative measures.
- xiv. Zero discharge need to ensured and water balance to be submitted.
- xv. Location, housing and height with height of stack of DG set with installation drawing to be submitted.
- xvi. Provision of Solar power plant with detailed calculation as percentage of total power consumption to be submitted.
- xvii. To confirm adoption of OHSAS.
- xviii. Certificate from DFO concerned that project area is not located inside the Eco-Sensitive Zone of kuldiha WL Sanctuary with exact ESZ boundary to project boundary distance where it is at shortest distance.

ITEM NO. 04

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S RENEWABLE ENVIROGIC PVT. LTD. FOR SETTING UP A COMMON BIO-MEDICAL WASTE TREATMENT FACILITY OVER AN AREA 1.5 AC./0.607HA. (CBMWTF), AT – MOUZA - SIALBAHALI, TEHSIL-BALANGIR, DISTRICT –BALANGIR, ODISHA OF SRI DEBASIS TRIPATHY (MANAGING 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.
2. The project falls under schedule 7 (da) “Biomedical Waste Treatment Facility” Category-B as per the EIA notifications, 2006 amendments dated 17th April, 2015.
3. M/s Renewable Envirogic Pvt. Ltd. Proposed for Setting up a Common Bio-Medical Waste Treatment Facility over an area 0.918 Ac./0.3715Ha on Khata No.18, Plot No. 617, Mouza-Sialbahali, Tehsil-Balangir, District –Balangir, Odisha.
4. Location and Connectivity - Geographical co-ordinates of the Project is Latitude 20°45'13.35"N & Longitude 83°23'13.29"E. Project site is falling in Survey of India Toposheet No. F44X05 & F44X06. Balangir Railway station – 13.40 km. NH-201 & 224 – 11.90km (SE), SH -42 – 2.40 km (S). Biju Pattanaik International Airport-259 Km. Nearest river – Suktel at 2.44km. Nearest habitation are Barkani - 0.8 km and Sialbahal - 0.92km. Nearest reserve forest is Chandli RF – 2.53km.
5. The proposed CBWTF unit consist of Incinerator (250 kg/hr) - 1no and 1 no. in , Autoclave (300kg/batch) - 1no., Shredder (300 kg/hr) - 1 no. and ETP (10KLD) – 1 no.
6. Water Requirement – The total water requirement is 20 KLD and daily fresh water requirement would be 15KLD which would be fetch from groundwater and necessary permission would be obtained from the Ground Water Department. The wastewater after

treatment in the proposed 10 KLD ETP would be recycled to reduce the consumption of fresh water requirement. Rooftop rain water harvesting would be done to further reduce the consumption of fresh water.

7. Power Requirement - The electricity would be taken from the State Electricity Board with 100 KW of 11 KVA line and there would be 125 KVA DG set would be installed as a backup.
8. Green Belt- 33% (0.489acre) of total plot area shall also be developed under Green Belt.
9. Employment Potential: Total 30 nos. of manpower is proposed to be required to run the facility smoothly. Required manpower shall be sourced from local area.
10. **Solid waste generation** -. During operation of the unit main waste will be Ash from incinerator and Sludge from ETP. Total 100-150 kg/day of Incineration Ash and 10-20 kg/day of Residues shall be generated from the Treatment Unit. Ash Residue from High Temperature Incineration and Other Material Residues from the process shall be collected into Containers / Bags and shall be stored at temporary ash storage shed and shall be disposed into the secured Landfill periodically after sufficient accumulation. Approx. 50-100 kg /month of Sludge will be generated from ETP. During Operation Phase 45 persons are engaged in operation phase and approx. 15 kg/day municipal solid waste is generated. All generated waste shall be disposed to secured Land Fill site as per the direction of OSPCB.
11. The project cost is ` 180 lakhs.
12. The project proponent along with the consultant **M/s Visiontek Consultancy Services Pvt. Ltd.**, Bhubaneswar made a detailed presentation on the proposal.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Visiontek Consultancy Services 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. Detailed land schedule with kissam of land with change of KISAM to “Industrial use” before start of construction of the project.
- ii. Mathematical model of dispersion/inversion study to be submitted for the incinerator flue gas and to submit the basis of arriving at height of incinerator.
- iii. Provision for STP with design.
- iv. Brief write up on quenching effect with chemical analysis of flue gas.
- v. Details of rain water harvesting system
- vi. Bio-medical wastes to be collected from individual health centres to the common collection centres by the project proponent only. This is to be confirmed by project proponent.
- vii. Diesel to be used as fuel for incinerator. Details of storage facility.
- viii. Mitigation measures and monitoring of treated elements not leached out to surroundings.
- ix. Supporting documents/agreement made by private owners for taking up the solid waste residues.

- x. Detailed Disaster management plan.
- xi. Dense Greenbelt plantation should cover from all sides of project instead of two sides only confirming to minimum 33 percentage coverage of Green belt of total area and thus layout to be revised and resubmitted.
- xii. Arrangement for collection of wastes from health centres with safety measures to be adopted.
- xiii. Half yearly awareness campaign should be organised by project proponent.
- xiv. Study report on occupational community health hazards and mitigative measures.
- xv. Details of fire safety management system.
- xvi. Details of ETP. Zero discharge need to ensured and water balance to be submitted.
- xvii. Location, housing and height with height of stack of DG set with installation drawing to be submitted.
- xviii. Provision of Solar power plant with detailed calculation as percentage of total power consumption to be submitted.
- xix. To confirm adoption of OHSAS

ITEM NO. 05

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR BHANJAPALLI IRON ORE MINES FOR ENHANCEMENT OF IRON ORE PRODUCTION FROM 260000MT TO 502091 MT OVER AREA OF 18.00 HA, AT- BHANJAPALLI, TAHASIL-BONEI, DISTRICT-SUNDARGARH, ODISHA OF SRI J.N PATNAIK – TOR

1. The proposal was considered by the Committee to determine the “Terms of Reference (ToR)” for undertaking detailed EIA study for the purpose of obtaining Environmental Clearance in accordance with the provisions of the EIA Notification, 2006 and amendment thereafter.
2. M/s. Bhanjapalli Iron Ore Mines for enhancement of Iron ore production capacity from 260000 MTPA to 502091 MTPA over an area 18.00 ha located at Bhanjapalli, Tahasil – Bonei, Dist – Sundargarh, Odisha.
3. The project falls under category “B” or activity 1 (a) - Mining of Minerals under EIA Notification dated 14th September 2006 as amended from time to time.
4. The Mining lease deed has been granted from Govt. of Orissa Department Steel & Mines vide memo no. III(B) SM -9/95-11721. dated 13.12.1996. As per the MMDR(Amendment)Act 2015, the lease period has been extended up to 50 years from the date of execution i.e. w.e.f 1.04.1997 to 31.03.2047.
5. In pursuance to the Judgement dt.02/08/2017 of Hon’ble Supreme Court in the matter of W.P. (C) 114/14 Common Cause Vrs Union of India and Others, an amount of Rs.123,87,49,199/- only demanded vide this office letter No.5076/Mines, dt.02/09/2017 against the lessee being the price thereof towards compensation under Section 21(5) of MMDR Act, 1957 for production Iron Ore without/in excess of the environmental clearance for the period from 2000-01 to 2010 - 11.

6. The lessee has deposited Rs.123,87,49,199/- only being the price thereof towards compensation u/s 21(5) of MMDR Act, 1957 along with the applicable interest of Rs.3,14,63,641/-.After obtaining all the statutory clearance and deposit the sad amount, the lease is now in operation since 31.08.2018. Surface right permission for 14.173 ha out of 18.00 ha. was granted in two phases by District Magistrate & Collector, Sundargarh District vide letter no. 2671/mines dated. 27.05.1997 and 789/mining dated 27.04.2007.
7. Out of the total mining lease area of 18.00 ha, 12.565 ha of land is coming under forest which attracts provision of Forest Conservation Act 1980 and balance 5.435 ha. is Non-forest land. The forest diversion proposal over 12.565 ha. has been submitted at office of the PCCF Govt. of Odisha. The NPV of the entire forest land amounting Rs. 91,72,450 (Ninety one lakhs Seventy two thousands Four hundred fifty only) has been deposited in the CAMPA fund. State I and stage II forest clearance has been obtained for the total forest land.
8. The mining plan for Bhanjapali iron ore mine constituted of Bhanjapali iron ore mine has been approved by Indian Bureau of mines vide letter no MRMP/A/11-ORI/BHU/2020-21.on dated 18.08.2020 for period of 2017-18 to 2021-22.
9. Environmental Clearance has been granted for the production capacity of 0.26MTPA capacity vide SEIAA Letter No. 3212/SEIAA Dated 14.05.2015 for 5 years and extended upto 31.03.2027.
10. The lessee has obtained the consent to operate under section 25/26 of the Water (PCP) act 1974 and under section 21 of Air (PCP) act 1981 for the production capacity of 0.26MTPA, vide letter no 3222/IND-I-CON-2197 dated 29.03.2019 valid till 31.03.2024.
11. Office of Director of Mines, Odisha, Bhubaneswar issued letter to the Deputy Director, Mines, Koira regarding resuming mining operation vide memo no.3515, Dated.25.07.2018 and our correspondence to Deputy Director, Mines, Koira resume mining operation.
12. Existing production capacity - 0.26 MTPA. (As per EC) and production during 2018 -19 was 66,400 TPA and from Apr 2019 to December 2019 production is 1,12,200TPA.
13. **Location and Connectivity:** The lease area in favour of Applicant Sri J.N Patnaik, District Sundargarh, Odisha, for excavation of iron ore quarry over an area of 44.479 Acres or 18.00 Hectares is located in village Bhanjapali. Lease area is a part of Survey of India toposheet No 73G/5 and is bounded by the latitudes from Latitude 21° 54' 37" to 21 ° 55' 01"N and Longitude 85°14'54" to 85°15' 07" E as per survey. Nearest railway stations is Barbil Railway Station at an aerial distance of 35 Km and nearest airport is Veer Surendra Sai Airport is at 176km. Nearest town is Koira is 1.2km. The lease area can be approached from NH: 215 & at a distance of 01Km. Karo River at a distance of 6.3 Km. in Western Side. Nearest State boundaries is (Odisha – Jharkhand Interstate Boundary) which is at a distance of 11 Km. Nearest Reserve forest is Kathamala RF – 0.3km. Nearest habitation is 1.2km.
14. **Reserves** - The total geological reserve of iron ore is estimated to be 4364763 (+55% Fe (MT), 935306 (45 to 55% Fe) MT and 5300070 (+45%Fe) MT and mineral iron reserve are 3704870 (+55% Fe (MT), 793901 (45 to 55% Fe) MT and 4498771 (+45%Fe) MT.
15. **Method of Mining** - Opencast fully mechanized method using machineries such as Excavator, Loader, Compressor, Wagon drill, Tipper/dumper, Water sprinkler, Rock

breaker, Mobile screen plant, Crusher plant, Ambulance, Weigh bridge etc. The height of the benches of the quarry will be kept 6mtr and width will be 12mtr or more than the height, whereas the overall slope of the proposed quarry would be kept 37.5°. The gradient of the haul road will be maintained at 1:16 with more width than other benches for easy mobilization of man and machinery.

16. **Production Details:** The different types of ore production year-wise is given as follows :-

QUANTITY OF DIFFERENT ORE TYPES AND PRODUCTION		
Type of ore	Proportion*	Quantity in MT
Lateritic ore	35%	1855024
HLO (Hard Laminated Ore)	15%	795010.4
SLO (Soft Laminated Ore)	20%	1060014
Blue dust	30%	1590022
Total		5300070

Year	Total Saleable ore(MT)	Total Mineral Reject (MT)	Total ROM (MT)
2020-21	398848.8	103242.6	502091.4
2021-22	358019.2	141950.4	499969.6
Total	756868	245193	1002061

17. **Waste management** - An waste of 567072cum will be generated during life of the mine. Out of which 71262cum will be generated during plan period and remaining 495810cum will be generated during conceptual period. About 10% i.e. 49581cum will be utilized for road maintenance, and remaining 90% i.e 446229 cum will be utilized for back-filling of mined out land.
18. **Green Belt** - The plant species which preferably will be nitrogen fixers, pollution abaters, fruit bearing shall be taken up for plantation. During the plan period afforestation programme (3940 nos.) will be carried out over an area of 1.97 hectares of safety zone area. The plantation would be carried out @ 2000 nos per hectare.
19. **Water Requirement** - For drinking purpose - 50cum/day and for mining related activities- 300cum/day has been required (Water sprinkling- 50 cum/day, Plantation- 100cum/day, Washing & cleaning related to mining operation- 150cum/day). No waste water is likely to be generated from the mines other than the surface run off during rain.
20. **Power Requirement** - No use of electric power. Diesel powered machineries will be used and Diesel Requirement is 10KLD.
21. A total of 150 workers (Skilled-30nos., Semi-skilled-60nos. and Un-skilled-50nos. & Management &Supervisory personnel-10nos) will be employed during mining operation.
22. The cost of Project is ` 400 lakh.
23. The Environment Consultant **M/s Kalyani Laboratories Pvt. Ltd. Bhubaneswar** along with the proponent made a detailed presentation on the proposal before the Committee.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Kalyani Laboratories Pvt. Ltd. Bhubaneswar**, the SEAC prescribed the following specific ToRs in addition to standard ToRs as per **Annexure – B** 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 in the compliance report:
 - 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.
 - d) Slope stability study for both mines and OB /waste dumps.
 - e) Surface runoff management along with rainwater harvesting and ground water recharge include the design of drainage structures.
 - f) Traffic density study, both inside the mines and at haulage roads, intersecting points of haulage road with public road.
 - g) Hydrology study: The study findings and the mitigation measures thereof to be submitted
- 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 imaginary 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 submit the detailed mineralogical and chemical composition of the different grades of mineral and percentage of elements from a NABL/MoEF&CC accredited laboratory. Also, management of different grades need to be explained with mass balance. Also the analysis of wastes finally to be discarded and dumped with dumping plan.
- xiv) 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.

- xv) 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, if such objective is planned.
- xvi) 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.
- xvii) 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.
- xviii) 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.
- xix) 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.
- xx) Compliance to NEERI recommendations.
- xxi) Internal roads, drain management with network of the drain, retaining walls and settling tanks with ETPs be submitted.
- xxii) 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.
- xxiii) Construction and perennial maintenance of haulage road with details of plantation and the species thereof to be submitted.
- xxiv) Parking plaza layout with maximum no. of vehicles and types of vehicles that can be parked with basic amenities and facilities.
- xxv) Forest Clearance details with copy of all Forest Clearance.
- xxvi) Status of complaints/ court cases/legal action regarding to lease along with a detailed write up indicating case no., purpose of the case etc.

- xxvii) Copy of lease document.
- xxviii) Details of waste management i.e. composition and nature of waste generated, tabulated form showing year wise waste generation, usage and storage.
- xxix) 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.
- xxx) 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.
- xxxi) Comprehensive water management, water balance with water harvesting and its reuse both monsoon and non-monsoon period. Detailed proposal for Zero Liquid Discharge.
- xxxii) STP plan with design with location in the layout map for domestic waste water treatment.
- xxxiii) Provision of solar power (percentage wise) with detail plan.
- xxxiv) To submit the network with dimension of concrete cement roads inside the mining lease area and haulage road.
- xxxv) Plan and SoP to be submitted for water sprinkling inside the mines and outside in haulage road including regular vacuum cleaning and Zero Dust Re-suspension system to completely mitigate and arrest fugitive dust emission.
- xxxvi) Comparative matrix previous and proposed production w.r.t overburden, green belt, water balance, haulage roads, settling ponds, ETP, runoff management etc.
- xxxvii) Details of grade of Fe to be mined, cutoff grade, management of off grade, quantity of each year wise and the dumping or storage plan of off grade and wastes to be provided.
- xxxviii) Additional environmental measures taken for expansion of the project be submitted.
- xxxix) Compliance to CTO for the existing mines to be submitted.
- xl) Total water management including domestic use w.r.t sourcing from bore-well, rain water harvesting and recycling of waste water from ETP/STP, both for monsoon and non-monsoon be submitted of the existing mines and propose expansion.
- xli) Measures taken and proposed to be taken further for arresting and mitigation of occupational health hazard including identification of the same, both for employees and nearby/surrounding habitation.
- xl ii) In all the above information short, a comparison of the existing vis-à-vis the propose expansion be submitted for clarity.
- xl iii) KISAM of the part of land is shown as "Ghara Bari". Status of conversion or (Mining) to be submitted. Breakage of forest land (DLC land) to be submitted.

- xliv) Silt management with SOP of natural Nala located at 4.8 km distance from lease boundary be submitted.
- xlv) Haulage road, existing and proposed, with length and width and side drain drawing to be submitted.
- xlvi) To submit a write-up how 60% is obtained without blasting along with chemical composition of this Ore
- xlvii) Silt generation and management with disposal without settling pond as it doesn't exist now.
- xlviii) A write-up be submitted why settling pond is not required and How wash off/runoffs from minerals, mineral waste and OB is managed?

ITEM NO. 06

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S ASSOTECH SUN GROWTH ABODE LLP FOR PROPOSED MULTISTORIED RESIDENTIAL BUILDING “ASSOTECH PRIDE PHASE-1 EXTENSION” FROM TOTAL BUILT UP AREA - 143861.14 SQM. TO 350733.31SQM. OVER AN TOTAL PLOT AREA – 65383.16 SQM. LOCATED AT MOUZA - RUDRAPUR, PS - BALIANTA, TEHSIL-BHUBANESWAR, DIST-KHURDA, ODISHA OF SRI SHASHI BHUSAN MISHRA (MANAGER) - TOR

1. The proposal was considered by the Committee to determine the “Terms of Reference (ToR)” for undertaking detailed EIA study for the purpose of obtaining Environmental Clearance in accordance with the provisions of the EIA Notification, 2006 and amendment thereafter.
2. The project falls under Category “B”, Project or Activity 8(b) – Building Construction; Category B1 under Expansion project as per schedule of EIA Notification dated 14th Sep, 2006, as amended from time to time.
3. This is a proposal for M/s. Assotech Sun Growth Abode LLP for Proposed Multistoried Residential Building “Assotech Pride Phase-1 Extension” from total built up area - 143861.14 sqm. to 350733.31sqm. over an total plot area – 65383.16 sqm. over Plot No. - 274/9190, 276, 277/856, 277/8893, 279/10152, 279 & others Khata No: 412/1079, 412/1349 & others of located at Mouza-Rudrapur, PS-Balianta, Tehsil-Bhubaneswar, Dist-Khurda, Odisha of Sri Shashi Bhusan Mishra (Manager).
4. The site is coming under developmental Plan of Bhubaneswar Municipal Corporation.
5. Satutory clearances obtained are as follows:
 - Environment Clearance was granted for existing building from SEIAA vide letter no. 7484/SEIAA, dated 06.11.2019.
 - Consent to Establish was granted for existing building from OSPCB vie letter no. 693/IND-II-CTE-6353, dated 21.01.2020.
 - CGWA NOC No. INF/ORIG/2021/12925 dated on 16-09-2021 and INF/ORIG/2021/12925 dated on 06-03-2020
 - Electricity supply from TPCODL vide letter No. 3592 dated on 01-06-2021.
 - BMC Approval for Existing Building letter No. 33608, dated on 27-11-2019
 - National Highways Authority of India – Access permission from approach road letter No. 2090 & 11013 dated on 05-08-2021 & 31-05-2019.

- Public Health Division – NOC from Water supply and Sewerage connection vide letter no. 8582 dated on 09-07-2021
- Solid Waste agreement from M/s Clean City, Bhubaneswar.
- Fire Safety Recommendation letter no . 4930/FPW dated on 09-07-2021.
- Airport Authority of India letter no. 480617 dated on 07-10-2020.
- NOC for Drainage dept Letter No. 24923 dated on 10-09-2019.
- NOC from Prachi Division Letter No. 7342 dated on 13-12-2019

6. **Connectivity:** The Geographical co-ordinate of the project site is: Latitude – 200 19' 40.2" to 200 19' 37.7" N & Longitude - 85° 53' 08.4" to 85° 53' 05.2" E. The project site is well connected with National Highway NH-16 at a distance of approx 0.2 Km in West direction. The nearest railway station is Mancheswar Railway station at a distance of approx 4.24 Km in West direction & Bhubaneswar Railway Station at a distance 8.9 Km in South-west direction. The nearest airport is Biju Patnaik Airport at a distance of approx. 10.8 Km in South-west direction from project site.
7. **METEOROLOGY:** The maximum temperature is about 36.0° C and the minimum temperature is 16.0° C felt in the area. The average annual rainfall in the area is 1326.16 mm.

8. The Building Details Of The Project:

Particular	Existing	Proposed	Total
Project Name	Assotech Pride, PH-1 EXTENSION		
Plot Area	52825.37 sqm (13.050 Acre)	14433.63 sqm (3.566 Acres)	67259.00 sqm (16.615 Acres)
Ground Coverage	23387.05sqm	15556.05 sqm	38943.10sqm
FAR (Floor Area Ratio)	118843.72 sqm	166782.00 sqm	285625.72 sqm
Built up Area	136017.28 sqm	214716.03 sqm	350733.31 sqm
Maximum Height	45 m	130 m	130 m
Road Area	10506.06 sqm	9333.94 sqm	19840.00 sqm
Podium/Basement Parking	22015.70 sqm	43940.59 sqm	65956.29 sqm
Open Surface Parking	5500.00 sqm	146.72 sqm	5646.72 sqm
Total Parking Area	27515.70 sqm	44087.31 sqm	71603.01 sqm
Green Belt Area	23847.39 sqm (45.14 %)	-231.39 sqm	23616.00 sqm (35.11%)
Power/Electricity Requirement & Sources	Total - 4232 KVA Solar - 455 KVA CESU - 3777 KVA	Total - 3228 KVA Solar - 105 KVA TPOCDL - 3123 KVA	Total - 7460 KVA Solar - 560 KVA TPCODL - 6900 KVA
No. of DG sets	2x500 KVA	2X500 KVA	4x500 KVA
Water requirement	551.4 KLD (Fresh)	241.4 KLD	792.8 KLD
Sewage Treatment Plant	750 KLD	300 KLD	1050 KLD
Estimated Population- Residential, Commercial, Floating/visitors	5930 nos.	2830 nos.	8760 .

9. **Power Requirement:** The daily power requirement for the proposed complex is preliminarily assessed as 7460 KVA (Solar System- 560 KVA & TPCODL – 6900 KVA). In order to meet emergency power requirements during the grid failure, there is provision of 4 nos. of DG set having 500 KVA capacities for power back up in the Residential Building Project. For energy conservation, Roof Top Solar Power plant for captive power Generation

= 12x 38KW = 560 kVA, Total Energy Conservation = 7460 KVA , Total Energy saving = 560/7460 = 8 %.

10. **Water Requirement:** Fresh make up of 792.8 m³/day will be required for the project which will be sourced from Ground water. Waste water of 1017 KLD will be treated in a STP of 1050 KLD capacity, which includes primary, secondary and tertiary treatment. After treatment the treated water will be discharge to the Prachi Drain.
11. **Fire fighting Installations:** Fire fighting system will be installed as per recommendation of the Fire fighting Officer, Odisha and as per the guideline of NBC (part-4).
12. **Green Belt Development:** Green belt will be developed over an area of 23616.0 sqm which is 35.11 % of the plot area; by using the local species like Casia Fistula, Conocarpus, Agave, Amla, Mango, Water Apple, Royal Palm, etc.
13. **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 3942 kg/day. The generated solid waste from the residential complex will be segregated as biodegradable and non-biodegradable. This will be collected in separate coloured bins. Proper waste management practices will be adopted during the collection, storing and disposal of the generated solid waste. Solid waste from sweeping and Dry Garbage containing non biodegradable wastes like polythene bags, metal, ceramic Waste, glass etc. shall be stored in separate garbage bin and send to approved recyclers. Around 140 kg/day of STP sludge will be generated.

S. No.	Category	Counts (heads)	Waste generated (kg/day)
1.	Residents	8760 @ 0.45 kg/day	3942.0
2.	Floating Population	876 @ 0.15 kg/day	131.4
3.	STP sludge		140.0
TOTAL SOLID WASTE GENERATED			4213.4 kg/day

14. Rain Water will be harvested through 23 nos. of recharging pits.
15. Green Belt: The green area will be developed approx. 35.11 % of the plot area (23616sqm). The biodiversity in the area will increase due to the proposed green areas.
16. Parking: Proposed total area of parking - 71603.01 sqm.
17. The project cost is ` 392 Cr and EMP cost is ` 2.92 Cr.
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 – C** for conducting detailed EIA study.

- (i) Detailed EC compliance report duly certified by MoEF&CC, Regional Office, Bhubaneswar for existing building.
- (ii) Permission/NOC from concerned authority to take additional load of treated water.
- (iii) Modified checklist for building and construction project duly filled-in to be submitted.

- (iv) Comprehensive traffic density from domain expert taking into consideration of nearby developing projects.
- (v) NOC from Water Resources Deptt. for using the dead canal for rain harvesting system.
- (vi) Distance between towers of existing and proposed towers.
- (vii) Details and plant layout showing location of greenbelt in expansion and making green belt denser.
- (viii) Utilization of more treated water to make denser green belt.
- (ix) Comparative table showing all relevant parameters such as: built-up area, number of apartments, power load, Solar energy use %, Parking no of units and %, plantation %, Chimney position and height of DG set, drainage map with discharge points, ETP details, recharge pits, traffic load etc. in existing and in expansion proposed and the total after expansion.


SECRETARY, SEAC

Approved

CHAIRMAN, SEAC

TERMS OF REFERENCE FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT FOR DEVELOPMENT OF COMMON BIOMEDICAL WASTE TREATMENT AND DISPOSAL FACILITY (TOR).

1. Executive summary of the project shall be prepared highlighting the objectives of the proposal, use of resources, justification, etc. In addition, it should provide EMP.
2. Justification for selecting the proposed capacity of the incineration and other facilities.
3. Establishment of the facility as per Bio-medical Waste Management Rules, 2016.
4. Land requirement for the facility including its break up for various purposes, its availability and optimization.
5. Details of proposed layout clearly demarcating various activities such as security,
6. Waste Storage Rooms, Waste Treatment Equipment Rooms/Areas, Treated Waste Storage Room, Pollution Control Devices like APCS and ETP, ash storage/disposal area, vehicle washing areas, and others such as admin area, worker's room, health centers, greenbelt, etc.
7. Details on collection and transportation of Bio Medical Waste from health care establishments. No. of vehicles and feature of vehicles, etc.
8. Details of waste storage facilities/rooms.
9. Details of the treatment equipment's capacity and make.
10. Details of the incineration system - a statement on the compliance to the CPCB guidelines for common bio medical waste incinerators in respect of waste feed cut-offs, operating parameters of combustion chambers, flue gas cleaning, ash handling, etc.
11. Details on fuel requirement for incineration.
12. Details on flue gas emissions discharge through stack and proposed pollution control technologies.
13. Details on residue/ash generation and management.
14. Details of waste heat utilization, if any.
15. Details of wastewater management.
16. Details of the proposed overall safety and health protection measures.
17. Details of source of water and power to the facility.
18. Details of the existing access road(s)/walkways to the designed operations in the site and its layout.
19. Location of the incineration facility and nearest habitats with distances from the facility to be demarcated on a toposheet (1: 50000 scale).
20. Land use map based on satellite imagery including location specific sensitivities such as national parks / wildlife sanctuary, villages, industries, etc.
21. Topography details.

22. Surface water quality of nearby water bodies.
23. Details of proposed groundwater monitoring wells, locations, frequency of monitoring, parameters, etc.
24. Action plan for the greenbelt development in accordance to CPCB published guidelines.
25. Details of pollution control technologies and online monitoring equipments.
26. Details of monitoring of pollutants at source -performance of the incinerator. including operating hours, fuel consumption, operating parameters (Combustion chamber - temperature, pressure, Stack temperature, total particulate matter, HCl, NO_x as per Bio-medical Waste Management Rules, 2016.
27. Stack and fugitive emissions may be monitored for SPM, HCL & NO₂ as per Bio-medical Waste Management Rules, 2016.
28. Specific programme to monitor safety and health protection of workers.
29. Details of Administrative and technical organizational structure.
30. EMP devised to mitigate the adverse impacts of the project should be provided along with item-wise cost of its implementation (Capital and recurring costs).
31. Details of the emergency preparedness plan and on-site & off-site disaster management plan and on-site & off-site disaster management plan.
32. Details of measures to be taken for control of air pollution including measures to control emission of Dioxin and Furan.
33. Assessment of ecological damage with respect to air, water, land and other environmental attributes. The collection and analysis of data shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or an environmental laboratory accredited by NABL, or a laboratory of a Council of Scientific and Industrial Research (CSIR) institution working in the field of environment.
34. Preparation of EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to violation.
35. The remediation plan and the natural and community resource augmentation plan to be prepared as an independent chapter in the EIA report by the accredited consultants.
36. 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.
37. **The prescribed TOR would be valid for a period of four years for submission of the EIA/EMP report.**

TERMS OF REFERENCE (ToR) FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT FOR BHANJAPALLI IRON ORE MINES FOR ENHANCEMENT OF IRON ORE PRODUCTION FROM 260000MT TO 502091 MT OVER AREA OF 18.00 HA, AT- BHANJAPALLI, TAHASIL-BONEI, DISTRICT-SUNDARGARH, ODISHA OF SRI J.N PATNAIK - TOR

A. STANDARD TOR FOR MINING PROJECT

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

of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the proposed safeguard measures in each case should also be provided.

10. The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
11. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
12. Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
13. A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
14. Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
15. Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
16. The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
17. A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
18. Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
19. A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished.

Necessary allocation of funds for implementing the same should be made as part of the project cost.

20. Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.
21. Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects failing under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
22. R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs/STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine (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
SOTM 2	Between 3 and	Minimum 70% by public railway siding, through conveyor belt and maximum 30% by road - direct to destination or other

Code	EC	Suggested Ore Transport Mode
	<5 MTPA	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 fas per the provisions of EIA Notification 2QQ6, as amended time to time1) with

proper justification on demand scenario for iron ore requirement and availability of pollution free transport network in the region. Responsibility: IBM, Department of Steel & Mines and MoEF&CC, New Delhi.

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

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

Mine Lease	EC Capacity (MTPA)	Suggested Annual Production (MT)				
		2016-17	2017- 18	2018-19	2019-20	2020-21
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Mine 1	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 geo-textile matting or other suitable material, and thick plantation of native trees and shrubs should be carried out at the dump slopes. Further, dumps should be protected by retaining walls.(xi) Trenches / garland drain should be constructed at the foot of dumps to arrest silt from being carried to water bodies. Adequate number of check dams should be constructed across seasonal/perennial nallas (if any) flowing through the mine lease areas and silt be arrested. De-silting at regular intervals should be carried out and quantity should be recorded for its better utilization, after proper soil quality analysis, (xii) The water so collected in the reservoir within the mine should be utilized for the sprinkling on hauls roads, green belt development etc. (xiii) There should be zero waste water discharge from the mine. Based on actual water withdrawal and consumption/ utilization in different activities, water balance diagram should be prepared on monthly basis, and efforts should be made to optimize consumption of water per ton of ore production in successive years. Responsibility: Individual Mine Lease Holders, SPCB and CGWB.

25. **Land/ Soil/ Overburden Related** : (i) The top soil should temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long (not more than 3 years or as per provisions mentioned in the mine plan/ scheme). The topsoil should be used for land reclamation and plantation appropriately, (ii) Fodder plots should be developed in the

non-mineralised area in lieu of use of grazing land, if any. (iii) Over burden/ low grade ore should be stacked at earmarked dump site(s) only and should not be kept active for 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 Quality in each region (Joda, Koira and Baripada/Rairangpur) as per	SPCB	Continuous Annually

Sl. No.	Study component / Action Plan	Responsibility	Monitoring and Reporting Time Frame (Approx.)
	<p>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 conducted in an integrated manner in consultation with Regional Director,	SPCB	Once in 2 years

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

STANDARD TERMS OF REFERENCE FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY FOR TOWNSHIP/ AREA DEVELOPMENT PROJECTS AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT

- 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 analysed 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.