MINUTES OF THE MEETING

OF

STATE LEVEL EXPERT APPRAISAL COMMITTEE,

ORISSA HELD ON

12th & 13th JANUARY, 2011

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MINUTES OF THE MEETING OF STATE LEVEL EXPERT APPRAISAL COMMITTEE, ORISSA HELD ON 12th & 13th JANUARY, 2011

The meeting of State Level Expert Appraisal Committee, Orissa was held on 12th & 13th January, 2011 in the Conference Hall of Orissa State Pollution Control Board, Bhubaneswar at 11.00 AM. Dr. Gagan Bihari Nityananda Chainy, Chairman, SEAC Orissa chaired the meeting. The following members were present in the meeting.

1.	Dr. Gagan Bihari Nityananda Chainy	-	Chairman
2.	Professor (Dr.) Swoyam Prakash Rout	-	Member
3.	Dr. Harekrishna Nayak,	-	Member
4.	Dr. Moheshwar Patra,	-	Member
5.	Sri Sasanka Sekhar Pattnaik,	-	Member
6.	Prof. Kumar Das	-	Member
7.	Dr. R.C. Mohanty,	-	Member
8.	Dr. Surendra Nath Das,	-	Member

1. The minutes of previous meeting was confirmed by the members.

2. Next meeting of the committee would be held on 17th January, 2011 to discuss legal matter of M/s Utkal Builders, Goutam Nagar, Bhubaneswar and also on 25th Jan, 2011 for consideration of old proposals as well as screening of new proposals.

3. The SEIAA, Orissa has forwarded vide letter No. 631, dt.31.12.10 a letter from one Sri N.R. Biswal, Plot No. – N-1/75, IRC village, Bhubaneswar – 751015 regarding violation of environment protection Act-1986 and Heritage conservation Act-1992 and CDP BBSR-2010 by a public body (OWSSB, Orissa Water Supply and Sewerage Board) about a very big construction related to STP. However, as per the provisions of EIA Notification, 2006 Schedule - 7(h), Common Effluent Treatment Plant (CETP) requires prior Environmental Clearance.

   The SEAC observed that addressing the public complaint is not within the perview of the committee and decided to return the same to SEIAA.

10 project proponents were invited for presentation of TOR and Environmental Clearance proposals followed by discussion. The agenda-wise proceedings and recommendations of the committee are detailed below:

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ITEM NO. :- 1

PROPOSAL FOR EXPANSION OF CHROMITE ORE BENEFICIATION UNIT AT VILLAGE PIMPLIMAL IN THE DISTRICT OF JHARSUGUDA OF M/S. BELL MOUNTAIN COMPANY (TOR).

The project proponent submitted prescribed Form -1 and pre-feasibility report along with the draft TORs. It's a proposed project for **chrome ore beneficiation plant for enhancement of production capacity from 800 TPA to 9600 TPA AT- Pimplima; (GORAPADA) in the district – Jharsuguda .** The Applicant aided by the consultant **M/s Envomin Consultant (P) Ltd. Bhubaneswar** gave a presentation on the salient features of the project and the draft Terms of Reference for undertaking detailed EIA study. It is an existing unit. The Company uses low grade chromite ores from Sukinda valley to up-grade by using crushing, grinding, dry magnetic separation, screening, drying in coal fired furnaces etc. Ground water has been used as the source of water and there have no recharge. They were not able to explain process details, analysis of Cr(VI) at each stage including that of the effluents. They go on recycling the process effluent without knowing how much of Cr(VI) is building up. They plan to store waste materials on 0.8Ac of area of a RCC platform surrounded by 1.5' tall boundary, use or disposal of which they are not aware of. They have plans of having an ETP for treating 70% of process water by ferrous sulphate and the rest 30% is said to have evaporated. But they are not aware of the process of reduction nor cost effectiveness/efficiency. They have never even analyzed the effluent nor developed facilities for the same.

During the discussion, the following points emerged.

1. The process is highly polluting and the unit will discharge critically toxic pollutants such as soluble hexavalent chromium. The toxicity of chromium alloys and compounds varies significantly. Chromium metal does not exhibit toxicity. Divalent and trivalent compounds of chromium have a low order of toxicity. Exposure to the dusts of chromite or ferrochrome alloys may cause lung diseases including pneumoconiosis and pulmonary fibrosis.
2. Among all chromium compounds, only the hexavalent salts are a primary health hazard. Cr^{6+} is more readily taken up by the cells, than any other valence state of the metal. Occupational exposure to these compounds can produce spleen ulceration, dermatitis, perforation of the nasal septa and kidney damage. It can induce hypersensitive reactions

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of the spleen and renal tubular necrosis. Examples of hexavalent salts are the chromates and dichromates of sodium, potassium and other metals. The hexavalent chromium salts in PM/RSPM are absorbed into the blood stream through inhalation. Many chromium (VI) compounds are carcinogenic causing lung cancer in animals and human beings. The carcinogenicity may be attributed to intracellular conversion of Cr^{6+} to Cr^{3+}, which is biologically more active. The trivalent chromium ion can bind with nucleic acid and thus initiate carcinogenesis.

3. The proponent could not explain the reason for selecting the site as it is far away from the source of raw material.
4. The firm proposed to enhance the capacity to 9600 with no clear idea on process details, pollutants involved, material or water balance etc.
5. Location of the proposed plant is in prime area. The process shall be highly polluting and unless proper treatment and technical care is taken during processing. The consultant/proponent is not very much aware of these facts.
6. It has acquired 2.92 acres of land for the plant, out of which 0.8 acre is meant for slime disposal. The amount of slime to be generated, its analysis and treatment to render it harmless are not clear.
7. The entire water requirement of 48 KLD is proposed to be drawn from ground water sources with no clear permission for doing so.
8. The treatment system proposed for effluents is not acceptable. This will only further contaminate both surface and ground water.
9. Issuing TOR may not be feasible in absence of technical details of the beneficiation plant with analysis of at least the most polluting chemical Cr(VI) at each stage.

In view of the above shortcomings, the SEAC decided to return the proposal and the proponent should apply with details for further consideration.

ITEM NO. :- 2

PROPOSAL FOR PRODUCTION OF QUARTZITE ORE 1.5 LAKH TPA OVER AN AREA OF 19.263 HA. AT SARUPATAL AND NAYABANDH IN THE DISTRICT OF KEONJHAR OF PARSALA QUARTZ AND QUARTZITE MINES OF SRI B. K. MOHANTY (TOR).

The proposal was considered by the SEAC to determine the Terms of Reference (TOR) for taking detailed EIA study for the purpose of obtaining environmental clearance in accordance with the provisions of the EIA notification, 2006 project. Proponent had submitted information in the prescribed format (Form-I) along with feasibility report. According to the Form-I and presentations made by the proponent, the proposal is for **production of Quartzite Ore 1.5 LTPA over an area of 19.263 Ha. At Sarupatal and Nayabandh in the district of Keonjhar**. The mining lease area is **19.263** ha. The lease was executed on 30.12 1980 for 20 years over an area of 78.671 Ha. The lease period was expired on 29.12.2000 It has been applied for 2nd renewal in due time, over a reduced area of 19.263 Ha. The mining plan was approved under Rule 22(4) of MCDR, 1988 by the Director of Mines, Orissa Vide their letter No. M-XXX- 13/04-12686 dated 11.10.06 and modification of the approved mining plan was also approved by Director of

Mines, Orissa, Bhubaneswar vide letter no-7896 dt 30.06.10. The lessee has got Consent to Operate order vide letter no. 17280/IND-I-CON-6329 dated 24.10.2009 for production of 7270 TPA Quartzite ore from State Pollution Control Board Odisha .The consent order is valid upto **31.03.2011.** . The mine working will be opencast manual. The water requirement is 20 KLD .

Considering the information furnished and presentation made by the consultant M/s. **Centre For Envotech & Management Consultancy Pvt. Ltd.** , Bhubaneswar, the SEAC suggested the following TORs for undertaking detailed EIA study:

Introduction

- Profile of the project proponent and background to establish the financial and entrepreneurial competency to undertake the project.
- Genesis and objectives of the project.
- Brief description of nature, size, location of the project and its need and importance to the region and country's economic development and end use/value addition (if any) of the mined minerals.
- Past performance records including environmental protection measures for existing industries seeking expansion.
- Status and stage of regulatory clearances like approval of mining plan, forestry clearance and other statutory clearances (water use) essential before starting mining activities.
- Litigation / court case, if any, pending relating to the project.

2. **Project Description**

- A site map to 1:50,000 scale, presenting project location and recent features of the area (core zone and buffer zone) with the help of satellite imagery (NRSA) showing relevant details like habitation, forest, water bodies, drainage pattern including contours at not more than 15 meters scale, heritage sites, and environmentally sensitive objects and areas such as, reserve / protected forest, national park, sanctuary, biosphere reserve, elephant / tiger sanctuaries / migrating corridors etc.
- Mining area dimensions, year wise mining plan, production of over burden (OB) and OB dump sites, conceptual mine plan for every five years period for the life of mine, mine closure plan and production capacity both present and planned, land use pattern.
- **Details of Mining**

  Estimation of probable/estimated mineral reserves, Method of Mining, proposed working depths, proposed manpower, employment product size and reduction if any sound pollution due to mining activities, blasting control measures, OB solid waste with quantity and angle of repose, authenticated ground water contour plan (both pre and post monsoon), impact of mining on hydrology of core and buffer zones intersecting ground water level & optimal utilization/value addition utilization of the associated minerals, steps to ensure through benefication process.

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3. **Air Environment (for Core and Buffer Zone)**

a) **Baseline Status**

- Climate and Metrological baseline data obtained from the nearest IMD station for the area (core and buffer zone).
- Location (distance and direction) of monitoring stations considering environmentally / ecologically sensitive areas.
- Climatological data in respect of temperature, humidity, wind speed and direction, wind rose and rainfall for the study period (03 months non-monsoon season).
- Air pollutants such as: SPM, RSPM, SO2, NOx, CO traces of heavy metals (Fe, Mn, Pb) etc. in core and buffer zone as per CPCB specifications (NAAQS).
- Existing and expected fugitive emissions in and around the area of mining transport, stacking, ore processing/ beneficiation and their impact on flora and fauna of the region.
- Impact of fugitive emissions on flora and fauna.

b) **Anticipated Impacts**

- Prediction of impacts on ambient air quality using appropriate mathematical models (ISCST or FDM models).
- Existing air quality data and prediction of emissions of SPM, RSPM, SO_2, NOx, CO to be presented in tabular form.

Sl. No	Location of Monitoring station (Name, Distance & Directions)	Background level	Predicted concentration	Resultant concentration	Air quality standard

c) **Proposed Mitigating Measures**

- Mitigating measures to lower the emissions of pollutants and to maintain the air quality.
- Mitigating measures to contain impact of fugitive emissions on flora and fauna.
- Scientific ore mining/ handling/transport methods to reduce the dust emissions from point and other likely sources.

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4. **Noise Environment**

a) **Baseline Status**

- Day time and night time noise levels.
- Noise levels, i.e. Leq.(day) and Leq.(night) for each station in core zone and buffer zone along with applicable standards.
- Noise levels due to mining activities, ore processing units, beneficiation plant and transportation routes separately.
- Vibrations caused due to blasting operations.
- Locations of monitoring stations in accordance with direction and distance from the source preferably at the same air quality monitoring sites.

b) **Anticipated Impacts**

- Impacts of vibrations on the surrounding environment including damage to materials and structures.
- Impacts due to noise levels generated by existing and proposed activities in relation to human environment and wild life including avi-fauna.
- Impacts due to present and future surface transportation activities by road/rail / conveyor belt, if any.
- Impact of noise levels an auditory function, i.e. hearing activity.

c) **Proposed Mitigating Measures**

- Identification and adoption of mitigating measures for noise abatement including noise barriers for point sources and line sources; Regular maintenance of machineries/vehicles for noise reduction.
- Measures to minimize effect of vibration due to blasting.
- Evaluation of adequacy of the proposed pollution control devices periodically to minimize occupational exposure and to suggest modifications, if any, as a continuous process.

5. **Water Environment**

a) **Baseline Status:**

- Rainfall, runoff and sedimentation data from nearby reputed institution including IMD station should be collected.
- Details of existing water bodies like rivers, nallahs, lakes, springs and reservoirs etc. within core and buffer zones and likely to be changes in drainage pattern created due to mining.

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- Physico-chemical, biological, bacteriological and radiological characterization of surface and ground water both upstream and downstream with reference to mining lease area.
- Authenticated ground water level of the area and if mining will be intersecting ground water, indicate radius of influence from the mine pit.
- Ground water recharge potential including rain water harvesting, recharge and water balance of the area for present and future use.
- Water requirement and waste water production from mine lease area, mining township, ore processing and beneficiation plants and other facilities.
- Waste water treatment, recycling and reuse of effluent.

b) **Anticipated Impacts:**

- Impact on water sources due to shifting of water courses, if any.
- Impact of water withdrawal on surface water / ground water.
- Impact of mining on hydrology with special reference to a situation when mining will intersect ground water.
- Impact on withdrawal of surface / ground water below the threshold level of replenishment.
- Impact of mining activities including tailing ponds on surface and ground water quality.

c) **Proposed Mitigating Measures**

- Model study for prediction of ground water contamination and suggested mitigating measures to minimize the pollution level.
- Construction of gully checks, check dams, sedimentation ponds, settling tanks, water retaining walls and weirs, subsequent treatment and recycle.
- Management of waste water sources, viz. industries, workshop, township etc. to contain the adverse impact on water resources in core and buffer zones.
- Details of mitigation steps to contain adverse impacts on water table in case of mining intersecting ground water.
- Construction of rain water harvesting structures and treatment before recharge/reuse to maintain the water level.
- Steps to make use of the existing water bodies and water bodies likely to be created as a result of mining activity both in core and buffer zones by fishiculture, irrigation and recreational facilities.

6. **Land Environment**

a) Baseline Status

- Collection of soil samples from monitoring stations, their textures, physico-chemical and micro biological characterization, water holding capacity, porosity, toxic contaminants and sodium absorption ratio (SAR) for both core and buffer zone.
- Study of pre-mining load use pattern, cropping pattern, vegetation cover etc. using remote sensing techniques (if available) and ground truthing and through secondary data sources.
- Determination of leaching properties of OB samples to define the load of heavy metal pollutants on runoff water.

b) **Anticipated Impacts**

- Estimation of anticipated impacts of proposed mining activity on topography, water drainage pattern, land use pattern with respect to agriculture, forestry and fisheries.
- Impact of leach ate water from overburden on surface and ground water quality.
- Impact of mining activity on the fertility status of soil in the study area.
- Prediction of ground water pollution due to seepage of pollutants through soil column.
- Impact of mining on local biodiversity and forest cover.

c) **Proposed Mitigating Measures**

- Scientific mining methods to mitigate the impacts of mining activity on land resource.
- Delineation of mine closure plan to rehabilitate the mined out land to restore its earlier land use pattern.
- Model study for potential soil erosion from core and buffer zones for planning preventive measures.
- Methods for treatment and disposal of domestic solid wastes.
- Selection of suitable local plant species for green belt development in and around mine sites, ore processing plant and beneficiation plant and also an overburden dump sites and workers colony.
- Top soil conservation plan and its reutilization depending on its quality.

7. **Biological Environment:**

a) **Baseline Status**

- Biodiversity (terrestrial and aquatic).

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- Assessment of plant species with respect to dominance, density, frequency and abundance within the study area.
- Collection of primary data through field survey and authenticated secondary data on fauna including avi-fauna indicating endangered and endemic species, if any, with scientific and local name as per the schedule of Wild Life (protection) Act.
- Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land.
- Collection of secondary data on fishery, agriculture, crops and irrigation facility in the study area.
- Existence of National Park, Sanctuary, Biosphere Reserve, Tiger/Elephant Reserve migratory corridor in the study area / buffer zone to be shown in the site map.
- Estimation of number and types of trees and shrubs which would be cut during deforestation for mining activity and other facility.
- Photographs showing vegetation cover before and after mining in case of ongoing mining activities and existing vegetation in case of new mine.

b) **Anticipated Impacts :**

- Impact of mining activities on forest resources, terrestrial and aquatic biodiversity, wildlife including avi-fauna, migratory corridors, endangered species and important and medicinal plants.
- Assessment of likely damage to flora and fauna due to air emissions, noise and vibrations, vehicular movements, waste water discharges, and change in land use pattern.

c) **Proposed Mitigating Measures :**

- Afforestation greenbelt development of reclaimed mined out areas, composite of grass, shrubs and trees of native variety.
- Stabilization of mining benches and overburdens by development of vegetation cover over them.
- Scientific conservation plan for protection and conservation of flora, fauna including endangered species of the area.
- Delineation and implementation of pollution control measures with respect to air emissions, noise and vibrations, vehicular movements and waste water discharges etc. impacting biotic environment.

8. **Socio – Economic Environment :**

a) **Baseline Status :**

- Demographic survey and collection of baseline data on human settlement, health and education status of the community and existing infrastructural facilities for social welfare including sources of livelihood job opportunities, agriculture and forest products etc. of the area (Core Zone and Buffer Zone).

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- Socio economic profile of the people within 2,5 and 10 kms of buffer zone.

b) **Anticipated Impacts :**

- Impacts of the mining activities on the cropping pattern and crop productivity within 2km of the core zone on the sources of livelihood and land holding of the people, on the cattle grazing lands and access to the roads frequented by them and possible migration/displacement of people.

c) **Proposed Mitigating Measures**

- Corporate Social Responsibility (CSR) should not be treated only as philanthropy, rather it should be the corporate mission and individual social responsibility of the project proponent. They should be a partner in the regional development
- Mitigating measures should take into account the needs of the people of the area based on primary data as obtained through Need Assessment Survey / Study (NAS). Certain welfare schemes can be dovetailed with identical / related/ similar schemes being executed by various Govt. departments / agencies in the area.
- Adequate compensation should be given to the people for loss of land / loss of crops loss of surface rights due to mining activities.
- Details of employment potential – skilled, semi-skilled and un-skilled.

9 **Occupational Health Environment**

a) **Baseline Status**

- Primary / secondary data through field survey of the existing prevalent diseases in the locality and facilities for treatment.
- Number of likely hazardous operations/ jobs / activities to be identified and the number of workers to be employed in such jobs and the duration to be indicated.

b) **Anticipated Impacts**

- The list of anticipated occupational diseases due to hazardous exposures, such as silicosis, tuberculosis, pulmonary and lungs diseases etc. to be indicated.

c) **Proposed Mitigating Measures**

- Education and training to the workers about their safety and various occupational health risks and to ensure the use of personal protective equipments and steps for prevention and control of risks.
- Employment of trained doctors in occupational health risks and arrangement of referral facilities for the mine workers.
- Responsibility to compensate the workers for health impairment due to injuries or illness and provision for health insurance for the mine workers.
- Adequate budget provision for environmental and occupational health hazardous.

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10. **Additional Studies**

- Public consultation (during EIA study as well as public hearing) with the issues raised by the public and response of the project proponent to be given in tabular form.
- Risk assessment and disaster management plan to be prepared. Risk assessment should be done covering the aspects, such as roof – fall inside the mine, surface subsidence, inundation, failure of mine benches, surface fire, accidents due to explosives, earth moving machinery and blasting etc.

11. **Environment Management Plan (EMP) and Post-Project Monitoring Programme**

- Description of the administrative and technical set-up, i.e. EMP implementation organizational structure for ensuring that mitigative measures are implemented and their effectiveness monitored after obtaining environmental clearance from the Sate Level Environmental Impact Assessment Authority (SEIAA).
- Environment management plan of the mining lease area on 1:50,000 scale within 500 meters of the boundary and contour lines at 10 meters intervals, indicating all surface features, area occupied by mine workings, area deforested, area covered by dumps (with height), processing plant, surface buildings, mining workshop, area reclaimed and afforested and course of discharge of mine water.
- Post project hydro-geological monitoring for entire mine life, restrictive monitoring thereafter during reclamation for collection of hydro-geological and hydrological data.
- Plantation monitoring programme during post-project period for ensuring survival and growth rate of plantations in reclaimed area.
- Delineation of technical aspects of environmental monitoring to examine the effectiveness of the adopted EMP and scientific mining measures (including measurement methodologies, frequency, location, data analysis, reporting schedules emergency procedures, detailed budget and procurement schedules) and to take corrective steps, if necessary.

12. **Executive Summary / Summary EIA**

The executive summary shall consist of gist of all relevant details chapter-wise of the EIA report and EMP. The executive summary will give a prima-facie idea about the objectives of the project, ore/OB to be generated and end use/value addition, anticipated environmental impacts of the project activities on ambient air, water land, noise and bio-diversity their impacts and mitigating measures thereto, socio-economic aspects of the area and corporate social responsibility (CSR) and Environment Management Plan (EMP). It should be co-related to the details given in EIA report and EMP. It should be precise and self sufficient and condensed to ten A-4 size pages at the maximum.

13. The EIA report should includes the specified methodology to be adopted for collection and analysis of 12 air quality parameters as per the Central Pollution Control Board Notification No. B-29016/20/90/PCI-L dated 18th November 2009 published in the

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Gazette of India Part III-Section 4 No 217 Extraordinary. The analytical methods to be followed is specified in the above notification is to be maintain the New National Ambient Air Quality Standards.

14. **This Terms of References (TORs) is valid for a period of two years from the date of issue of TORs for submission of the EIA/EMP report after public consultation.(This is in confirmatory to the MoEF, Govt. of India office memorandum No. J-11013/41/2006-IAII(I) dt. 22.3.10).**

ITEM NO. :- 3

PROPOSAL FOR PRODUCTION OF 0.3 MILLION TPA OF IRON ORE AND 12000 TPA OF MANGANESE OF KHAJURDIHI BLADIHI IRON & MANGANESE IN THE DISTRICT OF SUNDARGARH OF M/S. MATADIN SHARDA. (MODIFICATION OF TOR OBTAINED FROM MOEF, GOVT. OF INDIA FOR HIGHER CAPACITY).

The proposal was considered by the SEAC to determine the modification of TOR obtained from MOEF, govt. of India for higher capacity for taking detailed EIA study for the purpose of obtaining environmental clearance in accordance with the provisions of the EIA notification, 2006 project. Proponent had submitted information in the prescribed format (Form-I) along with feasibility report and ToR issued by MoEF. The first mining operation was started on 01.01.1948 after grant of lease on 31.08.1947 and the lease was valid up to 30.08.1967. The lease was then renewed from 31.08.1967 to 30.08.1987. During this period the lease was transferred in favour of Matadin Sharda on 24.08.1986 from Mining Corporation of India, Calcutta and application for second renewal applied for the period of 20 years from 31.08.1987 to 30.08.2007. The application for third renewal of the mining lease for the period from 31.08.2007 to 30.08.2027 has been applied on 24.08.2006. The Lessee modified and approved Mining Plan for production of 0.3 million TPA of Iron Ore and 12,000 TPA of Manganese Ore. ToR was issued by the MoEF for 64,000 TPA of Iron Ore and 12,000 TPA of Manganese Ore production. Since the mining plan approved for higher capacity, the lessee prepared the REIA & EMP Report for 0.3 MTPA of Iron Ore and 12,000 TPA of Manganese Ore and requested SEAC to amend the ToR.

Considering the information furnished and presentation made by the consultant M/s. **ERS(I) Pvt. Ltd., Bhubaneswar** the SEAC opined that the earlier approved ToR was for lower production and suggested to issue fresh TOR for production of 0.3 MTPA of Iron Ore and 12,000 TPA of Manganese Ore as per the following :

Introduction

- Profile of the project proponent and background to establish the financial and entrepreneurial competency to undertake the project.
- Genesis and objectives of the project.
- Brief description of nature, size, location of the project and its need and importance to the region and country's economic development and end use/value addition (if any) of the mined minerals.
- Past performance records including environmental protection measures for existing industries seeking expansion.
- Status and stage of regulatory clearances like approval of mining plan, forestry clearance and other statutory clearances (water use) essential before starting mining activities.
- Litigation / court case, if any, pending relating to the project.
- Validity of lease transfer from MCI to M/s. Matadin Sharda and present status of lease may be given.

2. **Project Description**

- A site map to 1:50,000 scale, presenting project location and recent features of the area (core zone and buffer zone) with the help of satellite imagery (NRSA) showing relevant details like habitation, forest, water bodies, drainage pattern including contours at not more than 15 meters scale, heritage sites, and environmentally sensitive objects and areas such as, reserve / protected forest, national park, sanctuary, biosphere reserve, elephant / tiger sanctuaries / migrating corridors etc.
- Mining area dimensions, year wise mining plan, production of over burden (OB) and OB dump sites, conceptual mine plan for every five years period for the life of mine, mine closure plan and production capacity both present and planned, land use pattern.
- **Details of Mining**

  Estimation of probable/estimated mineral reserves, Method of Mining, proposed working depths, proposed manpower, employment product size and reduction if any sound pollution due to mining activities, blasting control measures, OB solid waste with quantity and angle of repose, authenticated ground water contour plan (both pre and post monsoon), impact of mining on hydrology of core and buffer zones intersecting ground water level & optimal utilization/value addition utilization of the associated minerals, steps to ensure through benefication process.

3. **Air Environment (for Core and Buffer Zone)**

a) **Baseline Status**

- Climate and Metrological baseline data obtained from the nearest IMD station for the area (core and buffer zone).

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- Location (distance and direction) of monitoring stations considering environmentally / ecologically sensitive areas.
- Climatological data in respect of temperature, humidity, wind speed and direction, wind rose and rainfall for the study period (03 months non-monsoon season).
- Air pollutants such as : SPM, RSPM, SO2, NOx, CO traces of heavy metals (Fe, Mn, Pb) etc. in core and buffer zone as per CPCB specifications (NAAQS).
- Existing and expected fugitive emissions in and around the area of mining transport, stacking, ore processing/ beneficiation and their impact on flora and fauna of the region.
- Impact of fugitive emissions on flora and fauna.

b) **Anticipated Impacts**

- Prediction of impacts on ambient air quality using appropriate mathematical models (ISCST or FDM models).
- Existing air quality data and prediction of emissions of SPM, RSPM, SO_2, NOx, CO to be presented in tabular form.

Sl. No	Location of Monitoring station (Name, Distance & Directions)	Background level	Predicted concentration	Resultant concentration	Air quality standard

c) **Proposed Mitigating Measures**

- Mitigating measures to lower the emissions of pollutants and to maintain the air quality.
- Mitigating measures to contain impact of fugitive emissions on flora and fauna.
- Scientific ore mining/ handling/transport methods to reduce the dust emissions from point and other likely sources.

4. **Noise Environment**

a) **Baseline Status**

- Day time and night time noise levels.
- Noise levels, i.e. Leq.(day) and Leq.(night) for each station in core zone and buffer zone along with applicable standards.
- Noise levels due to mining activities, ore processing units, beneficiation plant and transportation routes separately.
- Vibrations caused due to blasting operations.
- Locations of monitoring stations in accordance with direction and distance from the source preferably at the same air quality monitoring sites.

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b) **Anticipated Impacts**

- Impacts of vibrations on the surrounding environment including damage to materials and structures.
- Impacts due to noise levels generated by existing and proposed activities in relation to human environment and wild life including avi-fauna.
- Impacts due to present and future surface transportation activities by road/rail / conveyor belt, if any.
- Impact of noise levels an auditory function, i.e. hearing activity.

c) **Proposed Mitigating Measures**

- Identification and adoption of mitigating measures for noise abatement including noise barriers for point sources and line sources; Regular maintenance of machineries/vehicles for noise reduction.
- Measures to minimize effect of vibration due to blasting.
- Evaluation of adequacy of the proposed pollution control devices periodically to minimize occupational exposure and to suggest modifications, if any, as a continuous process.

5. **Water Environment**

a) **Baseline Status:**

- Rainfall, runoff and sedimentation data from nearby reputed institution including IMD station should be collected.
- Details of existing water bodies like rivers, nallahs, lakes, springs and reservoirs etc. within core and buffer zones and likely to be changes in drainage pattern created due to mining.
- Physico-chemical, biological, bacteriological and radiological characterization of surface and ground water both upstream and downstream with reference to mining lease area.
- Authenticated ground water level of the area and if mining will be intersecting ground water, indicate radius of influence from the mine pit.
- Ground water recharge potential including rain water harvesting, recharge and water balance of the area for present and future use.
- Water requirement and waste water production from mine lease area, mining township, ore processing and beneficiation plants and other facilities.
- Waste water treatment, recycling and reuse of effluent.

b) **Anticipated Impacts:**

- Impact on water sources due to shifting of water courses, if any.

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- Impact of water withdrawal on surface water / ground water.
- Impact of mining on hydrology with special reference to a situation when mining will intersect ground water.
- Impact on withdrawal of surface / ground water below the threshold level of replenishment.
- Impact of mining activities including tailing ponds on surface and ground water quality.

c) **Proposed Mitigating Measures**

- Model study for prediction of ground water contamination and suggested mitigating measures to minimize the pollution level.
- Construction of gully checks, check dams, sedimentation ponds, settling tanks, water retaining walls and weirs, subsequent treatment and recycle.
- Management of waste water sources, viz. industries, workshop, township etc. to contain the adverse impact on water resources in core and buffer zones.
- Details of mitigation steps to contain adverse impacts on water table in case of mining intersecting ground water.
- Construction of rain water harvesting structures and treatment before recharge/reuse to maintain the water level.
- Steps to make use of the existing water bodies and water bodies likely to be created as a result of mining activity both in core and buffer zones by fishiculture, irrigation and recreational facilities.

6. **Land Environment**

a) Baseline Status

- Collection of soil samples from monitoring stations, their textures, physico-chemical and micro biological characterization, water holding capacity, porosity, toxic contaminants and sodium absorption ratio (SAR) for both core and buffer zone.
- Study of pre-mining load use pattern, cropping pattern, vegetation cover etc. using remote sensing techniques (if available) and ground truthing and through secondary data sources.
- Determination of leaching properties of OB samples to define the load of heavy metal pollutants on runoff water.

b) **Anticipated Impacts**

- Estimation of anticipated impacts of proposed mining activity on topography, water drainage pattern, land use pattern with respect to agriculture, forestry and fisheries.
- Impact of leachate water from overburden on surface and ground water quality.
- Impact of mining activity on the fertility status of soil in the study area.

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- Prediction of ground water pollution due to seepage of pollutants through soil column.
- Impact of mining on local biodiversity and forest cover.

c) **Proposed Mitigating Measures**

- Scientific mining methods to mitigate the impacts of mining activity on land resource.
- Delineation of mine closure plan to rehabilitate the mined out land to restore its earlier land use pattern.
- Model study for potential soil erosion from core and buffer zones for planning preventive measures.
- Methods for treatment and disposal of domestic solid wastes.
- Selection of suitable local plant species for green belt development in and around mine sites, ore processing plant and beneficiation plant and also an overburden dump sites and workers colony.
- Top soil conservation plan and its reutilization depending on its quality.

7. **Biological Environment :**

a) **Baseline Status**

- Biodiversity (terrestrial and aquatic).
- Assessment of plant species with respect to dominance, density, frequency and abundance within the study area.
- Collection of primary data through field survey and authenticated secondary data on fauna including avi-fauna indicating endangered and endemic species, if any, with scientific and local name as per the schedule of Wild Life (protection) Act.
- Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land.
- Collection of secondary data on fishery, agriculture, crops and irrigation facility in the study area.
- Existence of National Park, Sanctuary, Biosphere Reserve, Tiger/Elephant Reserve migratory corridor in the study area / buffer zone to be shown in the site map.
- Estimation of number and types of trees and shrubs which would be cut during deforestation for mining activity and other facility.
- Photographs showing vegetation cover before and after mining in case of ongoing mining activities and existing vegetation in case of new mine.

b) **Anticipated Impacts :**

- Impact of mining activities on forest resources, terrestrial and aquatic biodiversity, wildlife including avi-fauna, migratory corridors, endangered species and important and medicinal plants.

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- Assessment of likely damage to flora and fauna due to air emissions, noise and vibrations, vehicular movements, waste water discharges, and change in land use pattern.

c) **Proposed Mitigating Measures :**

- Afforestation greenbelt development of reclaimed mined out areas, composite of grass, shrubs and trees of native variety.
- Stabilization of mining benches and overburdens by development of vegetation cover over them.
- Scientific conservation plan for protection and conservation of flora, fauna including endangered species of the area.
- Delineation and implementation of pollution control measures with respect to air emissions, noise and vibrations, vehicular movements and waste water discharges etc. impacting biotic environment.

8. **Socio – Economic Environment :**

a) **Baseline Status :**

- Demographic survey and collection of baseline data on human settlement, health and education status of the community and existing infrastructural facilities for social welfare including sources of livelihood job opportunities, agriculture and forest products etc. of the area (Core Zone and Buffer Zone).
- Socio economic profile of the people within 2,5 and 10 kms of buffer zone.

b) **Anticipated Impacts :**

- Impacts of the mining activities on the cropping pattern and crop productivity within 2km of the core zone on the sources of livelihood and land holding of the people, on the cattle grazing lands and access to the roads frequented by them and possible migration/displacement of people.

c) **Proposed Mitigating Measures**

- Corporate Social Responsibility (CSR) should not be treated only as philanthropy, rather it should be the corporate mission and individual social responsibility of the project proponent. They should be a partner in the regional development
- Mitigating measures should take into account the needs of the people of the area based on primary data as obtained through Need Assessment Survey / Study (NAS). Certain welfare schemes can be dovetailed with identical / related/ similar schemes being executed by various Govt. departments / agencies in the area.
- Adequate compensation should be given to the people for loss of land / loss of crops / loss of surface rights due to mining activities.
- Details of employment potential – skilled, semi-skilled and un-skilled.

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9 **Occupational Health Environment**

a) **Baseline Status**

- Primary / secondary data through field survey of the existing prevalent diseases in the locality and facilities for treatment.
- Number of likely hazardous operations/ jobs / activities to be identified and the number of workers to be employed in such jobs and the duration to be indicated.

b) **Anticipated Impacts**

- The list of anticipated occupational diseases due to hazardous exposures, such as silicosis, tuberculosis, pulmonary and lungs diseases etc. to be indicated.

c) **Proposed Mitigating Measures**

- Education and training to the workers about their safety and various occupational health risks and to ensure the use of personal protective equipments and steps for prevention and control of risks.
- Employment of trained doctors in occupational health risks and arrangement of referral facilities for the mine workers.
- Responsibility to compensate the workers for health impairment due to injuries or illness and provision for health insurance for the mine workers.
- Adequate budget provision for environmental and occupational health hazardous.

10. **Additional Studies**

- Public consultation (during EIA study as well as public hearing) with the issues raised by the public and response of the project proponent to be given in tabular form.
- Risk assessment and disaster management plan to be prepared. Risk assessment should be done covering the aspects, such as roof – fall inside the mine, surface subsidence, inundation, failure of mine benches, surface fire, accidents due to explosives, earth moving machinery and blasting etc.

11. **Environment Management Plan (EMP) and Post-Project Monitoring Programme**

- Description of the administrative and technical set-up, i.e. EMP implementation organizational structure for ensuring that mitigative measures are implemented and their effectiveness monitored after obtaining environmental clearance from the Sate Level Environmental Impact Assessment Authority (SEIAA).
- Environment management plan of the mining lease area on 1:50,000 scale within 500 meters of the boundary and contour lines at 10 meters intervals, indicating all surface features, area occupied by mine workings, area deforested, area covered by dumps (with height), processing plant, surface buildings, mining workshop, area reclaimed and afforested and course of discharge of mine water.

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- Post project hydro-geological monitoring for entire mine life, restrictive monitoring thereafter during reclamation for collection of hydro-geological and hydrological data.
- Plantation monitoring programme during post-project period for ensuring survival and growth rate of plantations in reclaimed area.
- Delineation of technical aspects of environmental monitoring to examine the effectiveness of the adopted EMP and scientific mining measures (including measurement methodologies, frequency, location, data analysis, reporting schedules emergency procedures, detailed budget and procurement schedules) and to take corrective steps, if necessary.

12. **Executive Summary / Summary EIA**

The executive summary shall consist of gist of all relevant details chapter-wise of the EIA report and EMP. The executive summary will give a prima-facie idea about the objectives of the project, ore/OB to be generated and end use/value addition, anticipated environmental impacts of the project activities on ambient air, water land, noise and bio-diversity their impacts and mitigating measures thereto, socio-economic aspects of the area and corporate social responsibility (CSR) and Environment Management Plan (EMP). It should be co-related to the details given in EIA report and EMP. It should be precise and self sufficient and condensed to ten A-4 size pages at the maximum.

13. The EIA report should includes the specified methodology to be adopted for collection and analysis of 12 air quality parameters as per the Central Pollution Control Board Notification No. B-29016/20/90/PCI-L dated 18th November 2009 published in the Gazette of India Part III-Section 4 No 217 Extraordinary. The analytical methods to be followed is specified in the above notification is to be maintain the New National Ambient Air Quality Standards.

14. This Terms of References (TORs) is valid for a period of two years from the date of issue of TORs for submission of the EIA/EMP report after public consultation.(This is in confirmatory to the MoEF, Govt. of India office memorandum No. J-11013/41/2006-IAII(I) dt. 22.3.10).

ITEM NO. :- 4.

PROPOSAL FOR PRODUCTION OF 53,235 TPA OF MANGANESE ORE AT PAREDIAPADA IRON & MANGANESE MINES OF SRI K. C. PRADHAN AT VILLAGE PAREDIPADA IN THE DISTRICT OF KEONJHAR WITH MINING LEASE AREA OF 12.60 HA. (TOR).

The proposal was considered by the SEAC to determine the Terms of Reference (TOR) for taking detailed EIA study for the purpose of obtaining environmental clearance in accordance with the provisions of the EIA notification, 2006 project. Proponent had submitted information in the prescribed format (Form-I) along with feasibility report. According to the Form-I and presentations made by the proponent, the proposal is for production of 53,235 TPA of Manganese ore at Parediapada Iron & Manganese mines of SRI K. C. PRADHAN AT Paredipada in the district of Keonjhar with Mining Lease area OF 12.60 HA. The Paredipada

Iron & Manganese mines over 12.60 ha was executed on 12.06.1990 in favour of Sri K.C. Pradhan for a period of 20 years. .Renewal for the same area has been applied to Govt. of Orissa dated 14.02.2008.Out of the total lease area of 12.6 ha, 2.0356 ha is DLC forest land for which forest clearance is required. Mining plan for the period 2010-11 to 2014-15 is being approved by IBM, Govt. of India. The mine working will be opencast manual. Around 6,05, 374m3 of waste and OB will be generated during life of the mine.

Considering the information furnished and presentation made by the consultant M/s. **GEOMIN CONSULTANTS (P) LTD**, Bhubaneswar, the SEAC suggested the following TORs for undertaking detailed EIA study:

Introduction

- Profile of the project proponent and background to establish the financial and entrepreneurial competency to undertake the project.
- Genesis and objectives of the project.
- Brief description of nature, size, location of the project and its need and importance to the region and country's economic development and end use/value addition (if any) of the mined minerals.
- Past performance records including environmental protection measures for existing industries seeking expansion.
- Status and stage of regulatory clearances like approval of mining plan, forestry clearance and other statutory clearances (water use) essential before starting mining activities.
- Litigation / court case, if any, pending relating to the project.

2. **Project Description**

- A site map to 1:50,000 scale, presenting project location and recent features of the area (core zone and buffer zone) with the help of satellite imagery (NRSA) showing relevant details like habitation, forest, water bodies, drainage pattern including contours at not more than 15 meters scale, heritage sites, and environmentally sensitive objects and areas such as, reserve / protected forest, national park, sanctuary, biosphere reserve, elephant / tiger sanctuaries / migrating corridors etc.
- Mining area dimensions, year wise mining plan, production of over burden (OB) and OB dump sites, conceptual mine plan for every five years period for the life of mine, mine closure plan and production capacity both present and planned, land use pattern.
- **Details of Mining**

  Estimation of probable/estimated mineral reserves, Method of Mining, proposed working depths, proposed manpower, employment product size and reduction if any sound pollution due to mining activities, blasting control measures, OB solid waste with quantity and angle of repose, authenticated ground water contour plan (both pre

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and post monsoon), impact of mining on hydrology of core and buffer zones intersecting ground water level & optimal utilization/value addition utilization of the associated minerals, steps to ensure through benefication process.

3. **Air Environment (for Core and Buffer Zone)**

a) **Baseline Status**

- Climate and Metrological baseline data obtained from the nearest IMD station for the area (core and buffer zone).
- Location (distance and direction) of monitoring stations considering environmentally / ecologically sensitive areas.
- Climatological data in respect of temperature, humidity, wind speed and direction, wind rose and rainfall for the study period (03 months non-monsoon season).
- Air pollutants such as : SPM, RSPM, SO2, NOx, CO traces of heavy metals (Fe, Mn, Pb) etc. in core and buffer zone as per CPCB specifications (NAAQS).
- Existing and expected fugitive emissions in and around the area of mining transport, stacking, ore processing/ beneficiation and their impact on flora and fauna of the region.
- Impact of fugitive emissions on flora and fauna.

b) **Anticipated Impacts**

- Prediction of impacts on ambient air quality using appropriate mathematical models (ISCST or FDM models).
- Existing air quality data and prediction of emissions of SPM, RSPM, SO_2, NOx, CO to be presented in tabular form.

Sl. No	Location of Monitoring station (Name, Distance & Directions)	Background level	Predicted concentration	Resultant concentration	Air quality standard

c) **Proposed Mitigating Measures**

- Mitigating measures to lower the emissions of pollutants and to maintain the air quality.
- Mitigating measures to contain impact of fugitive emissions on flora and fauna.
- Scientific ore mining/ handling/transport methods to reduce the dust emissions from point and other likely sources.

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4. **Noise Environment**

a) **Baseline Status**

- Day time and night time noise levels.
- Noise levels, i.e. Leq.(day) and Leq.(night) for each station in core zone and buffer zone along with applicable standards.
- Noise levels due to mining activities, ore processing units, beneficiation plant and transportation routes separately.
- Vibrations caused due to blasting operations.
- Locations of monitoring stations in accordance with direction and distance from the source preferably at the same air quality monitoring sites.

b) **Anticipated Impacts**

- Impacts of vibrations on the surrounding environment including damage to materials and structures.
- Impacts due to noise levels generated by existing and proposed activities in relation to human environment and wild life including avi-fauna.
- Impacts due to present and future surface transportation activities by road/rail / conveyor belt, if any.
- Impact of noise levels an auditory function, i.e. hearing activity.

c) **Proposed Mitigating Measures**

- Identification and adoption of mitigating measures for noise abatement including noise barriers for point sources and line sources; Regular maintenance of machineries/vehicles for noise reduction.
- Measures to minimize effect of vibration due to blasting.
- Evaluation of adequacy of the proposed pollution control devices periodically to minimize occupational exposure and to suggest modifications, if any, as a continuous process.

5. **Water Environment**

a) **Baseline Status:**

- Rainfall, runoff and sedimentation data from nearby reputed institution including IMD station should be collected.
- Details of existing water bodies like rivers, nallahs, lakes, springs and reservoirs etc. within core and buffer zones and likely to be changes in drainage pattern created due to mining.

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- Physico-chemical, biological, bacteriological and radiological characterization of surface and ground water both upstream and downstream with reference to mining lease area.
- Authenticated ground water level of the area and if mining will be intersecting ground water, indicate radius of influence from the mine pit.
- Ground water recharge potential including rain water harvesting, recharge and water balance of the area for present and future use.
- Water requirement and waste water production from mine lease area, mining township, ore processing and beneficiation plants and other facilities.
- Waste water treatment, recycling and reuse of effluent.

b) **Anticipated Impacts:**

- Impact on water sources due to shifting of water courses, if any.
- Impact of water withdrawal on surface water / ground water.
- Impact of mining on hydrology with special reference to a situation when mining will intersect ground water.
- Impact on withdrawal of surface / ground water below the threshold level of replenishment.
- Impact of mining activities including tailing ponds on surface and ground water quality.

c) **Proposed Mitigating Measures**

- Model study for prediction of ground water contamination and suggested mitigating measures to minimize the pollution level.
- Construction of gully checks, check dams, sedimentation ponds, settling tanks, water retaining walls and weirs, subsequent treatment and recycle.
- Management of waste water sources, viz. industries, workshop, township etc. to contain the adverse impact on water resources in core and buffer zones.
- Details of mitigation steps to contain adverse impacts on water table in case of mining intersecting ground water.
- Construction of rain water harvesting structures and treatment before recharge/reuse to maintain the water level.
- Steps to make use of the existing water bodies and water bodies likely to be created as a result of mining activity both in core and buffer zones by fishiculture, irrigation and recreational facilities.

6. **Land Environment**

a) Baseline Status

- Collection of soil samples from monitoring stations, their textures, physico-chemical and micro biological characterization, water holding capacity, porosity, toxic contaminants and sodium absorption ratio (SAR) for both core and buffer zone.
- Study of pre-mining load use pattern, cropping pattern, vegetation cover etc. using remote sensing techniques (if available) and ground truthing and through secondary data sources.
- Determination of leaching properties of OB samples to define the load of heavy metal pollutants on run off water.

b) **Anticipated Impacts**

- Estimation of anticipated impacts of proposed mining activity on topography, water drainage pattern, land use pattern with respect to agriculture, forestry and fisheries.
- Impact of leachate water from overburden on surface and ground water quality.
- Impact of mining activity on the fertility status of soil in the study area.
- Prediction of ground water pollution due to seepage of pollutants through soil column.
- Impact of mining on local biodiversity and forest cover.

c) **Proposed Mitigating Measures**

- Scientific mining methods to mitigate the impacts of mining activity on land resource.
- Delineation of mine closure plan to rehabilitate the mined out land to restore its earlier land use pattern.
- Model study for potential soil erosion from core and buffer zones for planning preventive measures.
- Methods for treatment and disposal of domestic solid wastes.
- Selection of suitable local plant species for green belt development in and around mine sites, ore processing plant and beneficiation plant and also an overburden dump sites and workers colony.
- Top soil conservation plan and its reutilization depending on its quality.

7. **Biological Environment :**

a) **Baseline Status**

- Biodiversity (terrestrial and aquatic).
- Assessment of plant species with respect to dominance, density, frequency and abundance within the study area.

- Collection of primary data through field survey and authenticated secondary data on fauna including avi-fauna indicating endangered and endemic species, if any, with scientific and local name as per the schedule of Wild Life (protection) Act.
- Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land.
- Collection of secondary data on fishery, agriculture, crops and irrigation facility in the study area.
- Existence of National Park, Sanctuary, Biosphere Reserve, Tiger/Elephant Reserve migratory corridor in the study area / buffer zone to be shown in the site map.
- Estimation of number and types of trees and shrubs which would be cut during deforestation for mining activity and other facility.
- Photographs showing vegetation cover before and after mining in case of ongoing mining activities and existing vegetation in case of new mine.

b) **Anticipated Impacts :**

- Impact of mining activities on forest resources, terrestrial and aquatic biodiversity, wildlife including avi-fauna, migratory corridors, endangered species and important and medicinal plants.
- Assessment of likely damage to flora and fauna due to air emissions, noise and vibrations, vehicular movements, waste water discharges, and change in land use pattern.

c) **Proposed Mitigating Measures :**

- Afforestation greenbelt development of reclaimed mined out areas, composite of grass, shrubs and trees of native variety.
- Stabilization of mining benches and overburdens by development of vegetation cover over them.
- Scientific conservation plan for protection and conservation of flora, fauna including endangered species of the area.
- Delineation and implementation of pollution control measures with respect to air emissions, noise and vibrations, vehicular movements and waste water discharges etc. impacting biotic environment.

8. **Socio – Economic Environment :**

a) **Baseline Status :**

- Demographic survey and collection of baseline data on human settlement, health and education status of the community and existing infrastructural facilities for social welfare including sources of livelihood job opportunities, agriculture and forest products etc. of the area (Core Zone and Buffer Zone).
- Socio economic profile of the people within 2,5 and 10 kms of buffer zone.

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b) **Anticipated Impacts :**

- Impacts of the mining activities on the cropping pattern and crop productivity within 2km of the core zone on the sources of livelihood and land holding of the people, on the cattle grazing lands and access to the roads frequented by them and possible migration/displacement of people.

c) **Proposed Mitigating Measures**

- Corporate Social Responsibility (CSR) should not be treated only as philanthropy, rather it should be the corporate mission and individual social responsibility of the project proponent. They should be a partner in the regional development
- Mitigating measures should take into account the needs of the people of the area based on primary data as obtained through Need Assessment Survey / Study (NAS). Certain welfare schemes can be dovetailed with identical / related/ similar schemes being executed by various Govt. departments / agencies in the area.
- Adequate compensation should be given to the people for loss of land / loss of crops / loss of surface rights due to mining activities.
- Details of employment potential – skilled, semi-skilled and un-skilled.

9 **Occupational Health Environment**

a) **Baseline Status**

- Primary / secondary data through field survey of the existing prevalent diseases in the locality and facilities for treatment.
- Number of likely hazardous operations/ jobs / activities to be identified and the number of workers to be employed in such jobs and the duration to be indicated.

b) **Anticipated Impacts**

- The list of anticipated occupational diseases due to hazardous exposures, such as silicosis, tuberculosis, pulmonary and lungs diseases etc. to be indicated.

c) **Proposed Mitigating Measures**

- Education and training to the workers about their safety and various occupational health risks and to ensure the use of personal protective equipments and steps for prevention and control of risks.
- Employment of trained doctors in occupational health risks and arrangement of referral facilities for the mine workers.
- Responsibility to compensate the workers for health impairment due to injuries or illness and provision for health insurance for the mine workers.
- Adequate budget provision for environmental and occupational health hazardous.

10. **Additional Studies**

- Public consultation (during EIA study as well as public hearing) with the issues raised by the public and response of the project proponent to be given in tabular form.

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- Risk assessment and disaster management plan to be prepared. Risk assessment should be done covering the aspects, such as roof – fall inside the mine, surface subsidence, inundation, failure of mine benches, surface fire, accidents due to explosives, earth moving machinery and blasting etc.

11. **Environment Management Plan (EMP) and Post-Project Monitoring Programme**

- Description of the administrative and technical set-up, i.e. EMP implementation organizational structure for ensuring that mitigative measures are implemented and their effectiveness monitored after obtaining environmental clearance from the Sate Level Environmental Impact Assessment Authority (SEIAA).
- Environment management plan of the mining lease area on 1:50,000 scale within 500 meters of the boundary and contour lines at 10 meters intervals, indicating all surface features, area occupied by mine workings, area deforested, area covered by dumps (with height), processing plant, surface buildings, mining workshop, area reclaimed and afforested and course of discharge of mine water.
- Post project hydro-geological monitoring for entire mine life, restrictive monitoring thereafter during reclamation for collection of hydro-geological and hydrological data.
- Plantation monitoring programme during post-project period for ensuring survival and growth rate of plantations in reclaimed area.
- Delineation of technical aspects of environmental monitoring to examine the effectiveness of the adopted EMP and scientific mining measures (including measurement methodologies, frequency, location, data analysis, reporting schedules emergency procedures, detailed budget and procurement schedules) and to take corrective steps, if necessary.

12. **Executive Summary / Summary EIA**

The executive summary shall consist of gist of all relevant details chapter-wise of the EIA report and EMP. The executive summary will give a prima-facie idea about the objectives of the project, ore/OB to be generated and end use/value addition, anticipated environmental impacts of the project activities on ambient air, water land, noise and bio-diversity their impacts and mitigating measures thereto, socio-economic aspects of the area and corporate social responsibility (CSR) and Environment Management Plan (EMP). It should be co-related to the details given in EIA report and EMP. It should be precise and self sufficient and condensed to ten A-4 size pages at the maximum.

13. The EIA report should includes the specified methodology to be adopted for collection and analysis of 12 air quality parameters as per the Central Pollution Control Board Notification No. B-29016/20/90/PCI-L dated 18th November 2009 published in the Gazette of India Part III-Section 4 No 217 Extraordinary. The analytical methods to be followed is specified in the above notification is to be maintain the New National Ambient Air Quality Standards.

14. **This Terms of References (TORs) is valid for a period of two years from the date of issue of TORs for submission of the EIA/EMP report after public consultation.(This is in confirmatory to the MoEF, Govt. of India office memorandum No. J-11013/41/2006-IAII(I) dt. 22.3.10).**

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ITEM NO. :- 5

PROPOSAL FOR 1.5 MTPA CEMENT GRINDING UNIT AT VILLAGE GHANTIKHAL, RADHYESHYAMPUR, TEHASI, ATHAGARH IN THE DISTRICT OF CUTTACK OF J.K.LAKSHMI CEMENT LTD. (TOR).

The project proponent submitted prescribed Form -1 and pre-feasibility report along with the draft TORs. It's a proposed project for a Cement Grinding unit (1.5 MTPA) with (2 x 6 MW) DG Sets (for Pozzolana Portland Cement (PPC) and Pozzolana Slag Cement (PSC), at Villages Ghantikhal & Radheyshampur, Tehsil Athagarh, District Cuttack . The required clinker will be transported from the Integrated Cement Plant, Durg to the proposed Clinker Grinding Unit either rail and road network. The proposed unit shall utilize fly ash and Slag a waste generated from the nearby Thermal Power Plants and Steels Plants**.** The total cost of the combined project is Rs154.5 crores. The land required is 119Ac. Total water requirement in 700 KLD. Source of water is ground water.

Based on the information furnished and presentation made by the consultant, **JM EnviroNet Pvt. Ltd, Gurgaon (Haryana)**, the SEAC prescribed the following TORs for undertaking detailed EIA study.

1 Present land use of study area for 10 Km radius should be included.

2 One season (other than monsoon) site-specific meteorological data shall be provided. The AAQ data for the period may be given along with the dates of monitoring. The parameters to be covered shall include PM10, PM 2.5 , SO_2 NOx and Ozone (ground level). The location of the monitoring stations should be so decided as to take into consideration the predominant downwind direction, population zone and sensitive receptors including reserved forests. There should be at least one monitoring station in the upwind direction.

3 Collection of baseline data on air, water, soil, noise, flora, fauna etc. for one season other than monsoon.

4 Ambient air quality monitoring modeling for cement grinding unit

5 Sources of secondary emissions, its control and monitoring as per the CPCB guidelines.

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

7 Site-specific micro-meteorological data including inversion height and mixing height

8 Water balance cycle data including quantity of effluent to be generated, recycled and reused and discharged.

9 Efforts made to minimize use of ground water. An action plan should be provided. Ground water monitoring minimum at 8 locations.

10 Action plan for surface as well as roof top rainwater harvesting and ground water

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recharge.

11 Scheme of proper storage and handling of ash, gypsum and clinker.

12 Fugitive emissions and control technologies should be provided.

13 Impact of transportation of raw materials and the details of mitigation measures should be included.

14 The proponent proposes to use 100% of their fly ash as fillers . The proponent shall clarify the extent of production of OPC/PPC/PSC grade cement in their works and in which grade the fly ash is proposed to be used and to what extent.

15 Land requirement for the project to be optimized. Item-wise break up of land requirement and its availability to be furnished .

16 Details of rainwater harvesting and how it will be used in the plant shall be provided. Water conservation measures proposed in different units of operation of the project should also be given. Quantity of water requirement for the project should be optimized. Details of water balance taking into account reuse and re-circulation of effluents may be provided.

17 Risk assessment should be carried out. It should take into account the maximum inventory of storage at site at any point in time. The risk contours should be plotted on the plant layout map clearly showing which of the proposed activities would be affected in case of an accident taking place. Based on the same, proposed safeguard measures should be provided.

18 Occupational health impact and remedial measures of the project may be studied.

19 Socio-economic impacts due to project activity are to be assessed and based on the study. Developmental activities proposed to be undertaken by the project proponent to be specified. As far as possible, quantitative dimension to be given. Study should include Corporate Social Responsibility (CSR) and it should be carried out as the entry point activity as trust building measures.

20 Green belt (33%) development plan as per CPCB guidelines. EMP should include a clear map for plantation/green belt.

21 Details of location of wildlife sanctuary and national parks within 10 km radius of the plant and plan for conservation and protection of the same should be included.

22 Detailed Environment management Plan (EMP) with specific reference to details of air pollution control system, water & wastewater management, monitoring frequency, responsibility and time bound implementation plan for mitigation measure should be provided.

23 EMP should include the concept of waste-minimisation, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.

24 Any litigation pending against the project and /or any direction /order passed by any Court of Law against the project, if so, details thereof should be provided.

25 Points raised/likely to be raised during public hearing and commitment of the project

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proponent on the same may be included.

26 The EIA report should includes the specified methodology to be adopted for collection and analysis of 12 air quality parameters as per the Central Pollution Control Board Notification No. B-29016/20/90/PCI-L dated 18th November 2009 published in the Gazette of India Part III-Section 4 No 217 Extraordinary. The analytical methods to be followed is specified in the above notification is to be maintain the New National Ambient Air Quality Standards.

27 This Terms of References (TORs) is valid for a period of two years from the date of issue of TORs for submission of the EIA/EMP report after public consultation.(This is in conformity with the MoEF, Govt. of India office memorandum No. J-11013/41/2006-IAII(I) dt. 22.3.10).

Day Two : 13th January 2011

ITEM NO. :- 6.

PROPOSAL FOR DEVELOPMENT OF CHUDAMANI PORT NEAR VILLAGE BIDEIPUR, BASUDEVPUR IN THE DISTRICT OF BHADRAK OF M/S. ESSEL MINING & INDUSTRIES LTD WITH CARGO HANDLING CAPACITY 3.0 MTPA. (TOR)

The project proponent made a detailed presentation and indicated that the project involves development of port at Village : Bideipur , Taluka : Basudevpur in the district of Bhadrak . Project components will contain Barge Berth, Floating Terminal, Linked to Onshore facilities by Road-cum-Conveyer Trestle bridge ,Mechanized shore handling facility, Road Connectivity . Cargo handling capacity of the port will be 3.00 MTPA .Iron Ore and industrial raw are the major items that will be handled at the proposed port. The proposed facility include 300 m offshore jetty + 3.5 km trestle bridge over inter-tidal area. Offshore berths and trestle bridge facility will be provided for avoiding disturbance to the intertidal ecology. Spacing of trestle pile at nearly 60 ft ensures full freedom from transverse angle. Height of connecting trestle ensures ample space for avoiding intervention. No dredging will be done between LWL & HWL. All cargo handling beyond HTL, secluded by Nuna Bund.

Sl. No.	Commodity	MTPA
1	**Iron Ore**	2.5
2	**Industrial Raw Material**	0.5
	Total	3.0

The proponent has signed MOU with Govt. of Orissa for development of the port. Water requirement is estimated to be about **1000 m^3/day including sea water**. Source of water is

Mantei River 16 km from the site. Around 300ha of land area is required for development of this port.

The proposed activity is listed at 7(e) and is of B category under the schedule of EIA Notification, 2006. The project also attracts Coastal Regulation Zone Notification, 1991.

Based on the information furnished and presentation made by the consultant, **Vimta Labs Ltd, 142 IDA, Phase-II, Cherlapally, Hyderabad–500051,** the SEAC prescribed the following TORs for undertaking detailed EIA study

1. Executive summary of the project shall be provided as per EIA notification, 2006.
2. Details of dredging and the environmental impacts due to the dredging activities.
3. Details of the disposal site and the impact of such disposal on the marine environment.
4. Details of the berths indicating the impact of the construction of the berth on the marine environment.
5. Details of the construction activities that are to be taken up in the CRZ area.
6. Clearance from the State Coastal Zone Management Authority to be provided.
7. Details of the cargoes to be handled and its impact on air, water and noise pollution may be provided. Dust suppression measures for fugitive emission from coal and iron ore handling plant to be provided.
8. Details of drainage system in the berth and stackyard and the effluent treatment plant to be provided in order to treat the discharged runoff from the stackyard.
9. Details of the environmental monitoring programme may be given.
10. Details of the impact of the port on other infrastructures including the road/rail Master Plan indicating the proposed project and anticipated development for the coming 15 years may be given.
11. Details of waste generation from various sources to be provided along with the treatment facilities including sewage treatment facilities.
12. Detailed EMP report with proposed financial outlays to be provided.
13. Details of the marine structures and the impact of the structures on the shoreline.
14. Details of the water resources for construction and operation of the project and approval from the Competent Authority for drawal of water.
15. Details of transportation and its impact during transportation of the stone and other construction materials for the construction of port facilities.
16. Details of the quarries from where the construction material are to be obtained.

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17. Details of reclamation to be undertaken for the project and the terrestrial ecology to be studied where reclamation is proposed.

18. Details of monitoring of the impact on marine ecology (Phytoplankton, Zooplankton pheophytine, benthos and other micro-organism etc.) and shoreline changes during operation of the project.

19. Public hearing points likely to be raised and commitment of the project proponent on the same may be included.

20. Impact of dredging, vessel movement and other post operation on the overall marine productivity of the area may be assessed.

21. Details of the safety measures to be taken keeping in view the depression /cyclonic conditions in the sea may be given.(Disaster Management Plan)

22. Baseline status, anticipated environmental impacts and proposed mitigating measures for terrestrial and marine and aquatic environment within study area (10 km radius) to be provided.

23. Development of coastal afforestation /green belt along the shore line to prevent / mitigate impact of cyclonic storms etc. and improve the environment /ecology in the area.

24. Definite improvement of socio-economic status of local villages in the study area as per CSR activities ,commitments and fund provisions details.

25. Study on littoral drift in and around the port area should be made and predicted based on mathematical model.

26. Copy of No Objection Certificate from the Department of Defence Govt. of India regarding establishment of the port should be submitted.

27. The EIA report should includes the specified methodology to be adopted for collection and analysis of 12 air quality parameters as per the Central Pollution Control Board Notification No. B-29016/20/90/PCI-L dated 18th November 2009 published in the Gazette of India Part III-Section 4 No 217 Extraordinary. The analytical methods to be followed is specified in the above notification is to be maintain the New National Ambient Air Quality Standards.

28. **This Terms of References (TORs) is valid for a period of two years from the date of issue of TORs for submission of the EIA/EMP report after public consultation.(This is in conformity with the MoEF, Govt. of India office memorandum No. J-11013/41/2006-IAII(I) dt. 22.3.10).**

ITEM NO. :- 7.

ENVIRONMETAL CLEARANCE FOR CONSTRUCTION OF HI-TECH MEDICAL COLLEGE & HOSPITAL PROJECT AT ROURKELA IN THE DISTRICT OF SUNDARGARH WITH BUILT-UP AREA OF 92378.7 M3 (EC)

The building and construction projects are listed at S.N. 8(a) of schedule under 'B' category of EIA notification, 2006 and are to be appraised by SEAC. The project proponent submitted prescribed Form - **Form 1, Form 1A and the conceptual plan**. It's a proposed

Institution and Health Care Facilities. The proposed multi specially hospital has B+G+5 storied building with **300 beds** and **Hostels and Staff Quarters Near hanuman Vatika, Rourkela** , Orissa. The Built up area is **92379** Sq.m. The cost of project is **Rs. 80 Crore**. Applicant gave a presentation on the salient features of the project. The proponent has applied for all statutory clearances like supply of 100m3/day water to PHD (the rest 85m3 of water required shall be met from recycle), solid waste management to RDA, Bio-medical waste disposal to a NGO, Fire clearance to the Fire Dept. etc. There is no provision for incineration facility. It is proposed to treat 122KLD effluents generated containing bio-medical effluents with the help of a STP of 122KLD capacity. Technical analysis of inputs and outputs at each stage is not given nor presented.

After detailed deliberations, the SEAC observed the following.

1. The proponent has failed to furnish certain basic information /document as sought vide letter No 751 dt.24.12.10 at the time of presentation.

2. Water withdrawal permission during both construction and operational phases has been applied to CGWB. But use of ground water during construction phase shall not be permitted since no recharge is done during the phase. Water from PHD source may be used during operational phase, permission for which is to be produced.

3. Management of 150kg/day pathological and other sensitive bio-medical solid wastes is proposed to be done through an agency certified by the OSPCB. There was no detail on their facilities and competence. (The Committee would like to evaluate their facilities since a number of housing and medical projects have named the agency to handle their solid wastes and STP sludge.)

4. A part of the solid waste generated is proposed to be composted with no detail on space and end use is shown.

5. It is proposed to employ a 122KLD ETP for the same amount of effluents generated daily with no standby arrangements during failures or maintenance. The proposal has been prepared casually since no commercial supplier would design, construct, supply, install such an unit of exactly 122KLD capacity. This shows the seriousness of the proponent for such an important aspect of the project.

6. The presentation and documents submitted relating to STP were not satisfactory, especially on details of treatment of wastes generated from OTs and indoor facilities. The grey and other effluents are not segregated nor separate arrangements for supply of treated water (85KLD) for flushing is shown.

7. A part of the treated waste water (pg. 35) is proposed to be drained into municipal sewer, which is not permissible. Flow of storm and rainwater from the premises are not shown in diagram with relative topography. Storage and treatment of such water may be planned for reuse in horticulture to reduce consumption of fresh water.

8. Details of plantation like species, their survival rate and space for planting on 10,517m^2(13% of total land area) are not shown.

9. It is not clear as to how fly ash will be used in concrete. Use of fly ash bricks up to at least 33% may be adopted to reduce pressure on red bricks consuming productive top soil and silt.

10. Details of fire fighting and prevention arrangements in a 300 bedded medical college and hospital catering to thousands of patients in addition to housing hundreds of students, faculties and other auxiliary staff daily are not planned in consultation with Fire Dept. except for general statements like compliance with NBC and local bylaws.

11. Two DG sets of 750KVA capacity with ~300KLD HS diesel consumption are proposed to be placed. No place in the plan, nor safe storage, handling of the inflammable fuel nor fugitive emissions are shown. The design of proposed >30m high chimney for the DG sets is lacking.

12. Parking area of 25,418m^2 is proposed with only one entry and one exit, but exact location with respect to traffic management in different wings like OPD, indoors and college are not shown. Movement of fire fighting vehicles needs certain clear space and clear entry/exit points as per NBC, which are not shown.

13. Source of meteorological data, AAQ details and the fall out modeling with respect to expected emission levels are not included.

The above observations show that the proposal has been prepared in a casual manner without paying much attention to the essential features necessary for the EIA/EMP of the hospital and medical college of serious public concern and interest. Most of the statutory clearances are pre-requisites for consideration of EC since Form 1A of EC application is prescribed for this purpose. The SEAC decided to ask the proponent to come for a final presentation of the proposal to clarify the above observations of the SEAC for consideration of Environmental clearance.

ITEM NO. :- 8

FINAL APPRAISAL FOR EC FOR PRODUCTION OF 1 LAKH TPA OF MANGANESE ORE OVER AN AREA 40.226 HA. AT BHUTUDA MANGANESE ORE MINES IN SUNDARGARH DISTRICT OF M/S. AXL EXPLORATION PVT. LTD (EC).

The proposal is for production of of 1 lakh TPA of manganese ore over an area 40.226 ha. at Bhutuda manganese ore mines in Sundargarh district of M/s. AXL Exploration Pvt. Ltd. The Bhutuda Manganese Ore Mine is an existing mine over 40.226 Ha of M/S AXL Exploration ltd is in the village Bhutuda, Koira Tehsil, Sundergarh dist of Orissa. The mining started in

1984.The mine lease of 40.469 was granted in favour of T.P.Minerals Ltd, renewal application filed on 11.07.2003 & subsequently transferred to AXL Exploration (P) Ltd. As per the recent ROR the lease area revised to 99.40 acres, Since then all the purpose of now the ML area will be 99.40 acres or 40.226 ha During 1996, the total lease area was considered as DLC forest land, out of which only 16.37 Ha has been utilized for earlier mining activities. Forest clearance proposal is under process. Modification of Mining plan with mine closure plan was approved on 25.03.09. Mine working will be opencast semi-mechanized involving drilling and blasting. Water requirement is 50 KLD and source will be ground water.Mine has obtained clearance from CGWA for drawal of water vide letter No 30.10.09**.** The drainage is towards **Kuradhi River is the nearest water body and all natural drainage is connected to it**. The life of the mine will be 21 years. The TOR has been issued by SEIAAA vide **Letter No. 01 dated 07.07.2009 .** The public hearing was conducted on **08.07.10**. Representative of **M/s. Geomin Consultants, Bhubaneswar** made a presentation for the EC for production **1 LAKH TPA OF MANGANESE ORE**.

Based on the information/document furnished, the SEAC recommended for grant of environmental clearance in favour of the project for a period of 5 (five) years with the following stipulated conditions.

i) The applicant (Project proponent) will take necessary measures for prevention, control and mitigation of Air Pollution, Water Pollution, Noise Pollution and Land Pollution including solid waste management as mentioned by him in Form-1, Final EIA reports and Environment Management Plan (EMP) in compliance with the prescribed statutory norms and standards.

ii) The applicant will take necessary steps for socio-economic development of the people of the area on need based assessment for providing employment, education, health care, drinking water and sanitation, road and communication facilities etc.

iii) The applicant will comply to the points, concerns and issues raised by the people during public hearing on 08.07.2010 in accordance with the commitments made by him thereon.

iv) The applicant will take statutory clearance/approval/permissions from the concerned authorities in respect of his project as and when required.

v) For post environmental clearance monitoring, the applicant will submit half-yearly compliance report in respect of the stipulated terms and conditions of Environmental Clearance to the State Environmental Impact Assessment Authority (SEIAA), Orissa on 1st June and 1st December of each calendar year.

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vi) The core zone should be monitored intensively with no. of stations as prescribed by CPCB, Delhi and unit of pollutant level should be expressed as NAAQ of CPCB, Delhi. The detailed methodology adopted for analysis of samples shall be clearly indicated.

vii) The proponent shall submit baseline data on flora & fauna and CSR activities already carried out within three months to the SEIAA.

viii) Adequate buffer zone shall be maintained between two consecutive mineral bearing deposits.

ix) Zero waste mining concept shall be implemented by dispose of low grade ores/fines to prospective buyers.

x) The following shall be implemented viz. (a) dump run-off should be diverted into settling ponds (b) adequate rain water harvesting and ground water recharging facilities should be developed in the core zone; (c) attempt should be made to achieve zero water balance.

xi) Maintenance of roads through which transportation of ores are undertaken shall be carried out by the project proponent regularly at its own cost.

xii) Fugitive dust generation shall be controlled. Fugitive dust emission shall be regularly monitored at locations of nearest human habitation (including schools and other public amenities located nearest to sources of dust generation as applicable) and records shall be submitted to the SEIAA, Orissa.

xiii) Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.

xiv) Transportation of ore shall be done by covering the trucks with tarpaulin or other suitable mechanism so that no spillage of ore / dust takes place.

xv) Rain water harvesting shall be undertaken to recharge the ground water source.

xvi) Monitoring of ground and surface water quality shall be regularly conducted and records should be maintained and data shall be submitted regularly to the SEIAA, Orissa.

xvii) The proponent shall ensure that no silt originating due to mining activity is transported in the surface water course. Measures for prevention and control of soil erosion and management of silt shall be undertaken. Protection of dumps against erosion shall be carried out with geo textile matting or other suitable material, and thick plantations of native trees and shrubs shall be carried out at the dump slopes. Dumps shall be protected by retaining walls.

xviii) Trenches / garland drains shall be constructed at foot of dumps to arrest silt from being carried to water bodies. Adequate number of Check Dams shall be constructed across seasonal/perennial nallahs (if any) flowing through the ML area and silts be arrested. De- silting at regular intervals shall be carried out.

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xix) Provision shall be made for the housing of the labourers within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

xx) Occupational health and safety measures for the workers including identification of work related health hazards, training on malaria eradication, HIV, and health effects on exposure to mineral dust etc. shall be carried out. The Proponent shall engage a full time qualified doctor who is trained in occupational health. Periodic monitoring for exposure to respirable mineral dust on the workers shall be conducted and records maintained including health records of the workers. Awareness programme for workers on impact of mining on their health and precautionary measures like use of personal equipments etc. shall be carried out periodically. Review of impact of various health measures undertaken (at interval of five years or less) shall be conducted followed by follow up action wherever required. Occupational Health Centre shall be established near the mine site itself.

xxi) Shelter belt i.e Wind Break of 15 m width and consisting of at least 5 tiers around lease facing the human habitation, school / agricultural fields etc. (if any in the vicinity), in the safety zone/ back-filled & reclaimed areas, around voids & roads shall be raised. Green belt development and selection of plant species shall be as per CPCB guidelines. Density of the trees has to be around 2500 plants per hectare. Herbs and shrubs shall also form a part of afforestation programme besides tree plantation. Help & guidance of local DFO may be sought in the matter. Details of year wise afforestation programme including rehabilitation of mined out area shall be submitted to the SEIAA, Orissa within six months.

xxii) This Environmental clearance is subject to Forest clearance under the Forest (Conservation) Act, 1980.

xxiii) The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table.

xxiv) The top soil shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long (not more than 3 years). The topsoil shall be used for land reclamation and plantation.

xxv) The over burden (OB) generated during the mining operation shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time and its phase-wise stabilization shall be carried out. Proper terracing of OB dump shall be carried out so that the overall slope shall not exceed 28^0 Backfilling shall be done as per approved mining plan. Back-filling to start from 3^{rd} year onwards of the mining operation & the entire quantity of waste generated shall be backfilled & liquidated within five years. There shall be no external over-burden dumps after the 6^{th} year of the mining operation. The backfilled area shall be afforested. Back-filling has to be done in a manner that it is restored to the normal ground level. Monitoring & management of rehabilitated areas should continue till the vegetation is established & becomes self-generating. Compliance status to be reported to the appropriate authorities.

xxvi) The funds earmarked for the environment protection measures shall be judiciously

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utilized. Under no circumstances this funds shall be diverted for other purposes. Year-wise expenditure for this fund should be reported to the SEIAA, Orissa.

xxvi) The critical parameters in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.

xxvii) A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the SEIAA 5 years in advance of final mine closure for approval.

xxviii) The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water) required for the project.

xxix) The project proponent shall prepare wild life conservation plan in consultation with DFO and adequate safety and mitigation measures should be incorporated to protect the wild life, flora, fauna to mitigate adverse impact.

xxx) The above mentioned stipulated conditions shall be complied in time bound manner. Failure to comply with any of the conditions mentioned above may result in withdrawal of this environmental clearance and attract action under the provisions of Environment Protection (EP) Act, 1986**.**

ITEM NO. :- 9

ENVIONMENTAL CLEARANCE FOR ENHANCEMENT OF PRODUCTION OF IRON ORE UPTO 80,000 TPA WITH CRUSHING AND SCREENING UNIT OF 120 TPH CAPACITY OVER AN AREA OF 31.693 HA. FO CHAMAKPUR IRON ORE MINES OF SRI K. C. PRADHAN IN CHAMAKPUR VILLAGE OF KEONJHAR DISTRICT

The proposal is for production of Iron ore upto 80,000TPA, Iron Ore production with crushing and screening plant 120 TPH. The mine lease area is 31.693 ha. Out of total ML area **31.313 ha** is forest land and Stage –II forest diversion proposal was approved vide l**etter no.8-90/98- FC, Dated;15 Feb 2000.**. Mine working will be opencast semi-mechanized involving drilling and blasting. Water requirement is 45 KLD and source will be ground water. Mine has obtained clearance from CGWA for drawal of water vide l**etter No. 21-4 (206)/CGWA/SER/2009-2137 Dated : 26.07. 2010.** The iron ore pit going to the depth of 12m from the surface **i.e. upto 538 m AMSL, however the lowest contour (531m AMSL) of the area will not be touched during mining operation.** The drainage is towards **Baitarani River, at a distance of 2 kms** . The mining scheme approved by IBM vide for the proposed production

capacity vide l**etter.No.MS/OTF/MECH/57/ORI/BHU/2009-10, dated 05.05.2010**. The life of the mine will be 7 years. The TOR has been issued by MoEF vide **Letter No.J.11015/1151/2007-IA.II(M) dated 18.07.2008 .** The public hearing was conducted on **27.08.2010 at Chamakpur**. Representative of **M/s. Geomin Consultants** made a presentation for the EC for production enhancement to of Iron ore upto 80,000TPA, Iron Ore production with crushing and screening plant 120 TPH.

Based on the information/document furnished, the SEAC recommended for grant of environmental clearance in favour of the project for a period of 5 (five) years with the following stipulated conditions.

i) The applicant (Project proponent) will take necessary measures for prevention, control and mitigation of Air Pollution, Water Pollution, Noise Pollution and Land Pollution including solid waste management as mentioned by him in Form-1, Final EIA reports and Environment Management Plan (EMP) in compliance with the prescribed statutory norms and standards.

ii) The applicant will take necessary steps for socio-economic development of the people of the area on need based assessment for providing employment, education, health care, drinking water and sanitation, road and communication facilities etc.

iii) The applicant will comply to the points, concerns and issues raised by the people during public hearing on 27.08.2010 in accordance with the commitments made by him thereon.

iv) The applicant will take statutory clearance/approval/permissions from the concerned authorities in respect of his project as and when required.

v) For post environmental clearance monitoring, the applicant will submit half-yearly compliance report in respect of the stipulated terms and conditions of Environmental Clearance to the State Environmental Impact Assessment Authority (SEIAA), Orissa on 1st June and 1st December of each calendar year.

vi) The core zone should be monitored intensively with no. of stations as prescribed by CPCB, Delhi and unit of pollutant level should be expressed as NAAQ of CPCB, Delhi. The detailed methodology adopted for analysis of samples shall be clearly indicated.

vii) The proponent shall submit baseline data on flora & fauna and CSR activities already carried out within three months to the SEIAA.

viii) Adequate buffer zone shall be maintained between two consecutive mineral bearing deposits.

ix) Zero waste mining concept shall be implemented either by putting up pelletisation plant or dispose of low grade ores/fines to prospective buyers.

x) The following shall be implemented viz. (a) dump run-off should be diverted into settling ponds (b) adequate rain water harvesting and ground water recharging

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facilities should be developed in the core zone; (c) attempt should be made to achieve zero water balance.

xi) Maintenance of roads through which transportation of ores are undertaken shall be carried out by the project proponent regularly at its own cost.

xii) Fugitive dust generation shall be controlled. Fugitive dust emission shall be regularly monitored at locations of nearest human habitation (including schools and other public amenities located nearest to sources of dust generation as applicable) and records shall be submitted to the SEIAA, Orissa.

xiii) Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.

xiv) Transportation of ore shall be done by covering the trucks with tarpaulin or other suitable mechanism so that no spillage of ore / dust takes place.

xv) Rain water harvesting shall be undertaken to recharge the ground water source.

xvi) Monitoring of ground and surface water quality shall be regularly conducted and records should be maintained and data shall be submitted regularly to the SEIAA, Orissa.

xvii) The proponent shall ensure that no silt originating due to mining activity is transported in the surface water course. Measures for prevention and control of soil erosion and management of silt shall be undertaken. Protection of dumps against erosion shall be carried out with geo textile matting or other suitable material, and thick plantations of native trees and shrubs shall be carried out at the dump slopes. Dumps shall be protected by retaining walls.

xviii) Trenches / garland drains shall be constructed at foot of dumps to arrest silt from being carried to water bodies. Adequate number of Check Dams shall be constructed across seasonal/perennial nallahs (if any) flowing through the ML area and silts be arrested. De- silting at regular intervals shall be carried out.

xix) Provision shall be made for the housing of the labourers within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

xx) Occupational health and safety measures for the workers including identification of work related health hazards, training on malaria eradication, HIV, and health effects on exposure to mineral dust etc. shall be carried out. The Proponent shall engage a full time qualified doctor who is trained in occupational health. Periodic monitoring for exposure to respirable mineral dust on the workers shall be conducted and records maintained including health records of the workers. Awareness programme for workers on impact of mining on their health and precautionary measures like use of

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personal equipments etc. shall be carried out periodically. Review of impact of various health measures undertaken (at interval of five years or less) shall be conducted followed by follow up action wherever required. Occupational Health Centre shall be established near the mine site itself.

xxi) Shelter belt i.e Wind Break of 15 m width and consisting of at least 5 tiers around lease facing the human habitation, school / agricultural fields etc. (if any in the vicinity), in the safety zone/ back-filled & reclaimed areas, around voids & roads shall be raised. Green belt development and selection of plant species shall be as per CPCB guidelines. Density of the trees has to be around 2500 plants per hectare. Herbs and shrubs shall also form a part of afforestation programme besides tree plantation. Help & guidance of local DFO may be sought in the matter. Details of year wise afforestation programme including rehabilitation of mined out area shall be submitted to the SEIAA, Orissa within six months.

xxii) This Environmental clearance is subject to Forest clearance under the Forest (Conservation) Act, 1980.

xxiii) The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table.

xxiv) The top soil shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long (not more than 3 years). The topsoil shall be used for land reclamation and plantation.

xxv) The over burden (OB) generated during the mining operation shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time and its phase-wise stabilization shall be carried out. Proper terracing of OB dump shall be carried out so that the overall slope shall not exceed 28^0 Backfilling shall be done as per approved mining plan. Back-filling to start from 3^{rd} year onwards of the mining operation & the entire quantity of waste generated shall be backfilled & liquidated within five years. There shall be no external over-burden dumps after the 6^{th} year of the mining operation. The backfilled area shall be afforested. Back-filling has to be done in a manner that it is restored to the normal ground level. Monitoring & management of rehabilitated areas should continue till the vegetation is established & becomes self-generating. Compliance status to be reported to the appropriate authorities.

xxvi) The funds earmarked for the environment protection measures shall be judiciously utilized. Under no circumstances this funds shall be diverted for other purposes. Year-wise expenditure for this fund should be reported to the SEIAA, Orissa.

xxvi) The critical parameters in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.

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xxvii) A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the SEIAA 5 years in advance of final mine closure for approval.

xxviii) The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water) required for the project.

xxix) The project proponent shall prepare wild life conservation plan in consultation with DFO and adequate safety and mitigation measures should be incorporated to protect the wild life, flora, fauna to mitigate adverse impact.

xxx) The above mentioned stipulated conditions shall be complied in time bound manner. Failure to comply with any of the conditions mentioned above may result in withdrawal of this environmental clearance and attract action under the provisions of Environment Protection (EP) Act, 1986**.**

ITEM NO. :-10

DISCUSSION WITH TECHNICAL EXPERT OF ADVANCE MEDICARE & RESEARCH INSTITUTE LTD (AMRI), KHANDAGIRI, BHUBANESWAR FOR CONSIDERATION OF ENVIRONMENTAL CLEARANCE.

The building and construction projects are listed at S.N. 8(a) of schedule under 'B' category of EIA notification, 2006 and are to be appraised by SEAC. The project proponent submitted prescribed Form - **Form 1, Form 1A and the conceptual plan**. It's a proposed – a multi specialty hospital project. The proposed multi specially hospital has B+G+5 storied building with 313 beds and 234 Nursed and dormitory beds at Khandagiri, Bhubaneswar, Orissa. The Built up area is 37,485 Sqm . Applicant aided by the consultant gave a presentation on the salient features of the project on 11th and 12th August ,.2010. The SEAC decided to consider grant of environmental clearance after submission of certain information/supportive data in the EMP. The proponent was called for discussion with technical expert of ETP Supplier after evaluation of the compliance furnished by the proponent. The proponent came with the ETP expert for discussion.

The SEAC was not fully satisfied on the following two observations.

a) Inadequacy and unsuitability of the proposed ETP process to process biomedical effluents
b) Adequate space for plantation.

After detailed deliberations, the SEAC recommended to issue conditional EC for a period of five years with the following conditions .

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I. GENERAL CONDITIONS

i) The applicant (Project proponents) will take necessary measures for prevention, control and mitigation of Air Pollution, Water Pollution, Noise Pollution and Land Pollution including solid waste and bio-medical waste management as mentioned by them in Form-1, Form-1A, and Environment Management Plan (EMP) in compliance with the prescribed statutory norms and standards.

ii) The applicant will take statutory clearance/approval/permissions from the concerned authorities in respect of the project as and when required.

iii) The applicant will submit half-yearly compliance report for post-environmental clearance monitoring in respect of the stipulated terms and conditions in the Environmental Clearance to the State Environmental Impact Assessment Authority (SEIAA), Orissa, on 1st June and 1st December of each calendar year.

iv) The project proponent shall obtain Periodic Occupancy Renewal Certificate from competent authority at an interval of 3 to 5 years as per the provisions of National Building Code(NBC) 2005.

v) The project proponent shall comply to all the condtions stipulated by the Fire Prevention Officer, Orissa.

vi) The applicant will adopt the prescribed norms, specifications and standards as provided in the National Building Code of India, 2005, specially relating to :

- a) Fire protection and life safety of occupants of the buildings.
- b) Safety of personnel during construction, operation and demolition of buildings.
- c) Day lighting and natural ventilation of buildings.
- d) Safety from electrical fire, shock and lightening of the buildings.
- e) Air-conditioning, heating and mechanical ventilation of the buildings
- f) Acoustics and noise control of the buildings.
- g) Maintenance and functioning with emissions from generators supplying power to common space / residential in case of power failure along with fuel handling /storage.
- h) Installation of lifts and escalators in the buildings.
- i) Water supply, drainage and sanitation including solid waste management.
- j) Landscaping of surrounding areas of the buildings.

II. SPECIAL CONDITIONS

A. CONSTRUCTION PHASE.

(i) No ground water shall be extracted for the project work at any stage during construction phase.

(ii) Provision shall be made for the housing of construction laborers within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

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(iii) A First-Aid Room will be provided in the project site both during construction and operation of the project.

(iv) All the top soil excavated during construction activities should be stored separately for use in land filling, horticulture/landscape development within the project site.

(v) Disposal of muck during construction phase should not create any adverse effect on the neighboring communities and will be disposed off taking the necessary precautions for general safety and health aspects of people only in approved sites with the approval of competent authority.

(vi) Soil and ground water samples will be tested to ascertain that there is no threat to ground water quality by leaching of heavy metals and other toxic contaminants.

(vii) Construction spoils, including bituminous material and other hazardous materials should not be allowed to contaminate watercourses, ground water and dump sites by following safe dumping / disposal practice as per statutory rules and norms with necessary approval of the Orissa Pollution Control Board.

(viii) The diesel generator sets to be used during construction phase shall be low sulfur diesel type and should conform to Environment (Protection) Rules 1986 prescribed for air and noise emission standards.

(ix) The diesel required for operating DG sets shall be stored in underground tanks and, if required, clearance from the Chief Controller of Explosives shall be taken.

(x) Vehicles used for bringing construction materials to the site should be in good condition and should have a pollution check certificate and conform to statutory air and noise emission standards and should be operated only during non-peak hours of the day.

(xi) Ambient noise levels should conform to residential standards both during day and night. Incremental pollution loads on the ambient air and noise quality should be closely monitored during construction phase. Adequate measures should be taken to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by CPCB/ OPCB.

(xii) Fly ash bricks should be used as building material in the construction as per the provisions of Fly Ash Notification of September, 1999 and as amended thereafter.

(xiii) Ready mixed concrete would be used in building construction.

(xiv) Storm water control and its re-use should be as per CGWB and BIS standards for these applications.

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(xv) Water demand during construction should be optimized by adopting best practices without compromising quality.

(xvi) Separation of grey and black water supplies and collection should be done by the use of dual plumbing line. Grey and black water should be treated separately before recycling/ reuse.

(xvii) Fixtures for showers, toilet flushing and drinking water should be of low flow type and restricted to requirements by use of aerators, avoiding wastage pressure reducing devices or sensor based controls.

(xviii) Use of glass may be maximum upto 40% of total outer wall area to reduce the energy consumption and load on air-conditioning. If necessary, high quality double glass with special reflective coating may be used in the windows.

(xix) Roof should meet the prescribed requirement as per Energy Conservation Building Code by using appropriate thermal insulation material.

(xx) Opaque wall should meet prescriptive requirements as per Energy Conservation Building Code.

(xxi) The approval of the competent authority shall be obtained for structural safety of the buildings due to earthquake and cyclone, adequacy of fire fighting equipments etc. as per National Building Code of India, 2005 including protection measures from lightening etc.

(xxii) Regular supervision of the above and other measures for monitoring should be in place all through the construction phase to avoid disturbances and pollution to the surroundings.

B. <u>OPERATION PHASE.</u>

i) The ETP to treat effluents from the hospital unit (both outdoor and indoor facilities) and STP for kitchen/domestic effluents should be separate and with suitable technology to render the treatment process effective and reuse of processed water possible.

ii) Tertiary treatment is proposed to be done through provision of sand, activated filters and UV exposure, which should be strictly followed and the output water quality recorded daily at 6hrly intervals for an year to see the workability of the process.

iii) ETP/STP sludge processing and subsequent safe disposal with microbial quality monitoring should be strictly adhered to.

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iv) The Hospital should have their own incineration facility with all required air pollution control measures to ensure safe disposal of biomedical solid wastes rather than pass on the same to an agency whose facilities are not checked.

v) The installation of the Sewage Treatment Plant (STP) should be certified by a competent agency and a report in this regard should be submitted to the SEIAA, Orissa before the project is commissioned for operation. Treated effluent from STP shall be recycled/reused to the maximum extent possible. Treatment of 100% grey water by decentralized treatment should be done. Discharge of unused treated effluent shall conform to the norms and standards of the Orissa State Pollution Control Board. Necessary measures should be taken to mitigate the odour problem from STP

vi) The STP sludge should not be dried nor incinerated within the project site and should be disposed off as per the norms of SPCB,Orissa.

vii) The project proponent will ensure that under no circumstances, the environment is polluted due to non-functioning / under performance of sewerage disposal system of the project. To achieve this, a stand-by STP with similar capacity should be installed to be put into service during the maintenance /over hauling of the original STP.

viii) The solid waste generated should be properly collected and segregated. Wet garbage should be disposed off to composted and dry / inert solid waste should be disposed off to a certified agency for safe disposal. Necessary approval / permission may be obtained from the concerned authorities

ix) The Bio-medical waste generated shall be collected and disposed off as per the provisions of the BMW(Management &Handling) Rules ,1998 and as amended thereafter.

x) The proponent shall furnish detailed specification and design parameters of proposed incinerator within three months from the date of issue of EC.

xi) Diesel power generating sets proposed as source of back-up power for lifts elevators and common area illumination during operation phase should be of enclosed type and conform to Environment Protection (EP) rules 1986. The height of the stack of DG sets should be equal to the height needed for the combined capacity of all proposed DG sets put together. Low sulfur diesel should be used. The location of the DG sets may be decided in consultation with Orissa State Pollution Control Board. Care may be taken to avoid disposal of smoke /pollutants from DG sets in the residential area.

xii) Noise should be controlled to ensure that it does not exceed the prescribed standards. During night time, the noise levels measured at the boundary of the sites shall be restricted to the permissible levels to comply with the prevalent regulations.

xiii) Green-belt & avenue Plantation of trees over atleast 20% of the site area shall be done using native tree species/plants improving greenery & keeping in view aesthetics considerations in the whole campus. Professional landscape architects should be engaged to design the green layout to provide for multi tier plantation and green fencing all around, mitigating various environmental parameters like dust, noise, emissions etc. and pathway for joggers.

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xiv) Rain water harvesting for roof run- off and surface run- off, as plan submitted should be implemented. Before recharging the run off, pre-treatment must be done to remove suspended matter, oil, grease and other soluble components as per norms. Rainwater recharge should be through specified recharge pits of required numbers. The surface runoff water should be stored suitably treated and reused for land scaping. The bore-well for rainwater recharging should be kept at least 5 mts. above the highest ground water table. The technology may preferably be adopted from a commercial firm with performance guarantee.

xv) Weep holes in the compound walls shall be provided to ensure natural drainage of excessive rain water in the project area during the monsoon period after the harvesting operations. Care must be taken so that there is no water logging in the territory and drainage is 100%.

xvi) The ground water level and its quality should be monitored regularly in consultation with Central / State Ground Water Authority.

xvii) Traffic congestion near the entry and exit points from the roads adjoining the proposed project site must be avoided . Traffic congestion shall be avoided inside the project site. The area ear marked for parking shall not be used for any other purpose. Alternate entry and exit must be provided to handle excess traffic and emergency situations.

xviii) A Report on the energy conservation measures confirming to energy conservation norms finalized by the Bureau of Energy Efficiency should be prepared incorporating details about building materials & technology, R & U Factors etc and submitted to the SEIAA, Orissa in three months time before operation/ habitation.

xix) Provisions of solar hot water storage / supplies at the roof top may be made as per statutory norms of CPCB/MoEF/SPCB, Orissa.

xx) Energy conservation measures like installation of CFLs/TFLs for lighting the areas outside the building should be integral part of the project design and should be in place before project commissioning. Used CFLs and TFLs should be properly collected and disposed off/sent for recycling as per the prevailing guidelines/ rules of the regulatory authority to avoid toxic contamination. Use of solar panels may be adopted to the maximum extent possible, especially for street lights.

xxi) The building blocks should have adequate distance between them to allow movement of fresh air and passage of natural light, air and ventilation.

xxii) The funds earmarked for the environment protection measures shall be judiciously utilized. Under no circumstances this funds shall be diverted for other purposes like Annual allocation and maintenance / monitoring etc. and expenditure for this fund should be reported to the SEIAA, Orissa.

xxiii) The need of the local people should be appropriately addressed in the CSR activities to be undertaken by the project proponent in the area. An action plan in this regard should be prepared and submitted to SEIAA, Orissa.

The above mentioned stipulated conditions shall be complied in time-bound manner. Failure to comply with any of the conditions mentioned above may result in cancellation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

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ITEM NO. : - 11

RECONSIDERATION OF PROPOSAL FOR EC FOR CONSTRUCTION OF RESIDENTIAL CUM COMMERCIAL HOUSING PROJECT OF M/S. UTKAL BUILDERS LTD AT GOUTAM NAGAR, BHUBANESWAR.

Shri Subash Bhura, Managing Director, M/s. Utkal Builders Pvt. Ltd, Virayatan, 777 Sahid Nagar, Bhubaneswar-7 filed the W.P.(c) No. 20897/2010 before the Hon'ble High Court, Orissa for quashing of the letter dt. 16.11.10 issued by the BDA and seeking direction to issue environmental clearance for construction of residential-cum-marketing complex at Goutamnagar, Bhubaneswar. In the said W.P., Secretary, SEAC, Orissa is O.P. No. 5. The petition was disposed of by the Hon'ble High Court, Orissa with a direction to the petitioner to appear before the Secretary, SEAC on 17.1.2011 and in that event, the Secretary shall take a decision on the same within four weeks thereafter. After the decision is taken and due recommendation is made by the SEAC, the SEIAA shall take a decision on such recommendation within four weeks thereafter. It was decided to held next meeting of the committee on 17th January, 2011 to discuss legal matter of M/s Utkal Builders, Goutam Nagar, Bhubaneswar

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(DR. SWOYAM PRAKASH ROUT)
MEMBER, SEAC

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