

Speed Post

F. No. J-11015/421/2015-IA-II (M)
Government of India
Ministry of Environment, Forest & Climate Change
Impact Assessment Division

3rd Floor, Vayu Wing,
Indira Paryavaran Bhawan,
Jorbagh Road, Aliganj,
New Delhi-110 003
E-mail: sridhar-mef@nic.in
Tele: 011-24695304

Dated: 28th January, 2016

To,

M/s Mahanadi Coalfields Limited (MCL)
PO: Jagruti Vihar, Burla,
District: sambalpur-768020 Odisha
Telephone:0663-2542084
E-mail: cgmenvt2014@gmail.com

Sub.: Mining of Mineral Sand from Mandapal Sand Mine in River Brahmani with proposed production capacity of 0.25 million m³/annum by M/s Mahanadi Coalfields Limited (MCL), located at Village-Nizigarh Zami and Gopinathpur, Tehsil-Talcher, District-Angul, Odisha (MLA 17.805 ha)-Environmental Clearance regarding.

Reference: Online Application IA/OR/MIN/30611/2013

Sir,

This has reference to your online application for the above mentioned proposal of M/s Mahanadi Coalfields Limited (MCL), Sambalpur for mining of Sand (Minor Mineral) from Mandapal Sand Mine with proposed annual production capacity of 0.25 million m³ (ROM). The mine has a lease area of 17.805 ha and is located at Village- Nizigarh Zami and Gopinathpur, Tehsil: Talcher and District: Angul, State: Odisha. The mine lease area lies in Brahmani River bed. The Latitudes and Longitudes of the mine lease area lies between 20^o56'19"N to 20^o55'34"N and 85^o14'08"E to 85^o14'13"E, respectively, on Survey of India top-sheet numbers F45T1(73 H/1). The Project is located in Seismic zone-II. It is category B project but since it falls within 5 km radius of notified critically polluted area of Angul-Talcher area in Odisha, hence is treated as Category 'A' Project.

2. It was informed by PP that they have applied as per the EIA notification 2006 (and its amendment) to the SEIAA, Odisha the details of which are given below:

Sl.No.	Particulars	Date
1	Application made in Form-I with relevant documents & requisite fees to SEIAA vide letter No.4724, dtd.19.02.2013.	19.02.2013
2	Presentation for TOR was made before SEAC as per their letter No.529/SEAC-(MISC)-02,	21.05.2013

	dt.13.05.2013.	
3	TOR issued by Secretary, SEAC, Odisha and advised for submission of draft EIA/EMP vide letter No.1125/SEAC-142, dt.19.06.2013	19.06.2013
4	Submission of draft EIA/EMP and application for PH to Member Secretary, OSPCB	04.09.2014
5	Date of conduct of PH	02.04.2015
6	Minutes of PH received from OSPCB vide Memo No.8410, dt.22.5.15	22.05.2015
7	Final EMP was submitted to SEIAA	11.06.2015
8	SEIAA intimated for final appraisal & PPT presentation vide letter No.445/SEAC-(MISC)-02, dtd.13.7.15	13.07.2015
9	PPT presentation made before SEAC as per letter No.445/SEAC-(MISC)-02, dtd.13.7.15	23.07.2015
10	After the presentation, a letter received from Environmental Engineer, SEIAA, Odisha requesting to take up the proposal to MoEF New Delhi because the project site falls within 5 km of notified critically polluted area.	14.08.2015
11	Proposal resubmitted in the MoEF portal & Proposal No. IA/OR/MIN/30611/2013 assigned.	02.09.2015

After detailed deliberations of final EIA/EMP SEAC, Odisha vide letter No. 3872/SEIAA dated 14/08/15 asked M/s Mahanadi Coalfields Limited to resubmit the proposal to MoEF & CC, Govt. of India as it is category 'A' project for necessary consideration of environmental clearance. The proposal was appraised before the Expert Appraisal Committee in its 1st Meeting held during December 21-22, 2015 wherein the Committee recommended the proposal for Environmental Clearance.

3. It was informed by PP that sand is urgently required for stabilization of underground workings over which Talcher Town is situated and different bodies like National Human Rights Commission (NHRC), Director General of Mine Safety (DGMS), State Government, Local representatives, public etc. are pressing hard for early resumption of stabilization and sand stowing in the underground workings.

4. The mine lease area is 17.805 ha which is in Brahmani River. No forest land is involved. The mining lease for mineral sand, over an area of 17.805 ha has been renewed vide letter No. 2324/SM, Bhubaneswar dated 11/03/2015 of Govt. of Odisha, Department of Steel & Mines for the period of 20 years till 31/03/2020. The Mining Plan has been approved by Ministry of Coal vide letter No.34012/4/2011-CPAM dated: 24.01.2012. Method of Mining is Strip Mining by mechanical winning of sand by hydraulic excavator loading onto tipping trucks & transport to mine (underground) for stowing & stabilization of underground mine workings. Sand will be mined out during dry season only (7 months – November to May) on exposed sand deposits in the river bed. During this period, the area of the

sand quarry is free from submersion (in the western bank) and the river flows away from the deposit as the flow of water is to one side of the bank (in the eastern side). A 50m sand barrier against the river bank will be left un-mined for protection of the bank. Sand will be won along the deposit of exposed sand banks in a strip of 20 m width and 1.81 m depth. The sand won from the river-bed will be transported to the end-use colliery sites viz: the abandoned underground (UG) mines - Deulbera Colliery (4-5 km), Handidhua Colliery (6-7 km), and working UG mines - Talcher Colliery (8-9 km) and Nandira Colliery (16-17 km) by trucks.

5. The proponent submitted that the sand mining will be in strip cutting sequence which will not block the normal course of water flow, hence the downstream users will not be affected. Sand excavated will be replenished every year in natural course as the mining operation will be suspended during monsoon (June to October). This has been established from the fact that, no lowering of sand bed was observed during the past 20 years of mining in the area by MCL. Creation of shallow pit is temporary disruption of landscape. No lowering of the river bed or non-availability of sand has been noticed during the last twenty years of sand mining in this area. The site elevation is 69.88m to 71.45m AMSL. The Ground water depth varies from Less than 3.40 m bgl to about 13.15 m bgl in pre-monsoon season and varies from Less than 2.22 m bgl to about 7.63 m bgl in post-monsoon season. The total water requirement for the project is 86.66 KLD including water demand for domestic purpose, dust suppression and plantation development which shall be met by treated mine water from Deulbera/ Handidhua mines. Project Proponent reported that there will be construction of ramps, temporary rest shelters during operational phase and these will be removed at the time of mine closure as per the Mine Closure Plan.

6. There is no forest & Schedule-I wildlife species within the mining lease area. However, four Reserved Forests namely Kalpal RF, Gangutia RF, Petachira RF, Kandhal RF are present in the study area. As per the Ecological study from Dec. 2012 to March, 2013 conducted by Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar, Schedule -I species viz. Monitor lizard (*Varanus salvator*), Python (Python genus) and Peafowl (*Pavo cristatus*) are present in the study area. Enquiry from the locals during the study indicated that in the recent past, Elephant (*Elephas maximus*), Pangolin (*Manis crassicaudata*), Sorishiagodhi (*Varanus flavescens*), Ajar (*Genus Python*), Reticulated Python (*Genus Python*), Spotted owl (*Athene blewitti*), Grey Hornbill (*Aceros nipalensis*), Pond Turtle (*Lissemys punctata punctata*), Monitor Lizard (*Varanus salvator*), Peafowl (*Pavo cristatus*) Schedule - I species are occasionally found in the study area. The Project Proponent also stated that a Wildlife Conservation Plan is being prepared for the area under the Lingaraj Opencast Coal mining project for which EC has been granted. Since the study areas of Lingaraj OCP and the Mandapal sand mining project are largely overlapping, the Conservation Plan being prepared for Lingaraj OCP will also consider the areas under the present mining.

7. The baseline data was generated for the period during December 2013 to March 2014. The parameters for water and air quality were within permissible limits. The Committee deliberated the baseline data collected by the Project Proponent. The Public Hearing for the proposed Project was conducted on 02.04.2015 at 10.30 am at Deulbera Colliery Institute, Deulbera Colliery, Talcher, Dist. Angul. The Public Hearing was presided over by Shri Sushanta Kumar Barik, Additional District Magistrate, Angul. The issues raised during the Public Hearing were also considered and discussed during the meeting, which inter-alia, include:

give priority to local people in employment, effective implementation of measures to control dust pollution, plantation/distribution of fruit bearing tree saplings, water supply, social and other village development activities including maintenance of road. Project Proponent submitted that the public road from Madanmohan cinema hall of Talcher town to Gopinathpur / Nizigarzhami village about 3.1 km distance RCC road has been completed at a cost of 3.3 Crores. During 2015-16, 6144 numbers of fruit bearing plants were distributed to the villagers of Nizigarzhami/Gopinathpur (Mandapal) and its surrounding villagers.

8. Project Proponent reported that there is no litigation pending against the project. The Committee deliberated at length the information submitted by PP and recommended the Proposal for environmental clearance for Mining of Mineral Sand from Mandapal sand Mine of M/s Mahanadi Coalfields Limited with proposed production capacity of 0.25 Million m³/annum (ROM).

9. The Ministry of Environment, Forest & Climate Change has examined the proposal in accordance with the Environmental Impact Assessment Notification, 2006 and further amendments thereto and hereby accords the environmental clearance under the provisions thereof to the above mentioned proposal of **Mining of Mineral Sand from Mandapal Sand Mine in River Brahmani with proposed production capacity of 0.25 million m³/annum (2,50,000 Cum/annum) by M/s Mahanadi Coalfields Limited (MCL), located at Village-Nizigarh Zami and Gopinathpur, Tehsil-Talcher, District-Angul, Odisha (MLA 17.805 ha)** subject to compliance of the followings terms and conditions and environmental safeguards mentioned below:-

A. Specific conditions

- (i) Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court of Odisha and any other Court of Law, if any, as may be applicable to this project.
- (ii) Environmental clearance is subject to obtaining clearance, if any, under the Wildlife (Protection) Act, 1972 from the Competent Authority, as may be applicable to this project.
- (iii) No mining activities will be allowed in forest area, if any, for which the Forest Clearance is not available.
- (iv) The Project Proponent shall obtain Consent to Operate from the State Pollution Control Board, Odisha and effectively implement all the conditions stipulated therein.
- (v) Project Proponent shall implement the Disaster Management Plan as the mine lease area is located in Seismic Zone-II. Project Proponent shall appoint a Committee to have a check over any disaster to warn workers well before for the safety of the workers. Emergency helpline number will be displayed at all levels.
- (vi) Project Proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and records maintained; also, Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smokers, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly. Recommendations of National Institute for Labour for ensuring good occupational environment for mine workers would also be adopted; All the old age people of the surrounding villages may be provided medical facilities.

- (vii) Project Proponent shall appoint a Monitoring Committee to monitor the replenishment study, traffic management, levels of production, River Bank erosion and maintenance of Road etc.
- (viii) Transport of mineral will not be done through any of the villages.
- (ix) Project Proponent shall ensure that the road may not be damaged due to transportation of the mineral; and transport of minerals will be as per IRC Guidelines with respect to complying with traffic congestion and density.
- (x) Implementation of Action Plan on the issues raised during the Public Hearing. The Proponent shall complete all the tasks as per the Action Plan submitted with the budgetary provisions during the Public Hearing.
- (xi) Excavation will be carried out up to a maximum depth of 3 meters from surface of mineral deposit and not less than one meter from the water level of the River channel whichever is reached earlier.
- (xii) The pollution due to transportation load on the environment will be effectively controlled & water sprinkling will also be done regularly. Vehicles with PUC only will be allowed to ply. The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Project should obtain 'PUC' certificate for all the vehicles from authorized pollution testing centre.
- (xiii) Washing of all transport vehicle should be done inside the mining lease.
- (xiv) Permanent pillars has to be constructed to demarcate width of extraction of ROM leaving 25% of River width from the bank with depth of 1.5m below the ground and 1.2 m above the ground to observe its stability.
- (xv) An independent study be organised during peak activity, to understand how the actuals compare with the carrying capacities and further decisions taken to maintain sustainability of this essential sand extraction and supply activity. Project Proponent shall ensure that the road may not be damaged due to transportation of the sand; and transport of minerals will be as per IRC Guidelines with respect to complying with traffic congestion and density.
- (xvi) The pollution due to transportation load on the environment shall be effectively controlled & water sprinkling be done regularly. Vehicles with PUC only shall be allowed to ply. The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Project should obtain 'PUC' certificate for all the vehicles from authorized pollution testing centre.
- (xvii) There shall be planning, developing and implementing facility of rainwater harvesting measures on long term basis in consultation with Regional Director, Central Groundwater Board and implementation of conservation measures to augment ground water resources in the area in consultation with Central Ground Water Board.
- (xviii) Implementation of Environment Management Policy of the Company w.r.t. judicious use of Mineral resources for growth & development synchronizing mining & environment with prosperity.
- (xix) The Project Proponent shall also take all precautionary measures during mining operation for conservation and protection of endangered flora/fauna, if any, spotted in the study area.
- (xx) The illumination and sound at night at project site, disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. Project Proponent must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from

- the villagers and keeping the noise levels well within the prescribed limits for day light/night hours.
- (xxi) Main haulage road in the mine should be provided with permanent water sprinklers and other roads should be regularly wetted with water tankers fitted with sprinklers.
 - (xxii) Transportation of the minerals by road passing through the village shall not be allowed. A 'bypass' road should be constructed (say, leaving a gap of at least 200 meters) for the purpose of transportation of the minerals so that the impact of sound, dust and accidents could be mitigated. The Project Proponent shall bear the cost towards the widening and strengthening of existing public road network in case the same is proposed to be used for the Project. No road movement should be allowed on existing village road network without appropriately increasing the carrying capacity of such roads.
 - (xxiii) Likewise, Alteration or re-routing of foot paths, pagdandies, cart roads, and village infrastructure/public utilities or roads (for purposes of land acquisition for mining) shall be avoided to the extent possible and in case such acquisition is inevitable, alternative arrangements shall be made first and then only the area acquired. In these types of cases, Inspection Reports by site visit by experts may be insisted upon which should be done through reputed Institutes.
 - (xxiv) CSR activities by Companies including the Mining Establishments has become mandatory up to 2% of their financial Turn-over, Socio Economic Development of the neighborhood Habitats could be planned and executed by the Project Proponent more systematically based on the 'Need based door to door survey' by established Social Institutes/Workers. The report shall be submitted to the Ministry of Environment & Forest and its Regional Office located at Dehradun on six monthly basis.
 - (xxv) Provision shall be made for the housing of construction labour 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.
 - (xxvi) A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment, Forest & Climate Change 5 years in advance of final mine closure for approval.

B 1 : Special Conditions:

The Ministry of Environment, Forest and Climate has constituted a Committee to formulate the "Guidelines for Sustainable Sand Mining in the Country". The Guidelines, inter-alia, included the following recommendations. The Project Proponent shall implement the following special conditions so as to mitigate the environment impact of mining activities:-

Impact Category	S. No	Environmental Conditions
Stakeholder Engagement	1	In the case of private land not owned by the lease holder an affidavit should be obtained regarding consent of the concerned land owner (s) for carrying out the mining operation.
	2	Stakeholder awareness and ability to raise concerns and getting it to be addressed.

	3	Implementation of Action Plan on the issues raised during the Public Hearing. The Proponent shall complete all the tasks as per the Action Plan submitted with the budgetary provisions during the Public Hearing.
	4	Having valid lease and all the permits is very much needed.
	5	To establish a Monitoring Committee including Local Panchayat, to check on traffic due to transportation and submit an annual report on the same.
	6	The directions given by the Hon'ble Supreme Court of India vide order dated 27.02.2012 in Deepak Kumar case [SLP(C) Nos. 19628-19629 of 2009] and order dated 05.08.2013 of the Hon'ble National Green Tribunal in application No. 171/2013 may be strictly followed.
	7	All the provisions made and restrictions imposed as covered in the Minor Mineral Rule, shall be complied with, particularly regarding Environment Management Practices and its fund management and Payment of compensation to the land owners.
Sustainable Mining Practices	8	District level Survey Report should be prepared and area suitable for mining and area prohibited for mining be identified.
	9	The depth of mining in Riverbed shall not exceed one meter or water level whichever is less, provided that where the Joint Inspection Committee certifies about excessive deposit or over accumulation of mineral in certain reaches requiring channelization, it can go up to 3 meters on defined reaches of the River.
	10	No River sand mining be allowed in rainy season.
	11	To submit annual replenishment report certified by an authorized agency. In case the replenishment is lower than the approved rate of production, then the mining activity / production levels shall be decreased / stopped accordingly till the replenishment is completed.
	12	Ultimate working depth shall be up to 3 m from Riverbed level and not less than one meter from the water level of the River channel whichever is reached earlier. In hilly terrain this depth be preferably restricted to one meter.
	13	In River flood plain mining a buffer of 3 meter to be left from the River bank for mining.
	14	In mining from agricultural field a buffer of 3 meter to be left from the adjacent field.
	15	Mining shall be done in layers of 1 meter depth to avoid ponding effect and after first layer is excavated, the process will be repeated for the next layers.
	16	To maintain safety and stability of Riverbanks i.e. 3 meter or 10% of the width of the River whichever is more will be left intact as no mining zone.
	17	No stream should be diverted for the purpose of sand mining. No natural water course and/ or water resources are obstructed due to mining operations.
	18	No blasting shall be resorted to in River mining and without permission at any other place.

	19	Depending upon the location, thickness of sand, deposition, agricultural land/Riverbed, the method of mining may be manual, semi-mechanized or mechanized; however, manual method of mining shall be preferred over any other method.
Identification and Preparation of Mining Site	20	Mining should be done only in area / stretch identified in the District Level Survey Report suitable for mining and so certified by the Sub-Divisional Level Committee after site visit.
	21	Mining should begin only after pucca pillar marking the boundary of lease area is erected at the cost of the lease holder after certification by the mining official and its geo coordinates are made available to the District Level Committee.
	22	The top soil in case of surface land mining shall be stored temporarily in an earmarked site and concurrently used for land reclamation.
Monitoring the Mining of Mineral and its Transportation	23	The EC holder shall keep a correct account of quantity of mineral mined out, dispatched from the mine, mode of transport, registration number of vehicle, person in-charge of vehicle and mine plan. This should be produced before officers of Central Government and State for inspection.
	24	For each mining lease site the access should be controlled in a way that vehicles carrying mineral from that area are tracked and accounted for.
	25	The State / District Level Environment Committee should use technology like Bar Coding, Information and Communications Technology (ICT), Web based and ICT enabled services, mobile SMS App etc. to account for weight of mineral being taken out of the lease area and the number of trucks moving out with the mineral.
	26	There should be regular monitoring of the mining activities in the State to ensure effective compliance of stipulated EC conditions and of the provisions under the Minor Mineral Concessions Rules framed by the State Government.
Noise Management	27	Noise arising out of mining and processing shall be abated and controlled at source to keep within permissible limit.
	28	Restricted working hours. Sand mining operation has to be carried out between 6 am to 7 pm.
Air Pollution and Dust Management	29	The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly.
	30	Air Pollution due to dust, exhaust emission or fumes during mining and processing phase should be controlled and kept in permissible limits specified under environmental laws.
	31	The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Wheel washing facility should be installed and used.
Management of Visual Impact	32	The mining operations are to be done in a systematic manner so that the operations shall create a major visual impact on the site.
Bio-Diversity	33	Restoration of flora affected by mining should be done

Protection		immediately. Twice the number of trees destroyed by mining to be planted preferably of indigenous species. Each EC holder should plant and maintain for lease period at least 5 trees per hectare in area near lease.
	34	No mining lease shall be granted in the forest area without forest clearance in accordance with the provisions of the Forest Conservation Act, 1980 and the rules made thereunder.
	35	Protection of turtle and bird habitats shall be ensured.
	36	No felling of tree near quarry is allowed. For mining lease within 10km of the National Park / Sanctuary or in Eco-Sensitive Zone of the Protected Area, recommendation of Standing Committee of National Board of Wild Life (NBWL) have to be obtained as per the Hon'ble Supreme Court order in I.A. No. 460 of 2004.
	37	Spring sources should not be affected due to mining activities. Necessary Protection measures are to be incorporated.
Management of Instability and Erosion	38	Removal, stacking and utilization of top soil in mining are should be ensured. Where top soil cannot be used concurrently, it shall be stored separately for future use keeping in view that the bacterial organism should not die and should be spread nearby area.
	39	The EC should stipulate conditions for adequate steps to check soil erosion and control debris flow etc. by constructing engineering structures
	40	Use of oversize material to control erosion and movement of sediments
	41	No overhangs shall be allowed to be formed due to mining and mining shall not be allowed in area where subsidence of rocks is likely to occur due to steep angle of slope.
	42	No extraction of stone / boulder / sand in landslide prone areas.
	43	Controlled clearance of riparian vegetation to be undertaken
Waste Management	44	Site clearance and tidiness is very much needed to have less visual impact of mining.
	45	Dumping of waste shall be done in earmarked places as approved in Mining Plan.
	46	Rubbish burial shall not be done in the Rivers.
Pollution Prevention	47	The EC holder shall take all possible precautions for the protection of environment and control of pollution.
	48	Effluent discharge should be kept to the minimum and it should meet the standards prescribed.
Protection of Infrastructure	49	Mining shall not be undertaken in a mining lease located in 200-500 meter of bridge, 200 meter upstream and downstream of water supply / irrigation scheme, 100 meters from the edge of National Highway and railway line, 50 meters from a reservoir, canal or building, 25 meter from the edge of State Highway and 10 meters from the edge of other roads except on special exemption by the Sub-Divisional level Joint Inspection Committee.
	50	For carrying out mining in proximity to any bridge or

		embankment, appropriate safety zone (not less than 200 meters) should be worked out on case to case basis, taking into account the structural parameters, location aspects and flow rate, and no mining should be carried out in the safety zone so worked out.
	51	Mining activities shall not be done for mine lease where mining can cause danger to site of flood protection works, places of cultural, religious, historical, and archeological importance.
Enhancement of Road Safety	52	Vehicles used for transportation of sand are to be permitted only with fitness and PUC Certificates.
	53	Junction at takeoff point of approach road with main road be properly developed with proper width and geometry required for safe movement of traffic by concession holder at his own cost.
	54	Project Proponent shall ensure that the road may not be damaged due to transportation of the mineral; and transport of minerals will be as per IRC Guidelines with respect to complying with traffic congestion and density.
	55	No stacking allowed on road side along National Highways.
Closure and Reclamation of Mined Out Area	56	The Project Proponent shall undertake phased restoration, reclamation and rehabilitation of land affected by mining and completes this work before abandonment of mine.
	57	Restoration, reclamation and rehabilitation in cluster should be done systematically and jointly by each EC holder in that cluster. This should be appropriately reflected as EC condition in each EC in cluster.
	58	Site specific plan with eco-restoration should be in place and implemented.
Health and Safety	59	Health and safety of workers should be taken care of.
	60	Transport of mineral will not be done through villages / habitations.
	61	The Project Proponent shall make arrangement for drinking water, first aid facility (along with species specific anti-venom provisioning) in case of emergency for the workers.
	62	Project Proponent shall implement the Disaster Management Plan if the mine lease area is located in Seismic Zone-II. Project Proponent shall appoint a Committee to have a check over any disaster to warn workers well before for the safety of the workers. Emergency helpline number will be displayed at all levels.
	63	Project Proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and records maintained; also, Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smokers, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly. Recommendations of National Institute for Labour for ensuring good occupational environment for mine workers would also be adopted.
Monitoring the Impact	64	The Project Proponent shall report monitoring data on replenishment, traffic management, levels of production,

of Mining		River Bank erosion and maintenance of Road etc.
Mineral Conservation	65	Use of alternate material such as M-sand in place of natural River sand shall be encouraged in order to reduce stress on natural eco-system.

B-2: PROCEDURE FOR MONITORING OF SAND MINING

- (i) Project Proponent must ensure that the security features of Transport Permission viz. (a) Printed on Indian Bank Association (IBA) approved Magnetic Ink Character Recognition Code (MICR) paper; (c) Unique Barcode; (d) Unique Quick Response Code (QR); (e) Fugitive Ink Background; (f) Invisible Ink Mark; (g) Void Pantograph; (h) Watermark.
- (ii) Project Proponent must ensure that the CCTV camera, Personal Computer (PC), Internet Connection, Power Back up, access control of mine lease site; and arrangement for weight or approximation of weight of mined out mineral on basis of volume of the trailer of vehicle used at mine lease site are available.
- (iii) Project Proponent must ensure the Scanning of Transport Permit or Receipt and Uploading on Server.
- (iv) The State Mines and Geology Department should print the Transport Permits / Receipt with security features enumerated at Paragraph (i) above and issue them to the mine lease holder through the District Collector. Once these Transport Permits or Receipts are issued, they would be uploaded on the server against that mine lease area. Each receipt should be preferably with pre-fixed quantity, so the total quantity gets determined for the receipts issued. When the Transport Permit or Receipt barcode gets scanned and invoice is generated, that particular barcode gets used and its validity time is recorded on the server. So all the details of transporting of mined out material can be captured on the server and the Transport Permit or Receipt cannot be reused.
- (v) The staff deployed for the purpose of checking of vehicles carrying mined mineral should be in a position to check the validity of Transport Permit or Receipt by scanning them using website, Android Application and SMS.
- (vi) In case the Vehicle breakdown, the validity of Transport Permit or Receipt shall be extended by sending SMS by driver in specific format to report breakdown of vehicle. The server will register this information and register the breakdown. The State can also establish a call centre, which can register breakdowns of such vehicles and extend the validity period. The subsequent restart of the vehicle also should be similarly reported to the server / call centre.
- (vii) The route of vehicle from source to destination shall be tracked through the system using check points, Radio-frequency identification (RFID) Tags, and Global Positioning System (GPS) tracking.
- (viii) The system shall enable the Authorities to develop periodic report on different parameters like daily lifting report, vehicle log/ history, lifting against allocation, and total lifting. The system can be used to generate auto mails/SMS. This will enable the District Collector / Magistrate to get all the relevant details and will enable the authority to block the scanning facility of any site found to be indulged in irregularity. Whenever any authority intercepts any vehicle transporting illegal sand, it shall get registered on the server and shall be mandatory for the officer to fill in the report on action taken. Every intercepted vehicle should be tracked.

C. General conditions

- (i) No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment, Forest & Climate Change.
- (ii) No change in the calendar plan including excavation, quantum of mineral and waste should be made.
- (iii) The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and ground water for the project.
- (iv) There shall be planning, developing and implementing facility of rainwater harvesting measures on long term basis in consultation with Regional Director, Central Groundwater Board and implementation of conservation measures to augment ground water resources in the area in consultation with Central Ground Water Board.
- (v) Regular monitoring of ground water table to be carried out at the upstream and depth of water available in the dug well is to be measured. Monitoring to be done by establishing a network of existing wells and constructing new piezometers.
- (vi) Monitoring of Ambient Air Quality to be carried out based on the Notification, as amended from time to time by the Central Pollution Control Board. Water sprinkling should be increased at places loading and unloading points & transfer point to reduce fugitive emissions.
- (vii) The upliftment of scheduled caste/scheduled tribe population, specific programmes have been taken in to consideration specially with respect to education, health care, livelihood generation, infrastructure development & promotion of sports & culture for SC/ST population and that these will be intensified in future.
- (viii) The top soil, if any, shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation. The over burden (OB) generated during the mining operations shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time. The maximum height of the dumps shall not exceed 8m and width 20 m and overall slope of the dumps shall be maintained to 45°. The OB dumps should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. The entire excavated area shall be backfilled and afforested. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forest & Climate Change and its Regional Office located at Bhubaneswar on six monthly basis.
- (ix) Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and OB dumps to prevent run off of water and flow of sediments directly into the river and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly. The drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and over burden dumps to prevent run off of water and flow of sediments directly into the river and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt

- material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.
- (x) Plantation shall be raised in a 20m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, around water body, along the roads etc. by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha. Greenbelt shall be developed all along the mine lease area in a phased manner and shall be completed within first five years.
 - (xi) Dimension of the retaining wall at the toe of over burden dumps and OB benches within the mine to check run-off and siltation shall be based on the rain fall data.
 - (xii) Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of PM_{10} and $PM_{2.5}$ such as haul road, loading and unloading point and transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
 - (xiii) Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintained. Regular monitoring of water quality upstream and downstream of water bodies shall be carried out and record of monitoring data should be maintained and submitted to the Ministry of Environment, Forest & Climate Change, its Regional Office, Bhubaneswar, Central Groundwater Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.
 - (xiv) Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring shall be carried out four times in a year – pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to Ministry of Environment, Forest & Climate Change and its Regional Office, Bhubaneswar, Central Ground Water Authority and Regional Director, Central Ground Water Board.
 - (xv) The critical parameters such as PM_{10} (size less than 10 micro meter), $PM_{2.5}$ (size less than 2.5 micro meter), NO_x 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, Forest & Climate Change, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.
 - (xvi) Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for PM_{10} , $PM_{2.5}$, SO_2 & NO_x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board. Data on ambient air quality should be regularly submitted to the Ministry including

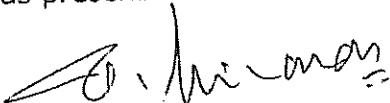
- its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.
- (xvii) Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.
 - (xviii) Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.
 - (xix) Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.
 - (xx) Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.
 - (xxi) Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
 - (xxii) A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.
 - (xxiii) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.
 - (xxiv) The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
 - (xxv) The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.
 - (xxvi) The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment, Forest & Climate Change, its Regional Office, Bhubaneswar, Central Pollution Control Board and State Pollution Control Board.
 - (xxvii) A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.
 - (xxviii) State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.
 - (xxix) The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment, Forest & Climate Change at <http://envfor.nic.in> and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubaneswar.

10. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

11. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.

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

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


(Dr. U. Sridharan)
Scientist 'F'

Copy to:

- (i) The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
- (ii) The Secretary, Department of Environment, Government of Odisha, Secretariat, Bhubaneswar.
- (iii) The Secretary, Department of Mines and Geology, Government of Odisha, Secretariat, Bhubaneswar.
- (iv) The Secretary, Department of Forests, Government of Odisha, Secretariat, Bhubaneswar.
- (v) The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
- (vi) The Additional Principal Chief Conservator of Forests, Regional Office (EZ), Ministry of Environment and Forests, A-3 Chandrashekharapur, Bhubaneswar-751023.
- (vii) The Chairman, Odisha State Pollution Control Board, Parivesh Bhawan, A/118 Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012.
- (viii) The Controller General, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440 001.
- (ix) The Member Secretary, Central Ground Water Authority, A2, W3 Curzon Road Barracks, K.G. Marg, New Delhi-110001.
- (x) The District Collector, Angul District, State of Odisha.
- (xi) Guard File.


(Dr. U. Sridharan)
Scientist 'F'