

No.J-11015/159/2015-IA-II(M)
Government of India
Ministry of Environment, Forest and Climate Change
IA-II (Coal Mining) Division

Indira Paryavaran Bhawan,
Jorbagh Road, N Delhi-3
Dated: 9th November, 2017

To,

The Chief General Manager (CP&P)
M/s Mahanadi Coalfields Limited
PO - Jagruti Vihar, Burla,
Sambalpur - 768 020 (Odisha)

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Sub: Garjanbahal Opencast Coal Mining Project of 10 MTPA (normative)/13 MTPA (peak) in a total area of 795.38 ha of M/s Mahanadi Coalfields Limited in District Sundargarh (Odisha) - Environmental Clearance - reg.

Sir,

This refers to your letter No.MCL/HQ/Environment/16-17/2493 dated 25.01.2017 along with online proposal No.IA/OR/CMIN/27260/2015, and subsequent letters/email dated 18.02.2017, 20.02.2017, 28.02.2017, 9.09.2017, 10.09.2017, 11.09.2017, 16.09.2017 and 26.09.2017 on the above-mentioned subject.

2. The Ministry of Environment, Forest and Climate Change has considered the proposal for grant of environmental clearance to the Garjanbahal Opencast Coal Mining Project of 10 MTPA (normative)/13 MTPA (peak) in a total area of 795.38 ha (ML area 653.83 ha) of M/s Mahanadi Coalfields Limited in District Sundargarh (Odisha).

3. The proposal was considered by the Expert Appraisal Committee (EAC) in the Ministry for Thermal & Coal Mining Projects in its 6th meeting held on 27-28 February, 2017 and 19th meeting held on 26th September, 2017. The details of the project, as per the documents submitted by the project proponent, and also as informed during the meeting, are reported to be as under:-

(i) The project was accorded ToR vide letter No.J-11015/159/2015-IA.II(M) dated 18th June, 2015.

(ii) The latitude and longitude of the project site are 22° 01' 16" to 22° 02' 52" North and 83° 43' 34" to 83° 45' 14" East respectively.

(iii) Benefits of the project include improvement in physical infrastructure, improvement in social infrastructure, increase in employment potential, contribution to the exchequer (both State and Central Govt.), post mining enhancement of green cover, improvement of electrical power generation and availability of electricity for 24x7 in rural areas, overall economic growth of the country, etc.



- (iv) The land use pattern of the project site will be as follows:
Pre-Mining

S. No.	Item	Forest Area (ha)	Non-Forest Area (ha)	Total Area (ha)
1.	Quarry excavation *	68.16	321.66	389.82
2.	Safety zone (7.5 m around mine boundary)	1.66	3.51	5.17
3.	Blasting danger zone (excluding the part of OB dump)(300m from mine boundary)	3.86	132.98	136.84
5.	OB Dump area (external)	1.87	60.71	62.58
5.	Infrastructure including CHP, washery, SILO point, laying of railway line for dispatch etc.	13.35	36.31	49.66
6.	Rationalization of project boundary	-	9.76	9.76
	Mining lease area	88.90	564.93	653.83
8.	Other Infrastructure	-	40.00	40.00
9.	Residential colony	-	33.05	33.05
10	Rehabilitation site	-	68.50	68.50
	Total Project Area	88.90	706.48	795.38

Post-closure land use (Core zone)						
Sl. No	Item	Land Use (ha)				
		Plantation	Water Body	Public Use	Undisturbed	Total
1	External OB Dump *	-	-	62.58	-	62.58
2	Top Soil Dump	will be spreaded concurrently in the backfilled area				
3	Excavation	88.90	233.72	67.20	-	389.82
4	Roads	Included at point no.5				
5	Built up area	9.93	-	39.73	-	49.66
6	Green Belt	32.54	-	-	109.47	142.01
7	Undisturbed Area	1.95	-	-	7.81	9.76
	Total	133.32	233.72	169.51	117.28	653.83

(v) Total geological reserve is 262.75 MT. The mineable reserve 229.25 MT, extractable reserve is 229.25 MT. The per cent of extraction would be 87.25 %.

(vi) The coal grade varies between G9 & G13. The stripping ratio is 0.98 cum/tonne. There will be 2 seams with average gradient of 3⁰-7⁰ and thickness ranging as under:

Coal seam	Thickness range (m)		Average thickness (m)
	Min.	Max.	
Lajkura-IV	1.98	18.79	13.12

Lajkua III/II Top	8.42	11.45	9.52
Lajkura III/II (M)	8.61	26.37	20.45
Lajkura III/II (B)	1.47	6.18	3.44
Lajkura I	4.80	18.86	14.81
Lajkura I Bottom	1.04	4.45	2.00
Rampur V/IV top	1.61	12.26	9.31
Rampur V/IV (M)	9.97	16.11	11.05
Rampur V/IV (B)	1.97	6.84	3.62
Rampur III (T&B)	1.69	10.07	6.15
Rampur III/II combined	7.67	15.56	11.60
Rampur II	1.45	10.73	4.24
Rampur I	1.15	5.58	2.32

(vii) Total estimated water requirement is 3.152 m³/day. The level of ground water ranges from about 1.18 m bgl to about 8.42 m bgl (buffer zone).

(viii) The method of mining: Opencast Mining by Shovel Dumper/Ripper-dozers in OB/ parting; surface miner, pay loader and tipper in coal

(ix) There are two external OB dumps proposed with quantity of 21.09 Mbcm in an area of 62.58 ha, with its height varying 90-100 m for one dump & 55-60m for another dump. This will be re-handled into the mine void during the mine closure period. In addition, and one internal dump with quantity of 202.72 Mbcm in an area of 230 ha is also proposed.

(x) Out of the total quarry area of 389.82 ha, backfilled quarry area of 156.10 ha shall be reclaimed with plantation. A void of 233.72 ha with depth varying from 0-60 m is proposed to be converted into a water body.

(xi) The life of mine is 23 Years.

(xii) Transportation: Coal transportation in pit by Dumper/ dumper & conveyor from in pit to pit head coal handling plant, Surface to Siding by Conveyor to Pre-weigh Bin and loading at siding by SILO loading & rail transport.

(xiii) There is R & R involved. There are 1291 PAFs.

(xiv) Total capital cost of the project is Rs. 1375.38 Crores. CSR Cost would be Rs.45.85 Cr. @ Rs.2/te of coal produced. R&R Cost Rs.146.07 Cr. Environmental Management Cost Rs.172.22 Cr.

(xv) River Basundhara flows at a distance of 1.8 Km; Chhaten Jhor at a distance of 1.4 Km

(xvi) MCL Board has approved the project report on 16th September, 2014. Board's approval obtained on 8th November, 2014. Mining plan and the Mine Closure Plan was approved by the Ministry of Coal on 18th July, 2014 & 27th July, 2016 respectively.

(xvii) There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.

(xviii) Total project area includes 88.90 ha of forest land within the mining lease area of 653.828 ha. Stage-I Forest clearance for the said forest land (including 1.665 ha for safety zone) has been obtained vide this Ministry's letter dated 11th September, 2017 for diversion of the forest land for non-forestry purposes

(xix) Out of the total quarry area of 389.82 ha, 88.90 ha will be afforested and the remaining 67.20 ha is proposed to be converted into agricultural land and/or public use. Green belt shall be developed over an area of 32.54 ha with the density of tree plantation 2500 trees/ ha of plants.

(xx) There are no court cases/violation pending with the project proponent.

(xxi) Employment generated/to be generated: 1567 direct employment opportunity. Beside

above indirect employment will also be generated.

(xxii) Public Hearing was held on 6th April, 2016. The issues raised during public hearing include environmental problems, employment, water sprinkling on the road, air quality, road conditions, drinking water facility etc

(xxiii) Baseline data for pre-monsoon period from 20 March-10 June 2017 has been generated by M/s CMPDIL, as per the wind-rose of IMD, Jharsuguda. The average concentration levels (24 hrly) for PM₁₀, PM_{2.5}, SO₂ and NO_x are within permissible limit of the National Ambient Air Quality Standards (NAAQS).

(xxiv) The compliance status of EC conditions for the nearby Kulda Opencast coal mine of 10 MTPA, has been forwarded by the Regional Office at Bhubaneswar vide their letter dated 25th September, 2017 based on the monitoring conducted on 8th June, 2017.

4. The Expert Appraisal Committee in its 19th meeting held on 26th September, 2017, has recommended the proposal for grant of Environmental Clearance. Based on the recommendations of the EAC, the Ministry of Environment, Forest and Climate Change hereby accords environmental clearance to **Garjanbahal Opencast Coal Mining Project of 10 MTPA (normative)/13 MTPA (peak) in a total area of 795.38 ha (ML area 653.83 ha) of M/s Mahanadi Coalfields Limited in District Sundargarh (Odisha)**, under the provisions of the Environment Impact Assessment Notification, 2006, read with subsequent amendments/circulars thereto, and subject to compliance of the terms and conditions and environmental safeguards as below:

(i) The maximum production from the mine shall not exceed the sanctioned capacity of 10 MTPA (normative)/13 MTPA (peak) as mentioned in the EC.

(ii) The validity of the EC is for the life of the Mine or as specified in the EIA Notification, 2006, whichever is earlier.

(iii) No mining shall be carried out till the proposed railway siding is operational, which is reported to be commissioned by December, 2017.

(iv) The baseline air quality has to be significantly improved and the incremental concentration due to the project shall be minimized to ensure predicted air quality within the prescribed standards.

(v) The action plan against each of the observations of the Regional Office as per their monitoring report dated 25th September, 2017 (site visit carried out on 8th June, 2017) shall be submitted to them to verify the efficacy and adequacy for true compliance of the existing EC conditions. The action taken report after its endorsement by the Regional Office shall be sent to this Ministry.

(vi) Standard Operating Procedures are required to be prepared and vetted by the company headquarters for adoption of environmental measures in course of various mining activities right from drilling, blasting to coal dispatch, and shall also be submitted to EAC for monitoring.

(vii) Transportation of coal should be carried out by covered trucks. Mitigative measures to be undertaken to control dust and other fugitive emissions all along the roads by providing sufficient numbers of water sprinklers.

(viii) Continuous monitoring of occupational safety and other health hazards, and the corrective actions need to be ensured.

(ix) Controlled blasting techniques should be adopted to control ground vibration and fly rocks.

(x) Interlocking water spraying arrangement with surface miner cutting picks shall be explored for introduction to help prevent generation of dust at source itself.



(xi) Thick green belt of 30-45 m width to be provided to mitigate/check the dust pollution. The 3-tier avenue plantation should also be developed along vacant areas, storage yards, loading/transfer points, and also along internal roads/main approach roads

4.1 The grant of EC is further subject to compliance of the generic conditions as under:

(a) Mining

(i) No change in mining technology and scope of work shall be made without prior approval of the Ministry of Environment, Forest and Climate Change. No change in the calendar plan including excavation, quantum of coal and waste should be made.

(ii) Mining shall be carried out as per the approved mining plan, and also abiding by the relevant laws related to coal mining and the circulars issued by Directorate General Mines Safety (DGMS). An approved progressive Mine Closure Plan shall strictly be complied with and submitted.

(b) Land reclamation

(i) Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment, Forest and Climate Change its Regional Office.

(ii) Final mine void depth should not be more than 40 m. The void area should be converted into water body. The remaining area should be back filled up to the ground level and covered with thick top soil. The land after mining should be restored for agriculture or forestry purpose.

(iii) 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 overburden dumps should be vegetated with suitable native species to prevent erosion and surface run off. The entire excavated area shall be backfilled and afforested in line with the approved Mine Closure Plan. 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 and Climate Change and its Regional Office on six monthly basis.

(iv) Greenbelt shall be developed all along the mine lease area in a phased manner. The width of the green belt along forest area should not be less than 7.5 m, and the total area covered by 3 tier green belt shall not be less than 100 ha. A 3-tier green belt comprising of a mix of native species shall be developed all along the major approach roads.

(c) Emissions, Effluents, and Waste Disposal

(i) Transportation of coal by road should be carried out by covered trucks only. Effective measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of PM₁₀ and PM_{2.5} such as haul road, loading and unloading point and transfer points. Fugitive dust emissions from all the sources shall be controlled regularly. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central/State Pollution Control Board in this regard.

(ii) Vehicular emissions shall be kept under control and regularly monitored. Project should obtain 'PUC' certificate for all the vehicles from authorized pollution testing centres.

(iii) Adequate ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely PM₁₀, PM_{2.5}, SO₂ and NOx.

Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc carried out at least once in six months.

(iv) Crusher/feeder and breaker material transfer points should invariably be provided with dust suppression system. Belt-conveyors should be fully covered to avoid air borne dust. Drills shall be wet operated or fitted with dust-extractors.

(v) The project proponent shall not alter the major channels around the site. Appropriate embankment should be provided along the side of the river/nallah flowing near or adjacent to the mine. The embankment constructed along the river/nallah boundary should be of suitable dimensions and critical patches should be strengthened by stone pitching on the river front side and stabilised with plantation so as to withstand the peak water flow and prevent mine inundation.

(vi) Rainwater harvesting shall be implemented for conservation and augmentation of ground water resources in the area in consultation with Central Ground Water Board.

(vii) Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, coal heaps 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. Sump capacity should provide adequate retention period to allow proper settling of silt material. Dimension of the retaining wall to be constructed at the toe of the dumps and OB benches within the mine to check run-off and siltation should be based on the rainfall data.

(viii) Industrial waste water (CHP, workshop and waste water from the mine) should be properly collected and treated so as to conform to the standards prescribed under the Environment (Protection) Act, 1986 and the Rules made there under, and as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.

(d) Noise & Vibration Control

(i) Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.

(ii) Controlled blasting techniques should be practiced with use of delay detonators to mitigate ground vibrations and fly rocks.

(e) Occupational Health & Safety

(i) Besides carrying out regular periodic health check-up of their workers, 20% of the workers identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, through an specialised agency /institution within the District/State and the results reported to this Ministry and to DGMS.

(ii) 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. Supervisory staff shall be held responsible for ensuring compulsory wearing of dust mask.

(iii) In case of outsourcing of work through MDO, the project proponent shall ensure the strict enforcement of the above conditions.

(f) Biodiversity

(i) The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna, if any, spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. A copy of action plan shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office.

(g) Implementation of Action Plan as per Public Hearing and CSR Activities

(i) Implementation of Action Plan on the issues raised during the Public Hearing shall be ensured. The Project Proponent shall complete all the tasks as per the Action Plan submitted with budgetary provisions during the Public Hearing. Land oustees should be compensated as per the norms laid out R&R Policy of the Company or the National R&R Policy or R&R Policy of the State Government, whichever is higher.

(ii) The Board of every company, shall ensure that the company spends, in every financial year, at least two per cent. of the average net profits of the company made during the three immediately preceding financial years, in pursuance of its Corporate Social Responsibility Policy under Section 135 of the Companies Act, 2013, for the socio economic development of the neighbourhood.

(h) Corporate Environment Responsibility

(i) The Company should have a well laid down Environment Policy approved by the Board of Directors.

(ii) To have proper checks and balances, the Company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large.

(iii) 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.

(iv) The funds earmarked for environmental protection measures should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office.

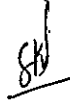
(i) Statutory Obligations

(i) Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, NGT and any other Court of Law, if any, as applicable to the project.

(ii) This Environmental Clearance is subject to obtaining requisite NBWL Clearance from the Standing Committee of National Board for Wildlife, if any, as applicable to the project.

(iii) The project proponent shall obtain Consent to Establish and Consent to Operate from the concerned State Pollution Control Board prior to increase in capacity of washery and effectively implement all the conditions stipulated therein.

(iv) Project Proponent shall obtain the necessary prior permission from the Central Ground Water Authority (CGWA) for drawl of water (surface and ground water).



(j) Monitoring of Project

(i) 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 and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board.

(ii) 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 and Climate Change, its Regional Office, Central Pollution Control Board and State Pollution Control Board.

(iii) The Regional Office of this Ministry 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.

(iv) The activities pertaining to development of green belt/horticulture shall be reported to concerned Regional Office of MoEF&CC on six monthly basis from the date of commencement of mining operations.

(v) For half yearly monitoring reports, the data should be monitored for the period of April to September and October to March of the financial years and submitted to the concerned authorities within 2 months of the completion of periodicity of monitoring.

(k) Miscellaneous

(i) 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.

(ii) An electronic copy of the EC letter shall be marked to the concerned State Pollution Control Board, Regional Office, District Industry Sector and Collector's Office/Tehsildar Office for information in public domain within 30 days.

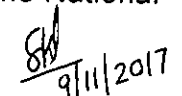
(iii) The EC letter shall be uploaded on the company's website. The compliance status of the stipulated EC conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in public domain. The monitoring data of environmental quality parameter (air, water, noise and soil) and critical pollutant such as PM₁₀, PM_{2.5}, SO₂ and NO_x (ambient) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mine office and in corporate office and on company's website.

(iv) 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 and Climate Change at www.environmentclearance.nic.in and a copy of the same should be forwarded to the Regional Office.

(v) The Environmental Statement for each financial year ending 31 March in Form-V is mandated to be submitted by the PP for the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the Company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MoEF&CC by e-mail.


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5. The proponent shall abide by all the commitments and recommendations made in the EIA/EMP report and also that during presentation to the EAC. All the commitments made on the issues raised during public hearing shall also be implemented in letter and spirit.
6. The proponent shall obtain all necessary clearances/approvals that may be required before the start of the project. The Ministry or any other competent authority may stipulate any further condition for environmental protection. The Ministry or any other competent authority may stipulate any further condition for environmental protection.
7. The proponent shall setup an Environment Cell with responsibility and accountability to ensure implementation of all the EC Conditions.
8. 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 Environment (Protection) Act, 1986.
9. 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 and any other orders passed by the Hon'ble Supreme Court of India/High Courts and any other Court of Law relating to the subject matter. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the washery operations.
10. 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.


 (S. K. Srivastava)
 Scientist E

Copy to:

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi
2. The APPCF, Regional office (EZ), MoEF&CC, A-31, Chandrashekarapur, Bhubaneswar. 751023
3. The Secretary, Department of Environment & Forest, Government of Odisha, Secretariat, Bhubaneswar
4. The Member Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi.
5. The Member Secretary, CPCB, CBD-cum-Office Complex, East Arjun Nagar, Delhi -110032
6. The Member Secretary, Odisha State Pollution Control Board, Neelakanth Nagar, Unit-VIII, Bhubaneswar
7. The District Collector, **Sundargarh**, Government of Odisha
10. Monitoring File 11. Guard File 12. Record File 13. Notice Board


 (S. K. Srivastava)
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