

महाप्रबंधक का कार्यालय, पूर्वी झरिया क्षेत्र
OFFICE OF THE GENERAL MANAGER. EASTERN JHARIA AREA

Ref. No.: BCCL/EJ/GM/Envr./2026/ 63

Date: 27/05/2026

To,
The Director
Ministry of Environment, Forests and Climate Change
Regional Office (ECZ)
Bungalow No. A-2, Shyamali Colony
Ranchi – 834002
Jharkhand

Sub.: Six monthly compliance report of the conditions of Environmental Clearance granted to Cluster X group of mines of BCCL for the period from October 2025 to March 2026.
(Ref.: EC Order No.- J-11015/380/2010-IA.II(M) dated 06.02.2013; EC amended Vide letter no.- J-11015/380/2010-IA.II(M) dated 12.06.2019 and EC 20% enhancement vide letter no. J-11015/380/2010-IA.II(M) dated 15.04.2025)

Dear Sir,

Kindly find the enclosed here with the six monthly compliance report of the conditions of Environmental Clearance for the period from October 2025 to March 2026 in respect of Cluster X group of mines of BCCL.

Thanking You.

Encl.: Six monthly compliance report with annexure

Yours faithfully

Bhawana
27/5/26

General Manager
Eastern Jharia Area, BCCL
Cluster X

CC to:

1. Director, 1A Monitoring Cell, Paryavaran Bhawan, CGO Complex, New Delhi-110003.
2. Member Secretary, JSPCB, Ranchi
3. Regional Officer, JSPCB, Housing Colony, Dhanbad
4. GM / HOD (Envr.), BCCL, Koyla Bhawan, Dhanbad
5. AGM, E.J. Area
6. Project Officer- ASP, Bh(S), Bh(N)
7. Area Manager (Envr.), E.J. Area
8. Master File

ENVIRONMENTAL CLEARANCE COMPLIANCE OF CLUSTER-X

(EC Granted Vide J-11015/380/2010-IA.II (M) dated 06.02.2013 and
EC Amended dated 12.06.2019 and EC Enhancement dated 15.04.2025)

(Period: October 2025 to March 2026)

A. Specific EC Conditions for (Mining of Minerals)

Sl. No.	A. Specific Conditions by MOEFCC:	Compliance																																																																																																																																																																																																			
1.1	The maximum production from the opencast and underground section in the cluster shall not exceed beyond that for which environmental clearance has been granted for the cluster X as below:	The production from the cluster is within the limit for which environmental clearance has been granted. The year wise and colliery wise production of coal in MTPA is as follows: <u>COAL PRODUCTION DATA (IN MT) OF CLUSTER X SINCE GRANT OF EC TILL 2018-19</u> <table><tr><th colspan="2">Mine Name</th><th>EC Capacity (Peak)</th><th>2013-14</th><th>2014-15</th><th>2015-16</th><th>2016-17</th><th>2017-18</th><th>2018-19</th></tr><tr><td rowspan="2">Bhowra North</td><td>UG</td><td>0.143</td><td>0.024</td><td>0.032</td><td>0.028</td><td>0.023</td><td>0.012</td><td>0.006</td></tr><tr><td>OC</td><td>0.546</td><td>0.143</td><td>0.01</td><td>0.028</td><td>0</td><td>0</td><td>0</td></tr><tr><td rowspan="2">Bhowra South</td><td>UG</td><td>0.377</td><td>0.037</td><td>0.032</td><td>0.025</td><td>0.022</td><td>0.01</td><td>0.007</td></tr><tr><td>OC</td><td>1.2</td><td>0.185</td><td>0.11</td><td>0.28</td><td>0.413</td><td>0.458</td><td>0.892</td></tr><tr><td rowspan="2">Patherdih Colliery</td><td>UG</td><td>0.07</td><td>0.014</td><td>0.008</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>OC</td><td>0.286</td><td>0.104</td><td>0.045</td><td>0.205</td><td>0.267</td><td>0.277</td><td>0.239</td></tr><tr><td>Sudamdih Incline</td><td>UG</td><td>0.117</td><td>0.021</td><td>0.032</td><td>0.014</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Sudamdih Shaft</td><td>UG</td><td>0.24</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Amlabad UG</td><td>UG</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td colspan="2">Total (Cluster X)</td><td>2.289*</td><td>0.528</td><td>0.269</td><td>0.580</td><td>0.725</td><td>0.757</td><td>1.145</td></tr></table> *Combined production capacity of the Cluster X would remain at 2.289 MTPA (peak) <u>COAL PRODUCTION DATA (IN MT) OF CLUSTER X FROM 2019-20 to 2024-25</u> <table><tr><th colspan="2">Mine Name</th><th>EC Capacity (Peak)</th><th>2019-20</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>2024-25</th></tr><tr><td rowspan="2">Bhowra North</td><td>UG</td><td>0.143</td><td>0.0065</td><td>0.000015</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>OC</td><td>0.546</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0.5459</td></tr><tr><td rowspan="2">Bhowra South</td><td>UG</td><td>0.377</td><td>0.0003</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>OC</td><td>1.2</td><td>0.318</td><td>0.675</td><td>0.261</td><td>0.362</td><td>7.068</td><td>1.1998</td></tr><tr><td>ASP Colliery</td><td>OCP</td><td>0.709</td><td>0.175</td><td>0.225</td><td>0.406</td><td>0.432</td><td>4.108</td><td>0.1362</td></tr><tr><td>Sudamdih Shaft</td><td>UG</td><td>0.24</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Amlabad UG</td><td>UG</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td colspan="2">Total (Cluster X)</td><td>2.289*</td><td>0.500</td><td>0.900</td><td>0.667</td><td>0.794</td><td>1.117</td><td>1.8819</td></tr></table> *Combined production capacity of the Cluster X would remain at 2.289 MTPA (peak) <u>COAL PRODUCTION DATA (IN MT) OF CLUSTER X FROM 2025-26</u> <table><tr><th colspan="2">Mine Name</th><th>EC Capacity (Peak) MTPA</th><th>2025-26</th></tr><tr><td>Amlg. 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1.2	Project Proponent shall apply for fresh EC for the Amlabad mine, which is being carved out from the said cluster. No operations in the said mine shall be done without obtaining EC for the same.	Fresh EC for the Amlabad mine will be applied before commencement of the mine. No mining operations will be done without prior EC.																																																																																																																																																																																																			
1.3	Project Proponent shall ensure that only 30% of the total coal production is allowed to transport by road, within	Transportation of coal is being done by road and rail. The transport Plan for conveyor-cum-rail for Cluster X is to be implemented in the Phase II of the Jharia Master Plan. At																																																																																																																																																																																																			

	a distance of 6-7 km. Remaining 70% of the coal shall be transported by railway only as committed.	present, Phase -1 is under implementation and after completion of Pre-implementation (1st & 2nd Yr.) and Phase 1 (3rd to 7th year) and Phase 2 (8th to 12 th year). The plan shall be prepared after the completion of the above said phases to have conveyor-cum-rail transportation as informed by CMPDIL to whom the said work of preparation of Rail-cum-conveyor plan has been awarded (Annexure I).
1.4	Project Proponent shall install the closed conveyor belt to the railway siding after the dousing of active fire and stabilization of land as per approved Jharia Master Plan (which is under revision as on date). Thereafter no coal transportation of towards railway siding will be allowed through road.	The transport Plan for conveyor-cum-rail for Cluster X is to be implemented in the Phase II of the Jharia Master Plan. At present, Phase -1 is under implementation and after completion of Pre-implementation (1st & 2nd Yr.) and Phase 1 (3rd to 7th year) and Phase 2 (8th to 12th year). The plan shall be prepared after the completion of the above said phases to have conveyor-cum-rail transportation as informed by CMPDIL to whom the said work of preparation of Rail-cum-conveyor plan has been awarded (Annexure - I). During Phase- 1 & 2, covering of trucks by tarpaulin covers is being ensured. 
1.5	Adequate air pollution mitigation measures shall be adopted to mitigate the pollution levels in the core zone and buffer zone of the cluster area. Project Proponent shall install four additional continuous ambient air quality monitoring stations in the Cluster X area, 2 each in core zone and buffer zone in consultation with JSPCB within one year from the date of grant of EC.	Work order for Procurement of ten (10) no. of Continuous Ambient Air Quality Monitoring System (CAAQMS) (including for Cluster X) at HQ level has been issued through GeM portal vide reference no. GEMC-511687775012341 dated 08.09.2025 and CAAQMS machine has been delivered and installed under Cluster X. Installation and commissioning has been completed. Copy of work order is attached as Annexure- II.  <u>CAAQMS installed in Cluster X</u>

1.6	Project Proponent shall treat the excess mine seepage water and fulfill the requirement of the nearby villagers, thereafter the excess treated mine seepage water shall be released with prior approval from JSPCB.	An action plan for the utilization and treatment of surplus mine water has been prepared. In this regard 26 mines have been identified for implementation of the Phase-I of the action Plan. However, at present, surplus mine water is being supplied to nearby villages / locality for domestic purpose (non-drinking purpose). List of villages for supplied water is as follows: <table border="1"> <thead> <tr> <th>S. No.</th><th>Colliery/Mine Name</th><th>Village list for supply of water</th></tr> </thead> <tbody> <tr> <td>1</td><td>ASP Colliery</td><td>Sudamdih colony, Patherdih colony, Patherdih Basti, Patherdih Basti, Supkar Basti, Hattala basti, etc</td></tr> <tr> <td>2</td><td>ABNS (Bhowra North & Bhowra South) Colliery</td><td>Gaurkhuti, 12 no. basti, 13 no.basti, 35 no. basti; 6 no. Bhowra, Manjhi Basti, Gandhi Nagar, 19 no. Basti upar, 19 no. Basti niche, Bhowra 16 no., Bhowra 9 no. etc.</td></tr> </tbody> </table>	S. No.	Colliery/Mine Name	Village list for supply of water	1	ASP Colliery	Sudamdih colony, Patherdih colony, Patherdih Basti, Patherdih Basti, Supkar Basti, Hattala basti, etc	2	ABNS (Bhowra North & Bhowra South) Colliery	Gaurkhuti, 12 no. basti, 13 no.basti, 35 no. basti; 6 no. Bhowra, Manjhi Basti, Gandhi Nagar, 19 no. Basti upar, 19 no. Basti niche, Bhowra 16 no., Bhowra 9 no. etc.
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1.7	Project proponent shall strengthen the Primary Health Centers and Community Health Centers in the core zone and buffer zone of the cluster area and the focus shall be on improving facilities for enhancing quality of public health. Compliance status in this regard shall be submitted along with the six monthly compliance to the concerned Regional Office of MoEF&CC.	BCCL's main health facility center is the "Central Hospital" in Dhanbad, a large multi-specialty hospital for its employees and their dependents. The company also have Regional hospitals and dispensary units in its all the twelve command areas for providing health and medical facility for resident of nearby mining areas. The company also operates 14 Medical Mobile Vans with doctors and staffs to provide free medical assistance to villagers in and around mining areas. A 24-hour Community Health Centre in BCCL Township, Dhanbad, that offers comprehensive medical diagnostics and lab testing. Central Hospital also operates a School of Nursing and a School of Para-Medical Technology to train the healthcare professionals. In the Cluster X / E.J. area, a Regional Hospital Bhowra and three dispensary units are working for providing health care facility to nearby residents. A work order of amount Rs. 57,23,445/- has been issued for Renovation of Bhowra Regional hospital and renovation work is under progress, this will help in improving the health facility and services in the area. Copy of work order is attached as Annexure - III. Central Hospital Dhanbad (CHD) Regional Hospital Bhowra Apart from this, Regular Health checkup camp & Health awareness programme is organized by Bhowra Regional Hospital of E.J. Area/ Cluster X, BCCL.									

1.8	The budget proposed for PH (for next 3 years) is Rs. 4536 Lakhs. The budget proposed shall be kept in a separate account. Project proponent shall implement the action plan to address the issues raised during public hearing within the stipulated time frame. PP shall submit the progress report regarding the implementation of action plan to concerned RO along with the six monthly compliance report.	Action plan to address the issues raised during public hearing is under implementation stage. Many of the activities are ongoing and remaining activities will be implemented within the stipulated time frame as mentioned in EMP.
1.9	Project Proponent shall implement the protective measure proposed in Environment Management Plan (EMP) in a time-bound manner. The budget earmarked for the same is Rs. 5047.24 Lakhs (capital cost) and Rs. 220 Lakhs (recurring cost), should be kept in separate accounts and audited annually. The implementation status along with the amount spent with documentary proof shall be Submitted to the concerned Regional Office for the activities carried out during the previous year.	Protective measure proposed in Environment Management Plan (EMP) is being done in a time bound manner and Year wise & item wise expenditure made on environment protection measures is enclosed as Annexure – IV.
1.10	Project Proponent shall develop dense plantation along the safety barriers of Damodar River in an area of 15 ha before the onset of monsoon 2025 itself and gap plantation shall be done on the existing OB dumps. Greenbelt in 504.56 ha shall be developed inside the Cluster X area within 2 years from the date of grant of EC. A 7.5 m wide greenbelt, consisting of at least 3 tiers around mine boundary will be developed as greenbelt and green cover as per CPCB/MoEF&CC, New Delhi guidelines. Local and native species will be planted with a density of 2500 trees per hectare with total no. of 12, 61,500 plants. In addition to this, Agro forestry shall be encouraged in Consultation with the land owners. Further, PP shall provide 50,000 plant saplings with 4 feet tall fruit bearing plants to farmers for	Dense plantation is present along the Damodar river which is under cluster X. Plantation work under Riverside plantation scheme in area of 22.10 Ha. near Damodar river and 2.6 Ha under compensatory plantation in consultation with District Forest Officer, Dhanbad has been completed in 2024-25. In addition to this, area of 6.0 Ha (out of this 4.02 Ha under river side plantation) was taken up for plantation work in 2023-24 under Cluster X. Area of 15.00 ha has been awarded to DFO, Dhanbad for Plantation work with value of Rs 1,12,27,900.00. In addition to this, 30 kg grass seed along with 20 kg native species seeds and 5450 native species saplings have been planted in 15.0 Ha nearby Damodar River area in 2025-26.  List of plant species present along the bank of Damodar river are given below:

plantation in barren and agriculture lands in the study area every year till the life of the mine with incentive to improve the green cover in and around the cluster mine lease area.

List of the plants species

S. No.	Botanical Name	Local Name	Hindi Name
1	<i>Acacia arabica</i>	Babul	Babul
2	<i>Adina cordifolia</i>	Karam	Karam
3	<i>Ailanthus excelsa</i>	Ghorkarani/ Ghorkaram	Ghorkarani/ Ghorkaram
4	<i>Alangium Lamarckii</i>	Dhela	Dhela
5	<i>Albizia lebbek</i>	Siris	Siris
6	<i>Albizia procera</i>	Safed Siris	Safed Siris
7	<i>Alstonia scholaris</i>	Chatni	Chatni
8	<i>Azadirachta indica</i>	Neem	Neem
9	<i>Bombax ceiba</i>	Semal	Semal
10	<i>Butea frondosa</i>	Palas	Palas
11	<i>Casearia tomentosa</i>	Beri	Beri
12	<i>Cassia fistula</i>	Dhanrai/Amaltas	Dhanrai/Amaltas
13	<i>Dalbergia sissoo</i>	Shisham	Shisham
14	<i>Eugenia jamb</i>	Jamun	Jamun
15	<i>Ficus religiosa</i>	Pipal	Pipal
16	<i>Lagerstroemia parviflora</i>	Sidha	Sidha
17	<i>Mitragyna parviflora</i>	Guri/Gurikaram	Guri/Gurikaram
18	<i>Terminalia arjuna</i>	Arjun	Arjun
19	<i>Phoenix acaulis</i>	Khejur	Khejur
20	<i>Ficus racemosa</i>	Gular	Gular
21	<i>Calotropis procera</i>	Calotropis	Calotropis
22	<i>Ricinus communis</i>	Castor	Castor

Since, this is a coal mining industry which is site specific and most of the mines under Cluster X is fire affected hence evacuation of unburned coal is needed quickly along with focus on protecting the natural resources. No agricultural activity is being done in nearby area due to coal mining & fire affected area. However, every year fruit bearing saplings are being distributed to the residents and encourage & organized awareness program about environment protection and measures.



In addition to this, Action has been taken for the plantation or eco-restoration work as per the Road Map prepared by Forest Research Institute (FRI), Dehradun. Under the guidance of FRI, Dehradun/ DFO/ BCCL HQ, Plantation in area of 76.27 Ha has been developed as greenbelt area through ecological restoration activity. Area of 15.0 ha has been taken for grassing and plantation purpose in 2025-26. However, total 504.56 ha will be developed as green belt area in year wise manner as mentioned in EMP. Details of plantation is given below:

Details of Plantation in EJ Area (Cluster X)

DETAILS OF ECOLOGICAL RESTORATION / PLANTATION IN E.J. AREA															
Colliery	Site Name	Area (Ha)	Taken up in	Plantation (No.)											
				2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Bh (N)	Bh N/BLA OB Site	5.2	2016-17	-	-	13000	2850	-	1360	500	200	-	-	-	18210
	New BLA Site	3.1	2017-18	-	-	-	4725	-	616	500	250	-	-	-	6091
Bh (S)	3 Pit OB Site	4.78	2014-15	8150	4039	1000	2200	-	-	1500	200	-	-	-	17089
				(12189)	-	-	-	-	11500	1728	2000	800	-	-	16028
	Bhowra Chandan OB Site	4.5	2018-19	-	-	-	-	-	-	-	-	-	-	-	-
	Compensatory afforestation	2.6	2021-22	-	-	-	-	-	-	-	-	1150	-	-	1150
	OB dump near pump house	15.0	2025-26	-	-	-	-	-	-	-	-	-	-	-	5450
				-	-	-	-	-	-	-	-	-	-	-	5450
ASP Colliery	COCOP/ Vrindavan Site	5.71	2015-16	-	6125	8150	3000	-	2650	250	2750	2200	-	1000	25625
	Kamini Kalayan Herbal Garden	3.32	1980 (old)	375 (planted before 2014)	-	40	50	-	150	150	200	250	-	300	1390
	Mohalban OB Site	3.95	2014-15	10874	-	1000	1200	-	-	-	200	-	-	-	13274
	Gaungram Site	22.10	2020-21	-	-	-	-	-	-	-	33000	-	-	-	33000
	Near kamini kalayan herbal park	1.98	2023-24	-	-	-	-	-	-	-	-	-	3366	1500	4866
Plantation at other locations	Riverside plantation	4.02	2023-24	-	-	-	-	-	-	-	-	-	6834	-	6834
	Schools, along road, colony, etc.									1246	2380	2485	275	200	10636
Total				23063	6125	23190	14025	11500	7750	7280	40085	4175	10400	5300	159643

1.11 Proponent shall carryout regular maintenance of the potholes on roads, repair and maintenance of Roads, scrapping of material fallen on roads, and removal of scraps from mining areas. Along with this, PP shall make sure that all the pollution control equipment's are in good working condition and Maintenance of those equipment is regularly carried out.

Regular maintenance of approach roads, repair and maintenance of roads are being done. PQC Road of 1700mtr has been constructed in EJ area. Work order is attached.

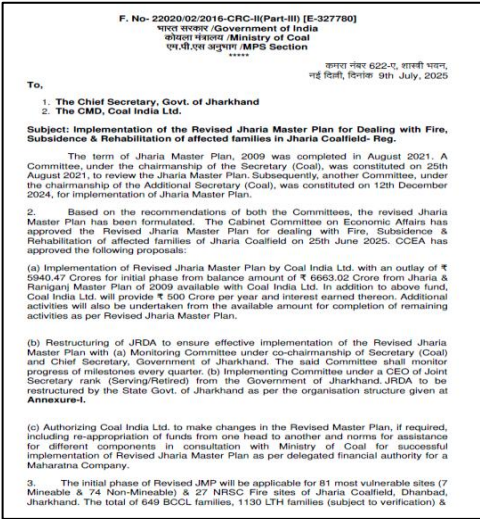
For regular maintenance of pollution control equipment's annual maintenance contract (AMC) are given to the agency/ supplier for maintenance and operations of equipment's in good conditions.

1.12 As per the approved Master Plan, the remaining 1581 PAFs out of 1670 PAFs, which are yet to be rehabilitated, shall be resettled as per the approved R&R/ Jharia Master Plan. Compliance status in his regard shall be submitted to the concerned Regional Office of MoEF&CC along with the six monthly compliance report.

Implementation of master plan has already been started through Jharkhand Rehabilitation and Development Authority (JRDA), Dhanbad to a well-established Jharia Vihar Township located at Belgoria. The rehabilitation data for EJ area is as follows:

No. of Households	Shifted
1670	89

The Revised Jharia Master plan has been approved by Ministry of Coal, Govt. of India vide letter no. F. No- 22020/02/2016-CRC-II(Part-III) [E-327780] dated 09.07.2025 after recommendation from revised Jharia Master Plan committee. Copy of Revised Jharia Master Plan is enclosed as Annexure- V.



1.13	The partially complied conditions as per the Closure Report of RO, shall be complied in the following stipulated timeline, as committed by the Project Proponent:			Status of partially complied conditions as per Closure report of RO is given below:		
	Con dition	Re-assessment by IRO dt 14.02.25	Timeline	Condition	Partially complied conditions	Status
	Sp. Cond . (iii), (x)	Dense plantation (24.7 ha) along the banks of Damodar river has been observed. The proponent informed that 6.0 ha (out of this 4.02 ha under river side plantation) was taken up for plantation work in 2023-24. The proponent also informed that area of 15.00 ha has been awarded to DFO, Dhanbad for plantation work in 2024-2025. (Partially complied)	15 Ha of plantation work awarded to DFO in 2024-2025 will be done by monsoon 2025 i.e. completion work in 2025-26 and annual maintenance work for next 8 years.	Sp. Cond. (iii), (x)	The proponent also informed that area of 15.00 ha has been awarded to DFO, Dhanbad for plantation work in 2024-2025.	Work is under progress.
	Sp. Cond . (xiv), (xv), (xvi), (xxvii), (xxxiii)	Geotagged photographs of the recent fog canons installed and commissioned have been received. Further, the proponent submitted that fire excavations requires removal and placing of OB up to bottom most seam for which space availability within existing colliery is not feasible. (Partially complied)	Action in process for fire dealing and dust suppression: · Construction of pucca approach road will be completed by October, 2025. · Truck mounted Fog canon will be procured by November 2025.	Sp. Cond. (xiv), (xv), (xvi), (xxvii), (xxxiii)	Proponent submitted that fire excavations require removal and placing of OB up to bottom most seam for which space availability within existing colliery is not feasible.	• Work has been completed for construction of pucca approach road for 1700 mtr within lease of Cluster X. • Procurement of Fog canon has been done.
	Sp. Cond . (vii), (xxix), (xxvi)	Undertaking for completion of renovation of water treatment plant within 4 months with estimated expenditure of 10.40 lakhs to be incurred and work schedule has been received. Comprehensive plantation plan with native plant species		Sp. Cond. (vii), (xxix), (xxvi)	Renovation of water treatment plant.	Work has been completed for upgradation and renovation of water treatment plant.
1.14	Details of impact of mining on Damodar River should be assessed and provided along with the six monthly compliance report.			A Study was conducted by CMPDIL entitled “ <i>Study of Bore wells near Damodar river for Permeability and seepage of water of river Damodar for Cluster- X group of coal mines of BCCL</i> ” (report attached as Annexure- VI) The report states that’s “ <i>In the A-B cross-section line, it is evident that, there is no connection in between Damodar River and Cluster-X</i> ”		

mine pit through shallow or deep aquifers.”

Further, CMPDI is also carrying out the Environment Monitoring which comprises of sampling and analysis of water from Damodar River (SW 21 & SW 22) under surface water analysis. Result of upstream and downstream samples showing no major changes in water quality of Damodar river (report enclosed as Annexure – VII).

				CENTRAL MINING PLANNING AND DESIGN INSTITUTE LIMITED			
				Environmental Laboratory, Regional Institute-II			
				SURFACE WATER ANALYSIS TEST REPORT			
Month & Year	QUARTER ENDING MARCH 2024	Name of Client	X		SLR No.	TC1431130000020497	
Customer	Environment Department, Bharat Colliery Ltd (BCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bcl@vsnl.net)			Date of Issue	TC1431130000020497		
Project	Sample Ref No.		KEM/BCL/25-26/SW /		Sampling Method	(IS 3025, Part-1) CMPDI/81	
Sampling Stations	(1) Upstream of Damodar River @ SW 21	Date of Sampling		31.03.2024		Period of Analysis	
	(2) Downstream of Damodar River @ SW 22	Date of Sampling		31.03.2024		31.03.2024 TO 14.03.2024	
S. No.	Parameter	Method of Analysis	Observed Value		SI 2396 INLAND SURFACE WATER (1982) (State C)	Range of Testing	LSD
1	BOD (3 days 20°C), mg/l	IS 3025 (Part 44) : 1993, B : 2019, 3 day incubation at 20°C	<0.0	<0.0		0.0	1.00-100.00
2	Colour, Hazen Units	APHA 24th edition, 2120-B-2023	1	1	10	1	10-500.0
3	Chlorides, mg/l	IS 3025 (Part 32) : 1966, B : 2019, Mercurimetric Method	36	34	600	2	2.0-1500.0
4	Copper, mg/l	IS 3025 (Part 42) : 1992 B : 2019, AAS Flame Method	<0.2	<0.2	1.5	0.2	10.0-100.0
5	Dissolved Oxygen, mg/l	IS 3025 (Part 18) : 1999, B : 2003, Winkler Azide Method	5.5	5.3	4	1	1.0-10.0
6	Fluoride, mg/l	APHA 24th edition, 8120-08 Method	0.47	0.51	1.5	0.2	2.00-2.00
7	Free residual Chlorine, mg/l	APHA 24th edition, 1.5, Digluconate-hypochlorite Method B : 2015 (Part 32) : 2003 B : 2019	<0.01	<0.01	0.05	0.01	1.4-0.01
8	Iron, mg/l	IS 3025 (Part 13) : 2003 B : 2019, AAS Flame Method	<0.2	<0.2	0.2	0.2	10-0.2
9	Nitrate, mg/l	APHA 24th edition, 4500-Spectrophotometric Method	4.66	4.41	50	0.5	45.0-0.5
10	pH value	IS 3025 (Part 11) : 1983 B : 2023, Electrometric (pH Meter) method	7.90	7.91	6.5-8.5	1.0	14.0-2.0
11	Sulphate, mg/l	APHA 24th edition, 4500-Turbidity Method	152	116	400	10	10.0-400.0
12	Total Dissolved Solids, mg/l	IS 3025 (Part 16) : 1984 B : 2023, Gravimetric method	222	239	1500	25	10000.0-25
13	Zinc, mg/l	IS 3025 (Part 40) : 1994, B : 2019, AAS Flame Method	<0.1	<0.1	15	0.10	10.0-0.1

*Gross sampling control and further samples. **LSD indicates Lower Detection Limit & BDL indicates Below Detection Limit

**All units in mg/l, unless specified otherwise. **LSD is in % percentage. Cellar cell as above if it is percentage



(Gaurav Kaur)



(Kumar Vaidh)

REVIEWED BY

Author's Signature

NOTE: The results shown above relate to the samples tested and received. This report can not be reproduced in part or full without the written permission of the HOD/CMPDI, R. I.

— End of Report —

Page 2 of 2

*Quick sampling carried out for water samples. *LSD indicates Lower Detection Limit & B.D. indicates Below Detection Limit

**All units in mg/L unless specified otherwise (Sample Collection and in 1 L for transport. Chlorine determined in triplicate)

Analysed by: (Signature of Karan Vaidh)

Reviewed by: (Signature of Karan Vaidh)

Note: The results shown relate to the samples tested as received. This report can not be reproduced in part or full without the written permission of the PROSOD, CMPDI, BCL.

—End of Report—

Page - 2 of 2

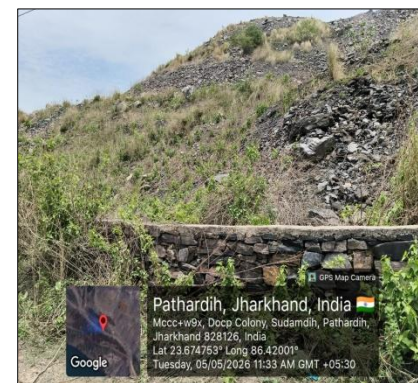
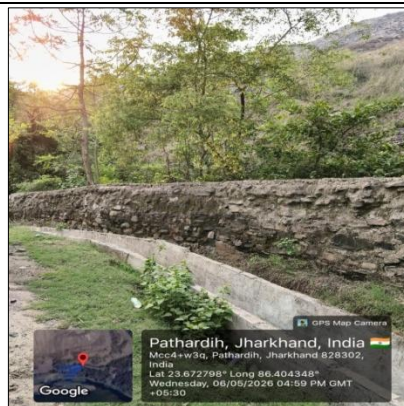
1.15 A Garland drain should be provided and the drain water should not be discharged in to Damodar River.

Garland drain and Toe wall/ retaining wall along the stabilized OB dump is present. Construction of Toe wall of 780 m was done in Bhowra South colliery and 365 m toe wall was constructed along OB dump in ASP colliery. Furthermore, work order of Rs. 39.49 lakh has been issued for the “*work of heightening of existing toe wall, converting existing garland drain to pucca and siltation pond along OB dump*” near river/water body. Work of Heightening of existing toe wall of 780 mtr and 700 m of pucca garland drains and siltation pond have been constructed wrt above work order. (copy of work order is attached as Annexure -VIII)

Further OB dump is being stabilized through biological reclamation/ ecological restoration technique. No mine water is being discharged into Damodar river.

Toe wall	Colliery	Length (in m)
Toe wall around OB Dump	ABNS colliery	780 m
Toe wall around OB Dump	ASP Colliery	365 m
Pucca Garland drain around OB dump	ABNS colliery	Approx. 700 m





1.16

A herbal garden with medicinal plants be developed.

Kamini Kalyan Herbal Garden with 3.32 Ha. area has been taken up and developed, it is being further enriched as thematic medicinal plants garden for conservation of germplasm and public awareness. Medicinal/ herbal plants have been planted as per BCCL Env. Dept. HQ guidelines.



List of medicinal plants present in Kamini Kalyan herbal garden is:

S. No.	Biological Names	Local Names	Hindi Names
1	Aegle marmelos	Bel	Bel
2	Alangium Lamarckii	Dhela	Dhela
3	Albizia lebbek	Siris	Siris
4	Alstonia scholaris	Chatni	Chatni
5	Azadirachta indica	Neem	Neem

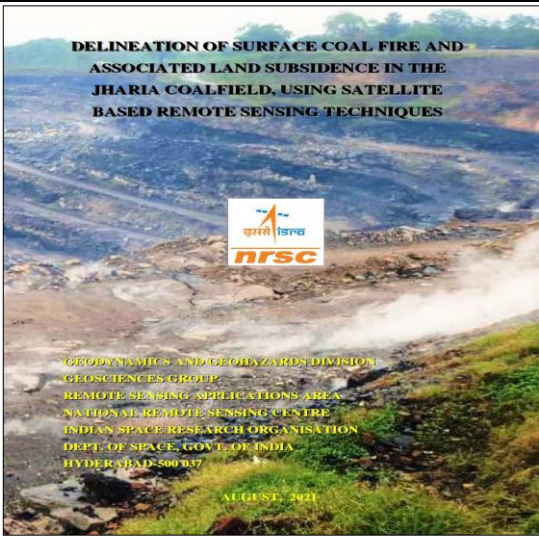
6	Bombax ceiba	Semal	Semal
7	Butea frondosa	Palas	Palas
8	Casearia tomentosa	Beri	Beri
9	Dalbergia sissoo	Shisham	Shisham
10	Emblica officinalis	Amla	Amla
11	Eugenia jamb	Jamun	Jamun
12	Arotocarpus integrifolia	Kathal	Kathal
13	Ficus religiosa	Pipal	Pipal
14	Gmelina arborea	Gamhar	Gamhar
15	Mangifera indica	Mango	Mango
16	Pongamia glabra	Karanj	Karanj
17	Tectona grandis	Sagwan/Teak	Sagwan/Teak
18	Terminalia arjuna	Arjun	Arjun
19	Terminalia belerica	Bahera	Bahera
20	Dendro calamus strictus	Bans/Bamboo	Bans/Bamboo
21	Spondias mangifera	Amra	Amra
22	Saraca asoca	ashok	ashok
23	Cocos nucifera	Nariyal	Nariyal
24	Annona reticulata	Sarifaa	Sarifaa
25	Psidium guajava	amrud	amrud
26	Citrus limon	Nimboo	Nimboo
27	Ficus racemosa	Gular	Gular
28	Eucalyptus globulus	safeda	safeda
29	Neolamarckia cadamba	Kadamba	Kadamba
30	Alstonia scholaris	Chatri	Chatri
31	Araucaria heterophylla	Christmas tree	Christmas tree

List of medicinal herbs and shurbs present at Kamini Kalyan Garden

S. No.	Biological Names	Local Names	Hindi Names
1	<i>Ocimum tenuiflorum</i>	Tulsi	Tulsi
2	<i>Costus Igneus</i>	Insulin	Insulin
3	<i>Aloe vera</i>	Aloe vera	Aloe vera
4	<i>Elettaria Crdamoum</i>	Elaichi	Elaichi
5	<i>Myctanthus Arbor tistis</i>	Harsingar	Harsingar
6	<i>Catharanthus roseus</i>	Sadabahar	Sadabahar
7	<i>Asparagus racemosus</i>	Satawar	Satawar
8	<i>Cymbopogon cipratus stapf</i>	Lemon grass	Lemon grass
9	<i>Plectanthus Amboinicus</i>	Patta Ajwain	Patta Ajwain
10	<i>Jatropha curcas</i>	Ratanjot	Ratanjot
11	<i>Murraya koenigii</i>	Kari patta	Kari patta
12	<i>Sansevieria trifasciata</i>	Nagdaman	Nagdaman
13	<i>Euphorbia tithymaloides</i>	Nagdon	Nagdon
14	<i>Allium bisceptrum</i>	Janglee Pyaaj	Janglee Pyaaj

1.17	The measure identified in the environmental plan for cluster X groups of mine and the conditions given in this environmental clearance letter shall be dovetailed to the implementation of the Jharia Action Plan.	Master plan/ Jharia Action Plan is dovetailed with environmental clearance conditions. The Revised Jharia Master plan has been approved by Ministry of Coal, Govt. of India vide letter no. F. No-22020/02/2016-CRC-II(Part-III) [E-327780] dated 09.07.2025. Revised Jharia Master Plan is approved by Govt. of India attached as Annexure- V.
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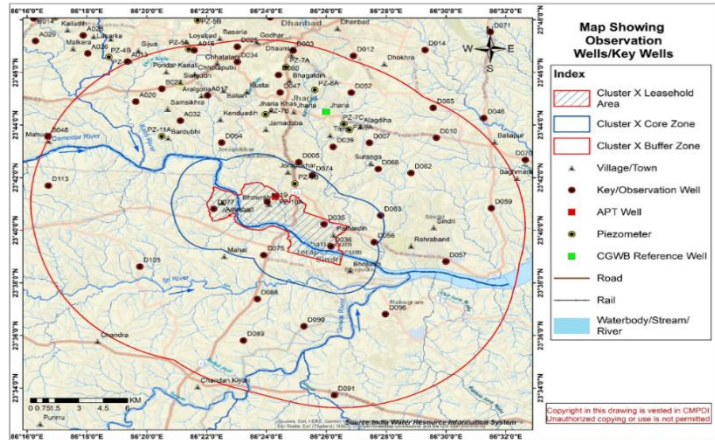
		F. No. 22020/02/2016-CRC-II(Part-III) [E-327780] भारत सरकार / Government of India कोयला विभाग / Ministry of Coal एम.पी.एस. अनुभाग / MPS Section ***** कमरा नंबर 622-ए, शाही बाग, नई दिल्ली, दिनांक: 9th July, 2025 To, 1. The Chief Secretary, Govt. of Jharkhand 2. The CMD, Coal India Ltd. Subject: Implementation of the Revised Jharia Master Plan for Dealing with Fire, Subsidence & Rehabilitation of affected families in Jharia Coalfield- Reg. The term of Jharia Master Plan, 2009 was completed in August 2021. A Committee, under the chairmanship of the Secretary (Coal), was constituted on 25th August 2021, to review the Jharia Master Plan. Subsequently, another Committee, under the chairmanship of the Additional Secretary (Coal), was constituted on 12th December 2024, for implementation of Jharia Master Plan. 2. Based on the recommendations of both the Committees, the revised Jharia Master Plan has been formulated. The Cabinet Committee on Economic Affairs has approved the Revised Jharia Master Plan for dealing with Fire, Subsidence & Rehabilitation of affected families of Jharia Coalfield on 25th June 2025. CCEA has approved the following proposals: (a) Implementation of Revised Jharia Master Plan by Coal India Ltd. with an outlay of ₹ 5940.47 Crores for initial phase from balance amount of ₹ 6663.02 Crores from Jharia & Raniganj Master Plan of 2009 available with Coal India Ltd. In addition to above fund, Coal India Ltd. will provide ₹ 500 Crores per year and interest earned thereon. Additional activities will also be undertaken from the available amount for completion of remaining activities as per Revised Jharia Master Plan. (b) Restructuring of JRDA to ensure effective implementation of the Revised Jharia Master Plan with (a) Monitoring Committee under co-chairmanship of Secretary (Coal) and Chief Secretary, Government of Jharkhand. The said Committee shall monitor progress of milestones every quarter. (b) Implementing Committee under a CEO of Joint Secretary rank (Serving/Retired) from the Government of Jharkhand. JRDA to be restructured by the State Govt. of Jharkhand as per the organisation structure given at Annexure-I. (c) Authorizing Coal India Ltd. to make changes in the Revised Master Plan, if required, including re-appropriation of funds from one head to another and norms for assistance for different components in consultation with Ministry of Coal for successful implementation of Revised Jharia Master Plan as per delegated financial authority for a Maharatna Company. 3. The initial phase of Revised JMP will be applicable for 81 most vulnerable sites (7 Mineable & 74 Non-Mineable) & 27 NRSC Fire sites of Jharia Coalfield, Dhanbad, Jharkhand. The total of 649 BCCL families, 1130 LTH families (subject to verification) &
		As per the above action plan following actions are being taken 1. Trench excavation, Fire excavation and simultaneous backfilling 2. Quenching and excavation of fire with water 3. Cooling by water curtain
1.18	As there is no fire in Cluster X but the measure should be adopted by proponent to control spread of neighbouring fire to this Cluster X. The proponent shall prepare time - series maps of the Jharia Coalfields through NRSA to monitor and prevent fire problems in the Jharia Coalfields by Isothermal mapping /imaging and monitoring temperatures of the coal seams (whether they are close to spontaneous ignition temperatures) and based on which, areas with potential fire problems shall be identified. Measures to prevent ingress of air (Ventilation) in such areas, to prevent restart fresh/spread fires in other areas including in mines of cluster XIV shall be undertaken.	There is Fire in Cluster X and it is mentioned in Environment Clearance granted to Cluster X vide ref. no. J-11015/380/2010-IA.II(M) dated 15.04.2025 at Page no. 4. Under Justification of amalgamation of Bhowra North & South colliery of Cluster X at Sl no. 10. “The Bhowra (South) and Bhowra (North) collieries are severely affected by fire, with coal reserves trapped within the burning areas and mine barriers.” The Work Order for “Delineation of Surface Fire and associated land subsidence in Jharia Coal Field using satellite based remote sensing techniques” has been awarded to NRSC under the MoU signed with NRSC. NRSC has submitted the final report, in which Coal Mine fire map has been prepared based on the Satellite data of Landsat-8 and attached as Annexure IX. As per NRSC final report, there is a decrease in areal extent of the fire from 2017 to 2020. As compared 2017, when the total fire affected extent of the JCF was about 3.28 km²; in 2020 total fire affected extent is about 1.89 km² (including TISCO mines).

		 Further NRSC interim report of Year 2024 is also submitted and attached as Annexure- IXA and final report will be submitted thereafter. Measure to prevent ingress of air (ventilation) is being taken as specified in EMP and as per Jharia Master Plan. Further fire patches are under operation to dig out the fiery coal and combustible materials to save the coal from burning and to stop further spread of the fire. Once the fiery coal is dug-out/excavated there will be no more chance of re-starting of fresh/ spreading of fire into other areas.
1.19	No mining shall be undertaken where underground fires continue. Measure shall be taken to prevent/ check such fire including in old OB dump	It is being complied. Action is being taken to control, mine fires including old OB dump areas as specified in Jharia Master Plan and the mining is being done as per the Coal Mines Regulation (CMR) Act. As per the above action plan following actions are being taken 1. Trench excavation, Fire excavation and simultaneous backfilling 2. Quenching and excavation of fire with water 3. Cooling by water curtain
1.20	Mining shall be carried out as per statuette from the streams/nalas flowing within the lease and maintaining a safe distance from the Nalas flowing along the lease boundary. A safety barrier of a Minimum 60m width shall be maintained along the nalas/water bodies. The small water bodies in OC shall be protected to the extent feasible and the embankment proposed along water body shall be strengthened with stone pitching.	Mining operation is being done as per Coal Mines Regulation Act. A safe distance from nalas/ water bodies is being maintained during mining operation. Every year monsoon preparation programme is carried out by colliery / mines before the onset of monsoon for protection of mines from rain water flow and to maintain a safe distance from nalas flowing or small water bodies protection in the lease boundary.
1.21	Regular monitoring of groundwater level and quality of the study area shall be carried out by establishing a network of existing wells and	Regular monitoring of Ground water quality is being carried out by CMPDIL. The Ground water Level and Quality report for Clusters of mines of BCCL (including Cluster X), have been submitted by CMPDIL & attached as Annexure- X. The attached

construction of new peizometers. The monitoring for quantity shall be dome four times a year in pre-monsoon (May), monsoon (August), post monsoon (November) and winter (January) seasons and for quality including Arsenic and Fluoride during the month of May. Data thus collected shall be submitted to the Ministry of Environment & Forest and to the Central Pollution Control Board/SPCB quarterly within one month of monitoring. Rainwater harvesting measures shall be undertaken in case monitoring of water table indicates a declining trend.

report includes ground water quality report including arsenic and fluoride.

CMPDI had prepared a report for design location and construction of 23 nos. of Piezometer covering all the 17 clusters of BCCL. For Drilling for establishment of 23 nos Piezometer wells for cluster of mines of BCCL command area for Ground water monitoring, LOA has been issued by Civil Department on 03.12.2021 and work has been completed. Map showing the Piezometer and network of existing dugwells is given below:



One Piezometric well system (PZ-10A) has been constructed under Cluster X. E.J. Area, BCCL. Digital Water Level Recorder (DWLR) with telemetry system has been also installed with Piezometric well.

Details of Piezometric well system of Cluster X is given below:

Cluster	Location Details	No. of Wells	Depth	Latitude & Longitude
Cluster X	Bandhponda Village, East side of 17 no. incline of South Bhowra Colliery	01 (PZ-10A)	135 m	E.J. Area 23°40'28.14"N 86°23'34.56" E RL: 476 ft Depth: 135 m

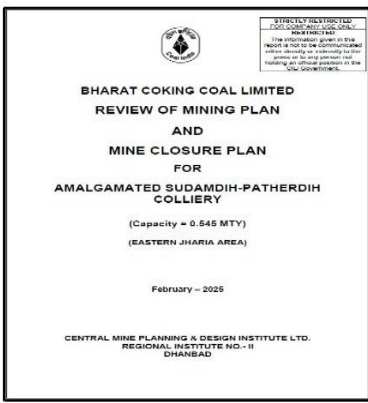


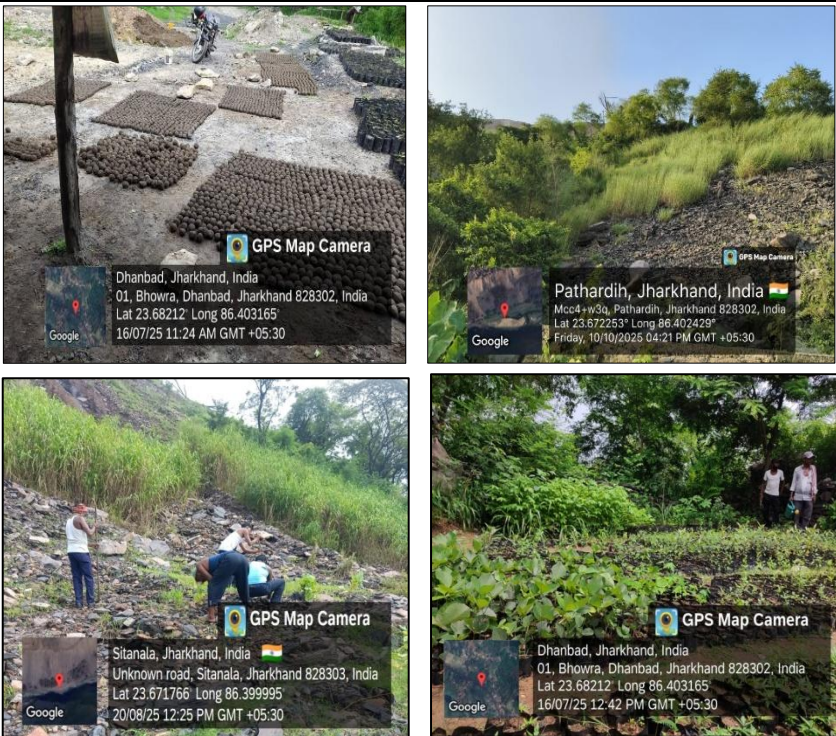
1.22 Regular monitoring of subsidence movement on the surface over and around the working area and impact on natural drainage pattern, water bodies, vegetation, structure, roads, and surroundings shall be continued

As per CMR, Regular monitoring of subsidence movement on the surface over and around the working area and impact on natural drainage pattern, water bodies, vegetation, structure, roads, and surroundings is done. Currently there is no depillaring operation going on in underground mines of cluster X.

	till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate effective corrective measures shall be taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable material.	
1.23	Sufficient coal pillars shall be left unextracted around the air shaft (within the subsidence influence area) to protect from any damage from subsidence, if any.	Sufficient coal pillars have been left around air shafts as per the statutes and DGMS guidelines.
1.24	High root density tree species shall be selected and planted over areas likely to be affected by subsidence.	A list of high root density Plant species certified by FRI and its plantation in subsidence prone area will be taken-up at the time of depillaring operations. Nursery of high root density is also developed under EJ Area. List of high root density plant species is given below. 
1.25	Depression due to subsidence resulting in water accumulating within the low lying areas shall be filled up or drained out by cutting drains.	It shall be complied, where ever applicable. However, regular monitoring is being done through pit safety meeting and bipartite & tripartite safety meeting at area and HQ level. No depression due to subsidence is water accumulated.
1.26	Solid barriers shall be left below the roads falling within the blocks to avoid any damage to the roads.	It is being followed. Sufficient barriers are left for saving the surface installation and infra structures as per the CMR guidelines.
1.27	No depillaring operation shall be carried out below the township/colony.	It is being followed. No depillaring operation is carried out below the township/colony.
1.28	The Transportation Plan for conveyor-cum-rail for Cluster- X should be dovetailed with Jharia Action Plan. Road transportation of coal during Phase-I should be by mechanically covered trucks, which	Vehicles engaged in transportation are duly checked at Security Check-Post (CISF Check-Post) where security personnel also ensure proper covering of Trucks. No OEM is providing mechanically covered trucks. A communication in this regard has been made to Coal India Ltd for taking up with OEM.

	should be introduced at the earliest. The Plan for conveyor-cum-rail for Cluster- XIV should be dovetailed with Jharia Action Plan. The road transpiration of coal during phase-I should be by mechanically covered trucks	In absence of availability of approved OEM of mechanically covered trucks, BCCL is ensuring trucks are covered with tarpaulin through mandatory clause of covering in transportation contracts. The transport Plan for conveyor-cum-rail for Cluster X is to be implemented in the Phase II of the Jharia Master Plan. At present, Phase -1 is under implementation and after completion of Pre-implementation (1st & 2nd Yr.) and Phase 1 (3rd to 7th year) and Phase 2 (8th to 12th year). The plan shall be prepared after the completion of the above said phases to have conveyor-cum-rail transportation as informed by CMPDIL to whom the said work of preparation of Rail-cum-conveyor plan has been awarded (Annexure- I). During Phase- 1 & 2, covering of trucks by tarpaulin covers is being ensured as can be seen in Picture attached.    
1.29	A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company for implementing environment policy and socio-economic issues and the capacity building required in this regard.	A full-fledged Environment Department, headed by a HoD (Environment) along with a suitable qualified multidisciplinary team of executives which includes Environment, Mining, Excavation, Civil executives and technicians has been established in Headquarters. They are also trained in ecological restoration, sustainable development, rainwater harvesting methods etc. The team is multidisciplinary and very much motivated under the guidance of company's Director (Technical) and CMD. Further capacity building at both corporate and operating level is being done. At the project level, two Executives in each area have been appointed as Environment Officer and are also entrusted with the responsibility of compliance and observance of the environmental acts/ laws including environment protection measures. The activities are monitored on regular basis at Area and at Head quarter levels. HoD (Environment) at head quarter level, co-

		ordinates with all the Areas and reports to the Director (Technical) and in turn he reports to the CMD of the company. Environment Management Cell at area level has been constituted for the management of Environment and monitoring of compliance of EC conditions. 
1.30	Implementation of final mine closure plan for Cluster X, subject to obtaining prior approval of the DGMS in regard to mine safety issues	Mine Closure Plan has been prepared for each Mine in this cluster. Mining Plan and Mine Closure Plan of Bhowra North & South and ASP Colliery has been prepared and approved by BCCL Board, which is attached as Annexure- XI. Before implementation of final mine closure plan, prior permission from DGMS has been taken in regard to mine safety issues. Safety Management Plan (SMP) for each colliery has been prepared as per Coal Mines Regulation Act for the Safety of the mine and mining operations.  
1.31	Third-party audit (by NEERI/CIMFR/IIT/NITs) for air & water quality shall be carried out annually to keep a check on the same. PP shall implement the recommendations of the audit and submit the outcome of the audit to the concerned RO of MoEF&CC.	Work of third party audit for air and water quality of Cluster X has been issued to IIT (ISM) Dhanbad. Copy of work order is attached as Annexure- XII. Work is under progress and report will be submitted at the earliest by the agency & recommendations will be implemented thereafter.
1.32	Hon'ble Supreme Court in an Writ Petition(s) Civil No. 114/2014, Common Cause vs Union of India &Ors vide its judgement dated 8th January, 2020 has directed the Union	Grassing on OB dumps is being taken up regularly. Photographs of seed ball distribution on OB dumps is enclosed herewith.

	of India to impose a condition in the mining lease and a similar condition in the environmental clearance and the mining plan to the effect that the mining lease holders shall, after ceasing mining operations, undertake re-gressing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. Compliance of this condition after the mining activity is over at the cost of the mining lease holders/Project Proponent". The implementation report of the above said condition shall be sent to the Regional Office of the MoEF&CC.	 The four photographs are GPS-tagged and show the following locations and details: Top Left: Dhanbad, Jharkhand, India. 01, Bhowra, Dhanbad, Jharkhand 828302, India. Lat 23.68212° Long 86.403165°. 16/07/25 11:24 AM GMT +05:30. Top Right: Pathardih, Jharkhand, India. Mcc4+w30, Pathardih, Jharkhand 828302, India. Lat 23.672253° Long 86.402429°. Friday, 10/10/2025 04:21 PM GMT +05:30. Bottom Left: Sitanala, Jharkhand, India. Unknown road, Sitanala, Jharkhand 828303, India. Lat 23.671766° Long 86.399995°. 20/08/25 12:25 PM GMT +05:30. Bottom Right: Dhanbad, Jharkhand, India. 01, Bhowra, Dhanbad, Jharkhand 828302, India. Lat 23.68212° Long 86.403165°. 16/07/25 12:42 PM GMT +05:30.
1.33	PP shall ensure that all types of plastic waste generated from the plant shall be stored separately in isolated area and disposed of strictly adhering to the Plastic Waste Management Rules 2016 (as amended). In pursuant to the Ministry's OM dated 18/07/2022. PP shall also create awareness among the people working in the project area as well as in its surrounding area on the ban on Single Use Plastic (SUP) in order to ensure compliance of Ministry's Notification published by the Ministry on 12/08/2021. A report along with geo-tagged photograph on the measures taken shall also be included in the six monthly compliance report being submitted by PP.	Coal Mining is a site-specific operation and this industry not generate plastic waste at large scale. However, all types of plastic waste generated from the mines are stored separately. An awareness programme is organized in area on plastic pollution and on the ban on Single Use Plastic (SUP) in order to ensure compliance of Ministry's Notification. Geo-tagged photograph is attached.  The photograph shows a group of people seated around a long table in a meeting room, participating in an awareness programme. A man is standing and speaking to the group. A banner in the background reads 'महामास्त्रिक का कार्यक्रम' (Mahamastrik Ka Karayam). The GPS-tagged overlay provides the following details: Location: Pathardih, Jharkhand, India. Mcc2+6hq, Bhowra, Pathardih, Jharkhand 828302, India. Coordinates: Lat 23.68504° Long 86.402119°. Date/Time: 04/06/2025 12:35 PM GMT +05:30. Awareness programme organized on Plastic Pollution & SUP
1.34	Project proponent is advised to implement the 'Ek Ped Maa Ke Naam' Campaign which was launched on 5th June 2024 on the occasion of the World Environment Day to increase the forest cover across the Country. This plantation drive is other than Green belt development. The action in this	The Campaign 'Ek Ped Maa Ke Naam' which was launched on 5th June 2024 on the occasion of the World Environment Day is already implemented throughout the company/ BCCL. This year on 5th June 2025 on occasion of 'Ek Ped Maa Ke Naam' approx. 2000 saplings are planted and 500 saplings distributed to the residents.

	regard shall be submitted concerned RO in six monthly report.	 
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B. Standard EC Conditions for (Mining of minerals)

Sl. No.	B. Standard Conditions by MOEFCC:	Compliance																						
1.	Statutory Compliance																							
1.1	The Environmental clearance shall be subject to orders of Hon'ble Supreme Court of India, Hon'ble High Courts, NGT and any other Court of Law, from time to time, and as applicable to The project.	Agreed to comply.																						
1.2	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable	Not Applicable for Cluster X																						
1.3	Solid/hazardous waste generated in the mines needs to addressed in accordance to the Solid Waste Management Rules, 2016/Hazardous & Other Waste Management Rules, 2016.	Solid and Hazardous waste generated in the mines is regularly addressed in accordance to the Solid Waste Management Rules, 2016/Hazardous & Other Waste Management Rules, 2016.																						
1.4	The maximum production or peak production at any given time shall not exceed the limit as Prescribed in the EC.	Agreed to comply. Coal Production from Cluster-X is within EC limit as mentioned below: <table><tr><td rowspan="2">Sl No</td><td rowspan="2">EC Peak Production Capacity (MTPA)</td><td colspan="3">Actual Production (Million Te)</td></tr><tr><td>FY 23-24</td><td>FY 24-25</td><td>FY 25-26</td></tr><tr><td>1.</td><td>2.289</td><td>1.117</td><td>1.881</td><td>-</td></tr><tr><td>2.</td><td>2.746 (New EC)</td><td>-</td><td>-</td><td>2.339</td></tr></table>					Sl No	EC Peak Production Capacity (MTPA)	Actual Production (Million Te)			FY 23-24	FY 24-25	FY 25-26	1.	2.289	1.117	1.881	-	2.	2.746 (New EC)	-	-	2.339
Sl No	EC Peak Production Capacity (MTPA)	Actual Production (Million Te)																						
		FY 23-24	FY 24-25	FY 25-26																				
1.	2.289	1.117	1.881	-																				
2.	2.746 (New EC)	-	-	2.339																				
1.5	Validity of EC is as per life of the mine mentioned in EC letter or 30 years as per EIA Notification, 2006 and its amendments therein.	Agreed																						
2.	Air Quality Monitoring And Mitigation Measure																							
2.1	Project proponent shall obtain requisite consent from State Pollution Control Board for 2.746 MTPA coal mining.	Being Complied. Application has been made to JSPCB.																						
2.2	Adequate ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring of	The optimum location of monitoring stations in Jharia Coal Field finalized in consultation with the Jharkhand State Pollution Control Board. The Approval of location issued by JSPCB is attached below.																						

pollutants, namely particulates, SO₂ and NO_x. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive receptors in consultation with the State Pollution Control Board.

Ph: 0326-2204933

झारखण्ड राज्य प्रदूषण नियंत्रण बोर्ड
Jharkhand State Pollution Control Board
HIG-I, Housing Colony, Dhanbad-826001

Letter No. 2659 Dated 6/2/13

From, Regional Officer, Dhanbad

To, HOD (Envt.), M/s. B.C.C.L., Koyla Bhawan, Koyla Nagar, Dhanbad.

Sub: Fixing up monitoring station/Sampling location of Air, Water & Noise.

Sir, With reference to you letter no. GM(Envt)/F-JSPCB/2013/783, dt. 06.07.2013 We have approved Air, Water & Noise monitoring Station/Sampling location after verification and return a copy of the map.

Encl-A/a.

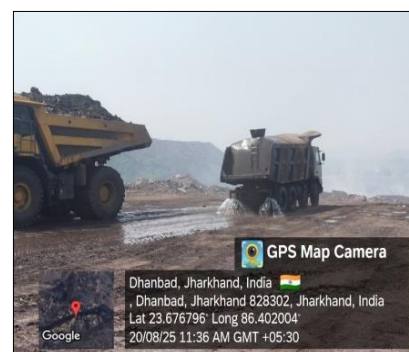
Your's faithfully,
(Dinesh Prasad Singh)
Regional Officer.

Memo..... Dhanbad, dated.....
Copy to: The Member Secretary, Jharkhand State Pollution Control Board for information & enclose a copy of the map for necessary action.

(Dinesh Pd. Singh)
Regional Officer.

Ambient air quality is being regularly monitored by CMPDIL. Report is enclosed as Annexure XIII – Environmental Monitoring Report for cluster X.

Water Sprinkling in Mine Premises has been regularly done to reduce PM₁₀ and PM_{2.5} level. Picture showing water sprinkling on haul road, transport road and mine premises is attached.



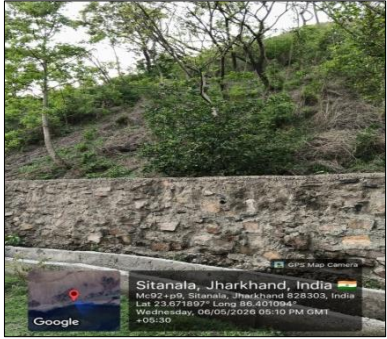
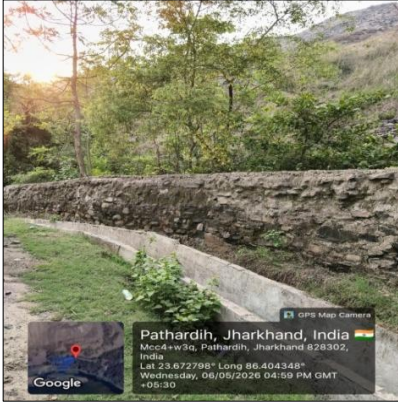
2.4	Effective control measures such as regular water sprinkling/rain gun/ Fog cannon /mist sprinkling etc., shall be carried out in critical areas prone to air pollution with higher level of particulate matter all through the coal
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Water Sprinkling/ Fog cannon/ mist sprinkling is being regularly used to control particulate matter like PM10 and PM2.5 level in mine Premises, coal transport roads, etc. For control of air / dust pollution, eight (08) nos. of Mobile water sprinkler are deployed for water sprinkling. Two no. of Truck Mounted Fog Canon and four no. of Trolley Mounted Fog Canon are



	transport roads, loading/unloading and transfer points. Fugitive dust emissions from all 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.	operational in the area. Wheel washing facility installed at ASP colliery and tender for one wheel washing arrangement in Bhowra (N&S) colliery is done. Fifteen (15) no. of Fixed Sprinklers installed and commissioned at Weigh Bridge and one Mechanical Sweeper has been procured and being operational for regular cleaning of transport roads. Regular air quality monitoring is done by CMPDIL. Picture showing water sprinkling is attached.
2.5	Major approach roads shall be black topped and properly maintained.	Work of Construction of PQC Coal transportation Road of total length 1700 mtr at various places under EJ Area has been completed. Copy of work completion is attached as Annexure XIV.
2.6	Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining 'PUC' certificate from the authorized pollution testing centers.	Vehicular emissions are being under control and Coal transportation vehicles with valid PUC certificates are being used for transportation on public roads. The Pollution under control certificate has been attached as Annexure- XV.
2.7	PP should Install Wind breaker/shield arrangement along the railway siding for reducing the dust propagation in	Being complied.

	upwind direction.													
3.	Water Quality Monitoring and Mitigation Measures													
3.1	PP shall take approval from the CGWA/ Competent Authority prior to commencement of mining Operations.	NOC for Ground water abstraction has been already obtained from Central Ground Water Authority (CGWA) and renewal of NOC for Ground water abstraction for Cluster X has been also obtained from CGWA vide ref. no. CGWA/NOC/MIN/REN/1/2025/11321 dated 03.04.2025. Copy attached as Annexure- XVI.												
3.2	The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25th September 2000 and as amended from time to time by the Central Pollution Control Board.	Oil & Grease trap system at workshop under EJ Area is constructed with value of Rs 9,20,103/- and has been made operational. No any Effluents discharged into natural water course.  Oil & Grease System under Cluster X												
3.3	The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No.J-20012/1/2006-IA.11 (M) dated 27th May 2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for its compliance.	The monitoring data along with compliance status of the stipulated environmental clearance conditions has been uploaded on BCCL website, link is given below:- https://www.bcclweb.in/?page_id=4731&lang=en .												
3.4	Garland drains (of suitable size, gradient and length) around the critical areas i.e. mine shaft and low lying areas, shall be designed keeping at least 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. The sump capacity shall also provide adequate retention period to allow proper settling of silt material of the surface runoff.	Garland drain and Toe wall/ retaining wall along the stabilized OB dump is present. Construction of Toe wall of 780 m was done in Bhowra South colliery and 365 m toe wall was constructed along OB dump in ASP colliery. Furthermore, work order of Rs. 39.49 lakh has been issued for the “<i>work of heightening of existing toe wall, converting existing garland drain to pucca and siltation pond along OB dump</i>” near river/water body. Work of Heightening of existing toe wall of 780 mtr and 700 m of pucca garland drains and siltation pond have been constructed wrt above work order. (copy of work order is attached as Annexure -VIII) Further OB dump is being stabilized through biological reclamation/ ecological restoration technique. No mine water is being discharged into Damodar river. <table border="1"> <thead> <tr> <th>Toe wall</th><th>Colliery</th><th>Length (in m)</th></tr> </thead> <tbody> <tr> <td>Toe wall around OB Dump</td><td>ABNS colliery</td><td>780 m</td></tr> <tr> <td>Toe wall around OB Dump</td><td>ASP Colliery</td><td>365 m</td></tr> <tr> <td>Pucca Garland drain around OB dump</td><td>ABNS colliery</td><td>Approx. 700 m</td></tr> </tbody> </table>	Toe wall	Colliery	Length (in m)	Toe wall around OB Dump	ABNS colliery	780 m	Toe wall around OB Dump	ASP Colliery	365 m	Pucca Garland drain around OB dump	ABNS colliery	Approx. 700 m
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Pucca Garland drain around OB dump	ABNS colliery	Approx. 700 m												

		     
3.5	The water pumped out from the mine, after siltation, shall be utilized for industrial purpose viz. watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.	Mine water is being used for the industrial purpose like water sprinkling to suppress dust generation, etc. Further Mine water is also utilized for the community purposes. Every year monsoon preparation programme is carried out by colliery / mines before the onset of monsoon for protection of mines from rain water flow and to maintain the drains clean properly.
3.6	Industrial wastewater from coal handling plant and mine water shall be properly collected and treated so as to conform to the standards prescribed under the Environment (Protection) Act, 1986 and the Rules made thereunder, and as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluent. Sewage treatment plant of adequate capacity shall be installed for treatment of domestic wastewater.	There is no CHP in Cluster X. Mine water quality is being regularly monitored by CMPDIL. Physico-Chemical characteristics of effluents are well within the prescribed limit and report is attached as Annexure- VII. Oil & Grease trap system at workshop under EJ Area is constructed and has been made operational. Sewage treatment plant will be installed at Mohalbani colony of EJ area.

3.7	The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations shall be prepared, considering the presence of any river/rivulet/pond/lake etc., with impact of mining activities on it, and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the provisions of the approved Mining Plan/ EIA-EMP submitted to this Ministry and the same should be done with due approval of the concerned State/Gol Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved mining plan and as per the permission of DGMS.	Work for “Preparation of Surface drainage plan including surface water conservation plan for the area of influence affected by the mining operations and preparation of revarian /riparian ecosystem conservation and management plan for the Cluster X” has been awarded to IIT (ISM) Dhanbad. Copy of work order is attached as Annexure- XVII. Every year monsoon preparation programme is carried out by colliery / mines before the onset of monsoon for protection of mines from rain water flow and to maintain a safe distance from nalas flowing or small water bodies protection in the lease boundary.
3.8	The project proponent shall take all precautionary measures to ensure reverian/ riparian ecosystem in and around the coal mine upto a distance of 5 km. A revarian /riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government.	All precautionary measures are being taken to ensure reverian/ riparian ecosystem in and around the coal mine. Quotations for “preparation of revarian /riparian ecosystem conservation and management plan for the Cluster X” has been sought from different institute like NIH/ IITs / NITs/ WRD and after scrutiny and final approval of proposal, work order has been issued to IIT (ISM) Dhanbad for “Preparation of Surface drainage plan including surface water conservation plan for the area of influence affected by the mining operations and preparation of revarian /riparian ecosystem conservation and management plan for the Cluster X”. Copy of work order is attached as Annexure- XVII.
3.9	Industrial effluent and domestic wastewater shall be treated in the Effluent treatment Plant (ETP) and Sewage Treatment Plant (STP). After treatment, treated water shall be reused for plantation.	Mine water & ground water quality is being regularly monitored by CMPDIL. Physico-Chemical characteristics of effluents are well within the prescribed limit. Oil & Grease trap system at workshop under EJ Area is constructed and has been made operational.
4.	Noise And Vibration Monitoring and Prevention	
4.1	Adequate measures shall be taken for control of noise levels as per Noise Pollution Rules, 2016 in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with personal protective equipments (PPE) like ear plugs/muffs in conformity with the prescribed	Regular maintenance of HEMM is being done. However, ear muffs / ear plugs are provided to the workers engaged in blasting and drilling operations, HEMM operations etc. Regular monitoring of Noise levels is being done by CMPDIL. The Noise levels are below the Ambient Noise Standard (Day time 75 dB & Night Time (70 dB for Industrial Area).

	norms and guidelines in this regard. Adequate awareness programme for users to be conducted. Progress in usage of such accessories to be monitored.	CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED Environment Laboratory, Regional Institute-II Ambient Noise Level Test Report CMPDI, 60-8 KOYA BHAWAN COMPLEX BISMARCK, 833006 Phone: 0326-233-986 email: rdt@cmpdi.coindia.in <table><tr><td>Month & Year</td><td>03/2026</td><td>Cluster</td><td>Cluster X</td><td>ULR No.</td><td>TC143126000025017</td></tr><tr><td>Customer</td><td colspan="4">Environmental Department, Bharat Coking Coal Limited (BCL), Koyla Bhawan, Bhandorf (E-mail: guesst@bcl.coindia.in)</td><td>Date of Issue</td><td>04.05.2026</td></tr><tr><td>Project</td><td colspan="4">Sample Ref. No.</td><td>Sampling Method</td><td>CMPDI/RS/12/PW/12</td></tr><tr><td>Sampling Station</td><td>1</td><td>Shivrajpur North</td><td>Date of Sampling</td><td>05.03.26</td><td>State Category of Station</td><td></td></tr><tr><td>Sl. No.</td><td>Parameter</td><td>Hour / Time of day</td><td>Observed Value (in Leq dB(A))</td><td>Method of Analysis</td><td>Range of Testing</td><td>LDL</td></tr><tr><td>1</td><td rowspan="15">Noise Level dB(A)eq Day</td><td>06:00-07:00</td><td>52.6</td><td rowspan="15">CPCB Protocol for Ambient Level Noise Monitoring - 2015</td><td rowspan="15">35 dB-135 dB</td><td rowspan="15">35 dB(A)</td></tr><tr><td>2</td><td>07:00-08:00</td><td>55.6</td></tr><tr><td>3</td><td>08:00-09:00</td><td>55.7</td></tr><tr><td>4</td><td>09:00-10:00</td><td>49.9</td></tr><tr><td>5</td><td>10:00-11:00</td><td>46.4</td></tr><tr><td>6</td><td>11:00-12:00</td><td>49.9</td></tr><tr><td>7</td><td>12:00-13:00</td><td>47.2</td></tr><tr><td>8</td><td>13:00-14:00</td><td>39.6</td></tr><tr><td>9</td><td>14:00-15:00</td><td>43.4</td></tr><tr><td>10</td><td>15:00-16:00</td><td>50.6</td></tr><tr><td>11</td><td>16:00-17:00</td><td>44.1</td></tr><tr><td>12</td><td>17:00-18:00</td><td>40.9</td></tr><tr><td>13</td><td>18:00-19:00</td><td>40.9</td></tr><tr><td>14</td><td>19:00-20:00</td><td>40.9</td></tr><tr><td>15</td><td>20:00-21:00</td><td>46.5</td></tr><tr><td>16</td><td rowspan="5">Noise Level dB(A)eq Night</td><td>22:00-23:00</td><td>43.9</td><td rowspan="5">CPCB Protocol for Ambient Level Noise Monitoring - 2015</td><td rowspan="5">35 dB-135 dB</td><td rowspan="5">35 dB(A)</td></tr><tr><td>17</td><td>23:00-00:00</td><td>40.9</td></tr><tr><td>18</td><td>00:00-01:00</td><td>40.9</td></tr><tr><td>19</td><td>01:00-02:00</td><td>40.9</td></tr><tr><td>20</td><td>02:00-03:00</td><td>40.9</td></tr><tr><td>21</td><td rowspan="5">Long Night</td><td>03:00-04:00</td><td>40.9</td><td rowspan="5">CPCB Protocol for Ambient Level Noise Monitoring - 2015</td><td rowspan="5">35 dB-135 dB</td><td rowspan="5">35 dB(A)</td></tr><tr><td>22</td><td>04:00-05:00</td><td>40.9</td></tr><tr><td>23</td><td>05:00-06:00</td><td>40.9</td></tr><tr><td>24</td><td>06:00-07:00</td><td>40.9</td></tr><tr><td>25</td><td>07:00-08:00</td><td>40.9</td></tr><tr><td>26</td><td colspan="2">Long Night</td><td>40.9</td><td></td><td></td><td></td></tr></table> ANALYSED BY REVIEWED BY Authorised Signatory Note: The results above relate to the samples tested as received. This report can not be reproduced in part or full without the written permission of the HOD(Env), CMPDI, RI-II. Page: 1 of 1	Month & Year	03/2026	Cluster	Cluster X	ULR No.	TC143126000025017	Customer	Environmental Department, Bharat Coking Coal Limited (BCL), Koyla Bhawan, Bhandorf (E-mail: guesst@bcl.coindia.in)				Date of Issue	04.05.2026	Project	Sample Ref. No.				Sampling Method	CMPDI/RS/12/PW/12	Sampling Station	1	Shivrajpur North	Date of Sampling	05.03.26	State Category of Station		Sl. No.	Parameter	Hour / Time of day	Observed Value (in Leq dB(A))	Method of Analysis	Range of Testing	LDL	1	Noise Level dB(A)eq Day	06:00-07:00	52.6	CPCB Protocol for Ambient Level Noise Monitoring - 2015	35 dB-135 dB	35 dB(A)	2	07:00-08:00	55.6	3	08:00-09:00	55.7	4	09:00-10:00	49.9	5	10:00-11:00	46.4	6	11:00-12:00	49.9	7	12:00-13:00	47.2	8	13:00-14:00	39.6	9	14:00-15:00	43.4	10	15:00-16:00	50.6	11	16:00-17:00	44.1	12	17:00-18:00	40.9	13	18:00-19:00	40.9	14	19:00-20:00	40.9	15	20:00-21:00	46.5	16	Noise Level dB(A)eq Night	22:00-23:00	43.9	CPCB Protocol for Ambient Level Noise Monitoring - 2015	35 dB-135 dB	35 dB(A)	17	23:00-00:00	40.9	18	00:00-01:00	40.9	19	01:00-02:00	40.9	20	02:00-03:00	40.9	21	Long Night	03:00-04:00	40.9	CPCB Protocol for Ambient Level Noise Monitoring - 2015	35 dB-135 dB	35 dB(A)	22	04:00-05:00	40.9	23	05:00-06:00	40.9	24	06:00-07:00	40.9	25	07:00-08:00	40.9	26	Long Night		40.9			
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Customer	Environmental Department, Bharat Coking Coal Limited (BCL), Koyla Bhawan, Bhandorf (E-mail: guesst@bcl.coindia.in)				Date of Issue	04.05.2026																																																																																																																												
Project	Sample Ref. No.				Sampling Method	CMPDI/RS/12/PW/12																																																																																																																												
Sampling Station	1	Shivrajpur North	Date of Sampling	05.03.26	State Category of Station																																																																																																																													
Sl. No.	Parameter	Hour / Time of day	Observed Value (in Leq dB(A))	Method of Analysis	Range of Testing	LDL																																																																																																																												
1	Noise Level dB(A)eq Day	06:00-07:00	52.6	CPCB Protocol for Ambient Level Noise Monitoring - 2015	35 dB-135 dB	35 dB(A)																																																																																																																												
2		07:00-08:00	55.6																																																																																																																															
3		08:00-09:00	55.7																																																																																																																															
4		09:00-10:00	49.9																																																																																																																															
5		10:00-11:00	46.4																																																																																																																															
6		11:00-12:00	49.9																																																																																																																															
7		12:00-13:00	47.2																																																																																																																															
8		13:00-14:00	39.6																																																																																																																															
9		14:00-15:00	43.4																																																																																																																															
10		15:00-16:00	50.6																																																																																																																															
11		16:00-17:00	44.1																																																																																																																															
12		17:00-18:00	40.9																																																																																																																															
13		18:00-19:00	40.9																																																																																																																															
14		19:00-20:00	40.9																																																																																																																															
15		20:00-21:00	46.5																																																																																																																															
16	Noise Level dB(A)eq Night	22:00-23:00	43.9	CPCB Protocol for Ambient Level Noise Monitoring - 2015	35 dB-135 dB	35 dB(A)																																																																																																																												
17		23:00-00:00	40.9																																																																																																																															
18		00:00-01:00	40.9																																																																																																																															
19		01:00-02:00	40.9																																																																																																																															
20		02:00-03:00	40.9																																																																																																																															
21	Long Night	03:00-04:00	40.9	CPCB Protocol for Ambient Level Noise Monitoring - 2015	35 dB-135 dB	35 dB(A)																																																																																																																												
22		04:00-05:00	40.9																																																																																																																															
23		05:00-06:00	40.9																																																																																																																															
24		06:00-07:00	40.9																																																																																																																															
25		07:00-08:00	40.9																																																																																																																															
26	Long Night		40.9																																																																																																																															
4.2	The noise level survey shall be carried out as per the prescribed guidelines to assess noise exposure of the workmen at vulnerable points in the mine premises, and report in this regard shall be submitted to the Ministry/RO on six-monthly basis.	Regular monitoring of noise levels is being done by CMPDIL (A NABL Accredited Lab). The Noise levels are below the Ambient Noise Standard (Day time 75 dB & Night Time (70 dB for Industrial Area). Env't. Monitoring report including noise quality are enclosed herewith as Annexure XIII.																																																																																																																																
5.	Mining Plan																																																																																																																																	
5.1	Project proponent shall obtain star rating as per the guidelines of Ministry of Coal.	Yearly star rating is being applied for the mines of Cluster X as per the guidelines of Ministry of Coal, GOI.																																																																																																																																
5.2	Mining shall be carried out under strict adherence to provisions of the Mines Act 1952 and subordinate legislations made there-under as applicable.	Agreed Mining is being done as per the Coal Mines Regulation (CMR) Act and subordinate legislations made there-under as applicable.																																																																																																																																
5.3	No change in mining method, calendar programme and scope of work shall be made without obtaining prior approval of the Ministry of Environment, Forests and Climate Change (MoEFCC).	No change in mining method, calendar programme and scope of work will be made without obtaining prior approval from MoEFCC.																																																																																																																																
5.4	Mining shall be carried out as per the approved mining plan (including Mine Closure Plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General Mines Safety (DGMS).	Mining is being carried out as per the approved mining plan and relevant circulars issued by Directorate General Mines Safety (DGMS).																																																																																																																																
5.5	Efforts should be made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy.	Agreed to comply. Efforts is being made to reduce energy and fuel consumption in the mining operations and allied activities by: - Renewable energy installations - Using Energy efficient appliances - Using Electrical vehicles.																																																																																																																																
6.	Land Reclamation																																																																																																																																	
6.1	Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for	A Time series of land use maps based on satellite imagery of the core zone and buffer zone in the Jharia Coal Field has been carried out through CMPDI, Ranchi and on every three years it will be done regularly.																																																																																																																																

monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change (MoEF&CC) from time to time shall be submitted to the Regional Office of MoEF&CC.



Table 1
Area of 2025, Cluster X, Area of 2025, Cluster X

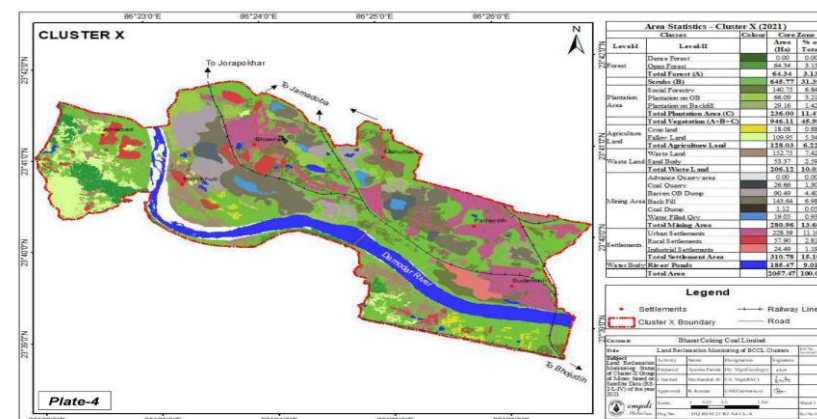
Year	Area of 2025, Cluster X
2022-23	66.09
2023-24	29.16
2024-25	140.75
2025-26	645.77
2026-27	64.34
2027-28	946.11

Table 2
Area of 2025, Cluster X, Area of 2025, Cluster X

Year	Area of 2025, Cluster X
2022-23	3.21
2023-24	1.42
2024-25	6.84
2025-26	31.39
2026-27	3.13
2027-28	45.98

Time series of land use maps based on satellite imagery of the core zone and buffer zone is attached as Annexure – XVIII. Details of vegetation cover under Cluster X is given below, as per the time series map of vegetation cover report:

Land use / Reclamation status	Area (in Ha)	%
a.) Plantation on OB dump	66.09	3.21
b.) Plantation on Backfill area (Biological Reclamation)	29.16	1.42
c.) Social Forestry / Avenue Plantation	140.75	6.84
d.) Shrubs	645.77	31.39
e.) Other Plantation area	64.34	3.13
Total area under Vegetation	946.11	45.98



6.2 The final mine void depth should preferably be as per the approved Mine Closure Plan, and in case it exceeds 40 m, adequate engineering interventions shall be provided for sustenance of aquatic life therein. The remaining area shall be backfilled and covered with thick and alive top soil. Post-mining land be rendered usable for agricultural/forestry purposes and shall be diverted. Further action will be treated as specified in the guidelines for Preparation of Mine Closure Plan issued by the Ministry of Coal dated 27th August, 2009 and subsequent amendments.

This is final mine closure activity. However, Mining activities and mine closure activities is being done as per approved Mining Plan and Mine Closure Plan. Mining Plan and Mine Closure Plan of Bhowra (North & south) colliery and Amalgamated Sudamdih Patherdih (ASP) has been approved in 414th & 419th BCCL Board meeting dated 19.10.2024 and 18.03.2025 respectively and attached as annexure- XI.

6.3

The entire excavated area, backfilling, external OB dumping (including top soil) and afforestation plan shall be in conformity with the “during mining”/“post mining” land-use pattern, which is an integral part of the approved Mining Plan and the EIA/EMP submitted to this Ministry. Progressive compliance status vis-a-vis the post mining land use pattern shall be submitted to the MOEFCC/RO.

Action is being taken as specified in approved Mining plan and mine closure plan and EMP. O.B. removed from mine/collieries are back filled in old/ abandoned quarry/voids. At the end of the mining, there shall not be voids and area will be re-vegetated and reclaimed with the proper eco-restoration techniques suggested by the experts available in BCCL and in external agencies i.e. FRI Dehradun, CEMDE Delhi. Year wise data of OB removal, excavated area, backfilled area is given below:

UNIT WISE OB REMOVED (IN Mm³) OF CLUSTER X

Mine Name	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Bhowra North	0.503	1.173	0.322	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.982	-
Bhowra South	0.582	0.318	6.223	4.492	3.488	2.206	3.854	3.994	3.454	5.113	9.916	8.324	-
ABNS Colliery	Amlg. Bhowra North South Colliery (from 2025-26)												18.876
ASP Colliery	0.260	0.077	1.364	1.535	1.127	0.924	0.586	2.170	2.056	1.847	1.441	2.762	3.882
Sudamdih Shaft	-	-	-	-	-	-	-	-	-	-	-	-	-
Amlabad UG	-	-	-	-	-	-	-	-	-	-	-	-	-
Total (Cluster X)	1.345	1.568	7.908	6.027	4.615	3.129	4.440	6.164	5.510	6.960	11.357	29.068	22.758

UNIT WISE EXCAVATED AREA (IN Ha) OF CLUSTER X

Mine Name	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Bhowra North – Mix	12.50	10.42	0.00	0.00	0.00	0.00	0	0	0	0	0	30.37	-
Bhowra South – Mix	4.23	2.71	5.81	8.29	8.92	7.82	2.77	5.85	22.0	13.0	13.50	17.77	-
	(29.97*)			(16.44*)									
ABNS	Amlg. Bhowra North South Colliery (from 2025-26)												35.65
ASP Colliery	0.96	0.60	0.58	0.51	0.52	18.90*			1.33		10.06		11.48
Sudamdih Shaft	-	-	-	-	-	-	-	-	-	-	-	-	-
Amlabad UG	-	-	-	-	-	-	-	-	-	-	-	-	NA

* Data showing cumulative excavated area of Bhowra south (mix) from 2013-14 to 2017-18 & 2018-19 to 2020-21

UNIT WISE BACKFILLING DATA (IN HA) OF CLUSTER X

Mine Name	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Bhowra North-Mix	1.76	3.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	-
Bhowra South-Mix	4.10	6.50	6.50	5.24	5.24	0.00	0.00	0.00	0.00	0.00	2.50	0	-
ABNS Colliery	Amlg. Bhowra North South Colliery (from 2025-26)												8.65
ASP Colliery - OC	1.93	0.96	0.6	0.58	0.51	16.4		3.56		0.00	0.00	11.73	0.00
Sudamdih Shaft	-	-	-	-	-	-	-	-	-	-	-	-	-
Amlabad UG	-	-	-	-	-	-	-	-	-	-	-	-	-

6.4

Further, it may be ensured that as per the time schedule specified in mine closure plan it should remain live till the point of utilization. The topsoil shall temporarily be stored at earmarked site(s) only and shall not be kept unutilized. The top soil shall be used for land reclamation and plantation purposes. Active OB dumps shall be stabilized with native grass species to prevent erosion and surface run off. The other overburden dumps shall be vegetated with native flora species. The excavated area shall be backfilled and afforested in line with the approved Mine Closure Plan. Monitoring and management of

Top soil is being use regularly for spreading on OB dump for plantation purpose. OB dumps is being stabilized with grassing and native species tree saplings. Existing & abandoned quarries are being filled as per approved Mining Plan and Mine Closure Plan mine/colliery. Mine closure activities is being done as per time schedule mentioned in the approved mine closure plan.

After physical reclamation/backfilling, biological reclamation has been done on OB dumps which is as follows:

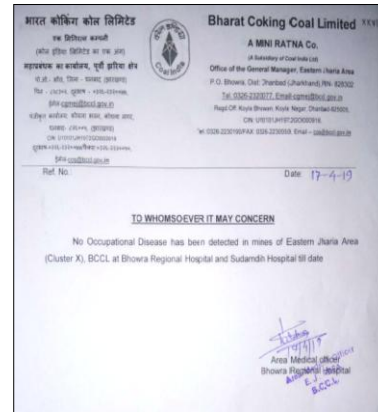
AREA OF ECOLOGICAL RESTORATION SITES / PLANTATION / BIOLOGICAL RECLAMATION (in Ha.)

Colliery / Mine Name	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Bhowra North	-	-	-	5.20	3.10	-	-	-	-	-	-	-	-
Bhowra South	-	4.78	-	-	-	4.50	-	-	2.60	-	-	-	-
ABNS Colliery	Amlg. Bhowra North South Colliery (from 2025-26)												15.0
ASP Colliery	-	3.95	5.71	-	-	-	-	22.10	-	-	6.0	-	-
Sudamdih Shaft	-	-	-	-	-	-	-	-	-	-	-	-	-
Amlabad UG	-	-	-	-	-	-	-	-	-	-	-	-	-
Total (in Ha.)	-	8.73	5.71	5.20	3.10	4.50	-	22.10	2.60	-	6.0	-	15.0

	rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forest and Climate Change/ Regional Office.	 Biologically stabilized OB dumps  Grassing on OB dumps																																																																														
6.5	The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.	Not applicable for Cluster X as there is No grazing land is involved in cluster X core zone.																																																																														
7.	Public Hearing and Human Health Issues																																																																															
7.1	Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored.	Adequate illumination is being ensured in all mine locations as per DGMS standards.																																																																														
7.2	The project proponent shall undertake occupational health survey for initial and periodical medical examination of the personnel engaged in the project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS circulars. Besides regular periodic health check-up, 20% of the personnel identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, as amended time to time.	Regular Initial Medical Examination (IME) and Periodical Medical Examination (PME) of all the personnel are carried out as per the Statutes and Director General of Mines Safety (DGMS) guideline. IME, PME and VTC details are given below: <table><tr><th></th><th>Year</th><th>Target</th><th>Actual</th></tr><tr><td rowspan="10">PME</td><td>2016</td><td>951</td><td>993</td></tr><tr><td>2017</td><td>891</td><td>927</td></tr><tr><td>2018</td><td>385</td><td>464</td></tr><tr><td>2019</td><td>1073</td><td>896</td></tr><tr><td>2020</td><td>1221</td><td>1036</td></tr><tr><td>2021</td><td>569</td><td>629</td></tr><tr><td>2022</td><td>608</td><td>603</td></tr><tr><td>2023</td><td>657</td><td>604</td></tr><tr><td>2024</td><td>683</td><td>414</td></tr><tr><td>2025</td><td>618</td><td>481</td></tr><tr><td rowspan="10">VTC</td><td>2016-17</td><td>472</td><td>488</td></tr><tr><td>2017-18</td><td>338</td><td>392</td></tr><tr><td>2018-19</td><td>343</td><td>386</td></tr><tr><td>2019-20</td><td>414</td><td>455</td></tr><tr><td>2020-21</td><td>461</td><td>557</td></tr><tr><td>2021-22</td><td>360</td><td>325</td></tr><tr><td>2022-23</td><td>360</td><td>343</td></tr><tr><td>2023-24</td><td>317</td><td>276</td></tr><tr><td>2024-25</td><td>364</td><td>294</td></tr><tr><td>2025-26</td><td>335</td><td>207</td></tr></table> <table><tr><th>Contractual Workers:</th><th>Training</th><th colspan="2">IME</th></tr><tr><td>2014-15</td><td>15</td><td>2014-15</td><td>15</td></tr><tr><td>2015-16</td><td>78</td><td>2015-16</td><td>74</td></tr></table>		Year	Target	Actual	PME	2016	951	993	2017	891	927	2018	385	464	2019	1073	896	2020	1221	1036	2021	569	629	2022	608	603	2023	657	604	2024	683	414	2025	618	481	VTC	2016-17	472	488	2017-18	338	392	2018-19	343	386	2019-20	414	455	2020-21	461	557	2021-22	360	325	2022-23	360	343	2023-24	317	276	2024-25	364	294	2025-26	335	207	Contractual Workers:	Training	IME		2014-15	15	2014-15	15	2015-16	78	2015-16	74
	Year	Target	Actual																																																																													
PME	2016	951	993																																																																													
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2016-17	78	2016-17	62
2017-18	163	2017-18	124
2018-19	111	2018-19	111
2019-20	Nil	2019-20	Nil
2020-21	Nil	2020-21	Nil
2021-22	Nil	2021-22	96
2022-23	196	2022-23	203
2023-24	32	2023-24	Nil
2024-25	Nil	2024-25	Nil
2025-26	10	2025-26	30

Certificate of the area medical officer showing no occupational disease has been detected in the Cluster X group of mines is attached.



7.3 Personnel (including outsourced employees) working in core zone shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.

It is being complied. All Personnel working in mines are provided with respiratory masks and safety eyeglass to protect the dust ingestion. Year wise details of protective respiratory devices / dust mask issued is given below:

DETAILS OF PROTECTIVE RESPIRATORY DEVICES / DUST MASK ISSUED

Mine Name	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Bhowra North	200	180	70	220	Nil	Nil	-	-	34	-
Bhowra South	38	119	80	110	320	280	-	-	116	-
ABNS colliery	Amlg. Bhowra North South Colliery (from 2025-26)									181
ASP Colliery	65	68	72	50	220	190	-	-	85	115

A separate full-fledged Human Resource Development (HRD) Department is conducting regular training programs on safety and health issues. Apart from this, Vocational Training Center (VTC) exist in E.J. area (cluster X), which provides periodical training on the safety and occupational health issue to workers working in the mines. Mine Pit level, Bipartite and Tripartite level safety meeting is being regularly done for awareness of safety and health aspects at mine, area, and HQ level respectively.

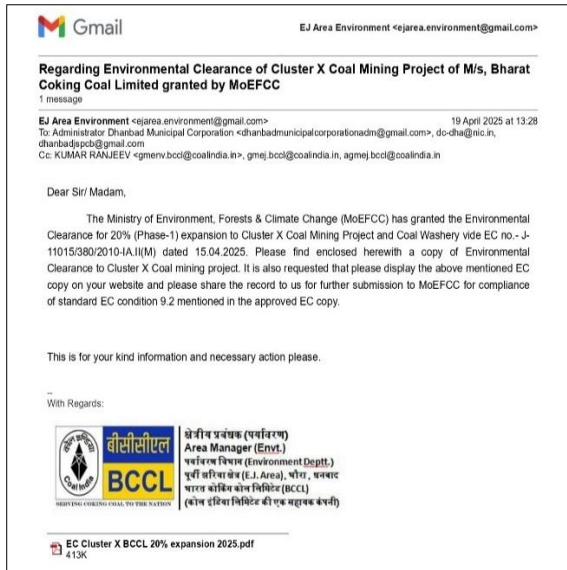


Pit level Safety meeting



Bipartite Safety meeting

7.4	Skill training as per safety norms specified by DGMS shall be provided to all workmen including the outsourcing employees to ensure high safety standards in mines.	Skill training as per safety norms specified by DGMS is being carried out at a separate full-fledged Human Resource Development (HRD) Department, BCCL. Apart from this, Group Vocational Training Center (GVTC) exist in E.J. area (cluster X), which provides periodical training on the safety and occupational health issue to workers (including contractual worker) working in the mines.
7.5	Effective arrangement shall be made to provide and maintain at suitable points conveniently situated, a sufficient supply of drinking water for all the persons employed.	Suitable arrangement has been made for drinking water for the persons employed in the mines.
7.6	The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z11013/5712014-IA.11 (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area'.	Agreed to comply.
8.	Corporate Environment Responsibility	
8.1	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental/forest/wildlife norms/ conditions. The company shall have defined system of reporting infringements/deviation/violation of the environmental/forest/wildlife norms/ conditions and/or shareholders/stake holders.	A revised Corporate Environment Policy 351.4(G) has already been laid down and approved in 377th Board meeting by the Board of Directors. This is also posted on BCCL website link- http://www.bcclweb.in/environment/CEP_04.11.2019.pdf The environmental policy have prescribed standard operating procedures to have proper checks and balance and attached as Annexure – XIX. A hierarchical system of the company to deal with environmental issues from corporate level to mine level already exists.
8.2	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.	A full-fledged Environment Department, headed by a HoD (Environment) along with a suitable qualified multidisciplinary team of executives which includes Environment, Mining, Excavation, Civil executives and technicians has been established in Headquarters. They are also trained in ecological restoration, sustainable development, rainwater

		harvesting methods etc. The team is multidisciplinary and very much motivated under the guidance of company's Director (Technical) and CMD. Further capacity building at both corporate and operating level is being done. At the project level, two Executives in each area have been appointed as Environment Officer and are also entrusted with the responsibility of compliance and observance of the environmental acts/ laws including environment protection measures. The activities are monitored on regular basis at Area and at Head quarter levels. HoD (Environment) at head quarter level, co-ordinates with all the Areas and reports to the Director (Technical) and in turn he reports to the CMD of the company.
9.	Miscellaneous	
9.1	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.	It has been complied. Advertisement in local newspaper has also been done.  
9.2	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.	A copy of EC letter sent to Municipal corporation / panchayat, DC office & RO, JSPCB is attached. 
9.3	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and	Copy of EC letter of cluster X has been displayed on BCCL website and also attached as Annexure- XX. Link- https://www.bcclweb.in/Environment%20Clearance/Cluster-X_EC.pdf

	update the same on half-yearly basis.	Status of six monthly EC conditions and monitoring data are uploaded on company website, link is - https://bcclweb.in/?page_id=4731
9.4	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.	Being complied. Six monthly compliance report of Cluster X has been regularly submitted to the MoEFCC portal Parivesh and also a copy of the report is being submitted to CPCB & Jharkhand SPCB office.
9.5	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.	Environmental Statement (Form-V) has been regularly submitted for each financial year to Jharkhand State Pollution Control Board and also attached in six monthly compliance report. Attached as Annexure- XXI.
9.6	The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.	Complied. Status and Six monthly compliance report of Cluster X has been regularly submitted to the IRO office and also updated on MoEFCC Parivesh portal.
9.7	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.	Agreed. Guidelines depicted by State Pollution Control Board and state government are being followed.
9.8	The project proponent shall abide by all the commitments and recommendations made in the EIA/ EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.	Agreed. Company will be abide by all the commitments and recommendations made in the EIA/ EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
9.9	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).	Agreed to comply. Any expansion or modifications in Cluster will be carried out with prior approval from MoEFCC.
9.10	Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Agreed.
9.11	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	Agreed.
9.12	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.	Agreed
9.13	The Regional Office of this Ministry	Project authority is ready to extend its full cooperation for any

	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	kind of visit and inspection conducted by Regional Office in connection with EC Conditions Compliance.
9.14	The above conditions shall 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, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 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	It is being complied.

Y. Kumar
27/5/26
Area Manager (Env't.)
E.J. Area

Arjun
27/5/2026
Project Officer
Amlg. Sudamdih-Patherdih
(ASP) Colliery,
E.J. Area

Anshu
27/5/26
Project Officer
Amlg. Bhowra North & South
(ABNS) Colliery,
E.J. Area

Abhwan
27/5/26
Addl. General Manager
E.J. Area, BCCL
Cluster X

Abhwan
27/5/26
General Manager
E.J. Area, BCCL
Cluster X

LIST OF ANNEXURE

Annexure	Description
I	Transportation Plan RCR
II	Work order for procurement of Continuous Ambient Air Quality Monitoring System (CAAQMS) through GeM portal
III	Work order for Renovation of Bhowra Hospital
IV	Year wise Environmental expenditure made for Cluster X
V	Study on Impact of Mining on Damodar River (Study of Bore wells near Damodar river for Permeability and seepage of water of River Damodar Cluster X Mines of BCCL)
VI	Water Quality Report of Cluster X
VII	Work order for “work of heightening of existing toe wall, converting existing garland drain to pucca and siltation pond along OB dump”
VIII	Jharia Master Plan (JMP) for dealing with fire, subsidence and Rehabilitation in the leasehold of BCCL
IX	Delineation of surface coal fire and Land subsidence in the Jharia coalfield, Dhanbad, Jharkhand from remote Sensing data by NRSC, Hyderabad 2021
IXA	Interim report 2024 for Delineation of surface coal fire and Land subsidence in the Jharia coalfield, Dhanbad, Jharkhand from remote Sensing data by NRSC, Hyderabad
X	Groundwater level & Quality report by CMPDIL
XI	Mining plan and mine closure plan approval of Bhowra (N&S) & ASP Colliery
XII	Regular Environment Monitoring Report for Cluster X
XIIA	Report on Heavy metal analysis in ambient air
XIII	PUC Certificate
XIV	Approval copy of NOC for Ground water abstraction from Central Ground Water Authority (CGWA)
XV	Land Restoration / Reclamation Monitoring of Clusters of (Opencast + Underground) Coal Mines of Bharat Coking Coal Limited based on Satellite Data by CMPDIL
XVI	Corporate Environment Policy (CEP) of BCCL
XVII	Copy of Environment clearance of Cluster X (2013), its amendment (2019) and enhancement in EC (2025)
XVIII	Environmental Statement / Form V copy



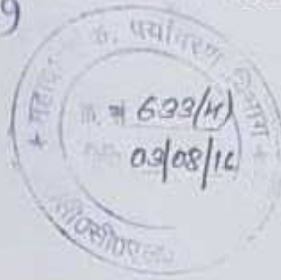
cmpdi
A Mini Ratna Company

सदर माइन प्लानिंग एंड डिजाइन इंस्टीट्यूट लिमिटेड
(कोल इंडिया लिमिटेड की अनुषंगी कम्पनी / भारत सरकार की एक लोक उपक्रम)
पंजीकृत कार्यालय : गोंदवाना प्लेस, कान्के रोड, राँची - 834031 (झारखण्ड) भारत
क्षेत्रीय संस्थान-2, पत्रा. बीसीसीएल टाउनशिप, कोयला नगर, धनबाद 826005 (झारखण्ड) भारत
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Registered Office : Gondwana Place, Kanke Road, Ranchi - 834031 (Jharkhand)
Regional Institute-II, P.O. BCCL Township, Koytanagar, Dhanbad 826005 (Jharkhand) India
Corporate Identity No. U14292JH1975GOI001223

पत्रांक: आर.आई.-2/पर्यावरण/एम-30/1967-69

दिनांक: 02.08.2016

सेवा में,
✓ विभागाध्यक्ष (पर्यावरण)
बी. सी. सी. एल.
कोयला भवन
धनबाद



विषय: Study of Installation of Rail-cum-Conveyor System in BCCL for transportation of coal.

- संदर्भ: पत्र संख्या: 1. सी.एम.पी.डी.आई./पर्यावरण /2016/663, दिनांक: 14.07.2016,
2. BCCL/Dy.GM (Env)/F-EMP/16/1314-15 (M), Dated: 23.06.2016,
3. आर.आई.- 2/पर्यावरण / एम-30/1150, दिनांक : 20.06.2015.
4. E-17719

महोदय,

In reference to your letter no. BCCL/Dy.GM (Env)/F-EMP/16/1314-15 (M), Dated: 23.06.2016, to GM (Env), CMPDI-HQ, it has already been indicated in letter no. आर.आई.-2/पर्यावरण / एम-30/1150, दिनांक : 20.06.2015 that study for installation of Rail-cum-Conveyor System in BCCL for transportation of coal can be started only after the liquidation of coal mine fire, rehabilitation of 595 unstable sites, road realignment and relocation of railway sidings of BCCL and final report of RITES in regard to realignment of railway lines.

This is for your kind information.

Dr. Anand Kumar Asst. Mgr (Env)
for record
4.8.16.

Dr. Mahesh
3/8/16

भवदीय
(वि.कु. सिन्हा) 1/16
क्षेत्रीय निदेशक

प्रतिलिपि:

1. महाप्रबंधक (पर्यावरण) सी.एम.पी.डी.आई (मुख्यालय), राँची
2. विभागाध्यक्ष (खनन), आर.आई- II, धनबाद



☎ : (+91) 0326-2230850

फैक्स / Fax : (+91) 0326-2230500

वेब साइट / Website : www.cmpdi.co.in

ईमेल / Email : ri2@cmpdi.co.in

अनुबंध | Contract



अनुबंध क्रमांक | Contract No: GEMC-511687775012341

अनुबंध तिथि | Generated Date : 08-Sep-2025

बोली/आरए/पीबीपी संख्या | Bid/RA/PBP No.: [GEM/2025/B/6187426](#)

अनुसूची नाम | Schedule Name: Schedule 2, Schedule 1

संगठन विवरण Organisation Details	खरीदार विवरण Buyer Details
प्ररूप Type : Central PSU मंत्रालय Ministry : Ministry of Coal विभाग Department : COAL INDIA LIMITED संगठन का नाम Organisation Name : Bharat Coking Coal Limited कार्यालय क्षेत्र Office Zone: BCCL Dhanbad Jharkhand	पद Designation : Manager संपर्क नंबर Contact No. : 94705-95938- ईमेल आईडी Email ID : vignesh.m@nic.in जीएसटीआईएन GSTIN : 20AAACB7934MFZB पता Address : MM Department, level 3, Commercial Building, Koyla Bhawan, Koyla Nagar, DHANBAD, JHARKHAND-826005, India

वित्तीय स्वीकृति विवरण Financial Approval Detail	भुगतान प्राधिकरण विवरण Paying Authority Details
आईएफडी सहमति IFD Concurrence : No प्रशासनिक अनुमोदन का पदनाम Designation of Administrative Approval: D(T)P&P वित्तीय अनुमोदन का पदनाम Designation of Financial Approval : GM(MM)/HOD(MM)-P	Role: PAO भुगतान का तरीका Payment Mode: Offline पद Designation : Senior Manager ईमेल आईडी Email ID : pay8.bccldhn@gembuyer.in जीएसटीआईएन GSTIN : 20AAACB7934MFZB पता Address : MM Department, level 3, Commercial Building, Koyla Bhawan, Koyla Nagar, DHANBAD, JHARKHAND-826005, India

विक्रेता विवरण Seller Details
जेम विक्रेता आईडी GeM Seller ID : A866180000503281 कंपनी का नाम Company Name : ANALYSER INSTRUMENT COMPANY PRIVATE LIMITED संपर्क नंबर Contact No. : 09414188611 ईमेल आईडी Email ID : aicplsales@gmail.com पता Address : E-29 (A), ROAD NO.2, I.P.I.AREA, Kota, RAJASTHAN-324005, - एमएसएमई पंजीकरण संख्या MSME Registration number : UDYAM-RJ-24-0003154 जीएसटीआईएन GSTIN: 08AACCA7730N1ZE (R) , (M)
खरीदार द्वारा मूल्यांकित एमआईआई स्थिति MII Status as evaluated by buyer : Verified खरीदार द्वारा सत्यापित एमएसएमई स्थिति MSME Status as verified by buyer : Verified एमएसई सामाजिक श्रेणी MSE Social Category : General एमएसई लिंग श्रेणी MSE Gender : Male

*जिसके नाम के पक्ष में GST/TAX इनवॉइस पेश किया जाएगा | GST / Tax invoice to be raised in the name of - Consignee

वितरण निर्देश | Delivery Instructions : NA

उत्पाद विवरण Product Details						
#	आइटम विवरण Item Description	आइटम विवरण Ordered Quantity	इकाई Unit	इकाई मूल्य (INR) Unit Price (INR)	कर विभाजन (INR) Tax Bifurcation (INR)	मूल्य (INR में सभी शुल्क और कर सहित) Price (Inclusive of all Duties and Taxes in INR)
1	उत्पाद का नाम Product Name : CAAQMS (without PM10 Analyzer) ब्रांड Brand : AIC ब्रांड प्रकार Brand Type : NA कैटलॉग की स्थिति Catalogue Status: NA कैसे बेचा जा रहा है Selling As : NA श्रेणी का नाम और चतुर्थांश Category Name & Quadrant : NA (-) मॉडल Model: CAAQM-SYS एचएसएन कोड HSN Code: 9027	8	set	5,062,800	NA	40,502,400
2	उत्पाद का नाम Product Name : CAAQMS (including PM10 Analyzer) ब्रांड Brand : AIC ब्रांड प्रकार Brand Type : NA कैटलॉग की स्थिति Catalogue Status: NA कैसे बेचा जा रहा है Selling As : NA श्रेणी का नाम और चतुर्थांश Category Name & Quadrant : NA (-) मॉडल Model: CAAQM-SYS एचएसएन कोड HSN Code: 9027	2	set	5,805,000	NA	11,610,000

कुल ऑर्डर मूल्य Total Order Value (in INR)						52,112,400
परिषेवती विवरण Consignee Detail						
क्र.सं. S.No	परिषेवती Consignee	वस्तु Item	लॉट नंबर Lot No.	मात्रा Quantity	दिनांक के बाद डिलीवरी शुरू करना है Delivery Start After	वितरण पूरा कब तक करना है Delivery To Be Completed By
1	पद Designation : - ईमेल आईडी Email ID : ajit.kumar2641@nic.in संपर्क Contact : -9470595213- जीएसटीआईएन GSTIN : - पता Address : Office of General Manager, Barora Area (Area-I), BCCL, P.O. Nawagarh, Dhanbad, Pin code-828306., Dhanbad, JHARKHAND-828306, India	CAAQMS (without PM10 Analyzer)	-	1	08-Sep-2025	07-Mar-2026
2	पद Designation : - ईमेल आईडी Email ID : kumar.vatslya@nic.in संपर्क Contact : 85800-26609- जीएसटीआईएन GSTIN : - पता Address : Depot Officer, Bera Regional Store, Near Dowari colliera, Bastacolla Area, P.O. Dhansar, Dhanbad., Dhanbad, JHARKHAND-828106, India	CAAQMS (including PM10 Analyzer)	-	1	08-Sep-2025	07-Mar-2026
3	पद Designation : - ईमेल आईडी Email ID : ampur.lodna.bccl@nic.in संपर्क Contact : 94388-77464- जीएसटीआईएन GSTIN : 20AAACB7934MFZB पता Address : Office of Depot Officer , Post Office Lodna, DHANBAD, JHARKHAND., Dhanbad, JHARKHAND-828131, India	CAAQMS (without PM10 Analyzer)	-	1	08-Sep-2025	07-Mar-2026
4	पद Designation : - ईमेल आईडी Email ID : johnson.besra@nic.in संपर्क Contact : 84285-63903- जीएसटीआईएन GSTIN : 20AAACB7934MFZB पता Address : Regional Store, Sinidih, Govindpur, Area-3, BCCL, Post-Tundu, Dhanbad, Pincode-828128., Dhanbad, JHARKHAND-828128, India	CAAQMS (without PM10 Analyzer)	-	4	08-Sep-2025	07-Mar-2026
5	पद Designation : - ईमेल आईडी Email ID : shubham.lawaniya@nic.in संपर्क Contact : 62876-98739- जीएसटीआईएन GSTIN : 20AAACB7934MFZB पता Address : BCCL, Kusunda Area, Post: Kusunda, Dhanbad, JHARKHAND-828116, India	CAAQMS (including PM10 Analyzer)	-	1	08-Sep-2025	07-Mar-2026
6	पद Designation : - ईमेल आईडी Email ID : vishal.dwivedi@nic.in संपर्क Contact : - जीएसटीआईएन GSTIN : - पता Address : Regional Store, Bhowra, Ej Area, BCCL, Post. - Bhowra, Dist. - Dhanbad., Dhanbad, JHARKHAND-828302, India	CAAQMS (without PM10 Analyzer)	-	1	08-Sep-2025	07-Mar-2026
7	पद Designation : - ईमेल आईडी Email ID : amdepot.block2.bccl@nic.in संपर्क Contact : - जीएसटीआईएन GSTIN : - पता Address : Depot Officer, Regional Store, Block-II, P.O.-Nudkhurkee, Dist.-Dhanbad, Jharkhand, Pin code-828307., Bokaro, JHARKHAND-828307, India	CAAQMS (without PM10 Analyzer)	-	1	08-Sep-2025	07-Mar-2026
Product Specification for CAAQMS (without PM10 Analyzer)						
विनिर्देश Specification			उप-विनिर्देश Sub-Spec		मूल्य Value	
Custom Specification			Custom Specification		Yes	
व्यापक रखरखाव के लिए शुल्क Comprehensive maintenance charges for CAAQMS (without PM10 Analyzer)						
सेवा वर्ष Service Year		सीएमसी प्रतिशत CMC Percentage		कर द्विभाजन Tax Bifurcation		
CMC charges for 1 st year after warranty period in % of cost of equipment		5%		NA		
CMC charges for 2 nd year after warranty period in % of cost of equipment		5%				
CMC charges for 3 rd year after warranty period in % of cost of equipment		5%				
CMC charges for 4 th year after warranty period in % of cost of equipment		5%				

सेवा वर्ष Service Year		सीएमसी प्रतिशत CMC Percentage	कर द्विभाजन Tax Bifurcation	
CMC charges for 5 th year after warranty period in % of cost of equipment		5%		

विक्रेता विशिष्टता दस्तावेज़ | Seller Specification Document:

1. SpecificationDocument1	mkp.gem.gov.in/catalog_data/catalog_support_document/58/33/136/CatalogAttrs/SpecificationDocument/2025/5/29/2025_05_29_18_46_39_aic_brochure_-_shelter__hvac_p_2025-05-29-18-46-40_ec8717e83ca1f5c5869731cb72bfe01d.pdf
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खरीदार विशिष्टता दस्तावेज़ | Buyer Specification Document:

1. SpecificationDocument	mkp.gem.gov.in/catalog_data/catalog_support_document/buyer_documents/48366/54/78/703/CatalogAttrs/SpecificationDocument/2025/4/30/tech_specs_bccI_-without_pm10_-_without_ct_2025-04-30-17-26-01_c1c3c69dbeed92598edecc31f35d2132.pdf
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Product Specification for CAAQMS (including PM10 Analyzer)

विनिर्देश Specification	उप-विनिर्देश Sub-Spec	मूल्य Value
Custom Specification	Custom Specification	Yes

व्यापक रखरखाव के लिए शुल्क | Comprehensive maintenance charges for CAAQMS (including PM10 Analyzer)

सेवा वर्ष Service Year	सीएमसी प्रतिशत CMC Percentage	कर द्विभाजन Tax Bifurcation
CMC charges for 1 st year after warranty period in % of cost of equipment	5%	NA
CMC charges for 2 nd year after warranty period in % of cost of equipment	5%	
CMC charges for 3 rd year after warranty period in % of cost of equipment	5%	
CMC charges for 4 th year after warranty period in % of cost of equipment	5%	
CMC charges for 5 th year after warranty period in % of cost of equipment	5%	

विक्रेता विशिष्टता दस्तावेज़ | Seller Specification Document:

1. SpecificationDocument1	mkp.gem.gov.in/catalog_data/catalog_support_document/58/33/136/CatalogAttrs/SpecificationDocument/2025/5/29/2025_05_29_18_44_29_aic_brochure_-_shelter__hvac_p_2025-05-29-18-44-30_73b2f4a347c62a283f782a9b75d04372.pdf
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खरीदार विशिष्टता दस्तावेज़ | Buyer Specification Document:

1. SpecificationDocument	mkp.gem.gov.in/catalog_data/catalog_support_document/buyer_documents/48366/54/78/703/CatalogAttrs/SpecificationDocument/2025/4/30/tech_specs_bccI_with_pm_10_2025-04-30-17-22-14_0874e5431b4d1ef37be881797f835b1f.pdf
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ईपीबीजी विवरण | ePBG Detail

सलाहकार बैंक Advisory Bank :	State Bank of India
ईपीबीजी प्रतिशत (%) ePBG Percentage(%):	5.00

बोली लगाने वाले को बोली के नियमों और शर्तों के अनुसार लागू ईपीबीजी प्रस्तुत करना होगा | The bidder shall furnish ePBG as applicable as per bid's terms and conditions

नियम और शर्तें | Terms and Conditions

1. General Terms and Conditions-

1.1 This contract is governed by the [General Terms and Conditions](#), conditions stipulated to this Product/Service as provided in the Marketplace.

1.2 This Contract between the Seller and the Buyer, is for the supply of the Goods and/ or Services, detailed in the schedule above, in accordance with the General Terms and Conditions (GTC) unless otherwise superseded by Goods / Services specific Special Terms and Conditions (STC) and/ or BID/Reverse Auction Additional Terms and Conditions (ATC), as applicable

1.3 All GeM Sellers / Service Providers are mandated to ensure compliance with all the applicable laws / acts / rules including but not limited to all Labour Laws such as The Minimum Wages Act, 1948, The Payment of Wages Act, 1936, The Payment of Bonus Act, 1965, The Equal Remuneration Act, 1976, The Payment of Gratuity Act, 1972 etc. Any non-compliance will be treated as breach of contract and Buyer may take suitable actions as per GeM Contract.

2. Buyer Added Bid Specific Terms and Conditions-

2.1 Scope of Supply:

Scope of supply (Bid price to include all cost components) : Supply Installation Testing Commissioning of Goods and Training of operators and providing Statutory Clearances required (if any)

2.2 Generic:

Buyer Organization specific Integrity Pact shall have to be complied by all bidders. Bidders shall have to upload scanned copy of signed integrity pact as per Buyer organizations policy along with bid. [Click here to view the file](#)

2.3 Certificates:

The bidder is required to upload, along with the bid, all relevant certificates such as BIS licence, type test certificate, approval certificates and other certificates as prescribed in the Product Specification given in the bid document.

2.4 Service & Support:

Dedicated /toll Free Telephone No. for Service Support : BIDDER/OEM must have Dedicated/toll Free Telephone No. for Service Support.

2.5 Forms of EMD and PBG:

Bidders can also submit the EMD with Account Payee Demand Draft in favour of

BHARAT COKING COAL LTD.

payable at

Dhanbad

Bidder has to upload scanned copy / proof of the DD along with bid and has to ensure delivery of hardcopy to the Buyer within 5 days of Bid End date / Bid Opening date.

2.6 Forms of EMD and PBG:

Bidders can also submit the EMD with Payment online through RTGS / internet banking in Beneficiary name

Bharat Coking Coal Limited

Account No.

10976596836

IFSC Code

SBIN0000066

Bank Name

State Bank of India

Branch address

Bank More, Dhanbad

Bidder to indicate bid number and name of bidding entity in the transaction details field at the time of on-line transfer. Bidder has to upload scanned copy / proof of the Online Payment Transfer along with bid.

2.7 Buyer Added Bid Specific ATC:

Buyer Added text based ATC clauses

A. Delivery

Delivery period 180 days includes Supply Installation Testing Commissioning of Goods and Training of operators and providing Statutory Clearances required (if any).

B. Optional Site Visit

Bidder may be visit the site as per their requirement before quoting the tender. Bidder is requested to contact on mail gmenv.bccd@coalindia.in.

C. Integrity Pact:-

The bidders will have to upload along with their offer, digitally signed Pre-Contract Integrity Pact as per attached format in Bid.

In terms of the Integrity Pact, the Independent External Monitor(s) (IEMs) nominated for this tender are as follows,

SI	Name of IEM	Address	e-Mail ID
1	Shri Awind Kumar Kadyan, IDAS(Retd.),	Add: B-211, Paschim Vihar, New Delhi - 110063.	arvindkadyan17@gmail.com
2	Shri Amrit Lughn, IFS(Retd.),	A2/122, Ground floor, Safdarjung enclave, New Delhi-110029.	a.lughn@ymail.com

In the event of any dispute between the management and the bidder relating to this Bid/thereafter contracts (where Integrity Pact is applicable), in case, both the parties are agreeable, they may try to settle dispute through mediation before the panel of IEMs in a time bound manner. If required, the organizations may adopt any mediation rules for this purpose. The fees/expenses on dispute resolution shall be equally shared by both the parties.

D. Security Deposit – ePBG mentioned in Bid document will work as Security Deposit.

a. The successful tenderers will have to submit Security Deposit for the 5% value of the total landed value of the contract including all taxes, duties and other costs and charges. In case of Rate / Running Contracts the Security Deposit shall be for an amount of 5% of average annual offtake contractual value; and in case RC period is longer than 1 year, SD amount shall be 5% of average annual offtake. In case of Contracts for procurement of Capital Goods along with Warranty Spares & Consumables (if applicable) and additional Spares & Consumables / AMC / CMC for more than one year; the Security Deposit shall be for 5% of equipment landed value along with maximum annual landed value of Spares & Consumables.

b. The Security Deposit shall be deposited through RTGS / NEFT / IMPS / e-BG/ other digital modes or in the form of a Bank Guarantee in the prescribed format from a RBI Scheduled Bank in purchaser's country (on a non-judicial stamp paper) within 15 days from date of notification of award or placement of order.

c. The Security Deposit shall be in the same currency(ies) in which contract is to be signed/ issued. In case of multi-currency contract, separate Security Deposit Bank Guarantee (SDBG) in respective currency for required value as above shall be submitted.

d. In case of equipment, SDBG shall not be individual equipment wise. However, multiple Bank Guarantees for Security Deposit shall be permissible provided value of all the SD BGs totals to 5% of the contract value, and all are submitted simultaneously within the specified time schedule and all of them are in the same prescribed format of SDBG without linking to any particular equipment.

e. The SDBG shall remain valid up to 3 months after completion of supplies and acceptance of materials by the consignee in case of supply contracts and in case of contracts for equipment involving installation and commissioning, 3 months after the supply and commissioning of all the equipment covered in the contract.

f. If the successful tenderer fails to deposit the security deposit within 15 (fifteen) days from date of notification of award/ placement of order, another opportunity may be given to them for submission of Security Deposit within next 15 days. If the successful tenderer still fails to deposit the security deposit within the extended period but executes the supplies within scheduled delivery period, the submission of Security Deposit may be waived, as the purpose of submission of SD is fulfilled.

g. In cases where the successful tenderer did not submit the security deposit even within the extended period for SD submission but has supplied the materials either in full or in part after the extended period for SD submission, a penalty equivalent to 0.5% (half percent) of SD amount for delay of each week or part thereof (period of delay is to be calculated from the 31st day from the date of notification of award/ placement of order to the date of receipt of full SD) shall be levied subject to a maximum of 5% of the contract value.

h. Security Deposit will be released with the approval of HOD of MM Department / Area GM within 30 days after completion of supplies and acceptance of material by the consignee in case of supply contract or after successful commissioning and on receipt of confirmation of Performance Bank Guarantee(s) for all the equipment covered in the contract in case of contracts for equipment and all those items/ goods involving installation and commissioning and PBG.

i. All Central/State Government Organization/PSUs shall be exempted from submission of Security Deposit. OEM/OES shall also be exempted from submission of Security Deposit in case of procurement of Spare Parts for equipment against Single Tender Enquiry/Open/Limited Tenders.

f. The SDBG will be submitted Through Structured Financial Management System (SFMS).

E. Performance Bank Guarantee (PBG)

Apart from 5 % e-PBG as per GeM format (which is towards security Deposit), the successful bidder shall be required to furnish a performance bank Guarantee as per following,

- The successful tenderer shall be required to furnish a Performance Guarantee equivalent to 10% value of the contract to cover the warranty/guarantee period.
- The Performance Guarantee shall be in the form of a Bank Guarantee issued by a RBI scheduled bank in India as per given format attached in buyer added bid specific ATC document on a non-judicial stamp paper.
- The Performance Bank Guarantee (PBG) shall be in the same currency (ies) in which contract has been signed/created. In case of multi-currency contract, separate PBG in respective currency for required values shall be submitted.
- The PBG (s) shall remain valid till 3 months after the completion of warranty period of all the equipment/items covered in the contract. The PBG is of total 39 months duration from the date of successful installation, commissioning etc. as per GeM contract terms in present case.
- The PBG shall be submitted, sufficiently in advance (say 3-4 weeks) to enable its verification before submission of the invoice for payment of the supplied material(s).
- The PBG issued by Issuing bank on behalf of the bidder in favour of "Bharat Coking Coal Limited" shall be in paper form (Stamp Paper) as well as issued under "Structured Financial Messaging System". The details of beneficiary Bank for issue of BG through SFMS Platform shall be as under, Issuing Bank should send the underlying confirmation to either of following banks:

Name of beneficiary & its details	Name	Bharat Coking Coal Limited
	Area	HQ,BCCL
	Bank Account no.	35160317947
	Deptt.	MM Department
Beneficiary Bank, Branch & Address	State Bank of India	
	Main Branch Dhanbad	
IFSC code	SBIN0000066	

Or

Name of beneficiary & its details	Name	Bharat Coking Coal Limited
	Area	HQ,BCCL
	Bank Account no.	019605001057
	Deptt.	MM Department
Beneficiary Bank, Branch & Address	ICICI Bank	
	ICICI Bank, Dhanbad	
IFSC code	ICIC0000196	

vii. Original copy of the Bank Guarantee issued by the Issuing Bank shall be sent by the issuing bank to MM department, BCCL.

viii. The release of the Performance Bank guarantee(s) after above indicated period, shall be subject to satisfactory performance of the equipment/items during the warranty period and fulfilment of contractual obligations failing which, action for further extension or encashment of PBG, as deemed suitable shall be taken. The Performance Bank Guarantee shall be released after expiry of validity period if no claim is pending, with the approval of the concerned HOD (MM) after expiry of validity period after obtaining the following:

1. 'No Claim Certificate' from the concerned HOD (User Dept.) indicating that there is no claim pending.

2. 'No Claim Certificate' from the contractor indicating that there is no claim pending and that there is no dispute pending as per attached annexure in buyer added bid specific ATC document.

ix. After completion of warranty period successful tenderer needs to submit 'No Claim Certificate' indicating that there is no claim pending and that there is no dispute pending as per attached annexure in buyer added bid specific ATC document.

x. In cases where the supplier does not submit the PBG in time or as per the prescribed format in line with the contract stipulations, the PBG amount may be deducted from the first bill or in case of insufficient amount, from subsequent bill(s) of the supplier till the full PBG amount is deducted. This amount shall be refunded to the supplier upon acceptance of PBG submitted by them.

F. DOCUMENTS TO BE SUBMITTED BY BIDDERS WHO HAVE SUBMITTED EMD IN FORM OF DD/ RTGS / INTERNET BANKING

Bidders submitting EMD in the form of DD/RTGS / internet banking shall also submit the following documents along with their bid for Vendor Code Creation to return the EMD amount post finalization of tender:

- a. Copy of PAN Card.
- b. Copy of GSTIN.
- c. Copy of Cancelled Cheque.
- d. Copy of EFT Mandate duly certified by Bank.

G. TReDS: Trade Receivables Discounting System (TReDS) is an initiative of Reserve bank of India (RBI) to facilitate MSME receivable payments from corporates.

BCCL has on boarded on following four TReDS platforms

- i. Receivables Exchange of India Limited (RXIL), website www.rxil.in
- ii. A-treds Ltd (Invoicemart) , website- www.invoicemart.com
- iii. Mynd Solutions Pvt.Ltd. (M1 exchange) , website- www.m1exchange.com
- iv. C2FO Factoring Solutions Private Limited, website - www.c2treds.com

MSE bidders willing to get payment through this system may get registered on TReDS platform and confirm the respective member code of TReDS Portals in their offer. The bidder may contact respective portals for any queries /details.

H. The details of shipping documents to be furnished by the Supplier are specified below:

Upon dispatch of the Goods to the consignee, the Supplier shall notify the Purchaser and Ultimate Consignee,

- i. Supplier's invoice showing Contract Number, Goods description, quantity, unit price, total amount;
- ii. Railway receipt/ Transporter's consignment note /acknowledgement of receipt of Goods from the consignee(s);
- iii. Manufacturer's/Supplier's warranty / guarantee certificate;
- iv. Manufacturer's Test & Inspection certificate (if any)

The above documents shall be provided by the supplier at the time of arrival of the Goods at the consignee's end. In case of delay, the Supplier will be responsible for any consequent expenses.

I. PBG for CAMC

Performance Bank Guarantee applicable for CAMC is to be submitted at the start of the CAMC and shall be applicable at a rate of 5 % of the order value of equipment only (landed cost of items ordered inclusive GST) which shall be given by supplier after completion of warranty period. The PBG submitted after award of contract shall be released only after new PBG for the CAMC period is submitted and accepted by buyer/consignee after due verification. Bank guarantee for CAMC is to remain valid till completion of CAMC period plus 3 months. The bank guarantee for CAMC shall be submitted to buyer directly. In case, seller fails to submit the PBG or does not provide services for the CAMC contract after expiry of warranty period then PBG of equipment shall be forfeited.

J. Certificate of Local Content as per Public Procurement (Preference to Make in India) Order, 2017 (as amended from time to time) for tender value less than 10 Cr.

Ref. No: Date:

Tender No.: dated

We, M/s, having registered office at, being OEM of the offered product/services do hereby confirm that the percentage of local content in the offered product / service is ____ % and meets the local content requirement for 'Class - I local supplier/ Class - II local supplier' (Strike off which is not applicable) as prescribed under Public Procurement (Preference to Make in India) Order, 2017 (as amended from time to time).

The complete address of the location(s) at which the local value addition is made, is / are as under:

- 1.
- 2.

(Signature of the authorised signatory)

Name:

Designation:

Email id:

Mobile No:

Place:

Date:

Note: Percentage of local content is to be mentioned as per the formula given in Annexure 28 (page no 285) of Manual for Procurement of Goods, Second Edition, 2024 issued by Department of Expenditure, MoF, Gol. (<https://doe.gov.in/circulars/manual-procurement-goods-second-edition-2024>).

κ. Primary Product Category:

Item Schedule no. 1: Caaqms (including Pm10 Analyzer)

Item Schedule no. 2: Caaqms (without Pm10 Analyzer)

2.8 Buyer Added Bid Specific ATC:

Buyer uploaded ATC document [Click here to view the file](#).

2.9 Generic

OPTIONAL SITE VISIT:

1. The Bidder is advised to visit and examine the installation site and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Bid. The costs of visiting the site shall be borne by the Bidder.

Yes

2. The Bidder representative shall be allowed entry upon consignee premises for such visits, only upon the express conditions that the Bidder will release and indemnify the Buyer and Consignee against all liabilities arising out of such visit including death or injury, loss or damage to property, and any other loss, damage, costs, and expenses incurred as a result of such visit.

3. The Bidder shall not be entitled to hold any claim against Buyer for noncompliance due to lack of any kind of pre-requisite information as it is the sole responsibility of the Bidder to obtain all the necessary information with regard to site, surrounding, working conditions, weather etc. on its own before submission of the bid.

नोट: यह सिस्टम जनरेटेड फाइल है। कोई हस्ताक्षर की आवश्यकता नहीं है। इस दस्तावेज़ का प्रिंट आउट भुगतान/लेनदेन उद्देश्य के लिए मान्य नहीं है।

Note: This is system generated file. No signature is required. Print out of this document is not valid for payment/ transaction purpose.

महाप्रबंधक का कार्यालय, पूर्वी झरिया क्षेत्र
OFFICE OF THE GENERAL MANAGER, EASTERN JHARIA AREA

Ref. No.: BCCL/EJ/GM/Envr./2026/1

Date: 07/02/2026

INSTALLATION & COMMISSIONING CERTIFICATE
For CAAQMS ANALYSER (Without PM10 Analyser)

Ref. No.: BCCL GeM Contract No.- GEMC-511687775012341 dated 08.09.2025

This is to certify that one (01) no. of CAAQMS machine (without PM10 Analyser) has been supplied by the Analyser Instruments Company Pvt. Ltd. (AICPL), registered office at E-29 (A), Road No.2, I.P.I. Area, Kota, Rajasthan-324005, to Cluster- X group of coal mines at the specified location i.e. at Bhowra Guest House, E.J. area in the premises of Office of the General Manager, Eastern Jharia Area, BCCL.

The machine is equipped with all the requisite parts as per the GeM contract no.: GEMC-511687775012341 dated 08.09.2025. Following models of analysers has been supplied by the AICPL:

Equipment Name	Analyser	Model No.	Sr. No. of analyser	Make
CAAQMS (without PM10 analyser)	SO2 Analyser	GFS-390	994934	DKK-Toa Japan
	NO-NO2-NOx Analyser	GLN-390	994879	DKK-Toa Japan
	CO Analyser	GFC-390	960149	DKK-Toa Japan
	PM2.5 Analyser	FPM-377C	960175	DKK-Toa Japan

The CAAQMS machine is installed and commissioned successfully with display board on 07.02.2026 at Bhowra Guest House, E.J. area and machine is working satisfactorily.

Humayun 07/02/26
Area Manager (Envr.)
E. J. Area, BCCL
क्षेत्रीय प्रबंधक (पर्यावरण)
Area Manager (Envr.)
पूर्व प्रो क्षेत्र (महो) भोरा
E.J. Area (Bhowra), Bhowra

Shawar 02/31/26
General Manager
E.J. Area, BCCL

For AICPL
AICPL Representative
Name: *Mukesh Kumar Yadav*
Designation: *Regional manager*
Contact No.: *9817536494*



AM-Envr. - for further action ph
Depot officer
ESA



भारत कोकिंग कोल लिमिटेड

(कोल इंडिया लिमिटेड का एक अंग)

BHARAT COKING COAL LIMITED

(A Subsidiary of Coal India Limited)

Corporate Identity No. (CIN): U10101JH1972GOI000918

Office of the General Manager EJ Area, Dhanbad- 828302 (JH)

GSTIN: 20AACB7934MFZB (JH), 19AAACB7934M2Z7 (WB)

Ref. No: GM/EJA/ACE/WO/2024-25/ 309

Date: 16.04.2024

To,
M/S Antesh Kumar
At- Sinidih Kanta
P.O. - Tundoo; P.S. - Madhuban
Dist. - Dhanbad; State - Jharkhand
PIN-828128
Mob-9431508292
Email: -anteshsingh30@gmail.com

Sub: Work Order for the work of "Upgradation of Bhowra Regional Hospital, Bhowra under E.J.Area".

1. **NIT Ref. No. : BCCL/CIVIL/EJA/2023-24/eNIT/16/1128; dated.13.12.2023**
2. **LOA Ref. No. : GM/EJA/ACE/LOA/2023-24/238; dated 18.03.2024.**
3. **PO No. : 5500008698**

Dear Sir,

With reference to the above referred tender, this is to inform you that your offer to undertake the subject work at your overall quoted value of **Rs. 57,23,445.60 (Rupees Fifty seven Lakh twenty three thousand four hundred forty five and paise sixty) (including GST) which is 31.15% (thirty one point one five percent) below the Estimated Cost (incl. GST)** has been accepted by the Competent Authority based on terms and conditions contained in the NIT & Tender Document subject to the following stipulations::

1. The work is awarded on Percentage Rate Basis.
2. All the materials and equipment required for the work will be arranged by you.
3. **Your PAN No. as per submitted documents is AEMPK3227M your GST Registration No. is 20AEMPK3227M1ZJ.**
4. Security Deposit shall consist of two parts & the same shall bear no interest:-

A) Performance Security:-

Rs. 2,86,500.00 (Rupees Two Lakh Eighty Six thousand Five hundred only) deposited by you towards performance security:-

Contd.....2

- (i) EMD of Rs. 1,04,000.00 (Rupees One Lakh and Four Thousand only) submitted online by you along with the tender vide PRN Ref no. 3067771012320, was
- (ii) Rs 1,82,500.00 (Rupees One lakh Eighty Two Thousand and Five Hundred only) vide TDR, Scheme:STD-PUB-OTH; A/c No. 42841829110, dated 31.03.2024 of State Bank Of India, Branch -Bilbera Branch, Dhanbad.

B. Retention Money:-

All running on account bills shall be paid at 95% (ninety five percent) of work value to make total retention money of Rs. 2,42,520.00 (Rupees Two Lakh Forty Two Thousand Five Hundred Twenty Only). Overall total security deposit (i.e. performance security & retention money) for the work shall be of Rs. 5,29,020.00 (Rupees Five Lakh Twenty Nine Thousand and Twenty Only).

5. The work duration is for 150 (One Hundred Fifty) days from the date of commencement of the work. Date of commencement of work shall be from 22.04.2024.
6. The defect liability period will be applicable as per terms and conditions of NIT.
7. The arrangement of necessary water for construction purpose shall be your responsibility (at your own cost). However, if available and feasible, the Company may arrange water at one point near the site of work for which recovery @ 1% of the contract value of work done will be made from your bills.
8. The arrangements of necessary electricity for the work will be your responsibility (at your own cost). However, if available and feasible, the Company may arrange electricity at one point near the site of work and necessary recovery of cost of energy consumed will be made at rates prescribed by the Company time to time. You shall provide energy meter for this purpose.
9. The license as per Contract Labour (Regulation & Abolition) Act 1970 and subsequent amendments there of shall have to be obtained from your end as elaborated in the tender document. Implementation of contract labour (Regulation & Abolition) Act 1970 including issuance of Form-V to the agency shall be ensured from the Head of the concerned Area/Department, if applicable.
10. The Contractor/Contractors shall not pay less than the minimum wages to the laborer engaged by him/them as per Minimum Wages Act or such other legislation or award of minimum wages fixed by the respective State Govt. or Central Govt. as may be in force.
11. The Contractor/Contractors shall make necessary payments of the provident fund for the workmen employed by him/them for the work as per the laws prevailing under provisions of CMPF and allied scheme and Miscellaneous Provisions Act, 1948 or Employees Provident Fund and Miscellaneous Provisions Act, 1952 as the case may be.

Precautions shall be exercised at all times by you for the protection of persons and property. The safety required or recommended by all applicable laws, codes, statutes and regulations shall be observed by you. In case of accident, you will be responsible for compliance with all the requirements imposed by the Workmen's Compensation Act or any other similar laws enforce and indemnify the company against any claim on this account as elaborated in the tender document.

3. You are requested to contact the **Sri Nisar Ahmed, Engg.Asst. (Civil), Bhowra,EJ Area** for further instruction towards execution of the work.

14. The Paying Authority for the work will be AFM,EJ Area.

15. You are requested to submit the **non-judicial stamp paper of Rs. 5,000.00 (Rupees Five Thousand only) and insurance papers for execution of the Agreement.**

All other terms and conditions as appeared in the NIT & tender documents are applicable in the contract

Yours faithfully,


16/04/2024
Area Civil Engineer,
EJ Area, BCCL

Encl.: BOQ

Copy to:

1. TS to D(T) OP/D(T) P&P /D (P)/ CVO, Koyla Bhawan, BCCL..... For kind information.
2. GM, EJ Area.
3. GM(Civil/Welfare), CED,BCCL
4. AGM, EJ Area.
5. AFM -EJ, Area.
6. Deputy Manager(Civil),Quality Control/Tender Cell,CED
7. Sri Nisar Ahmed, Engg.Asst. (Civil),Bhowra,EJ Area
8. LEO (C)-III Jharia & Dhanbad.
9. ALC (C)- III, Dhanbad.
10. Concerned file.

BHARAT COKING COAL LIMITED

COLLIERY UNIT

CONTRACTOR'S BILL FORM

Vendor Code - 10021608

ORIGINAL / DUPLICATE

AREA NO. XI

1. On A/c of final
2. Name of work

4th & Final Bill

Upgradation of Bhowra Regional Hospital Under E.J Area.

7. date of Completion of the work as per the

Agreement/Work Order : 18.09.2024

8. Extension to time granted, if any, with reference to the Order : Yes (31.07.2025)

PO No

5500008698

4. Agreement / Work Order No.

GM/EJA/ACE/VO/2024-25/309 dt:-16.04.2024

5. Name of Contractor

M/S Antesh Kumar

6. Date of commencement of the work

22.04.2024

Actual date of completion of the work. 31.07.2025

10. Claims for the work done

from : 01.05.2025 31.07.2025

DESCRIPTION OF WORK		QUAUNTITIES OF WORK			Rate & Unit	AMOUNT (Rs.)		
		Paid for as per last bill	Since last bill	Total up to date		Paid/as per last bill	Since last bill	Total up
1	2	3	4	5	6	7	8	
1	P/L Vitrified tile in floor	1383.67	1.00	1384.67	1143.9 / M2	1582710.93	1143.85	1583854.78
2	P/L Vitrified tile in Skirting	330.83	4.22	335.05	969.6 / M2	320772.77	4091.71	324864.48
3	P/L Ceramic Glazed Floor tile	130.53	9.79	140.32	800.8 / M2	104521.90	7839.34	112361.24
4	Wall tile	276.18	19.58	295.76	897.4 / M2	247843.93	17571.09	265415.02
5	P.C.C (1:2:4)	0.37	1.64	2.01	6086.5 / M3	2251.99	9981.78	12233.76
6	R.C.C (1:2:4)	0.84	0.09	0.93	6520.5 / M3	5477.18	586.84	6064.02
7	R.C.C (1:1.5:3)	6.08	2.29	8.37	8577.3 / M3	52149.98	19642.02	71792.00
8	Centering & Shuttering	82.79	0.00	82.79	611.5 / M2	50621.95	0.00	50621.95
9	Centering & Shuttering	0.00	0.00	0.00	248.0 / M2	0.00	0.00	0.00
10	Steel Reinforcement for RCC	484.40	0.00	484.40	75.7 KG	36644.86	0.00	36644.86
11	Structural Steel	72.00	46.80	118.80	88.2 / KG	6350.40	4127.76	10478.16
12	Providing Wodd work in Frame	0.58	0.00	0.58	92387.2 / M2	53861.74	-184.77	53676.96
13	Flush door shutter	30.43	0.00	30.43	1644.0 / M2	50026.92	0.00	50026.92
14	P/F panelled glazed shutter	0.00	0.00	0.00	1950.3 / M2	0.00	0.00	0.00
15	P/F panelling or panelling	0.00	0.00	0.00	1739.9 / M2	0.00	0.00	0.00
16	40*5 mm flat iron hold fast	70.00	20.00	90.00	158.4 / NOS	11084.50	3167.00	14251.50
17	P/F aluminum sliding door bolts	17.00	1.00	18.00	203.9 / NOS	3465.45	203.85	3669.30
18	P/L aluminum tower bolt	32.00	4.00	36.00	90.6 / NOS	2899.20	362.40	3261.60
19	Aluminum Handles	32.00	0.00	32.00	52.1 / NOS	1667.20	0.00	1667.20
20	M.S Sliding door bolts	0.00	1.00	1.00	148.6 NOS	0.00	148.60	148.60
21	M.S Tower bolt	0.00	1.00	1.00	46.0 / NOS	0.00	46.00	46.00
22	M.S Handles.	0.00	1.00	1.00	24.5 / NOS	0.00	24.50	24.50
23	Collapsible steel Stutter	27.10	0.00	27.10	7681.7 / M2	208172.72	0.00	208172.72
24	P.V.C Door frame	0.00	0.00	0.00	340.7 / M	0.00	0.00	0.00
25	P.V.C Door Shutter	0.00	0.00	0.00	1532.6 / M2	0.00	0.00	0.00
26	False ceiling	49.64	0.00	49.64	979.9 / M2	48642.24	0.00	48642.24
27	P/F 4mm Thick coir veneer board	16.90	0.03	16.93	1328.2 / M2	22445.74	39.84	22485.58
28	M.S grills	3309.52	1.40	3310.92	146.2 / M2	483686.35	204.61	483890.96
29	P/F aluminum glazed Window	810.00	56.05	866.05	397.8 / M2	322218.00	22296.69	344514.69
30	Dismantling Door & Window	115.00	0.00	115.00	204.4 NOS	23506.00	0.00	23506.00
31	Fixing Door Chowkhats.	31.00	0.00	31.00	1199.3 / NOS	37176.75	0.00	37176.75
32	Fixing Window Chowkhats	84.00	0.00	84.00	753.9 / NOS	63323.40	0.00	63323.40
33	Indian pan	13.00	0.00	13.00	2224.7 / NOS	28920.45	0.00	28920.45
34	W.C Pan	2.00	0.00	2.00	4897.5 / NOS	9795.00	0.00	9795.00
35	Kitchen Sink	2.00	0.00	2.00	4501.8 / NOS	9003.50	0.00	9003.50
36	P.V.C low level flushing cistern	13.00	0.00	13.00	991.6 / NOS	12890.15	0.00	12890.15
37	Wash basin	13.00	0.00	13.00	2723.1 / NOS	35400.30	0.00	35400.30
38	Mirror	16.00	0.00	16.00	978.7 / NOS	15658.40	0.00	15658.40
39	PTMT towel Rail	16.00	0.00	16.00	521.1 / NOS	8336.80	0.00	8336.80
40	P/F Brass bib cock 15 mm	20.00	10.00	30.00	481.4 NOS	9627.00	4813.50	14440.50
41	PVC Pipe 15 mm	45.00	0.14	45.14	230.8 / M2	10386.00	32.31	10418.31
42	Renewing glass panes	2.40	0.00	2.40	777.4 / M2	1865.64	0.00	1865.64
43	Brick Work (1:6)F&P	8.45	0.00	8.45	5002.1 / M3	42267.32	0.00	42267.32
44	Brick work (1:6)S&S	4.93	6.63	11.56	5483.5 / M3	27033.66	36355.61	63389.26
45	P/F 18mm Thick	6.85	24.25	31.10	3683.7 / M2	25233.00	89328.51	114561.52
46	Pebble Dash Plaster	169.21	19.60	188.81	551.9 / M2	93378.54	10816.26	104194.80
47	6mm plaster (1:3)	477.21	10.78	487.99	198.2 / M2	94583.02	2136.60	96719.62
48	12 mm plaster (1:4)	48.91	0.00	48.91	288.3 / M2	14098.31	0.00	14098.31
49	12mm plaster (1:6)	3000.00	226.43	3226.43	222.0 / M2	666000.00	50267.46	716267.46
50	Wall painting with arcylic emulsion paint	4654.73	16.68	4671.41	102.5 / M2	476877.09	1708.87	478585.95
51	Acrylic exterior paint	2872.74	61.39	2934.13	144.7 / M2	415685.48	8881.13	424566.61
52	Demolishing of Cement Concrete	69.36	0.00	69.36	1457.4 / M3	101081.80	0.00	101081.80

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53	Putty 2mm	4654.73	16.68	4671.41	173.6	/ M2	808061.13	2895.65	810956.78
54	Removing oil bound Distemper	7266.75	338.79	7605.54	15.5	/ M2	112271.29	5234.31	117505.59
55	Applying Priming Coat	83.94	7.10	91.04	50.0	/ M2	4197.00	355.00	4552.00
56	Synthetic enamel Paint (new work)	55.06	35.98	91.04	103.6	M2	5704.22	3727.53	9431.74
57	Synthetic enamel Paint (Old work)	600.62	8.39	609.01	68.3	/ M2	41022.35	573.04	41595.38
58	Dismantling tile work	295.76	0.00	295.76	48.1	/ M2	14211.27	0.00	14211.27
59	Dismantling old plaster	964.37	3.55	967.92	32.9	/ M2	31679.55	116.62	31796.17
60	Wiring for light point / fan point	320.00	0.00	320.00	416.0	/ Point	133120.00	0.00	133120.00
61	S/F 3pin 5/6amps Socket	190.00	0.00	190.00	152.0	/ NOS	28880.00	0.00	28880.00
62	S/F 6 PIN 5/6 & 15/16 amps socket	90.00	0.00	90.00	225.0	/ NOS	20250.00	0.00	20250.00
63	MCB /RCB/isolator	35.00	0.00	35.00	1230.0	/ NOS	43050.00	0.00	43050.00
64	Supplying Capacity TPN 32 amps TPN	5.00	0.00	5.00	5915.0	/ NOS	29575.00	0.00	29575.00
65	Wiring for circuit 2*1.5sq +1*1.5 sq	400.00	0.00	400.00	107.0	/ M	42800.00	0.00	42800.00
Extra Item			0.00						
1	P/F WPC door frame.	78.02	0.00	78.02	749.6	/ M2	58479.89	0.00	58479.89
2	P/F WPC Door shutter	22.78	0.00	22.78	3888.2	/ M2	88572.06	0.00	88572.06
3	P/F European pan with all fitting	2.00	0.00	2.00	5888.3	/ NOS	11776.50	0.00	11776.50
4	Water Tank	5000.00	0.00	5000.00	7.65	/ Liter	38250.00	0.00	38250.00
5	Electronic fan regulator	25.00	0.00	25.00	322.0	/ NOS	8050.00	0.00	8050.00
6	3pin Spin ceiling rose	80.00	0.00	80.00	34.0	/ NOS	2720.00	0.00	2720.00
7	S/F brass batten /angle holder	150.00	10.00	160.00	63.0	/ NOS	9450.00	630.00	10080.00
8	Paino type switch /socket 3/6 AMP	307.00	0.00	307.00	29.5	/ NOS	9056.50	0.00	9056.50
9	Switch box cover	150.00	0.00	150.00	36.5	/ NOS	5475.00	0.00	5475.00
10	Switch socket 15/16 AMP Switch	32.00	0.00	32.00	61.5	NOS	1968.00	0.00	1968.00
11	32AMP TP&N	5.00	0.00	5.00	1404.0	/ NOS	7020.00	0.00	7020.00
12	Wire 2*4sq mm	100.00	30.00	130.00	230.0	/ M	23000.00	6900.00	29900.00

0	TOTAL -	7734350.77
Less(-) 31.15 % below as per TCR -		2409250.26
TOTAL -		5325100.50
Add (+) GST (18%) -		958518.09
TOTAL -		6283618.59
Less- up to 3rd RA Bill		6026918.90
TOTAL -		256699.69
Actual Amount		217542.11
Add (+) GST 18%		39157.58
TOTAL -		256699.69

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EXPENDITURE MADE UNDER VARIOUS HEADS OF
ENVIRONMENTAL MANAGEMENT PLAN

Major Environmental measures cost for the year 2013-14

Sl. No.	Activity (2013-14)	Cost Incurred (In Lakhs)
1	Environmental Monitoring (through HQ)	4.80
2	Gabion Plantation through DFO	20.41
3	Biological reclamation	93.98
4	EMP Preparation cost	80.00
Total Cost Incurred (Manpower cost and Diesel cost is included)		199.19

Major Environmental measures cost for the year 2014-15

Sl. No.	Activity (2014-15)	Cost Incurred (In Lakhs)
1	Environmental Monitoring (through HQ)	4.80
2	Gabion Plantation through DFO	15.11
3	Ecological Restoration	279.86
4	FRI Dehradun Monitoring Cost	0.85
5	Environment Statutory Fee	2.25
Total Cost Incurred (Manpower cost and Diesel cost is included)		302.87

Major Environmental measures cost for the year 2015-16

Sl. No.	Activity (2015-16)	Cost Incurred (In Lakhs)
1	Environmental Monitoring (through HQ)	4.80
2	Gabion Plantation through DFO	11.40
3	Ecological Restoration	308.81
4	Statutory Fee including CTO/CTE	11.25
5	FRI Dehradun Monitoring Cost	2.138
Total Cost Incurred(Manpower cost and Diesel cost is included)		338.40

Major Environmental measures cost for the year 2016-17

Sl. No.	Major Environment Activity (2016-17)	Cost Incurred (In Lakhs)
1	Environmental Monitoring (through HQ)	4.46
2	Gabion Plantation through DFO	11.16
3	FRI Dehradun Monitoring Cost	0.89
4	Ecological Restoration / Block Plantation	214.43
5	Water Sprinkling	46.20
6	Scientific study for delineation of fire (through HQ)	18.10
Total Cost Incurred (Manpower cost and Diesel cost is included)		295.24

Major Environmental Measure cost for the year 2017-18

Sl. No.	Major Environment Activity	Cost Incurred (In Lakhs)
1	Environmental Monitoring (through HQ)	20.55
2	Source Apportionment Study (through HQ)	141.60
3	Ecological Restoration / Block Plantation	221.53
4	FRI Dehradun Monitoring Cost	0.89
5	Water Sprinkling	34.66
Total Cost Incurred (Manpower cost and Diesel cost is included)		419.23

Major Environmental measures cost for the year 2018-19

Sl. No.	Major Environment Activity	Cost Incurred (In Lakhs)
1	Routine Environmental Monitoring	32.57
2	Water Quarterly Monitoring Report	3.60
3	FRI Dehradun Monitoring Cost	0.89
4	Ecological Restoration/Block Plantation	38.31
5	Water Sprinkling	31.51
6	Construction of water curtain sprinkler	1.50
7	Statutory Fee including CTO/CTE	3.80
8	Ground water Monitoring	CMPDIL (through HQ)
Total Cost Incurred (Manpower cost and Diesel cost is included)		112.18

Major Environmental measures cost for the year 2019-20

Sl. No.	Major Environment Activity	Cost Incurred (In Lakhs)
1	Routine Environmental Monitoring	17.99
2	Water Quarterly Monitoring Report	1.69
3	FRI Dehradun Monitoring Cost	0.85
4	Ecological Restoration/Block Plantation	45.50
5	Water Sprinkling	31.51
6	Statutory Fee including CTO/CTE	3.80
7	Mist water sprinkler (indent) through HQ	45.66
8	Ground water Monitoring	CMPDIL (through HQ)
9	Online PM10 Analyser installation (through HQ)	42.30
Total Cost Incurred (Manpower cost and Diesel cost is included)		189.30

Major Environmental measures cost for the year 2020-21

Sl. No.	Major Environment Activity	Cost Incurred (in Lakhs)
1.	Routine Environmental Monitoring	19.50
2.	Water Quarterly Monitoring Cost	1.69
3.	Ecological Restoration (material cost)	0.50
4.	Compensatory Plantation by DFO	13.98
5.	Block Plantation by DFO	20.42
6.	Water sprinkling (Manpower & Diesel Cost included)	30.00 (approx)
7.	Statutory Fee including CTO/CTE	3.80
8.	Ground water monitoring	CMPDIL (through HQ)
9.	Online PM10 Analyser installation (2 Nos.)	through HQ
10.	Construction of Toe Wall Bhowra South	17.34
11.	Mine Closure Cost (deposited in Escrow account)	247.51
Total Cost Incurred		354.74

Major Environmental measures Cost for the year 2021-22

Sl. No.	Major Environment Activity	Cost Incurred (in Lakhs)
1.	Routine Environmental Monitoring	26.70
2.	Water Quarterly Monitoring Cost	2.22
3.	Ecological Restoration (material cost)	0.50
4.	Plantation by DFO	21.50
5.	Water sprinkling (Manpower & Diesel Cost included)	30.00 (approx)
6.	Statutory Fee including CTO/CTE	3.80
7.	Ground water monitoring	CMPDIL (through HQ)
8.	Construction of Siltation pond	3.42
9.	Environmental Awareness Programme like Env Day Celebration, Amrit Mahotsav, Vriksharopan abhiyan etc	0.60
10.	Mine Closure Cost (deposited in Escrow account)	183.01
Total Cost Incurred		271.75

Major Environmental measures Cost for the year 2022-23

Sl. No.	Major Environment Activity	Cost Incurred (in Lakhs)
1.	Routine Environmental Monitoring	38.86
2.	Water Quarterly Monitoring Cost	3.18
3.	Ecological Restoration (material cost)	0.50
4.	Plantation by DFO	17.50
5.	Water sprinkling (Manpower & Diesel Cost included)	31.00 (approx)
6.	DWLR with telemetry for Ground water level monitoring	0.75
7.	Peizometric well installation 1 no.	7.79
8.	Ground water monitoring	CMPDIL (through HQ)
9.	Construction of Toe Wall in ASP colliery	10.00
10.	Construction of wheel washing arrangement in ASP	9.70
11.	Fog canon 2 no. installed	16.75
12.	Environmental Awareness Programme like Env Day Celebration, Amrit Mahotsav, Vriksharopan abhiyan etc	0.80
13.	Mine Closure Cost (deposited in Escrow account)	196.96
Total Cost Incurred		333.79

Major Environmental measures Cost for the year 2023-24

Sl. No.	Major Environment Activity	Cost Incurred (in Lakhs)
1.	Routine Environmental Monitoring	39.97
2.	Water Quarterly Monitoring Cost	2.91
3.	Ecological Restoration (material cost)	1.00
4.	Plantation by DFO	3.28
5.	Water sprinkling (Manpower & Diesel Cost included)	35.00 (approx)
6.	Ground water monitoring	CMPDIL (through HQ)
7.	Construction of Toe Wall in Bhowra S colliery	19.93
8.	Truck mounted Fog canon	42.77
9.	Installation of Fixed water sprinkler at weighbridge	2.66
10.	Installation of 5KLD ETP at Regional Hospital Bhowra	3.77
11.	Environmental Awareness Programme like Env Day Celebration, Vriksharopan abhiyan etc	0.80
12.	Mine Closure Cost (deposited in Escrow account)	220.96
Total Cost Incurred		373.05

Major Environmental measures Cost for the year 2024-25

Sl. No.	Major Environment Activity	Cost Incurred (in Lakhs)
1.	Routine Environmental Monitoring	39.88
2.	Water Quarterly Monitoring Cost	2.14
3.	Ecological Restoration (material cost)	1.00
5.	Water sprinkling (Manpower & Diesel Cost included)	36.00 (approx)
6.	Ground water monitoring	CMPDIL (through HQ)
7.	Construction of Pucca Garland drain, siltation pond and Heightening of Toe Wall in Bhowra South colliery	39.49
8.	Procurement of Trolley mounted Fog canon (02 no.)	11.80
9.	Construction of Rain water harvesting structure	6.09
10.	Construction of Oil & grease trap system	9.20
11.	Environmental Awareness Programme like Env Day Celebration, Vriksharopan abhiyan etc	0.80
12.	Mine Closure Cost (deposited in Escrow account)	220.96
Total Cost Incurred		369.64

Major Environmental measures Cost for the year 2025-26

Sl. No.	Major Environment Activity	Cost Incurred (in Lakhs)
1.	Routine Environmental Monitoring	39.50
2.	Water Quarterly Monitoring Cost	2.20
3.	Ecological Restoration (material cost)	1.00
4.	Water sprinkling (Manpower & Diesel Cost included)	38.00 (approx)
5.	Ground water monitoring	CMPDIL (through HQ)
6.	Construction of Pucca Garland drain, siltation pond and Heightening of Toe Wall in Bhowra South colliery	7.44
7.	Construction of PQC coal Transportation Road at Various location of E.J Area	19.62
8.	Upgradation of Bhowra Regional Hospital under E.J Area	25.67
9.	Environmental Awareness Programme like Env Day Celebration, Vriksharopan abhiyan etc	0.90
10.	Upgradation of two Filter Plant under E.J Area	18.00 (approx)
11.	Mine Closure Cost (deposited in Escrow account)	504.47
Total Cost Incurred		656.80

Mine Closure Cost Details for 2025-26:

S. No.	Name of Mine	Escrow account	Amount deposited in Escrow account for FY 2025-26 (in Rs. Lakh)	Total amount in Escrow Fund for 2025-26 (in Rs. Lakh)
1.	Bhowra (N & S) Colliery (UG+OC)	150100016217	188.34	879.7
2.	Amalgamated Sudamdih-Paherdih Colliery	150100011524	240.00	240.00
3.	Sudamidh Shaft Mine	150100011673	76.13	76.13
Total Eastern Jharia Area (Cluster X)			504.47	504.47

Amount deposited in Escrow account for implementation of progressive mine closure Activity in the mines under cluster X is 504.47 Lakhs for FY 2025-26

Mine Closure Cost Details from 2013-14 to 2024-25:

S. No.	Name of Mine	Escrow account	Amount deposited in Escrow account till 31st March 2025 (in Rs. Lakh)		Total amount in Escrow Fund
			Deposited in Escrow account from 2013-14 to 2024-25	Interest incurred from 2013-14 to 2024-25	Principal & Interest upto 31.03.2025
1	Bhowra (N) Grp of Mines (UG+OC)	150100008868	554.78	324.92	879.7
2	Bhowra (S) Grp of Mines (UG+OC)	150100008830	1968.92	1018.68	2987.6
3	Sudamdih Incline Mine	150100008872	93.74	86.82	180.56
4	Patherdih Grp of Mines	150100008871	389.22	242.82	632.04
5	Amalgamated Sudamdih-Paherdih Colliery	150100011524	290.31	41.75	332.06
6	Sudamidh Shaft Mine	150100011673	174.22	58.78	233.00
Total Eastern Jharia Area (Cluster X)			3471.19	1773.77	5244.96

*Note:- Amount deposited in Escrow account for implementation of progressive mine closure Activity in the mines under cluster X is 52.44 Crores from FY 2013-14 to FY 2024-25.

F. No- 22020/02/2016-CRC-II(Part-III) [E-327780]**भारत सरकार /Government of India****कोयला मंत्रालय /Ministry of Coal****एम.पी.एस अनुभाग /MPS Section**

कमरा नंबर 622-ए, शास्त्री भवन,
नई दिल्ली, दिनांक 9th July, 2025

To,

1. **The Chief Secretary, Govt. of Jharkhand**
2. **The CMD, Coal India Ltd.**

Subject: Implementation of the Revised Jharia Master Plan for Dealing with Fire, Subsidence & Rehabilitation of affected families in Jharia Coalfield- Reg.

The term of Jharia Master Plan, 2009 was completed in August 2021. A Committee, under the chairmanship of the Secretary (Coal), was constituted on 25th August 2021, to review the Jharia Master Plan. Subsequently, another Committee, under the chairmanship of the Additional Secretary (Coal), was constituted on 12th December 2024, for implementation of Jharia Master Plan.

2. Based on the recommendations of both the Committees, the revised Jharia Master Plan has been formulated. The Cabinet Committee on Economic Affairs has approved the Revised Jharia Master Plan for dealing with Fire, Subsidence & Rehabilitation of affected families of Jharia Coalfield on 25th June 2025. CCEA has approved the following proposals:

(a) Implementation of Revised Jharia Master Plan by Coal India Ltd. with an outlay of ₹ 5940.47 Crores for initial phase from balance amount of ₹ 6663.02 Crore from Jharia & Raniganj Master Plan of 2009 available with Coal India Ltd. In addition to above fund, Coal India Ltd. will provide ₹ 500 Crore per year and interest earned thereon. Additional activities will also be undertaken from the available amount for completion of remaining activities as per Revised Jharia Master Plan.

(b) Restructuring of JRDA to ensure effective implementation of the Revised Jharia Master Plan with (a) Monitoring Committee under co-chairmanship of Secretary (Coal) and Chief Secretary, Government of Jharkhand. The said Committee shall monitor progress of milestones every quarter. (b) Implementing Committee under a CEO of Joint Secretary rank (Serving/Retired) from the Government of Jharkhand. JRDA to be restructured by the State Govt. of Jharkhand as per the organisation structure given at **Annexure-I.**

(c) Authorizing Coal India Ltd. to make changes in the Revised Master Plan, if required, including re-appropriation of funds from one head to another and norms for assistance for different components in consultation with Ministry of Coal for successful implementation of Revised Jharia Master Plan as per delegated financial authority for a Maharatna Company.

3. The initial phase of Revised JMP will be applicable for 81 most vulnerable sites (7 Mineable & 74 Non-Mineable) & 27 NRSC Fire sites of Jharia Coalfield, Dhanbad, Jharkhand. The total of 649 BCCL families, 1130 LTH families (subject to verification) &

13301 Non-LTH families (total 15080 families) living in the danger area of Jharia Coal Field will be directly benefited. The initial phase of the revised JMP is to be completed by December 2028. The summary of the revised Jharia Master Plan is given at **Annexure-II**.

4. The funding arrangement for the implementation of the initial phase of the Revised Jharia Master Plan is as follows:

(a) Funding arrangement -

Balance amount (as on 31.03.2025) from Jharia & Raniganj Master Plan of 2009.	₹ 6663.02 Crore
Additional funding by CIL @ ₹ 500 Crore/ Year (for 3 Years)	₹ 1500.00 Crore
Interest earned thereon	-
Revenues from proposed mineable areas	-
Total	₹ 8163.02 Crore

(b) All the surplus revenues from the seven mineable sites in Jharia coal field would be deposited in an escrow account. The moneys in this account will only be used with permission of CIL Board and primarily for the purpose of rehabilitation under JMP. Suitable sums from this account can also be used for the operations and functioning of BCCL with the approval of CIL Board.

(c) Funding of ₹ 500 Crore/ year from CIL will continue, and a corpus will be created for future phases, if required. Further, funding from the District Mineral Foundation (DMF) will be utilised by DC, Dhanbad, whenever required.

5. Satellite imagery and AI technology to be leveraged for scientific monitoring of implementation.

6. Additional components of the Revised Jharia Master Plan, along with the responsibilities and timelines, are given in **Annexure-III**.

7. It is requested to take necessary action to implement the above decisions in the prescribed time-frame.

This issues with the approval of Hon'ble Minister of Coal and Mines.

Digitally signed by
HITLAR SINGH
Date: 09-07-2025
09:47:33
(Hitlar Singh)

Under Secretary to the Govt. of India

Copy to-

1. The Cabinet Secretariat (Shri S.G.P. Verghese, Joint Secretary, Rashtrapati Bhawan, New Delhi-w.r.t. ref. no. CCEA/12/2025(i))
2. CEO, Niti Aayog
3. Secretary, Department of Expenditure, Ministry of Finance
4. Secretary, Department of Public Enterprises
5. Secretary, Department of Land Resources, Ministry of Rural Development
6. Secretary, Ministry of Road, Transport & Highways
7. Secretary, Ministry of Railways
8. CMD, Bharat Coking Coal Ltd.
9. DC, Dhanbad cum MD, JRDA

Copy for information to:

1. PS to Minister of Coal
2. PSO to Secretary (Coal)
3. PPS to Additional Secretary & Nominated Authority
4. PPS to OSD, O/o Advisor (P)
5. IFD, MoC

Approved organisation structure of JRDA

Immediate steps shall be taken to strengthen JRDA by establishing a robust administrative structure with suitable manpower. The structure would ensure efficient and effective implementation of the Revised Jharia Master Plan.

1. Monitoring Committee:

- i. Secretary (Coal), Co-Chairman
- ii. Chief Secretary, Govt. of Jharkhand, Co-Chairman
- iii. Secretary, Mines, Govt. of Jharkhand, Member
- iv. Secretary, Department of Home, Jail & Disaster Management, Govt. of Jharkhand, Member
- v. Chairman, Coal India Ltd., Member
- vi. CMD, BCCL, Member
- vii. Director General, DGMS, Member

2. Implementing Committee

(a) Leadership: CEO, JRDA would be a retired/serving Joint Secretary-ranked officer from Govt. of Jharkhand, for the term of Revised Jharia Master Plan. This will ensure strong and effective leadership for the duration of the plan.

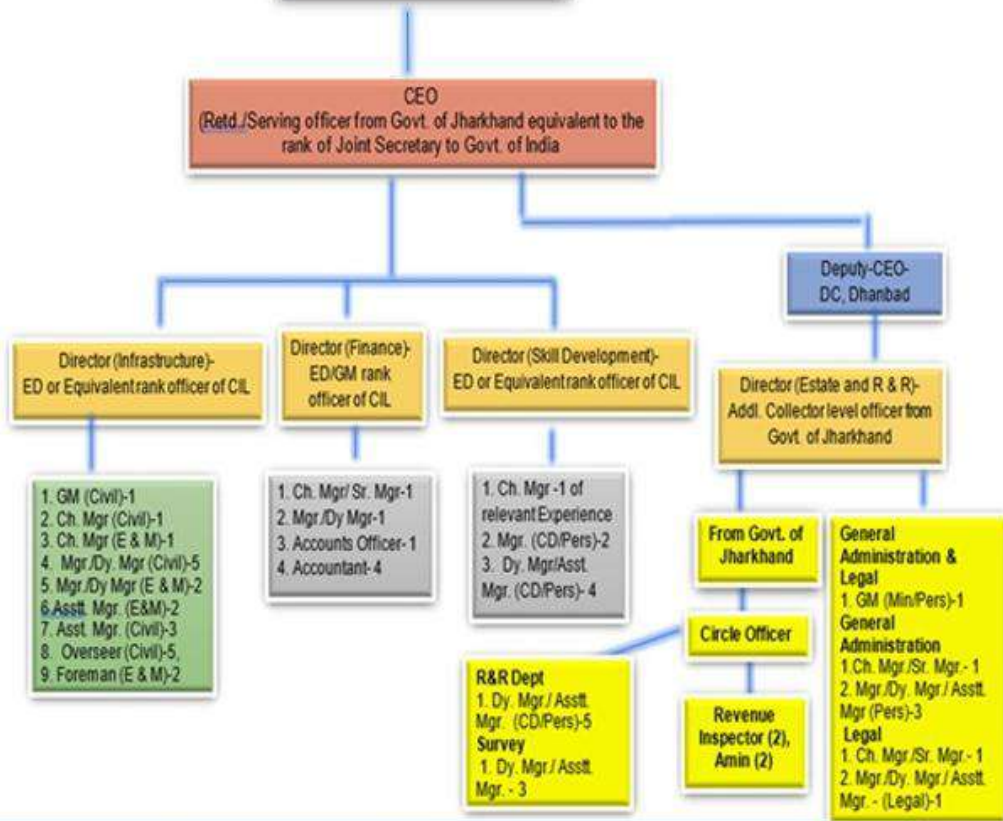
(b) Deputy CEO: The Deputy Commissioner (DC) of Dhanbad would serve as the Deputy CEO of JRDA, playing a key role in the local administration and decision-making processes.

(c) Directors: JRDA to have four directors, each overseeing key verticals:

- i. Director (Infrastructure)-ED or Equivalent rank officer of CIL
- ii. Director (Finance) – ED/GM rank officer of CIL, JRDA
- iii. Director (Skill Development) – ED or Equivalent rank officer of CIL or Recruitment from market
- iv. Director (Estate and R &R) – Additional Collector Level officer from Govt. of Jharkhand

This structure is designed to ensure a coordinated, efficient, and transparent approach to the execution of the Revised Jharia Master Plan, with clear lines of authority and accountability. The involvement of key stakeholders at both the central

Monitoring Committee



Note 1: A decision may be taken regarding the present Board of Management of JRDA.

Note 2: The Non- Executives for respective departments may be deputed as per requirement.

Note-3: A Project Monitoring Unit (PMU) may be hired from Market to assist in activities of all verticals.

Note-4: Below Directors except Circle officer, Revenue Inspector and Amin, all other manpower will be on deputation from Coal Companies

Summary of Revised Jharia Master Plan

The Revised Jharia Master Plan (JMP) intends to effectively rehabilitate the affected people in Jharia Coalfield and deal with fire to prevent human loss & empower Coal India Ltd. to make changes in the Revised Master Plan within the approved outlay, if required, including re-appropriation of funds from one head to another in consultation with Ministry of Coal for successful implementation as per delegated financial authority. The report of experts will be the guiding the Revised Jharia Master Plan implementation.

1. Salient Features

- 1.1. The Revised JMP will be applicable for 81 most vulnerable sites in the initial phase & 27 NRSC Fire sites of Jharia Coalfield, Dhanbad, Jharkhand and 649 BCCL families, 1130 LTH families (subject to verification) & 13301 Non-LTH families (total 15080 families) living in the danger area of Jharia Coal Field will be directly benefited. It will be implemented by December 2028.
- 1.2. The objectives is to deal with fire in 27 fire-affected sites, rehabilitate people from 81 Most vulnerable sites, safeguard the people who will be moved from endangered areas to safer places with better amenities, save large amounts of coal from burning which provides scope for projectizing the available reserves eventually & protect environmental pollution and make the location environment friendly.
- 1.3. BCCL will implement fire dealing measures in a time-bound manner in 27 fire-affected sites or any other future outbreak.
- 1.4. Fire and unstable sites will be grouped into Mining Projects, which are considered suitable for mining by CIL, and Non-Mining Projects, which are not considered suitable for mining. Sites falling under Mining Projects will be rehabilitated using the CIL's R&R policy under the responsibility of BCCL and for non-Mining Projects, Jharia Master Plan will be implemented by JRDA. To maintain uniformity, affected non-LTH falling under Mining Projects will be given compensation as recommended for Jharia Master Plan, and top-up funding

above the CIL R&R package for encroachers will be provided from JMP fund. Therefore, Mineable sites will be dealt accordingly by BCCL.

- 1.5. A new option of cash compensation will be given in place of houses for both LTH & Non-LTH families will be provided. However, houses constructed will be allotted on first priority and after the exhaustion of existing houses, cash compensation will be paid. Ownership rights of houses will be given as per the long-term lease.
- 1.6. Committee for way ahead of Jharia Master Plan recommended that regarding compensation for the land to the LTH families, it should be determined under CBA Act or the Land Acquisition, Rehabilitation and Resettlement (LARR) Act, 2013. Sections 25 to 30 of the Act lay down the provisions for the determination of compensation for land acquired. Therefore, applying the provisions of the LARR Act, 2013 would be most practical, as it provides a legal framework for determining the price of land. JRDA will ensure that LTH families have proper documents in support of their legal possession of the land.
- 1.7. Once the house constructions are completed and houses are handed over to affected families, the services to be provided by either JRDA or State govt. Therefore, all Operations & Maintenance (O&M) of the assets will be carried out by JRDA & State Govt. A corpus will be created to support the effective management of the township created for the people to provide civic amenities.
- 1.8. After shifting of families, BCCL and JRDA will ensure that no new encroachment takes place in the Jharia Master Plan area and all acquired houses are demolished.
- 1.9. In earlier JMP, there was no legal provision for shifting of families residing in affected areas and no legal powers to JRDA. The Government of Jharkhand will empower JRDA with legal mandate to enforce rehabilitation and resettlement.
- 1.10. JRDA to be restructured with (a) Monitoring Committee under co-chairmanship of Secretary (Coal) and Chief Secretary, Government of Jharkhand. The Ministry of Coal will set and update weekly milestones along with the authority responsible for the implementation of the same. The said milestones will be monitored by the aforesaid Committee every quarter. (b) Implementing Committee under a CEO of Joint Secretary rank (Serving/Retired) from the Government of Jharkhand.

- 1.11. All the required amenities at rehabilitation sites, such as schools, hospitals, community centres, street lighting, tap water connections, permanent electricity connection to households, waste collection services, sewerage treatment plants etc. will be provided. Existing housing units will be maintained to make them in a liveable condition.
- 1.12. Skills will be provided to rehabilitated families and microenterprises will be developed to provide employment.
- 1.13. Belgaria Township to be notified as municipal body in long run. Resident Welfare Association (RWA) to be formed with seed funding for the corpus and support for 3 years.
- 1.14. Vacated sites will be taken into possession & ecologically restored through plantation, stabilization, and sustainable land use.

2. Cut-off date for entitlement:

Demographic surveys of 2019 is recommended by the Committee as final survey for entitlement. No revisions in the cut-off date is allowed. As per the survey, there are 1130 LTH families (subject to further verification of documents), 13301 Non-LTH families & 649 BCCL families who will be rehabilitated. BCCL and JRDA will take all measures to ensure that no new encroachment takes place in the Jharia Master Plan area and all acquired houses will be demolished and land to be possessed.

3. Compensation package:

	Types of Assistance	LTH	Non-LTH
a.	Compensation	Compensation for land and Assets + 50m ² house or Rs. 5 Lakh cash*	38.92 m ² house (each family will be allotted two units) or Rs. 5 Lakh cash*
b.	Livelihoods grant	Rs. 1 Lakh	Rs. 1 Lakh
c.	Rental Assistance	Rs. 1 Lakh	Rs. 1 Lakh

d.	Cost of shifting	Rs. 50,000	Rs. 50,000
e.	One time grant in lieu of annuity/employment	Rs. 5 Lakh	-
	Total	Compensation +House/ Rs. 5 Lakh + Rs. 7.50 Lakh	House (each family will be allotted two units) /Rs 5 Lakh+ Rs. 2.50 Lakh

Note:

1. * Houses constructed will be allotted on first priority and after the exhaustion of existing houses, cash compensation will be paid.
2. Jharia Alternative Livelihoods Rehabilitation Fund will be set up as part of the rehabilitation plan to support livelihood activities. Along with the Livelihood Grant of ₹ 1 Lakh and loan up to ₹ 3 Lakh through a credit pipeline will be given to both LTH and Non-LTH families.

4. Outlay

Table-1

		FY	Outlay (Amount in Cr)
Revised Jharia Master Plan for Dealing with Fire, Subsidence & Rehabilitation in Jharia Coalfield	Fire Dealing & Rehabilitation of BCCL families	2025-26	369.27
		2026-27	1105.00
		2027-28	1100.83
		Sub Total	2575.10
	Rehabilitation (JRDA)	2025-26	1121.79
		2026-27	1121.79
		2027-28	1121.79
		Sub-Total	3365.37
		Total	5940.47

- 4.1. Fund provision for fire dealing of ₹ 2178.40 Cr includes blanketing, viability gap funding (deficit grant), scientific studies & project preparation cost. VGF (Deficit

grant) of ₹ 1114.20 Cr for one unviable site is required by BCCL. Resettlement Land Cost of ₹ 149.20 Cr & Infrastructural Cost of ₹ 247.50 Cr. Refer **Table-2** below for details.

- 4.2. Tentative fund requirement for rehabilitation of LTH & Non-LTH families in 81 high-risk vulnerable sites, calculated by JRDA based on two methods (i) using cost index of JCF (by CMPDIL) from 2008 to 2023 i.e.; increase of 238.66% and (ii) based on assumptions (a) average cost of asset on homestead land @ ₹ 25 Lakhs per family. (b) Average land of 6 decimals per family @ ₹ 2 Lakhs per decimal. (c) Other compensations as recommended by Committee for LTH families 3 adults per family are considered. (d) One Time grant of ₹ 5 Lakh in lieu of Annuity/Employment amt. for LTH Families as per 2nd Schedule point 4 (b) of LARR Act 2013. On average 3 adults are considered for each LTH family. Refer **Table-3** for detailed fund calculation. However, 2nd method has been considered for more actual estimates.
- 4.3. The estimates are tentative based on industry best practices, therefore, costs may vary based on market conditions.

Table- 2

Outlay for Fire Dealing & Rehabilitation on BCCL Part

(Amount in Rs. Cr.)

S. No.	Particulars	Amount	Remarks
1.	Infrastructural Cost	247.50	This is the cost amenities & infrastructure for BCCL houses.
2.	Resettlement Land Cost	149.20	The funding requirement for land required for amenities & infrastructure for BCCL houses.
3.	Project preparation Cost	12.50	It includes the Cost of Fire project preparation by CMPDI & other jobs by CMPDI. 1000 Eds have been provisioned per year for this job for 5 years.

4.	Fire Dealing	(A) Blanketing	1001.70	1. NRSC survey indicated 27 fire locations which were projectised by CMPDIL, accordingly 16 projects were found viable/ self-sustainable and are running at present. One project namely Mudidih has a viability gap of ₹ 1114.20 Cr and fire at other 10 non-viable projects /locations will be dealt by blanketing. 2. Cost of 1st phase of Blanketing followed by fencing/plantation at 74 JMP sites is 797.53 & 10 NRSC sites blanketing cost is ₹ ₹ 174.17 Cr. Also, a lumpsum amount of ₹ 30 Cr is kept for approach road.
		(B) Viability Gap Funding	1114.20	Viability Gap Funding for Mudidih Project.
5.	Scientific Studies		50.00	It includes surface fire study by NRSC & any other scientific studies, instrumentation if required & others.
	Sub Total		2575.10	

Table -3

Outlay for Rehabilitation on JRDA Part

Sl. No	Particulars	Rate in ₹ Lakhs	No. of House Holds			Amount (in Cr)	Multipl ying Factor as per LARR Act 2013 for Urban Areas	Final Amount (in Crore)	Remarks
			LTH	Non-LTH	Total				
1	House Construction Cost *					120		120	For completion of ongoing works of Belgaria Township.
2	House Compensation (LTH)	25	1130	0	1130	282.50	2	565	Based on increase in index on approved JMP. Multiplying factor of 2 is applied

Sl. No.	Particulars	Rate in ₹ Lakhs	No. of House Holds			Amount (in Cr)	Multipl ying Factor as per LARR Act 2013 for Urban Areas	Final Amount (in Crore)	Remarks
			LTH	Non-LTH	Total				
									as per LAAR Act 2013.
3	Land Compensation (LTH)	2	1130	0	1130	135.60	2	271.20	Based on assumption of average 6 Decimal homestead land per family @ Rs.2 Lakhs / Decimal (Avg. rate assumed)
4	Resettlement Land Cost					150	1	150	For procurement of land for infrastructures. Rate taken as per the Govt. Land rate vide letter no. 2255, Dt. 20.07.2022
5	Infrastructural Cost					439.14	1	439.14	Estimated cost based on assessed requirements of basic Utilities such as water supply, electrical works, schools, health centres, parks, Anganwadi, sewerage disposal etc.
6	Cash compensation in lieu of house (LTH + NLTH)	5	3390	13101	16491	824.55	1	824.55	Amount as Per Committee Report, assuming all affected families will opt for cash compensation in lieu of house. On average 3 adults are assumed for each LTH Family.
7	Livelihood Grant (LTH + NLTH)	1	3390	13101	16491	164.91	1	164.91	Amount as Per Committee Report, Provision of additional Loan upto Rs.3 Lakhs through credit pipeline. On average 3 adults are assumed for each LTH Family
8	Rental assistance (LTH + NLTH)	1	3390	13101	16491	164.91	1	164.91	Amount as Per Committee Report. On average 3 adults are assumed for each LTH Family
9	Cost of Shifting (LTH + NLTH)	0.5	3390	13101	16491	8245.50	1	82.45	-do-
10	One Time Grant in Lieu of Annuity	5	3390	-	3390	169.50	1	169.50	Proposed as per Second Schedule Point 4.(b.) of LARR Act 2013. On average 3 adults are

Sl. No	Particulars	Rate in ₹ Lakhs	No. of House Holds			Amount (in Cr)	Multipl ying Factor as per LARR Act 2013 for Urban Areas	Final Amount (in Crore)	Remarks
			LTH	Non-LTH	Total				
	/Employment Amt. (for LTH) **								considered for each LTH Family
11	Additional Cost of Stamp Duty and Registration Fee ***							73.12	Proposed as per Second Schedule Point 11 of LARR Act 2014 (Stamp Duty @ 4% and Registration fees @ 3%)
12	Skill Development / Livelihood							80	Proposed
13	Survey and Valuation of Structures on Homestead Lands of LTH Families							11.30	Assumed 2% of the house compensation cost.
	Sub-Total							3116.08	
14	Add: Contingencies @ 3%							93.48	
15	Add: Supervision Charges @ 5%							155.80	
	Grand Total							3365.36	

Note:

1. * As per the Committee report no new houses to be constructed. The committed balance amount for this head is required for completion of the ongoing works.
2. For Sl. No. 6 to 11 on an average 3 adults are assumed for each LTH Family.
3. ** The Sl. No 10 is proposed to be incorporated as per Second Schedule Point 4.(b.) LARR 2013 Act.
4. *** The Sl.No 11 is proposed to be incorporated in line with point 11 of Second Schedule of the LARR 2013 Act.
5. This Budget estimate is for initial phase of 81 High Risk Sites only.
6. The data regarding quantum of land and valuation of assets for LTH is not available. For calculation, it is assumed that on average families will have 6 decimals of land and avg. cost of assets on homestead land is assumed as Rs.25 Lakhs / LTH family. The cost of homestead land is also assumed as Rs. 2 Lakhs per decimal. The above assumptions may vary in a wider range as per actual measurements.

5. Source of Funding:

Balance amount from Jharia Master Plan.	₹ 6663.02 Cr
Additional funding by CIL @ Rs 500 Cr/Year (for 3 Years)	₹ 1500.00 Cr
Interest earned thereon	-
Revenue from mineable areas	-
Total	₹ 8163.02 Cr

- 5.1. Funding of Rs 500 Cr/year from CIL will continue and a corpus is to be created for future phases of revised Jharia Master Plan, if required. Also. funding from the District Mineral Foundation (DMF) will be utilised by DC, Dhanbad, whenever required.
- 5.2. All the surplus revenues from the seven mineable sites in Jharia coal field will be deposited in an escrow account. The moneys in this account will only be used with permission of CIL Board and primarily for the purpose of rehabilitation under JMP. Suitable sums from this account can also be used for operations and functioning of BCCL with the approval of CIL Board.

6. Monitoring and Evaluation:

6.1. Monitoring Committee:

- i. Secretary (Coal), Co-Chairman
- ii. Chief Secretary, Govt. of Jharkhand-Co-Chairman
- iii. Secretary Mines, Govt. of Jharkhand-Member
- iv. Secretary, Department of Home, Jail & Disaster Management, Govt. of Jharkhand-Member
- v. Chairman, Coal India Ltd.-Member
- vi. CMD, BCCL-Member
- vii. Director General, DGMS-Member

6.2. Implementing Committee

(a) Leadership: CEO, JRDA would be a Retired/Serving Joint Secretary-ranked officer from Govt. of Jharkhand, for the term of Revised Jharia Master Plan. This will ensure strong and effective leadership for the duration of the plan.

(b) Deputy CEO: The Deputy Commissioner (DC) of Dhanbad would serve as the Deputy CEO of JRDA, playing a key role in the local administration and decision-making processes.

(c) Directors: JRDA to have four directors, each overseeing key verticals:

- i. Director (Infrastructure)-ED or Equivalent rank officer of CIL
- ii. Director (Finance) – ED/GM rank officer of CIL, JRDA
- iii. Director (Skill Development)-ED or Equivalent rank officer of CIL or Recruitment from market
- iv. Director (Estate and R &R)- Additional Collector Level officer from Govt. of Jharkhand

6.3. Development of MIS-

BCCL has prepared MIS <https://bcclweb.in/JMP> for the whole system & complete data of 81 sites is in process of digitization. Initial data of 81 sites based upon the defined parameters has been captured. It is further being upgraded with geotagged photographs. Test run for all the areas of BCCL has been completed.

Additional components of Revised Jharia Master Plan, along the responsibilities and timelines

(a) Short-term (within 6 Months)

S. No.	Milestones	Responsibility	Timelines
1.	Maintenance of existing units of houses to make them in liveable condition- Hiring of an agency for maintenance of houses and sewerage.	JRDA through an outsourcing agency	December 2025
2.	Deployment of Electric buses at rehabilitation sites for residents. Providing E-Rickshaw as a means of livelihood activity.	BCCL	Buses Implemented & E-Rickshaw by August 2025
3.	Additional infrastructures such as Schools, Hospitals, ICDS, PDS shops etc. shall be assessed and a comprehensive proposal shall be sent to State Govt. for approval.	JRDA	October 2025
4.	100 percent distribution of ration cards and enrolment to insurance schemes, UJJWALA Yojna, Ayushman Bharat, and old age pension schemes shall be achieved. Eligible families also to be provided with MNREGA job cards.	JRDA	December 2025
5.	Police post at Belgaria shall be established	JRDA with the help of SSP, Dhanbad	August 2025
6.	The representatives of MSME, MSDE, MoRD (NRLM) will jointly visit to interact with the DC, Dhanbad and BCCL teams and submit comprehensive proposal for Skill development & livelihood.	MSME, MSDE, MoRD	August 2025

7.	Development of Microenterprise- EOI to be floated for shortlisting the agency	BCCL	July 2025
8.	Career cum counselling centres shall be established for student and youths and Market mapping of skill requirement in Dhanbad city.	BCCL	August 2025
9.	Organisation of awareness drive about Revised Jharia Master Plan to encourage shifting	BCCL & JRDA	September 2025
10.	Verification of LTH families with support from district officials & uploading certified data on the portal	BCCL, JRDA	December 2025
11.	Stamp duty & Registration fee on the house to be allotted shall be Waived off	Govt. of Jharkhand	
12.	Establishment of an online grievance redressal system for convenient grievance registration, and sensitization of people about its usage.	JRDA	August 2025
13.	Resident welfare association (RWA) to be formed with seed funding for the corpus and support for 3 years	BCCL, JRDA	August 2025
14.	Coverage of all women above 18 years under Self Help Group (SHG) under NRLM (MoRD). Further creation of sufficient Panchayat Level Federations and Block Level Federations under NRLM	JRDA, MoRD	December 2025
15.	Approval of the individual electricity connections, infrastructure for street lighting and water pipelines from Damodar River.	JRDA through JBVNL & PHED	

(b) Medium-term (6 Months to One year)

S. No.	Milestones	Responsibility	Timelines
1.	Installation of Individual house electricity connections by providing smart meters.	JRDA through JBVNL	June 2026
2.	Installation of infrastructure for street lighting in all phases of construction		
3.	PM Surya Ghar Yojna for rooftop solar generation	BCCL	September 2025
4.	Development of four-lane Ring road around Jharia Coalfield- To submit requirement to the concerned department/ organization	BCCL & JRDA	December 2025
5.	Waste collection services, segregation, and recycling units shall be set up.	JRDA & BCCL for three years. Through RWA thereafter	June 2026
6.	Development Widening & maintenance of colony Roads and approach roads.	JRDA through PWD	June 2026
7.	Restructuring of JRDA headed by Retd./Serving Joint Secretary level officer from GoJH	Govt. of Jharkhand	December 2025
8.	Establishment of Skill Development centers at Karmatand Rehabilitation Site identified for handover by BCCL to JRDA	BCCL	December 2025
9.	Establishment of commercial dairy farming and Poultry farming with cooperatives and self-help	BCCL	June 2026

	groups with involvement of NRLM along with JRDA		
10.	Remaining house construction should be expedited, with quarterly targets set for efficient monitoring.	BCCL & JRDA	December 2025

c) Long-term (within Three Years)

S. No.	Milestones	Responsibility	Timelines
1.	Commissioning of Sewerage Treatment Plan in Belgaria	JRDA with concerned department of State Govt.	December 2026
2.	Installation of pipeline from Damodar Valley for supply of water in Belgaria. Permanent Tap water connections are to be provided in each household	JRDA with PHED	June 2028
3.	Belgaria Township to be notified as municipal body in long run.	JRDA with help of State Govt.	June 2027
4.	Additional Infrastructure Community centre, shopping complexes etc to be built.	JRDA	December 2026
5.	A sub-station (33 KV) and permanent electricity supply along with smart metering to be established at Belgaria township	JRDA through JBVNL	December 2026
6.	Taking possession of vacated sites & ecologically restoring through plantation, stabilization, and sustainable land use	BCCL	Part of fire & subsidence management plan
7.	Promoting self-employment ventures and MSME clusters by BCCL in collaboration with government/private firms, with technical support and advanced	BCCL	December 2026

	training from MSME centers in Jamshedpur.		
8.	Development of Microenterprise	BCCL	June 2026
9.	Expanding skill development through NSDC to cover one member from 18,000 affected families, with advanced technical support from nearby MSME Centers.	BCCL	June 2028

HYDROGEOLOGICAL STUDY
FOR
STUDY OF BORE WELLS NEAR DAMODAR RIVER FOR
PERMEABILITY AND SEEPAGE OF WATER OF RIVER DAMODAR
CLUSTER-X MINES OF BCCL
EASTERN JHARIA AREA
JHARIA COALFIELD

FOR
BHARAT COKING COAL LIMITED
(A Subsidiary of Coal India Limited)
Dhanbad -826005
(Jharkhand State)

Prepared by



Central Mine Planning and Design Institute
(A Subsidiary of Coal India Limited)
Hydrogeology Section of Exploration Division
Ranchi-834008 (Jharkhand)

MARCH 2022

13.0 Observations

The observations of this hydrogeological study are summarized below-

- i. The study area is located at the southeast part of the Jharia Coalfield in EJ Area of BCCL. Various types of rock belong to Quaternary age (top soil, alluvium, sandy soil), Gondwana age (Barakar Formation, Barren Measure Formation, Talchir Formation) and Archean metamorphic basement has been found in the Cluster-X mine area.
- ii. The study area is located in the discharge zone of Gaukhuti Jhor and it is part of middle stage Damodar River Sub-basin. The area is also potential in terms of groundwater and surface water resources (Panchet dam on Damodar River) with fair to moderate rainfall received throughout the year.
- iii. There are various aquifer systems found in the area, i.e., unconfined aquifers (top alluvium, soil and riverbed loose sand), semi-confined aquifers (Barakar Formation sandstones) and confined aquifers. Those semi-confined aquifers can be called **multi-aquifer system**.
- iv. At present Cluster-X mines of BCCL consisting of one closed Underground mines (Amlabad UG), five operating Underground mines (Bhowrah North UG, Bhowrah South UG, Patherdih UG, Sudamdih Incline UG & Sudamdih Shaft UG), four opencast mines (Bhowrah North OC, 3 Pit OC, Chandan OCP [Bhowrah], Chandan OCP [Patherdih]) and one Coal Washery (Sudamdih Coal Washery).
- v. Hydro geochemistry / Major Ion data analysis of 20 nos. of sampling points has been conducted in the study area.
- vi. The Groundwater level and fluctuations (upto 2020-21) are given below:
 - a. **Unconfined aquifer: 0.35 m to 12.10 m (BGL) [Dug wells]**
 - b. **Confined aquifer: 14.10 m to 23.10 m (BGL) [Borehole]**
- vii. The Water Table Contour map shows shallow water table with flow of groundwater towards major drainage system, i.e., Damodar River in the area.

-
- viii. **Aquifer Performance Test (APT)** results in Barakar Formation within the study area shows low permeability ($K = 1.22$ to 0.006 m/day and $T = 8.06$ to 0.133 m²/day) of the semi-confined to confined aquifer in the study area.
- ix. **Gaukhuti Jhor base flow** of 34.287 Cusec has been estimated before the nala is entering into Cluster-X mine area. 36.029 Cusec of base flow is estimated in the M/S and 37.866 Cusec of base flow is estimated after crossing the mine area.
- x. In the A-B' cross-section line it is evident that, there may be no direct connection in between Damodar River and adjacent coal mine pit through shallow or deep aquifers. Mining activity adjacent to Damodar River has been done having safe barrier of at least 60-80 m. Seepage water from aquifer is the only source of water into mine pits of Cluster-X mine of BCCL. However, in Sudamdih Shaft and Incline UG Mine due to proximity of Damodar River and presence of fault can cause some connection. But these two UG mines are not operating at present.
- xi. However, there is a possibility of connection of Gaukhuti Jhor and Cluster-X mine pit due to reversal of groundwater gradient as an impact of mining activity through deeper aquifers (sedimentary Formation).
- xii.



14.0 Summary and Conclusions

The objective of the study is to monitoring of wells for permeability and seepage of water from River (Damodar River) into coal mine voids/pits of Cluster-X mines, BCCL.

The permeability & seepage (Hydraulic property) from the aquifers has been determined using Aquifer Pump test in and around the study area.

Hydraulic properties of the sedimentary aquifer (Barakar formation)

Permeability (k):	1.22 m/d
Transmissivity:	8.06 m ² /day

In the A-B cross-section line it is evident that, there is no connection in between Damodar River and Cluster-X mine pit through shallow or deep aquifers.

As per major ion chemistry analysis it also showing mixture of sources of groundwater and surface water. Gaukhuti Jhor surface water may be somewhat connected to adjacent mining activity within Cluster-X mine BCCL.

15.0 Recommendations

To establish the connection and source of mine seepage water in Cluster-X mines of BCCL with river system, stable isotope systematics coupled with hydro-geochemical assessment will be very useful. Stable isotopes ($\delta^{18}\text{O}$ and $\delta^2\text{H}$) with conventional hydro-geochemical parameters (Cations: calcium (Ca^{2+}), magnesium (Mg^{2+}), sodium (Na^+), potassium (K^+) and Anions: chlorine (Cl^-), nitrate (NO_3^-), sulphate (SO_4^{2-}), carbonate (CO_3^{2-}) bicarbonate (HCO_3^-), fluorine (F^-) analysis of groundwater, surface water and rainwater will help to conclude the study more scientifically.

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WATER QUALITY REPORT OF BHARAT COKING COAL LIMITED CLUSTER – X

(FOR THE Q.E. MARCH 2026)

E. C. no. J-11015/380/2010-IA.II (M) dated 15.04.2025.



CMPDI

ISO 9001 Company
Regional Institute-II
Dhanbad, Jharkhand

CLUSTER - X
(FOR THE Q.E. MARCH 2026)

CONTENTS

SL. NO.	CHAPTER	PARTICULARS
1.		EXECUTIVE SUMMARY
2.	CHAPTER - I	INTRODUCTION
3.	CHAPTER-II	WATER SAMPLING & ANALYSIS
4.	Plates: Plate NO. - I	SURFACE PLAN SHOWING WATER MONITORING LOCATIONS

EXECUTIVE SUMMARY

1.0 Introduction

The purpose of environmental monitoring is to assess the quality of various attributes that affect the environment around us. In accordance with the quality of these attributes appropriate strategy is to be developed to control the pollution level within the permissible limits. One of these major attributes is water.

Bharat Coking Coal Limited (BCCL), a Subsidiary company of Coal India Limited is operating Underground and Opencast Mines in Jharia Coalfield (JCF) is a part of Gondwana Coalfields located in Dhanbad district of Jharkhand, the JCF is bounded by 23°37' N to 23°52' N latitudes and 86°09' E to 86°30' E longitude occupying an area of 450 Sq.km. BCCL has awarded Environmental monitoring work of Jharia Coalfield (JCF) to Central Mine Planning & Design Institute Limited (CMPDIL). The environmental monitoring has been carried out as per the conditions laid down by the MoEF&CC while granting environmental clearance of project, consent letter issued by the respective SPCB, and other statutory requirements.

2.0 Sampling location and rationale

2.1 Water sampling stations

The Water sampling stations were selected for mine effluent water, Ground water supply, well/ Hand pump water & also surface water samples.

3.0 Methodology of sampling and analysis

3.1 Water quality

Water samples were collected as per standard practice. The Ground and Surface water samples were collected and analyzed for 25 and 17 parameters respectively, on a quarterly basis. Thereafter the samples were preserved and analyzed at the Environmental Laboratory at CMPDI RI-II, Dhanbad

4.0 Results and interpretations

4.1 Water quality

The test results indicate that the major parameters compared with MoEF&CC Gazette Notification No. GSR 742(E) dt 25.09.2000 Standards for Coal Mines, IS.10500/2012 (Ground water) and IS: 2296 (Surface water), are within permissible limits.

CHAPTER - I

INTRODUCTION

- 1.0 Any industry and development activities including coal mining is bound to affect environmental attributes. There are positive as well as negative impacts of such operations. For controlling the adverse impacts a regular monitoring is essential. The environmental monitoring is being done as per the guide-lines stipulated by the Ministry of Environment, Forests and Climate Change (MoEF&CC), Govt. of India.

Bharat Coking Coal Limited (BCCL), a subsidiary company of Coal India Limited (CIL) is operating UG Mines and Opencast Mines in Jharia Coalfield (JCF). The Jharia Coalfield (JCF) has an area of 450 Sq.KM.

Bharat Coking Coal has awarded Environmental Monitoring work of all Projects, Cluster wise, to Central Mine Planning & Design Institute Limited (CMPDIL). The environmental monitoring has been carried out as per conditions laid down by MoEF&CC while granting environmental clearance to different projects. CMPDI has trained manpower and a well equipped laboratory to carry out monitoring, analysis and R&D work in the field of environment.

- 1.1 The Cluster-X is in the Eastern part of the Jharia coalfield. It includes a group of 6 Mines (viz. Amlabad Colliery, Bhowra north UG/OC, Bhowra South UG/OC , Amalgamated Sudamdih Patherdih Mine OC, Sudamdih Shaft UG, Sudamdih Coal Washery The Cluster-X is situated about 25 - 30 kms from Dhanbad Railway Station. The mines of this Cluster-X are operating since pre nationalization period (prior to 1972-73). It is connected by both Railway and Road. The drainage of the area is governed by the Damodar River.
- 1.2 The Cluster-X is designed to produce 1.762 MTPA (normative) and 2.289 MTPA (peak) capacity of coal and coal washery of 2.08 MTPA.

The Project has Environmental Clearance from the Ministry of Environment, Forests and Climate Change (MoEF&CC) for a rated capacity 1.762 MTPA (normative) and 2.289 MTPA (peak) capacity of coal production vide letter no. J-11015/380/2010-IA.II (M) dated 15.04.2025.

In compliance with these conditions the Environmental Monitoring has been carried out & report prepared for submission to MoEF&CC & SPCB and other statutory authorities.

CHAPTER – II

WATER QUALITY MONITORING

2.1 Location of sampling sites (Refer **Plate No. - I**)

- i) Ground Water quality at **Bhowrah North (GW10)**
- ii) Surface Water quality at **U/S of Damodar River (SW21)**
- iii) Surface Water quality at **D/S of Damodar River (SW22)**

2.2 Methodology of sampling and analysis

Water samples were collected as per standard practice. The Ground and Surface water samples were collected and analyzed for 25 and 17 parameters respectively, on a quarterly basis. Thereafter the samples were preserved and analyzed at the Environmental Laboratory at CMPDI RI-II, Dhanbad

2.3 Results & Interpretations

The results are given in tabular form along with the applicable standards. Results show that most of the parameters are within the permissible limits.



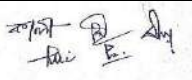
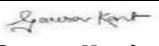
CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED
Environment Laboratory, Regional Institute-II
GROUND WATER ANALYSIS TEST REPORT

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Month & Year	QUARTER ENDING MARCH 2026		Name of Cluster	CLUSTER X			ULR No.	TC1432126000002 519P
Customer	Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)						Date of Issue	16.05.2026
Project	Bhowrah North			Sample Ref. No.	REM/BCCL/25-26/GW	Sampling Method	CMPDI/RI-II/LPM 13,(IS 3025:Part -1)	
Sampling Stations	Bhowrah North		Date of Sampling	09.02.2026	Sample Collected in 5 Ltr Jerricane , Color as observed is transparent			
			Period of Analysis			09.02.2026	TO	14.05.2026
Sl. No.	Parameter	Method of Analysis	Observed Values			IS 10500: 2012		
			GW10 G0225	Range Of Testing	LDL	Acceptable Limit (Max)*	Permissible Limit in the Absence of Alternate Source (Max)	
1	Colour, Hazen unit	APHA, 24th edition ,2120-c-Spectrophotometric Single Wavelength Method ,2023	<1	1-500.0	1	5	15	
2	Calcium, mg/l	IS 3025, (Part 40): 1991 R:2019,AAS-Flame Method & EDTA Method	90	2.0-800.0	2	75	200	
3	Chlorides, mg/l	IS-3025(Part 32):1988, R-2019 , Argentometric Method	74	2.0-1500.0	5	250	1000	
4	Fluoride, mg/l	APHA, 24 th Edition, SPADNS Method	0.48	0.2-2.00	0.2	1	1.5	
5	Iron, mg/l	IS 3025 (Part 53) : 2003, R : 2019 , AAS-Flame Method	<0.2	0.2-10	0.2	1	No relaxation	
6	Magnesium	APHA 24th edition, 3500-Mg B: Calculation Method	28	6.0-700	6	30	100	
7	Nitrate , mg/l	APHA, 24th edition, UV-Spectrophotometric Method	37.88	0.5-45.0	0.5	45	No relaxation	
8	Odour	APHA, 24th Edition, , 2150-C	Agreeable	Qualitative	Qualitative	Agreeable	Agreeable	
9	pH value	IS 3025, Part 11 : 1983 R 2023 Electrometric(pH Meter) Method	7.88	1-14	0.1	6.5-8.5	No relaxation	
10	Sulphate, mg/l	APHA -24th edition, 4500 S , Turbidity Method	105	10.0-400.0	10	200	400	
11	Taste	APHA,24th edition, 2160-C	Acceptable	Qualitative	Qualitative	Acceptable	Agreeable	
12	Total Alkalinity (c _a co ₃), mg/l, Max	IS 3025, Part 23: 1986 R 2019 Titration Method	160	4.0-2000.0	4	200	600	
13	Total Dissolved Solids, mg/l	IS 3025, Part 16: 1984 R 2023 Gravimetric method	705	25.0-5000.0	25	500	2000	
14	Total Hardness, mg/l	IS 3025, (Part 21): 2019 EDTA Method	340	4.0-2000.0	4	200	600	
15	Turbidity, NTU	IS 3025, (Part 10):1984, R-2023 Nephelometric/Turbiditimetric Method	2.0	1-800	0.1	1	5	
16	Zinc, mg/l	IS 3025(Part 49) : 1994,R:2019, AAS-Flame Method	<0.1	0.10 – 10.0	0.1	5	15	

***All units in mg/L unless specified otherwise,

**Grab sampling carried out for water samples. *LDL indicates Lower Detection Limit & BDL indicates Below Detection Limit,

 (Gaurav Kant) ANALYSED BY	 (Gaurav Kant) REVIEWED BY	 (Kumar Vaibhav) Authorised Signatory
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Note: The results above relate to the samples tested as received. This report can not be reproduced in part or full without the written permission of the HOD(Env) , CMPDI, RI-II.



CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED
Environment Laboratory, Regional Institute-II
GROUND WATER ANALYSIS TEST REPORT

CMPDIL, RI-II
KOYLA BHAWAN COMPLEX
DHANBAD. -826005
Phone:0326-223-850
email: rdri2cmpdi@coalindia.in

Month & Year		QUARTER ENDING MARCH 2026		Name of Cluster		CLUSTER X							
Customer		Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)						Date of Issue		16.05.2026			
Project		Bhowrah North			Sample Ref. No.		REM/BCCL/25-26/GW		Sampling Method		CMPDI/RI-II/LPM 13,(IS 3025:Part -1)		
Sampling Stations		Bhowrah North		Date of Sampling		09.02.2026		Sample Collected in 5 Ltr Jerricane , Color as observed is transparent					
					Period of Analysis		09.02.2026		TO		14.05.2026		
Sl. No.	Parameter	Method of Analysis			Observed Values				TO		IS 10500: 2012		
					GW10 G0225		Range Of Testing		LDL		Acceptable Limit (Max)*		Permissible Limit in the Absence of Alternate Source (Max)
1	Boron (as B), mg/l, Max	APHA, 24th edition ,Carminc			<0.2		0.2-10		0.2		0.5		1
2	Copper (as Cu), mg/l, Max	IS 3025 Part 42 : 1992 R : 2019, AAS-Flame APHA, 24th edition, AAS-GTA			<0.01		0.01-10.0		0.01		0.05		1.5
3	Free Residual Chlorine, mg/l, Min	APHA, 24th Edition, , 4500-Cl- B. (Iodometric Method-I)			<0.04		0.04-5		0.04		0.2		1
4	Lead (as Pb), mg/l, Max	IS:3025(Part 47):1994 (Reaffirmed 2019) APHA, 24th edition, AAS-GTA			<0.005		0.005-10		0.005		0.01		No relaxation
5	Phenolic compounds (as C6H5OH), mg/l, Max	APHA, 24 th Edition,4-Amino Autipyrine			<0.001		0.001-10		0.001		0.002		0.002
6	Selenium, mg/l, Max	APHA 24th edition IS-3025,part 56:2003, R-2019/, AAS-VGA			<0.007		0.007-10		0.007		0.01		No relaxation
7	Total Arsenic (as As), mg/l, Max	IS-3025,part 37:1988, R-2019/ APHA 24th edition AAS-VGA			<0.006		0.006-10		0.006		0.01		0.05
8	Total Chromium (as Cr), mg/l, Max	IS-3025 Part 52:2003, R:2019,AAS-Flame APHA, 24th edition, AAS-GTA			<0.01		0.01-10.0		0.01		0.05		No relaxation
9	Nickel as Ni, mg/l Max	IS 3025 Part 54 : 2003,R : 2019, AAS-Flame APHA, 24th edition, AAS-GTA			<0.005		0.005-10		0.005		0.02		No relaxation
10	Manganese as Mn, mg/l, Max	APHA, 24 TH Edition:2023 AAS-GTA Method			<0.02		0.02-10.0		0.02		0.1		0.3

***All units in mg/L unless specified otherwise,

**Grab sampling carried out for water samples. *LDL indicates Lower Detection Limit & BDL indicates Below Detection Limit,

(Gaurav Kant)

REVIEWED BY

(Kumar Vaibhav)

Authorised Signatory

ANALYSED BY

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Page -2 of 2

---- End of Report ----



CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED
Environment Laboratory, Regional Institute-II
SURFACE WATER ANALYSIS TEST REPORT

CMPDIL, RI-II
KOYLA BHAWAN COMPLEX
DHANBAD. -826005
Phone: 0326-223-850
email: rdri2.cmpdi@coalindia.in

Month & Year		QUARTER ENDING MARCH 2026		Name of Cluster		X		ULR No.	TC1432126000002547P TC1432126000002548P	
Customer		Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)						Date of Issue	16.05.2026	
Project		Sample Ref. No.			REM/BCCL/25-26/SW /		Sampling Method	(IS 3025 , Part-1) CMPDI/RI-II/LPM 13		
Sampling Stations		(i)	Upstream of Damodar River(SW21)		Date of Sampling		31.03.2026		Period of Analysis	
		(ii)	Downstream of Damodar River(SW22)		Date of Sampling		31.03.2026		31.03.2026 TO 14.05.2026	
Sl. No.	Parameter		Method of Analysis		Observed Values		IS : 2296 INLAND SURFACE WATER [1982] Class 'C	Range of Testing	LDL	
			(i) S0057	(ii) S0058						
1	BOD (3 days 27°C), mg/l	IS 3025 (Part 44) : 1993, R-2019 , 3 day incubation at 27°C		<2.0	<2.0	3	2.00-100.00	2		
2	Colour,Hazen Units	APHA 24th edition , 2120-B -:2023		1	1	10	1-500.0	1		
3	Chlorides, mg/l	IS-3025(Part 32):1988, R-2019 Argentometric Method		36	34	600	2.0-1500.0	5		
4	Copper, mg/l	IS 3025 (Part 42) : 1992 R : 2019, AAS-Flame Method		<0.2	<0.2	1.5	0.2-10.0	0.2		
5	Dissolved Oxygen, mg/L	IS 3025 (Part 38) : 1989, R:2003 Winkler Azide Method		5.5	5.3	4	1.0-10.0	0.1		
6	Fluoride, mg/l	APHA, 24th edition, SPADNS Method		0.47	0.51	1.5	0.2-2.00	0.2		
7	Hexavalent Chromium, mg/l	APHA 24th edition, 1,5-Diphenylcarbohydrazide Method IS 3025 (Part 52) : 2003,R-2019		<0.01	<0.01	0.05	0.01-1.4	0.01		
8	Iron, mg/l	IS 3025 (Part 53):2003,R:2019, AAS-Flame Method		<0.2	<0.2	0.2	0.2-10	0.2		
9	Nitrate, mg/l	APHA, 24th edition, UV-Spectrophotometric Method		6.66	6.41	50	0.5-45.0	0.5		
10	pH value	IS 3025, (Part 11) : 1983 R-2023 Electrometric (Ph Meter) method		7.90	7.91	6.5-8.5	1.0-14.0	2		
11	Sulphate, mg/l	APHA –24th edition,4500- S, Turbidity Method		152	116	400	10.0-400.0	10		
12	Total Dissolved Solids, mg/l	IS 3025, (Part 16): 1984 R-2023 Gravimetric method		222	239	1500	25.0-10000.0	25		
13	Zinc, mg/l	IS 3025(Part 49) : 1994, R : 2019, AAS-Flame Method		<0.1	<0.1	15	0.10 – 10.0	0.1		

****Grab sampling carried out for water samples. *LDL indicates Lower Detection Limit & BDL indicates Below Detection Limit**

*****All units in mg/L unless specified otherwise Sample Collected in 5 Ltr Jerricane , Color as observed is transparent**

(Signature)

(Signature)
(Gaurav Kant)

(Signature)
(Kumar Vaibhav)

Analysed by

REVIEWED BY

Authorised Signatory

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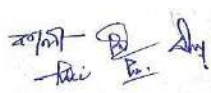
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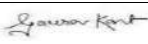
Page - 1 of 2

Month & Year		QUARTER ENDING MARCH 2026		Name of Cluster		X			
Customer		Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)						Date of Issue	16.05.2026
Project		Sample Ref. No.			REM/BCCL/25-26/SW /		Sampling Method	(IS 3025 , Part-1) CMPDI/RI-II/LPM 13	
Sampling Stations		(i)	Upstream of Damodar River(SW21)			Date of Sampling		31.03.2026	Period of Analysis
		(ii)	Downstream of Damodar River(SW22)			Date of Sampling		31.03.2026	31.03.2026 TO 14.05.2026
Sl. No.	Paramete r	Method of Analysis			Observed Values		IS : 2296 INLAND SURFACE WATER [1982] Class 'C	Range of Testing	LDL
					(i)	(ii)			
1	Arsenic (as As), mg/l, Max	IS-3025,Part 37:1988, R-2019/ APHA 24th edition AAS-VGA			<0.006	<0.006	0.2	0.006-10	0.006
2	Lead (as Pb), mg/l, Max	APHA, 24th edition, AAS-GTA			<0.005	<0.005	0.1	0.005-10	0.005
3	Phenolic compounds (as C6H5OH), mg/l, Max	APHA, 24 th Edition 4-Amino Antipyrine			<0.002	<0.002	0.005	0.002-10	0.002
4	Selenium, mg/l, Max	IS-3025 ,Part 56:2003, R-2019/ APHA 24th edition, AAS-VGA			<0.007	<0.007	0.05	0.007-10	0.007

****Grab sampling carried out for water samples. *LDL indicates Lower Detection Limit & BDL indicates Below Detection Limit**

*****All units in mg/L unless specified otherwise Sample Collected in 5 Ltr Jerricane , Color as observed is transparent**




 (Gaurav Kant)


 (Kumar Vaibhav)

REVIEWED BY

Analysed by

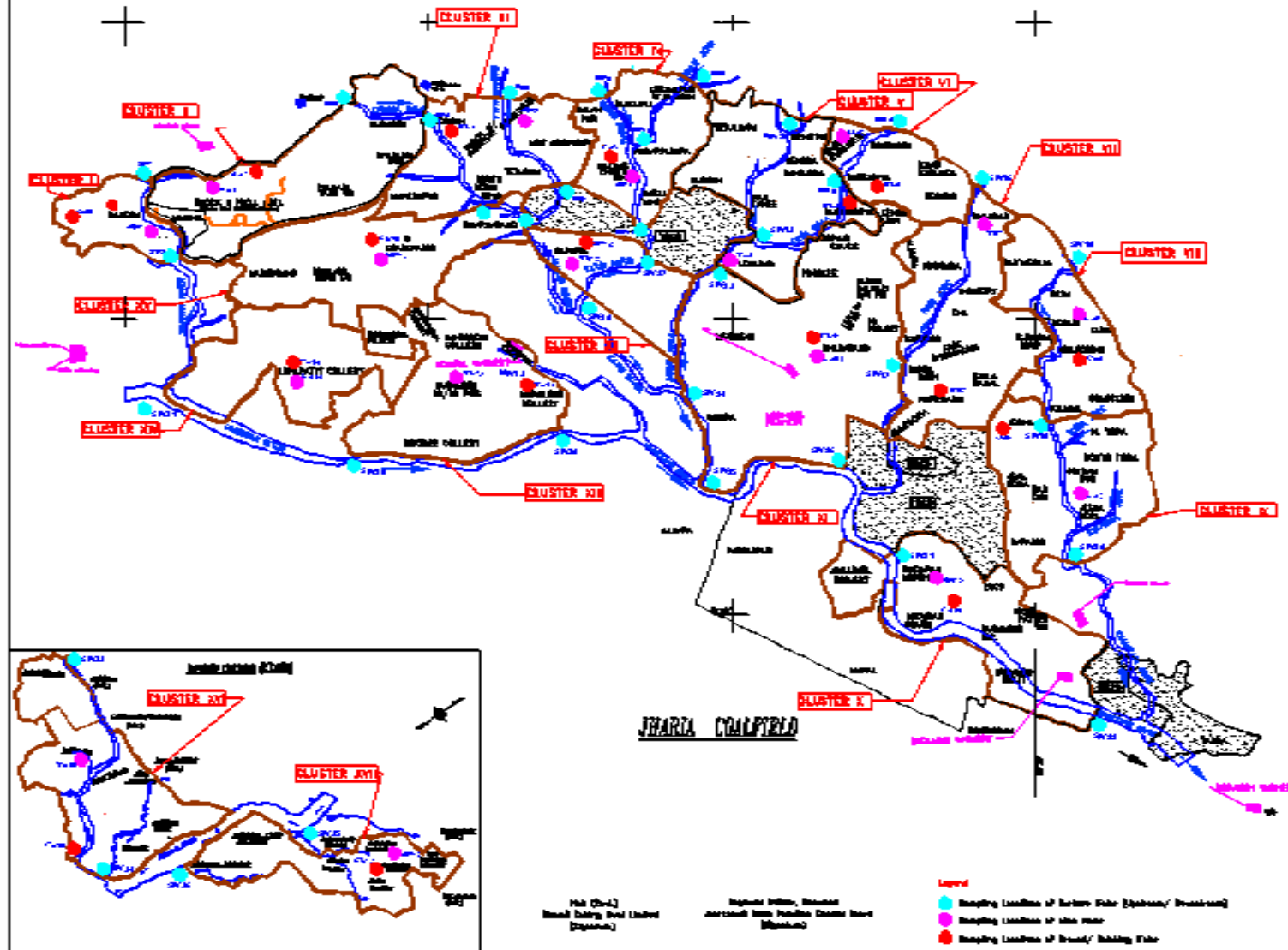
Authorised Signatory

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---- End of Report ----

Page -2 of 2

Water Sampling Locations in BCCL



INDEX

Sl. No.	Cluster	Water Type	Sample No.	Location	Depth	Remarks
1	Cluster I	Surface Water	SPO 1	...	...	...
2	Cluster I	Surface Water	SPO 2	...	...	...
3	Cluster I	Surface Water	SPO 3	...	...	...
4	Cluster I	Surface Water	SPO 4	...	...	...
5	Cluster I	Surface Water	SPO 5	...	...	...
6	Cluster I	Surface Water	SPO 6	...	...	...
7	Cluster I	Surface Water	SPO 7	...	...	...
8	Cluster I	Surface Water	SPO 8	...	...	...
9	Cluster I	Surface Water	SPO 9	...	...	...
10	Cluster I	Surface Water	SPO 10	...	...	...
11	Cluster I	Surface Water	SPO 11	...	...	...
12	Cluster I	Surface Water	SPO 12	...	...	...
13	Cluster I	Surface Water	SPO 13	...	...	...
14	Cluster I	Surface Water	SPO 14	...	...	...
15	Cluster I	Surface Water	SPO 15	...	...	...
16	Cluster I	Surface Water	SPO 16	...	...	...
17	Cluster I	Surface Water	SPO 17	...	...	...
18	Cluster I	Surface Water	SPO 18	...	...	...
19	Cluster I	Surface Water	SPO 19	...	...	...
20	Cluster I	Surface Water	SPO 20	...	...	...
21	Cluster I	Surface Water	SPO 21	...	...	...
22	Cluster I	Surface Water	SPO 22	...	...	...
23	Cluster I	Surface Water	SPO 23	...	...	...
24	Cluster I	Surface Water	SPO 24	...	...	...
25	Cluster I	Surface Water	SPO 25	...	...	...

Prepared by: BCCL	Checked by: BCCL
Approved by: BCCL	Approved by: BCCL
Date: 10/01/2018	Date: 10/01/2018



BHARAT COKING COAL LIMITED
(A Subsidiary of Coal India Ltd.)

भारत कोकिंग कोल लिमिटेड

Bharat Coking Coal Ltd

Eastern Jharia area,,

PO: Bhowra, Dist- Dhanbad, Jharkhand, India-828302



Coal India Limited

A Maharatna Company
www.coalindia.in

Phone :

Fax :

Website :

CIN : U10101JH1972G0I000918

Email :

GSTN : 20AAACB7934MFZB

PO No. : 5500010831

SERVICE PURCHASE ORDER

Date : 28/03/2025

To,
A.B. ENTERPRISES

UPPER KULHI, SINDRI ROAD,
JHARIA

DHANBAD
DHANBAD
828111
Jharkhand
India

Vendor Code: 10087410

PAN: AQPPK2349K

GSTIN: 20AQPPK2349K1ZQ

Delivery Date: 28/02/2025

Department: Civil (Industrial)

Header Text:

Name of the work: "Construction of Garland drain and Siltation Ponds as well as heightening of existing Toe Wall along O.B dump near Pump House along the banks of Damodar River Under Bhowra (South) Colliery of E.J Area".

NIT Ref. No. : BCCL/Civil/ EJA/24-25/eNIIT/101

Date:- 22.02.2025

Ref. No.GM/EJA/ACE/LOA/2024-25/57(A)

Date: 24/02/2025

Item	Material/Service		Qty	Unit	Unit Price	Value	Net Value
10	Garland Drain, Siltation Pond						
	10	Earth work in excavation by mechanical m	531.530	M3	214.15	113827.15	
					per 1 unit		
	20	dressing of sides and ramming of bottoms	63.300	M3	5120.95	324156.14	
					per 1 unit		

	30	Random rubble masonry with hard stone in	376.050	M3	3536.10	1329750.41	3949992.51
					per 1 unit		
	40	Picking, cleaning, breaking, cutting, lo	376.050	M3	219.10	82392.56	
					per 1 unit		
	50	Providing and laying in position cement	42.220	M3	6086.45	256969.92	
					per 1 unit		
	60	Surface dressing of the ground including	100	M2	20.40	2040.00	
					per 1 unit		
	70	Providing and laying in position specifi	159.510	M3	6856.30	1093648.41	
					per 1 unit		
	80	Steel reinforcement for R.C.C. work incl	11165.700	KG	75.65	844685.21	
					per 1 unit		
	90	Centering and shuttering including strut	1701.600	M2	247.95	421911.72	
					per 1 unit		
	100	Brick work with clay flyash F.P.S. (non	32.010	M3	5203.35	166559.23	
					per 1 unit		
	110	12 mm cement plaster finished with a flo	89.260	M2	288.25	25729.20	
					per 1 unit		
	120	Filling available excavated earth (exclu	93.960	M3	184.80	17363.81	
					per 1 unit		
	130	Fencing with angle iron post placed at r	465	M	16.80	7812.00	
					per 1 unit		
	140	Cement concrete flooring 1:2:4 (1 cement	45	M2	442.65	19919.25	
					per 1 unit		
				Gross Price		4,706,765.01	
				Quoted Rate in %(28.88)		-1,359,313.73	
				Goods & Services Tax		602,541.24	

		Value exclusive of Tax	3,347,451.28	
		Inp-Not Eligible- CGST-9%, SGST-9%, No TCS	602,541.23	

Net value	3949992.51	INR
------------------	-------------------	-----

Amount in words :THIRTY NINE LAKH FORTY NINE THOUSAND NINE HUNDRED NINETY TWO RUPEES FIFTY ONE PAISE
--

General terms and Conditions:

Terms and condition will be as follows:

1. The date of commencement of the work will be counted from 28.03.2025
2. Time of completion of the work will 120 (One Hundred Twenty) days.
3. The defect liability period for the work will be 6 (Six) months or expiry of one full monsoon period after completion of the work, whichever is later.
4. You are hereby requested to make necessary preliminary arrangement to start the work in consultation with concerned overseer.
5. You have deposited Rs. 1,28,000.00 (Rupees One Lakh Twenty Eight Thousand) only online as Vide FDR Receipt No.: -925040066527109 Dated: 20-03-2025, Branch:- Shri Ram Plaza DHANBAD
6. Balance security money is 5% i.e. Rs. 1,67,373.00 shall be recovered from A/C bills. The full security deposit shall be remain at the disposal of the Company as security for the satisfactory execution of work in accordance with the provision of the/contract.
7. You are requested to contact Overseer (Civil), Bhowra EJ Area before starting the work.
8. Payment authority will be AFM, EJ, Area.
9. All others terms and conditions as appeared in NIT and Tender documents are applicable in this contract.
10. You are requested to acknowledge receipt of this work order within 10 days from date of receipt of the same in writing to the under signed.

Released By : SOC01_2045

BHARAT COKING COAL LIMITED

COLLIERY UNIT

CONTRACTOR'S BILL FORM

ORIGINAL / DUPLICATE

- On A/c of final
- Name of work

3rd & Final Bill

Construction of Garland Drain and Siltation Ponds as well as
heightening of existing Toe Wall along O.B. dump near Pump House
along the banks of Damodar River under E.J. Area.

- date of Completion of the work as per the Agreement/Work Order : 25.07.25

- P.O. No./Agreement / Work Order No.

No.5500010831, dt:28.03.25

- Extension to time granted, if any, with reference to the Order : Yes (31.08.2025)

- Name of Contractor
- Date of commencement of the work

A.B. Enterprises
28.03.25

- Actual date of completion of the work.25.08.25
- Callms for the work done from : 15.07.25 to 25.08.25

DESCRIPTION OF WORK	QUAUNTITIES OF WORK			Rate & Unit	AMOUNT (Rs.)		
	Paid for as per last bill	Since last bill	Total up to date		Paid/as per last bill	Since last bill	Total up
1	2	3	4	5	6	7	8
1 Earth work.	383.04	137.33	520.37	214.15 / M3	82028.02	29409.22	111437.24
2 P/L PCC (1:4:8).	55.68	7.14	62.82	5120.95 / M3	285134.50	36563.58	321698.08
3 Random rubble masonry with hard stone in foundation and plinth.	452.90	0.00	452.90	3536.10 / M3	1601499.69	0.00	1601499.69
4 Picking, cleaning, breaking, cutting, loading, unloading etc. of quarry boulder.	452.90	0.00	452.90	219.10 / M3	99230.39	0.00	99230.39
5 P/L PCC (1:2:4).	29.61	6.50	36.11	6086.45 / M3	180219.78	39561.93	219781.71
6 Surface dressing of the ground.	0.00	0.00	0.00	20.40 M2	0.00	0.00	0.00
7 P/L RCC (1:1.5:3).	132.00	21.51	153.51	6856.30 / M3	905031.60	147479.01	1052510.61
8 Steel reinforcement for R.C.C. work.	8991.75	1086.00	10077.75	75.65 / KG	680225.89	82155.90	762381.79
9 Centering and shuttering including strutting, propping etc..	1682.28	0.00	1682.28	247.95 / M2	417121.33	0.00	417121.33
10 Brick work (1:4) flyash c.d. 7.50 in F&P.	0.00	32.01	32.01	5203.35 M3	0.00	166559.23	166559.23
11 12 mm thick c.p. of mix (1:4).	0.00	89.26	89.26	288.25 M2	0.00	25729.20	25729.20
12 Filling available excavated earth.	72.00	21.96	93.96	184.80 / M3	13305.60	4058.21	17363.81
13 Fencing with With G.I. barbed wire.	0.00	465.00	465.00	16.80 / M	0.00	7812.00	7812.00
14 40 mm thick c.c. flooring (1:2:4).	0.00	45.00	45.00	442.65 / M3	0.00	19919.25	19919.25
EXTRA ITEMS							
1 Pointing on stone work with cement mortar 1:3.	403.60	0.00	403.60	248.50 / M2	100294.60	0.00	100294.60
2 Neat cement punning.	1276.00	0.00	1276.00	55.90 / M2	71328.40	0.00	71328.40
3 Earth work in over areas .	1073.10	0.00	1073.10	154.90 / M3	166223.19	0.00	166223.19

TOTAL -	5160890.51
Less (-) 28.88 % below as per TCR -	1490465.18
TOTAL -	3670425.33
Add (+) GST @ 18% -	660676.56
TOTAL -	4331101.89
Less up to 2nd R/A Bill -	3861772.42
TOTAL -	469329.47
Without GST Amount -	397736.84
Add (+) GST @ 18% -	71592.63
TOTAL -	469329.47

SES 1001677802

Contd. on...p/2

DELINEATION OF SURFACE COAL FIRE AND ASSOCIATED LAND SUBSIDENCE IN THE JHARIA COALFIELD, USING SATELLITE BASED REMOTE SENSING TECHNIQUES



**GEODYNAMICS AND GEOHAZARDS DIVISION
GEOSCIENCES GROUP
REMOTE SENSING APPLICATIONS AREA
NATIONAL REMOTE SENSING CENTRE
INDIAN SPACE RESEARCH ORGANISATION
DEPT. OF SPACE, GOVT. OF INDIA
HYDERABAD-500 037**

AUGUST, 2021

data is difficult as it requires visible signatures of subsidence in the form of cracks on the ground and damage to anthropogenic structures. In this study, data analysis and consequent field verification resulted in identification of 4 subsidence areas, within the BCCL mine boundary. Of these, the major area where considerable ground subsidence is occurring is the Moonidih UG project. Long term underground mining has resulted in continuous subsidence in the area. Apart from this, the other three areas are south of South Govindpur, Bagdigi and Bhagaband mines, however, the field evidences of the same are not conclusive. No quantitative estimates of the subsidence have been carried out in the study.

7.2 Conclusions

The following conclusions can be made:

1. As of the date of study in the year 2020 and in comparison with the previous study done in 2017, there has been a change in areal extent and disposition of the fire affected areas. On the other hand, persistent subsidence is seen in the Moonidih area due to underground mining activities.
2. Compared to 2012, the eastern flanks (Lodna, Tisra, Bhulanbarai areas) show considerable decrease in fire disposition and the western flank (Shatabdi and Block II area) show diminished fire presence.
3. The fires are continuation of existing fire affected areas as seen in the 2017 study.
4. The mines in Kusunda remain to be the worst affected with maximum presence of active fires.
5. There is a decrease in areal extent of the fire from 2017 to 2020. As compared 2017, when the total fire affected extent of the JCF was about 3.28 km²; in 2020 total fire affected extent is about 1.89 km² (including TISCO mines). Within the mining lease of BCCL (excluding TISCO) in comparison 2017, when the total fire affected extent of the JCF was about 3.27 km²; in 2020 total fire affected extent is about 1.86 km².

***Note:** The minimum mapable unit from satellite image is 30m by 30m or 0.0009 km². Estimations of fire extent (in terms of sq.km.) both in 2017 and in the present 2020 study are pixel based. They may differ from the actual ground area under fire. These estimations are made for comparative purpose only, to indicate the increase or decrease of areal disposition of fire. Hence, they should not be quoted as fire area on the ground.*

DELINEATION OF SURFACE COAL FIRE AND ASSOCIATED LAND SUBSIDENCE IN THE JHARIA COALFIELD, JHARKHAND USING SATELLITE BASED REMOTE SENSING TECHNIQUES

**Interim Progress Report No. 2
(15-02-2024)**



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NATIONAL REMOTE SENSING CENTRE
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HYDERABAD-500 037
February, 2024

1. Background

Bharat Coking Coal Ltd. (BCCL), a Public Sector Undertaking is engaged in coal mining activities in the area. As a part of its operational activity, BCCL is monitoring the existing fire locations in the area and also their relative movement with reference to time. Additionally, BCCL funds several activities to monitor and map the dynamic nature of the coal fires. In this regard, several satellite-based research works were taken up for mapping the coal fire in last two decades in the area (Chatterjee, 2006; Chatterjee et al., 1996; Martha et al., 2010; Reddy et al., 1993). These projects were funded and supported by BCCL. NRSC has carried out coal fire mapping projects in the past; conducting an airborne campaign in 1989 and using Landsat-5 TM data in 1995 (Bhattacharya et. al., 1995) over Jharia coalfield, Jharkhand and using data for 2001 over Raniganj coalfield, West Bengal. Further another project was executed in 2006, in which coal fire of the Jharia Coalfield was mapped for 2003 and 2006, using ETM+ and ASTER data, respectively. In the last decade, three similar projects were executed by NRSC in 2012, 2017 and 2020 to map the coal fires and land subsidence. The present project based on the letter (Ref. no. BCCL/GM(JMP)/File-2022/283) from General Manager (JMP), BCCL addressed to Director, NRSC on the 30 of September 2022 with a request to take up Coal fire and Land Subsidence study of the Jharia Coal Field using space-borne remote sensing techniques and to report the status of the same for the year 2022, 2023 and 2024 (three years). The project was initiated on 18-05-2023.

1.1 Work done till date

- Analysis of the Landsat 8 data of 6 Dec 2022 to delineate possible coal fire area (already reported in Interim progress report no. 1)
- Analysis of the Landsat 9 data of 12 December 2023 and field verification results

2. Preliminary Observations from Landsat-9 Data – 12 December 2023

Thermal band data of Landsat 9 (100 m resolution) is processed as per standard equations available in the Landsat 9 user handbook. The thresholding of fire and non-fire areas is done according to the methodology discussed in the 2020 study (please see NRSC Coal fire report of 2020). Since the data was acquired in November (winter season), it is likely that the average background temperature would be lower. Hence, an estimated brightness temperature threshold of 28° C was chosen for density slicing and delineation of the fire extent. Applying the above-mentioned approach, the coal fire locations are delineated in each colliery block.

In addition to quantitatively estimating thermal anomalies indicative of fire locations, a qualitative visual verification was carried out using the SWIR-2 band of Landsat-9. The SWIR bands have high sensitivity to anomalously high thermal signatures (in the present case, the blazing coal fires) and thus record high radiance in those locations. The use of appropriate band combinations highlights such high-temperature locations, which are then visually suggestive of fires within the coal mine areas. We have used band combinations of SWIR-2:NIR: Red and SWIR1:SWIR2:Red to highlight thermally anomalous locations and then cross-verified those locations with those identified in the TIR data to finalise the coal fire map for 2023

3. Field verification of the coal fire locations

Once the locations of the thermal anomalies were estimated using the Landsat-9 data, a ground truthing program was undertaken from 14 to 19 December 2023. The program was scheduled for data acquisition and processing within two weeks to get the one-to-one observations between the field and data.

Observations of the field were primarily based on the premise of the coal fire-affected region being located on an overburden dump or active/closed mine areas. An estimated 55 fire-affected locations were determined from the satellite data. Effort was taken to physically reach the fire spot and verify its occurrence. Of the 55 thermal anomaly locations, 53 were confirmed to be coal fires. However, coal fires are present as overburden dump fires and within active/closed mines. Hence, the derived coal fire map was classified into “OB dump fire” and “Active/closed mine fire”, as seen in Figure 1. Further, ground temperature measurements were also taken using a Handheld thermal imager (Fluke Ti480 PRO Infrared Camera). It is seen that OB dump fire locations have temperatures ranging from 200 ° to 500 °C whereas those within active mining regions have temperatures > 500 °C (Figure 2 A to D).

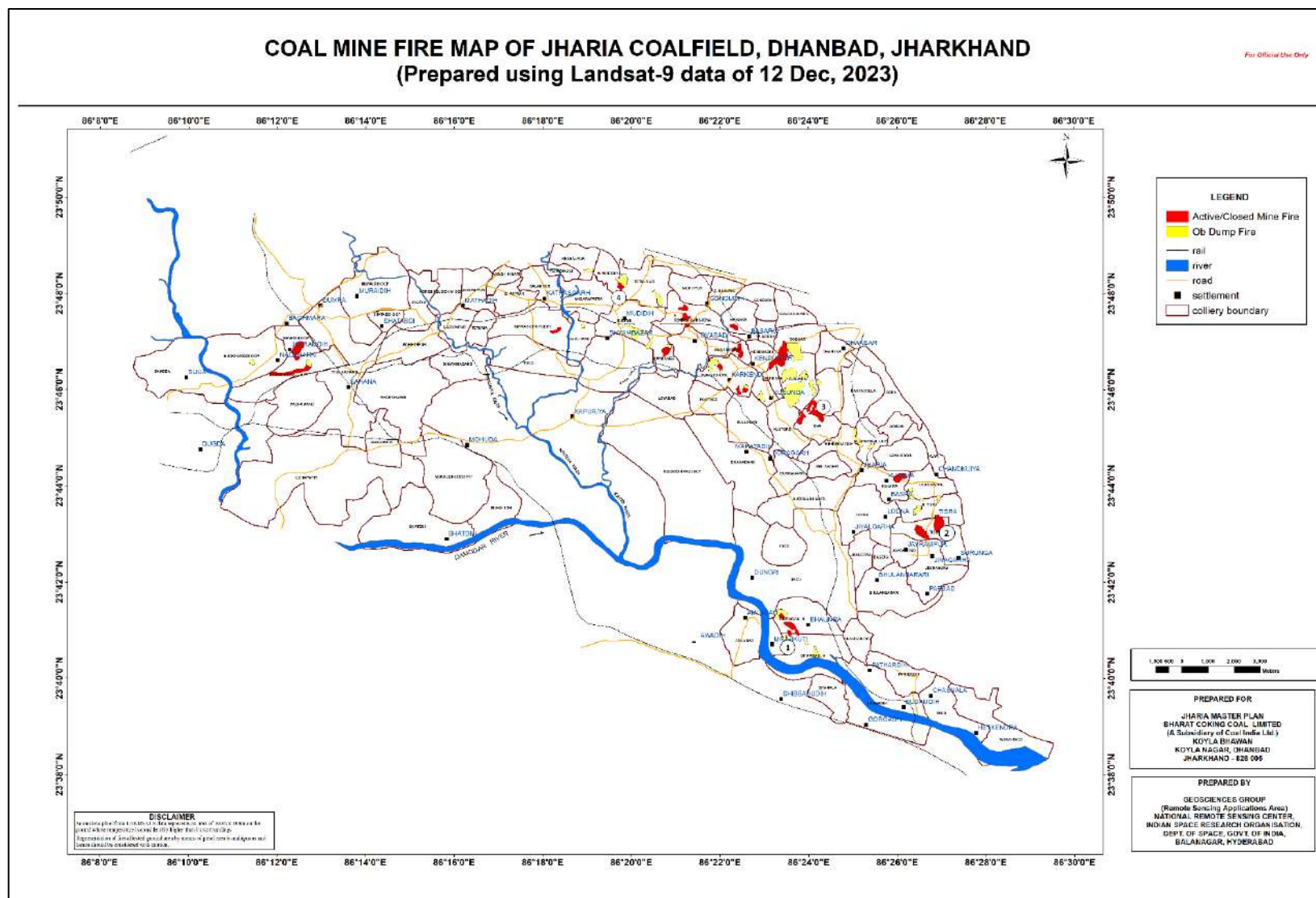


Figure 1. Coal fire map of the Jharia Coalfield (from Landsat-9 Data of Dec, 2023)

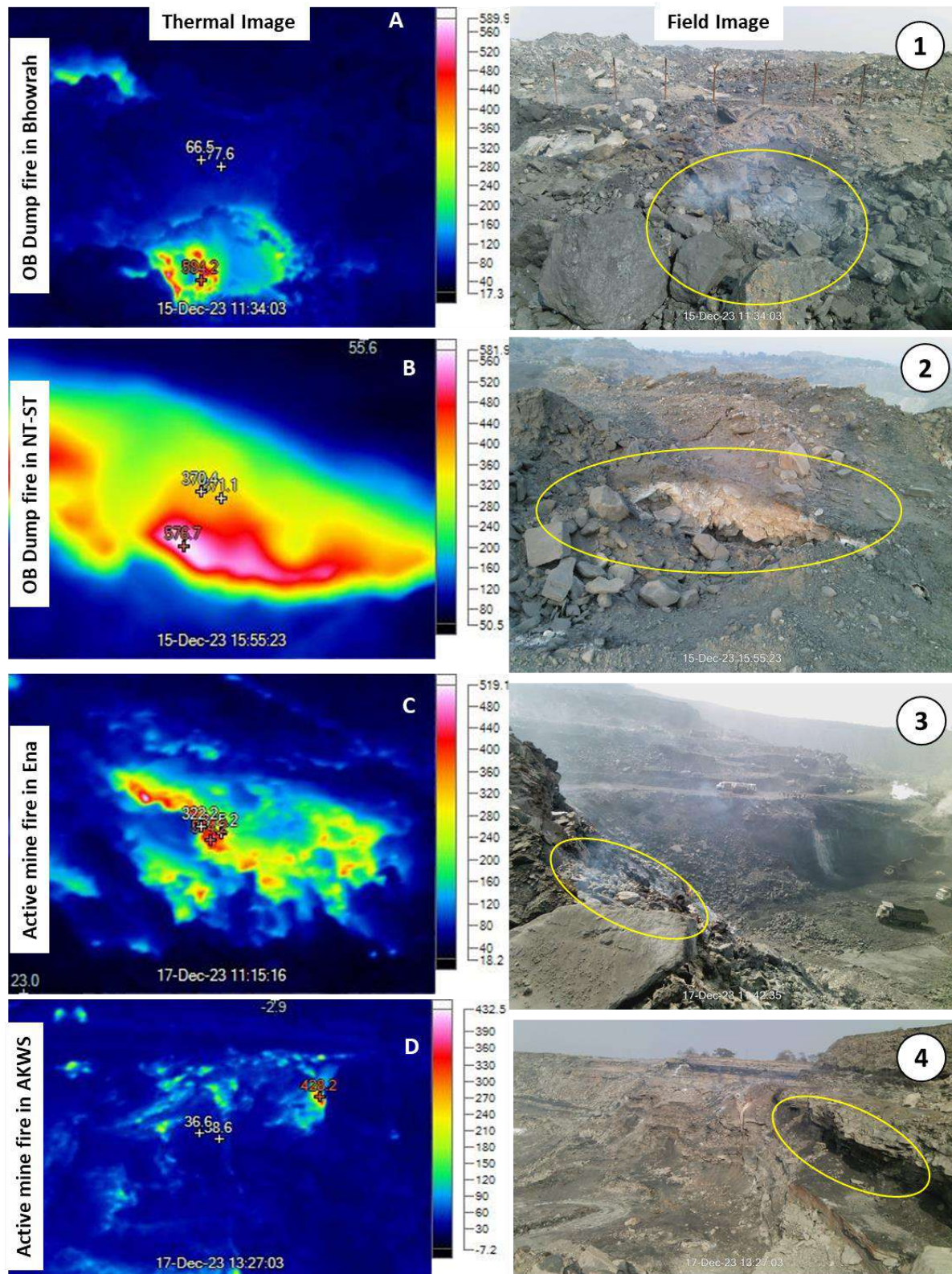


Figure 2. Thermal images and ground photographs from field survey (yellow polygon shows the location from where thermal measurements are taken). Refer figure 1 for the locations in the coal fire map.

4. Estimation of Fire Area

Large patches of high thermal anomaly are seen in Jayramdih-Nadhkharki in the west, Mudidih-Gaslitand in the North, Kusunda-Kenduadih-Tisra in the east and Bhowrah in the south, which is consistent with the observations seen from the 2022 map. The estimated total area affected by coal fire in 2023 has been categorised into “Active/Closed mine fires” and “OB Dump fires”. The estimated area of **Active fires is 2.41 sq. km** whereas the **OB Dump fire is estimated to have an area of 2.6 sq. km**.

The mine-wise fire areas are provided in Table 1, which has been graphically illustrated in Figure 3. It is seen from the statistics that a significant region, the overburden dump in the Kusunda mine area, is under fire.

Table 1: Mine wise area under coal fire (grey cells in the table indicate the area has no fire or the fire is below detection resolution of satellite)

Mine Area Name	Active Fire (sq. km)	Overburden Fire (sq. km)
ALKUSHA	0.020	0.002
AMLABAD		0.003
BANSDEOPUR	0.123	
BASURIA	0.058	
BENEDIH	0.168	
BHOWRAH. N	0.161	0.115
BHOWRAH. S	0.023	0.133
BLOCK-II	0.242	0.043
E.BHUGGATDIH		0.053
ENA	0.307	0.028
GASLITAND		0.018
GODHAR	0.139	0.214
GOLUCKDIH		0.062
GOPALICHUCK	0.105	0.150
KANKANEE	0.089	0.051
KATRAS	0.056	0.012
KENDUADIH	0.096	0.062
KESHALPUR		0.040
KUJAMA	0.123	
KUSTORE		0.039
KUSUNDA	0.109	0.922
LOYABAD	0.002	0.000
MUDIDIH		0.194
N. TISRA	0.015	0.107
NUDKHURKEE	0.002	0.037
S. JHARIA		0.085
S. TISRA	0.367	
BANSJORA	0.152	
TETULMARI	0.013	0.219
W. MUDIDIH	0.036	0.014
Total	2.41	2.60

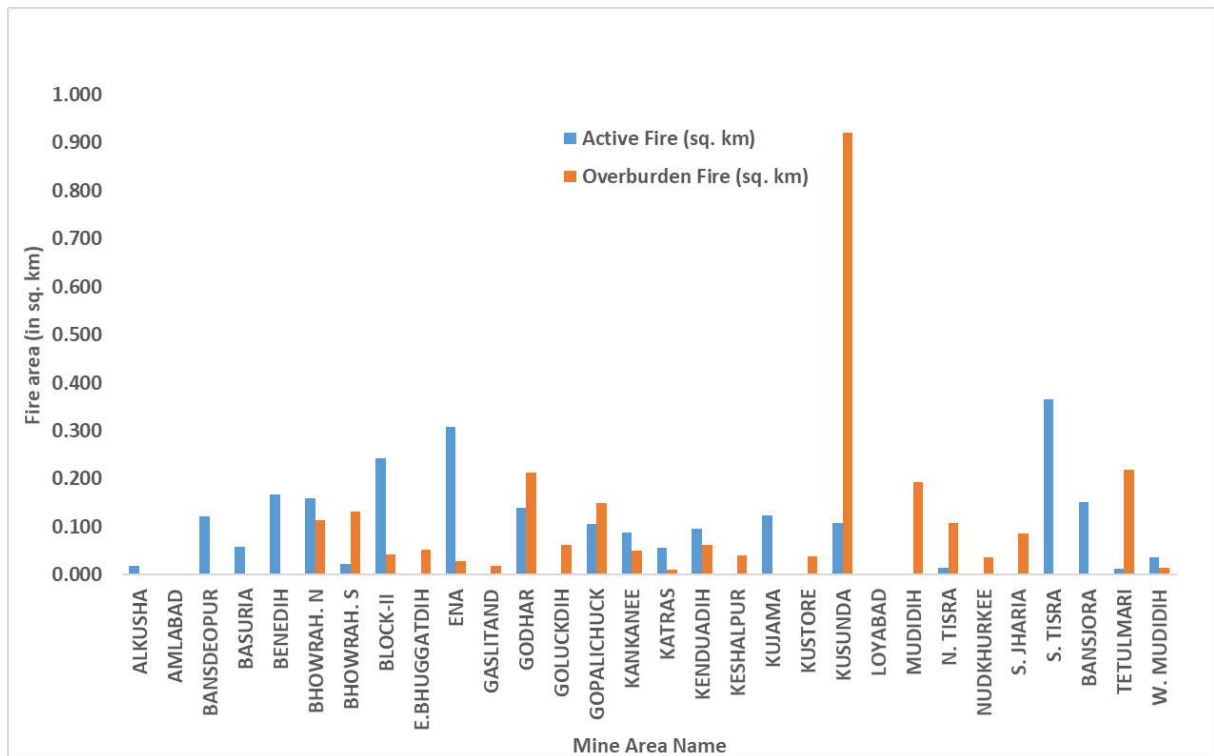


Figure 3. Comparison of active and overburden fire in each mine area

It should be noted that for future comparisons of coal fire areas, 2023 fire area estimates will be considered as the base.

5. Future work:

- Estimation of coal fire areas for 2024 as per project milestones.
- Analysis of ALOS PALSAR 2 data to precisely delineate land subsidence locations per project milestones.
- Field work for verification of coal fire location for 2024 and land subsidence locations.

6. Disclaimer:

Anomalous pixels from LANDSAT-8 data represent an area of 100m x 100m on the ground, the temperature of which is considerably higher than that of its surroundings. This can be attributed to two circumstances, namely, the area has a very high-intensity fire located within a smaller pocket, or there are several low-intensity fires spread across it. In both cases, the actual extent of the fire on the surface differs but appears as a single anomalous pixel in the data. Hence, representation of fire-affected ground area means of pixel area affected by fire and hence should be considered with caution.



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GROUNDWATER LEVEL & QUALITY REPORT FOR CLUSTERS OF MINES, BCCL

(Assessment year – 2025-26)

[CLUSTER – I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XIII, XIV, XV, XVI & XVII of Mines, BCCL]

JHARIA COALFIELD AND RANIGANJ COALFIELD (PART)

**For
(BHARAT COKING COAL LIMITED)**

(A Subsidiary of Coal India Limited)

KOYLA BHAWAN (DHANBAD)

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CONTENT

Sl. No	Contents	Page No
1	Annexure-I Details of The Report	1
2	Annexure-II Groundwater Level and Quality Report for Cluster of Mines of BCCL	2-130
3	Chapter-1.0 Introduction	2-7
4	1.1 Location details and brief about the report	2
5	1.2 Objective of the study	2
6	1.3 Scope of the report	2
7	1.4 Topography and Drainage	4
8	1.5 Details regarding Wetland	4
9	1.6 Climate & Rainfall	5-7
10	Chapter-2.0 Geology & Hydrogeological Set-up of the Area	7-10
11	2.1 Regional Geology of the Coalfield	7
12	2.2 Hydrogeological setup	8
13	2.3 Aquifers Description	8-9
14	2.4 General Aquifer Parameters	9-10
15	Chapter-3.0 Ground Water Level data of the Cluster of Mines of BCCL	11-43
16	3.1 Historical groundwater level	12
17	3.2 Groundwater level scenario (mining/non-mining)	13
18	3.3 Quarterly groundwater level, Cluster of mines during 2023-24	13
	A. Ground Water Levels of Cluster-I	14-15
	B. Ground Water Levels of Cluster-II	16-17
	C. Ground Water Levels of Cluster-III	18-19
	D. Ground Water Levels of Cluster-IV	20-21
	E. Ground Water Levels of Cluster-V	22-23
	F. Ground Water Levels of Cluster-VI	24-25
	G. Ground Water Levels of Cluster-VII	26-27
	H. Ground Water Levels of Cluster-VIII	28-29
	I. Ground Water Levels of Cluster-IX	30-31
	J. Ground Water Levels of Cluster-X	32-33
	K. Ground Water Levels of Cluster-XI	34-35
	L. Ground Water Levels of Cluster-XIII	36-37
	M. Ground Water Levels of Cluster-XIV	38-39

	N. Ground Water Levels of Cluster-XV	40-41
	O. Ground Water Levels of Cluster-XVI	42-43
	P. Ground Water Levels of Cluster-XVII	
19	Chapter-4.0 Ground water level scenario	44
20	Chapter-5.0 Details of Piezometers	45-46
21	Chapter-6.0 Groundwater Quality	46-48
22	Chapter-7.0 Stage of Groundwater extraction	49-50
23	Chapter-8.0 Impact of Mining on Ground Water Regime	51
24	8.1 General consequences of Coal Mines on ambient Hydrogeological Regime	51
25	8.2 Potential consequences of OC & UG coal mines on Hydrogeological Regime	51
26	8.3 Estimation of Radius of Mine Influence zone	52
27	Chapter-9.0 Conservation measures & future strategy	52-53
28	Chapter-10.0 Existing / Proposed Rainwater harvesting structures in BCCL coal mines	54-59
29	Annexure-III List of RAMSAR Wetlands as given on official website of MoEF & CC	60
30	Annexure-IV Rainfall Data	61-62
31	Annexure-V Location of Hydrograph Stations (Dug Wells)	63-64
32	Annexure-VA Details of Hydrograph Stations (Dug Wells)	65-68
	Annexure-VB Historical Water Level data of Hydrograph Stations	69-71
33	Annexure-VI Ground Water Level Hydrographs	72-88
	Annexure-VIA Piezometer Hydrographs	89-94
33	Annexure-VII Ground Water Quality analysis data	95-130
34	Abbreviations	131

LIST OF TABLES

Fig No	Contents	Page No
1	Regional Geological Succession of JCF	8
2	Generalized Hydrogeological Units developed in the study Area	9
3	Aquifer parameters considered for the study Area	10
4	Historical Groundwater Level	12
5	Depth to water table	13

6	Average hydraulic gradient	13
7	GW level data Cluster wise	44
8	GW level data in Piezometers	45-46
9A, B	Block / Cluster wise GW Development scenario	49-50

LIST OF PLATES

Sl No	Plate No	Contents	Scale
1	I	Location Map of Groundwater Level Monitoring stations	1:205000
2	II	Location Map of Groundwater Quality Monitoring stations	1:205000
3	III	Location Map of Proposed Piezometers	1:205000
4	IVA	Water table Contour Map of JCF, Pre Monsoon (May'23)	1:205000
	IVB	Water table Contour Map of JCF, Post Monsoon (Nov'23)	1:205000
5	VA	Depth to Groundwater Level map of JCF, Pre Monsoon (May'23)	1:205000
	VB	Depth to Groundwater Level map of JCF, Post Monsoon (Nov'23)	1:205000
6	VI	Drainage Map (Part of Raniganj Coalfield under BCCL Command Area)	1:180,000

LIST OF FIGURES

Table No	Contents	Page No
1 & 2	Historical Rainfall trend at Jharkhand	6-7
3 to 15	Existing / Proposed Rainwater Harvesting Structure	54-59

DETAILS OF THE REPORT

SI No.	ITEMS	INFORMATIONS
1	Geographical Area	Jharia Coalfield (JCF): 453.0 sq. km. Raniganj Coalfield (BCCL area): 19.64 sq. km.
2	Major Physiographic Units	Dissected Pediplain with surface Reduced Level (RL) varies from 160 m to 220 m above mean sea level (AMSL) in JCF and 100 m to 140 m AMSL in RCF part
3	Drainage System	Damodar River is the master drainage flowing along western boundary of the JCF. Jamunia River, Khudia River, Katri River, Jarian Nala, Ekra Jore, Kari Jore, Kashi Jore, Chatkari Jore and their tributaries are flowing through the JCF area. Damodar River, Barakar River is the master drainage of the part of RCF area (CV Area).
4	Annual Rainfall (IMD-report)	Jharkhand State: 1185.40 mm (year 2024) Rainfall data given in Annexure-IV .
5	Geological Formations	Gondwana Formation (Talchir Formation, Barakar Formation, Barren Measure Formation & Raniganj Formation)
6	Aquifer System	Unconfined/Phreatic Aquifer – thickness 25 m (Avg.) Semi-confined to confined Aquifer – thickness from 50 m upto 650 m
7	Hydrogeological properties (Aquifer Pump Test)	Unconfined Aquifer: Hydraulic Conductivity – 0.50 - 0.90 m/day Transmissivity – 10 - 42 m ² /day Semi-confined to confined Aquifer: Hydraulic Conductivity – 0.0006-1.44 (0.05 avg.) m/day Transmissivity – 0.06 – 15.0 m ² /day
8	Groundwater Level Monitoring Network	Out of total 139 nos. of monitoring stations 73 nos. located within core mining area and rest comes within Buffers zone. 55 Nos. of Groundwater monitoring well (Dug Wells) network established by CMPDI to record groundwater level data in and around the Core Zone of JCF and 18 Nos. of Groundwater monitoring well (Dug Wells) in RCF (CV Area).
9	Groundwater Levels Below Ground Level (bgl)	JCF area: Pre-monsoon – 1.30 to 10.74 m (Avg. 6.07 m bgl) in '2025-26 Post-monsoon – 0.75 to 9.30 m (Avg. 3.56 m bgl) in '2025-26 RCF area (part): Pre-monsoon – 1.60 to 9.30 m (Avg. 4.55 m bgl) in '2025-26 Post-monsoon – 0.95 to 4.25 m (Avg. 2.10 m bgl) in '2025-26
10	Groundwater Quality	Potable as per BIS (Annexure- VIII)
11	Piezometers	Piezometers (23 nos.) to monitor impact of coal mining on groundwater regime within the coalfield area (JCF & part of RCF)
12	Stage of Groundwater Development (CGWB)	Dhanbad District-Safe to Over-exploited category (GWRE:2023-24)

GROUNDWATER LEVEL & QUALITY REPORT FOR CLUSTER OF MINES OF BCCL

1.0 INTRODUCTION

1.1 LOCATION DETAILS AND BRIEF ABOUT THE PROJECT

The 16 nos. Cluster of mines (Cluster-I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XIII, XIV, XV XVI and XVII) of BCCL is located in the Jharia coalfield in Bokaro and Dhanbad districts of Jharkhand and part of Raniganj coalfield in Dhanbad district of Jharkhand.

The area of Jharia Coalfield (JCF) is 453 sq. km. and Raniganj Coalfield (RCF part) is 19.64 sq. km. (CV area). Located about 3.0 km south-west of Dhanbad town and 10.0 km north-east of Bokaro town. The coalfield bounded by Jamunia River in the west, Damodar river in the south, and Metamorphics (hard rock) in the north and east side. **(Plate-I).**

1.2 OBJECTIVE OF THE STUDY:

The objective of the report is to conduct hydrogeological study by quarterly monitoring of groundwater level and quality of the Jharia coalfield and Raniganj coalfield (part) within BCCL command area for 16 Cluster of mines. The data collected shall be submitted to the MoEF&CC, CPCB & SPCB within stipulated timeframe. The work is being done yearly and required to be continued as per the specific condition mentioned invariably in Environmental Condition (EC) for all of the Clusters of BCCL.

1.3 SCOPE OF THE STUDY:

The following scope has been taken into account for hydro-geological investigation of the study area.

- i) To monitor the groundwater levels four times/year during (May, August, Nov and Jan).
- ii) To monitor the groundwater quality during April including Arsenic and Fluoride.
- iii) To evaluate the status of ground water level condition in the area.
- iv) To study the ground water flow direction in the mining areas.
- v) To study the depth to ground water level condition in the mining areas.
- vi) To study the ground water quality data and interpretation in the mining areas.

SEMI-CONFINED TO CONFINED AQUIFER

The sandstone partings in-between impervious layers of shale and coal seams is designated as semi-confined / confined aquifers. The sandstones in these aquifers are fine to coarse grained, hard and compact with very low porosity. Mostly groundwater occurs in the weak zones formed due to weathering, fracture, faults, which create the secondary porosity. The hydrogeological parameter has determined by CMPDI in Sitanala Block by conducting aquifer performance test (APT) and also various piezometers within Cluster of mines BCCL during 2022-23. The hydraulic conductivity (K) of semi-confined aquifer in Barakar Formation ranges from 0.0006 m/day to 1.44 m/day. The hydrogeological parameter has also been determined at Kumari OCP Block in the central JCF by conducting aquifer performance test. The hydraulic conductivity (K) of semi-confined aquifer in Barakar Formation in this area ranges from 0.0027 m/day to 0.05 m/day.

Table – 3: Aquifer parameters determined from piezometers constructed in BCCL

Sl no	Piezometer No.	Aquifer / Formation	Depth of the well (Meters)	Aquifer thickness (Meters)	Static Water Level (Meters)	Discharge (LPS)	Test duration (Minutes)	K (m/day)	T (m ² /day)
1	PZ-1A	Phreatic Aquifer	40	15	12.15	4.70	275	9.71 x 10 ⁻¹	14.6
2	PZ-1B	Barakar Formation (JCF)	115	30	27	2.85	275	6.33 x 10 ⁻²	1.9
3	PZ-2A		87	15	28.1	1.5	960	5.88 x 10 ⁻²	0.88
4	PZ-3A		172	42	17.55	3.0	157	4.04 x 10 ⁻²	1.70
5	PZ-4A		70	18	15.55	1.65	167	5.00 x 10 ⁻²	0.89
6	PZ-8A		140	24	68.72	1.05	275	6.53 x 10 ⁻²	1.57
7	PZ-9B		100	30	34.68	2.45	390	6.68 x 10 ⁻²	2.00
8	PZ-10A		135	30	5	4.7	865	1.52 x 10 ⁻¹	4.55
9	PZ-11A	Barren Measure Formation (JCF)	300	66	60.60	3.05	300	3.9 x 10 ⁻²	2.57
10	PZ-13A	Ranigunj Formation (JCF)	80	24	30.9	1.75	400	6.37 x 10 ⁻²	1.53
11	PZ-14B		162	24	12.15	2.75	475	7.48 x 10 ⁻²	1.80
12	PZ-16A	Barakar Formation (part of RCF)	90	18	31.5	2.0	385	5.59 x 10 ⁻²	1.01

3.0 GROUND WATER LEVEL MONITORING

To collect the representative groundwater levels in the study area, CMPDI has established a monitoring network of total 139 monitoring stations out of which 73 located within core zone and rest falls in Buffer zone. Total 105 nos. dug well within JCF and 34 nos. dug well within RCF (part) area (Details of the Hydrograph stations & water level given in **Annexure-V, VA & VB**) spread over the entire BCCL leasehold area, **Plate-I**. Water level data collection in all monitoring stations has been done on quarterly basis (May'25, Aug'25, Nov'25 and Jan'26).

Depth to water level of the water table depict the inequalities in the position of water table with respect to ground surface and is useful in delineating recharge / discharge areas, planning of artificial recharge structure and shows the overall status of the groundwater level in the area. Historical groundwater level (GWL) of entire JCF and part of RCF with fluctuation, GWL of Non-mining / Mining areas and GWL of the Cluster of Mines of BCCL are shown in this report to assess the effect of Coal mining activity on the groundwater regime in and around the Coalfield area.

Mining is a dynamic phenomenon. The mining activity creates dis-equilibrium in environmental scenario of the area and disturbs the groundwater conditions/regime in particular. The impact on shallow water regime due to mining activity can be broadly viewed as under:

- Historical GWL with annual fluctuation over the years
- GWL scenario in Non-mining and Mining area (OC/UG mines)
- GWL scenario of Cluster of mines of BCCL

3.1 HISTORICAL GROUNDWATER LEVEL (GWL)

Historical GWL of JCF and part of RCF of CMPDI monitoring stations given from 2005 to 2024 (total 64 stations within Coalfield area). Pre-monsoon and Post-monsoon GWL with Fluctuation has been mentioned below in the table.

Table – 4: Historical Groundwater Level

Period		(Water level in metre below ground level)								
		Pre-Monsoon (April/May)			Post-Monsoon (Nov/Dec)			Fluctuation		
		From	To	Average	From	To	Average	From	To	Average
JCF	2005	0.07	19.08	6.29	0.84	12.13	3.20	0.12	12.45	3.21
	2007	0.40	19.27	5.66	0.35	8.21	2.87	0.02	16.15	2.96
	2008	0.45	18.35	5.42	0.35	14.20	3.62	0.03	9.22	2.45
	2010	0.85	14.47	5.24	0.10	15.88	4.48	0.02	5.55	1.54
	2012	1.27	18.68	5.58	0.15	7.80	2.72	0.08	13.45	2.96
	2013	0.70	19.20	5.65	0.45	8.35	2.77	0.29	15.88	3.17
	2014	0.70	16.28	4.92	0.75	14.98	3.27	0.25	10.15	2.17
	2015	1.38	17.20	6.00	0.45	14.58	3.92	0.28	7.62	2.15
	2016	0.78	16.73	5.64	0.30	12.43	3.19	0.23	6.35	2.88
	2017	0.67	16.28	5.61	0.15	6.97	2.41	0.10	12.10	3.25
	2018	1.20	14.58	5.55	0.40	7.17	2.83	0.20	9.45	2.68
	2019	0.95	15.88	5.46	0.45	5.95	2.34	0.20	13.40	3.05
	2020	0.80	16.25	4.95	0.75	10.10	3.26	0.25	11.05	2.15
	2021	0.62	11.26	5.23	0.05	7.62	2.28	0.15	9.03	2.94
	2022	0.42	11.90	5.12	0.29	11.12	3.32	0.03	7.2	1.80
	2023	1.70	11.38	6.33	0.60	8.03	3.77	0.10	6.55	2.56
	2024	1.95	12.50	6.73	0.65	8.22	3.80	1.30	4.28	2.93
	2025	1.30	10.74	6.07	0.75	9.30	3.56	0.29	5.99	2.51
RCF (part)	2008	5.02	10.50	7.59	2.85	4.90	3.71	1.82	6.60	3.87
	2010	2.20	8.85	4.74	2.78	9.58	4.63	0.68	1.10	0.89
	2011	3.57	8.02	4.98	2.50	6.21	3.75	0.55	1.90	1.23
	2012	3.10	7.34	4.59	1.55	7.00	3.66	0.05	2.78	0.94
	2013	1.70	9.87	6.54	2.90	8.85	4.71	1.02	5.54	2.84
	2014	3.27	6.48	4.57	2.13	3.03	2.63	0.54	3.45	1.94
	2015	3.38	9.52	5.33	2.68	8.20	5.11	1.06	1.32	1.81
	2016	3.61	10.65	6.24	0.90	6.50	3.18	1.63	4.40	3.06
	2017	1.93	5.80	3.25	1.63	3.78	2.47	1.63	3.78	0.78
	2018	2.34	8.70	4.35	1.75	5.70	2.75	0.41	2.55	1.59
	2019	1.60	9.35	5.29	0.80	3.88	2.10	0.80	5.47	3.20
	2020	2.30	9.70	4.30	1.75	5.50	2.70	0.40	2.75	1.60
	2021	2.00	6.20	3.34	1.10	5.25	2.44	0.80	0.95	0.90
	2022	1.73	2.68	2.20	1.63	2.2	1.91	0.10	0.48	0.29
	2023	2.10	9.50	5.22	1.50	5.18	3.06	0.60	4.32	2.16
	2024	2.14	10.26	5.17	1.14	7.34	3.10	1.00	2.92	2.07
	2025	1.60	9.30	4.55	0.95	4.25	2.10	0.25	5.85	2.45

3.2 DEPTH TO WATER LEVEL & HYDRAULIC GRADIENT

Depth to water level (DTW) range in different formations with respect to mining and non-mining areas is summarized in the Table-5.

Table – 5: Avg. Depth to water table

Formation	Area	DTW (bgl, m) [Year-2025-26]	
		Pre-monsoon (May'25)	Post-monsoon (Nov'25)
Sedimentary (Gondwana Formation / Core Zone)	Non-mining	2.25-10.74	0.75-9.30
	Mining	2.20-9.46	0.95-6.34
Metamorphics (Hard rock)	Peripheral part of the Coalfield	5.10-9.40	1.50-7.85

The study revealed that water table is in shallow depth and there is no significant stress in the water table due to coal mining activity. Mining and non-mining areas shows barely any difference in water table condition in JCF and RCF (part) area. The average hydraulic gradient of the water table within mining and non-mining areas is given in Table-6. No significant change in hydraulic gradient is observed. Relatively steep gradient near active opencast mining areas w.r.t., non-mining, underground mines and Metamorphics areas is observed.

Table – 6: Average hydraulic gradient

Sl. No	Formation	Area	Average hydraulic gradient
1	Sedimentary (Gondwana Formation / Core Zone)	Non-Mining	1.0×10^{-3} to 2×10^{-3}
		Mining	1.0×10^{-2} to 1.5×10^{-3}
2	Metamorphics (Buffer Zone)	Peripheral part of the Coalfield	1.0×10^{-3} to 3.5×10^{-3}

J. GROUND WATER LEVEL OF CLUSTER-X

Cluster-X consists of Bhowrah North OC & UG, Bhowrah South OC & UG, Amalgamated Sudamdih Patherdih, Sudamdih Shaft, Amlabad UG (Closed) and Sudamdih Coal Washery which comes under the administrative control of Eastern Jharia Area of Bharat Coking Coal Limited (B.C.C.L - A Subsidiary of Coal India Limited). This cluster of mines is located in eastern part of Jharia Coalfield in Dhanbad district of Jharkhand. The life of the project has been worked out to be more than 30 years considering annual production target of 2.289 MTY.

Cluster-X mine involves leasehold area of about 2057.47 Ha of land. It is covered in Survey of India toposheet no. 73 I/6. The area of Bhowrah North OC & UG, Bhowrah South OC & UG, Amalgamated Sudamdih Patherdih, Sudamdih Shaft, Amlabad UG (Closed) are 280.83 Ha, 571.58 Ha, 498.61 Ha, 391.50 Ha and 386.95 Ha respectively.

The present leasehold area of Cluster-X is 2057.47 Ha. The area has an undulating topography with gentle slope towards south and south-east. The RL varies from 185 m to 150.0 m AMSL. Gaurkuthi Nala and few seasonal streams are controlling the drainage pattern of the area. The area comes under the watershed of Damodar River.

Monitoring stations (**A019, D035, D036 and D077**) are located in the core zone of the mine area. Water level monitoring in these monitoring stations has been done in the months of May'25, August'25, and Nov'25 and January'26, the Ground water level data is presented in the table below:

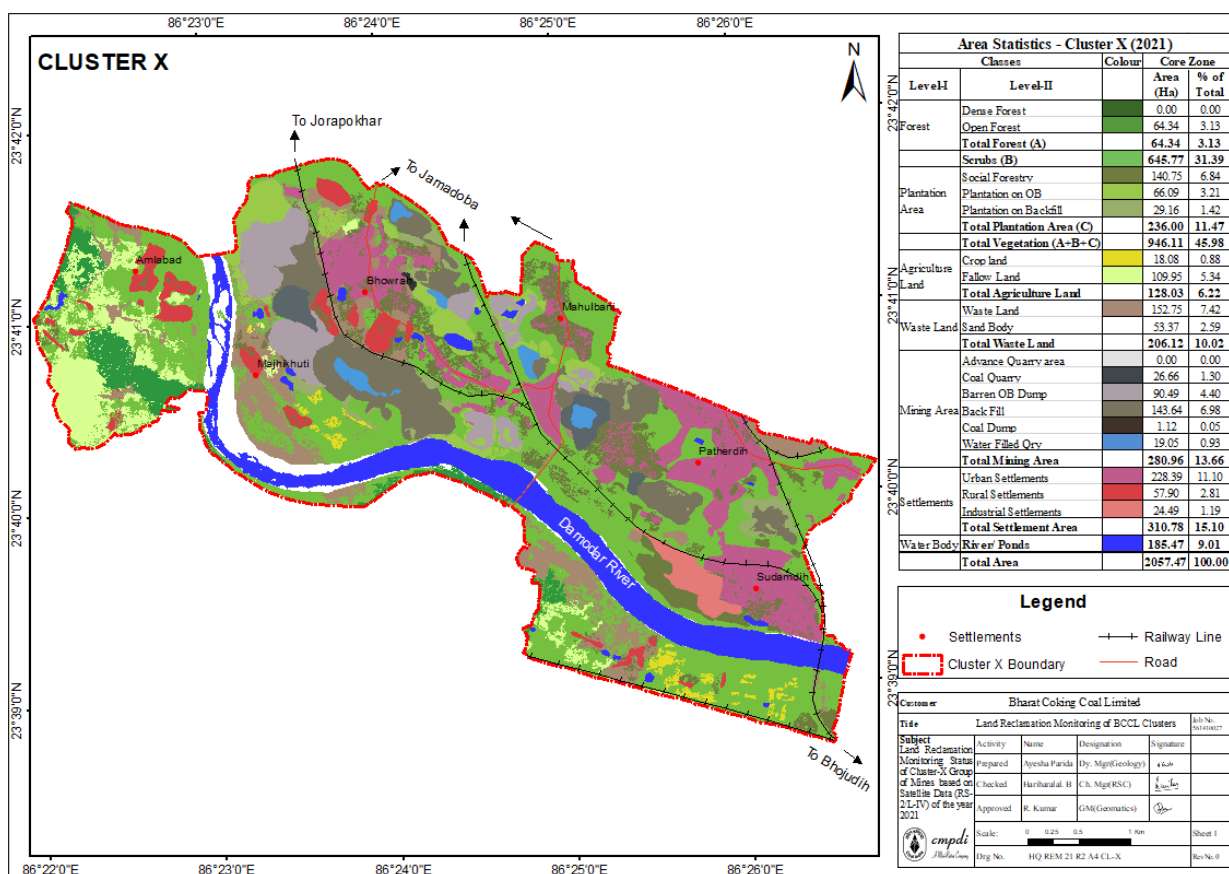
Sl No.	Well No.	Location	Water level (bgl in meters)											
			2025-26				2024-25				2023-24			
			May	Aug	Nov	Jan	May	Aug	Nov	Jan	May	Aug	Nov	Jan
1	A019	Bhowrah	3.12	2.49	2.51	2.77	2.90	2.10	2.60	2.73	4.10	1.82	2.54	1.79
2	D035	Patherdih	5.16	3.28	4.10	4.70	5.23	3.45	3.90	4.10	6.10	3.70	4.68	5.50
3	D036	Sudamdih	2.64	0.45	0.74	1.13	1.85	0.50	0.60	1.00	3.25	0.15	0.60	1.44
4	D077	Amlabad	6.15	3.80	4.01	4.76	5.98	3.90	3.93	5.07	6.50	3.40	4.70	6.00
Average WL (bgl)			4.27	2.51	2.84	3.34	3.99	2.49	2.76	3.23	4.99	2.27	3.13	3.68

LAST THREE-YEAR ASSESSMENT:

Pre-monsoon GW Level (m): Min – 1.85 m Max – 6.50 m

Post-monsoon GW Level (m): Min – 0.60 m Max – 4.70 m

LAND USE / LAND COVER MAP OF THE CLUSTER-X MINES, BCCL



Sl no	Land Use Details	Existing (sq. meter)	Proposed (sq. meter)	Grand Total (sq. meter)
1	Green Belt Area	1085.72 x 10 ⁴	0.0	1085.72 x 10 ⁴
2	Open Land	661.04 x 10 ⁴	0.0	661.04 x 10 ⁴
3	Road/ Paved Area	228.39 x 10 ⁴	0.0	228.39 x 10 ⁴
4	Rooftop area of building/ sheds	82.32 x 10 ⁴	0.0	82.32 x 10 ⁴
5	Total	2057.47 x 10 ⁴	0.0	2057.47 x 10 ⁴

PZ7C	VII	N Tisra	23.7342	86.4433	105	77.90	67.82	71.93
PZ8A	VIII	Dobari	23.7556	86.4271	140			
PZ9A	IX	N Tisra	23.7305	86.4464	84			
PZ9B	IX	Bararee	23.6962	86.4159	100	71.30	65.30	71.30
PZ10A	X	Bhowrah N	23.6880	86.4051	134	6.45	4.70	5.70
PZ11A	XI	Singra	23.7264	86.3419	300	56.20	54.15	47.35
PZ13A	XII	Bhatdih	23.7138	86.2516	80	35.70	29.30	36.34
PZ14A	XIV	Lohapatti	23.7415	86.2139	30	12.50	4.20	8.70
PZ14B	XIV	Lohapatti	23.7415	86.2139	162	14.60	9.33	10.35
PZ16A	XVI	CV	23.7308	86.7605	90	34.00		

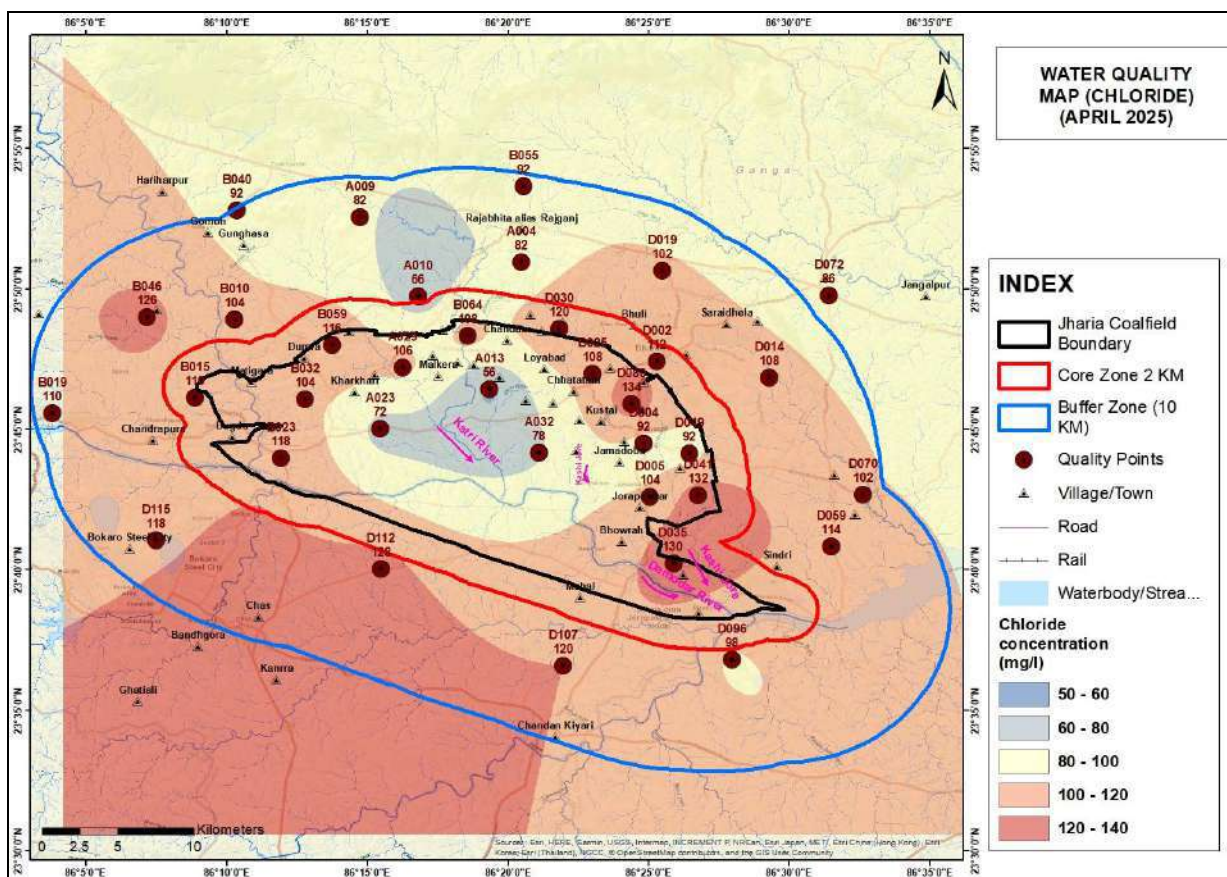
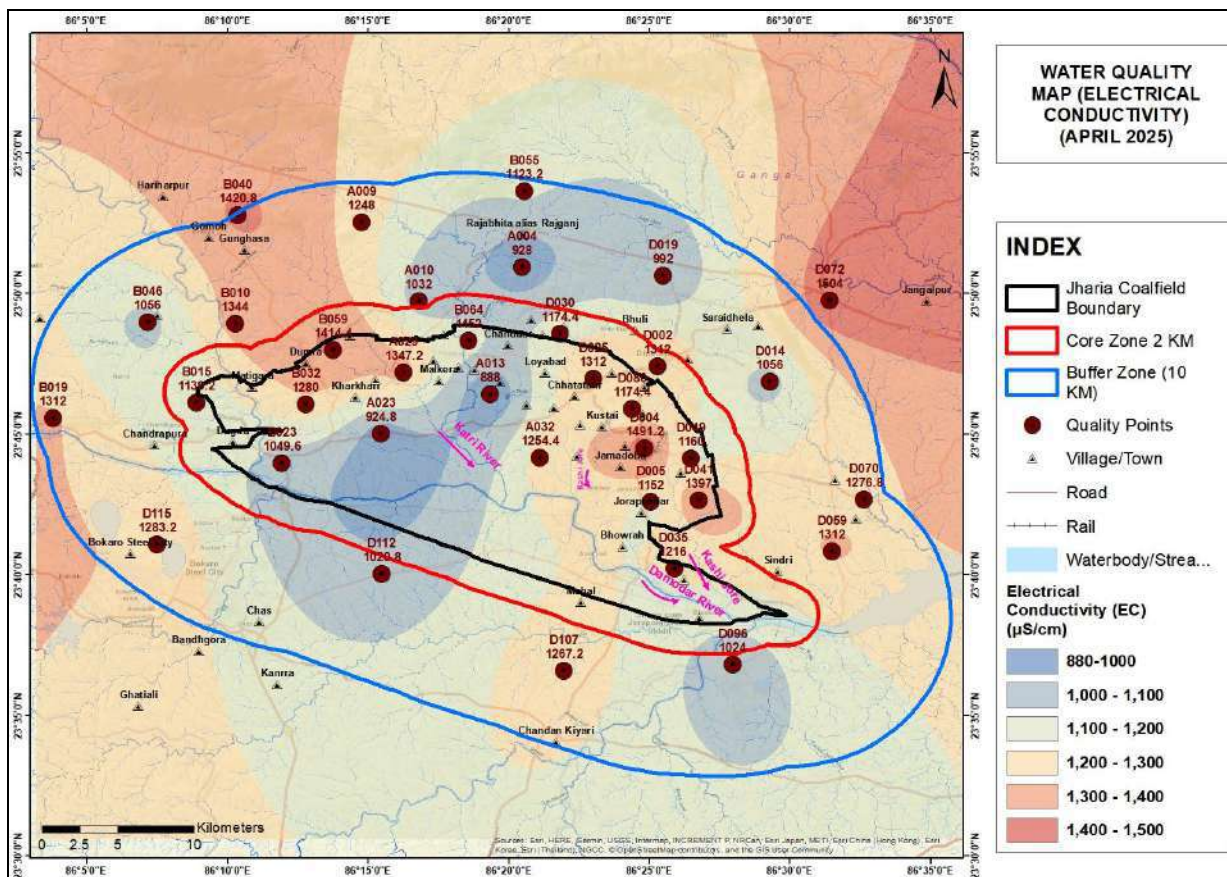
6.0 GROUND WATER QUALITY

The ground water samples of the study area (16 nos. of Cluster of mines, BCCL) were collected from dug wells and analyzed. Thirty-five ground water samples were analyzed during the month of June'25 at CMPDI, RI-II, Dhanbad. The water sampling details is given in **Annexure-V** and Water sample locations are shown in **Plate-II**. The water quality data is presented in **Annexure-VII**.

The study of the variations in water quality parameters is described below:

In wells of JCF concentration of magnesium in the water samples varies 103 (D-70) to 125 mg/l (D-4) and is above the permissible limit (100 mg/l) of drinking water standards. The total hardness mg/l ranges from 614 (A-09) to 824 mg/L (D-72) and is above the permissible limit of (600 mg/L) of drinking water standards. The Iron, Manganese, Zinc and Chromium concentration in the water samples found to be below the upper IS 10500:2012 limits for drinking water.

In RCF part of BCCL Command area at a few locations, the total hardness value of the analyzed samples exceeds the permissible limit of 600 mg/L, specifically at DB2A (650 mg/L), DB4 (680 mg/L), DB30 (648 mg/L), DB38 (705 mg/L), and DB39 (602 mg/L). The rest of the groundwater quality data indicates that the values are well within the permissible limits as per the IS 10500:2012 drinking water standards.



7.0 STAGE OF GROUNDWATER EXTRACTION

The groundwater is mainly utilized for domestic needs and irrigation purposes. The groundwater abstraction is mainly through dug wells and bore wells. The stage of groundwater development in Dhanbad District is 74.34% (as per GWRE 2023-24, INGRES Portal). The highest stage of development is in Baliapur Block (110.03%) & Dhanbad Urban Block (95.65%) and lowest stage of development is in Purbi Tundi Block (26.15%) and Chirkunda Block (34.53%) as per GWRA-2023-24 (Source: Ingres Portal). The Gondwana sandstones in general, known to constitute good aquifers at many places. However, the yield potential of the area adjoining to active mines in the coal belt is poor. The active mines often act as groundwater “sinks”. In contrast, the water-logged abandoned mines and pits act as potential sources of groundwater. Block wise data of Dhanbad District given below:

Table–9A: Block wise Stage of Groundwater development

SI No.	Administrative Unit			Category (GWRA-2023-24)
	State	District	Block	
1	Jharkhand	DHANBAD	BAGHMARA	Semi-Critical
2	Jharkhand	DHANBAD	BALIAPUR	Over Exploited
3	Jharkhand	DHANBAD	DHANBAD	Semi-Critical
4	Jharkhand	DHANBAD	DHANBAD URBAN	Critical
5	Jharkhand	DHANBAD	JHARIA	Hilly Area
6	Jharkhand	DHANBAD	TOPCHANCHI	Critical
7	Jharkhand	DHANBAD	TUNDI	Safe
8	Jharkhand	DHANBAD	PURBI TUNDI	Safe
9	Jharkhand	DHANBAD	CHIRKUNDA	Safe
10	Jharkhand	DHANBAD	GOBINDPUR	Semi-Critical
11	Jharkhand	BOKARO	CHANDRAPURA	Safe
12	W Bengal	P BARDHAMAN	SALANPUR	Safe

- Dynamic Groundwater Resource Assessment, CGWB as per 2023-24.

Table-9B: Cluster wise Groundwater development scenario

Cluster/ Area	Adminis- trative Blocks/Stage Of GW Extraction	Total Water demand (cum/day)				Avg. GW level (bgl in m) 2025-26		GW level declining trend 2005-2025		Remarks
		Mine Discharge + BH pumping	Surface Water Source	Total Use (Domestic + Industrial)	Excess Or other use	Pre- monsoon	Post- monsoon	Pre- monsoon	Post- monsoon	
Cluster-I	Chandrapura (SOD: Safe)	2601 (2493+108)	NIL	2380 (1700+680)	221	4.28	2.20	YES	YES	Recharge structure needed
Cluster-II	Baghmara (SOD: Semi Critical)	14465 (14660+5)	Jamunia river	9100 (6150+2950)	5365	5.29	3.05	NO	NO	Excess mine water needed to be utilized
Cluster-III		15285 (13485+1800)	NIL	9405 (8000+1405)	5730	5.10	3.37	YES	NO	
Cluster-IV		10212	MADA	5953 (2928+3025)	4259	7.30	3.22	YES	NO	
Cluster-V		19758 (19753+5)	MADA	8850 (6500+2350)	10238	5.78	3.61	YES	YES	
Cluster-VI	Dhanbad (SOD: Semi Critical)	6616	MADA	3310 (2155+1155)	3306	4.92	2.79	YES	NO	--
Cluster-VII		29218	MADA	18220 (15000+3220)	10998	3.56	2.57	YES	YES	Excess mine water needed to be utilized
Cluster-VIII		10501	MADA	9001 (7746+1255)	1550	6.05	3.80	YES	NO	
Cluster-IX		20192	MADA	9670 (6600+3070)	9767	6.62	4.01	NO	NO	
Cluster-X		15507	Damodar river	6519 (3437+3082)	8988	4.27	2.84	NO	NO	
Cluster-XI	Dhanbad (SOD: Critical)	34023	MADA & DVC	20325 (14015+6310)	13448	4.86	2.76	YES	NO	
Cluster-XIII	Baghmara (SOD: Critical)	445	Damodar river	445 (445+0)	0	7.66	4.86	NO	NO	--
Cluster-XIV		384	NA	384 (384+0)	0	6.34	4.28	NO	NO	--
Cluster-XV		6810	NA	5355 (4600+755)	1205	5.67	3.58	NO	NO	--
Cluster-XVI	Chirkunda (SOD: Safe)	5204	DVC (Barakar river)	1730 (1380+350)	3294	5.49	4.02	NO	NO	--
Cluster-XVII	Salanpur (SOD: Safe)	5091	DVC (Barakar river)	5091 (1470+1405)	2216	5.85	3.84	NO	NO	-

MADA – Mineral Area Development Authority, Jharkhand, Dhanbad (payment basis).

DVC – Damodar Valley Corporation, Maithon/Panchet, Jharkhand (payment basis).

8.0 IMPACT OF MINING ON GROUND WATER REGIME

8.1 GENERAL CONSEQUENCES OF COAL MINES ON AMBIENT HYDROGEOLOGICAL REGIME

Mining of coal either by opencast or underground method is bound to incise one or more water bearing strata (aquifers) which, in turn, may result in depletion or draw down in water levels and a corresponding inflow of water into the mine workings. The potential effects of coal mining operations on the hydrogeological regime are as under:

- ❖ Creates disruption in formation/aquifer
- ❖ Dewatering of aquifers
- ❖ Change in hydraulic gradient
- ❖ Modification in recharge of aquifers
- ❖ Change in groundwater flow pattern

The general need in mine planning from the hydrogeological point of view is the estimation of ground water seepage into the mine, its rate, the mine pumping capacity to meet the storm rainwater accumulation, extent of depression of water surface and management of mine effluent (mine water). It is also desirable that the consequences of mining operation on groundwater regime be determined in advance. However, the mine pumping in most of the cases are passive dewatering for the safety of the mine pit, active mine dewatering is done in few cases for very high potential aquifers.

8.2 POTENTIAL CONSEQUENCES OF OPENCAST AND UNDERGROUND COAL MINES ON HYDROGEOLOGICAL REGIME IN JHARIA COALFIELD

Generally, in the opencast and underground mines of Jharia Coalfield, alluvium and overlying weathered mantle are the first to be excavated, followed by upper Barakar Formation / Aquifer. Since these formations vary in thickness, compaction and their constituents over the area, their aquifer properties also vary.

The porosity and the compactness in the sandstone controls the discharge from these aquifers. The alluvium and weathered Formation wherever loose and fragile possess more porosity and this has high groundwater potential. Due to the mine cut, a depression in the water table is created. The initial discharges due to this depression is large in amount because of concentration of flow to that region. In the top zones, water table condition prevails and semi-confined conditions exist in the stratified section (Gondwana Sedimentary basin). With progress of mine operations, there is an increase in the depth of incision, as a result which, the semi-confined aquifers are also gets punctured.

During mining, the hydraulic gradients generally steep down near mine i.e. within the mine influence area. In the up-dip region, only un-confined aquifer is punctured through the mining process and thus only unconfined aquifer is affected whereas in the down-dip region both un-confined and semi-confined aquifers may be affected. The confined aquifers of lower Barakar Formation in the mining area are not punctured as it lies below the working coal seams and hence normally there is no noticeable effect in the aquifer related to this formation.

8.3 ESTIMATION OF RADIUS OF MINE INFLUENCE ZONE

Radius of Influence can be defined as the radial distance from the center of the borehole to the point where there is no lowering of groundwater table/potentiometric surface.

The radius of influence (R) for Opencast and UG Mines within Jharia CF is calculated by using Sichardt's formula based on present mining scenario.

$$R_0 = C \cdot (H-h) \cdot \sqrt{K}$$

Where, R_0 - Radius of influence (m), C - Constant =3000,

(H-h)- Drawdown (m), K – Hydraulic conductivity (m/s).

Here, K for Barakar Formations is 0.05 m/d or 5.7×10^{-7} m/sec.

Here, it may be appropriate to mention that the presence of prominent boundaries/water bodies, faults or inter-fringing of sandstone and shale beds may restrict the propagation of drawdown cone. With the presence of low permeable beds such as clay/shale and younger coal seams in the formation, laying above the working seams the water level in the phreatic aquifer is not directly affected. Both, the phreatic and semi-confined aquifers, get affected during the working by board and pillar method as subsidence takes place while extracting total coal (depillaring). Surface vigilance and filling up subsided zone, if any, has to be constantly under observation. The effect on groundwater level for most of the coalmine in Jharia coalfield has been observed in the down-dip side, generally within a distance up to 500 m from active mine zone and becomes milder/ negligible thereafter.

9.0 CONSERVATION MEASURES & FUTURE STRATEGY

- BCCL has installed 25 Pressure Filter Plant of total capacity of 4.16 MGD to meet drinking water requirement in nearby area. At present 63 Water Treatment Plants are operational having

capacity of 16.16 MGD within Jharia Coalfield area. Further, installation of 28 more Pressure Filter Plants having capacity of 5.84 MGD are in progress.

- BCCL has participated in development of low cost technology for drinking water in a CSIR project along with CIMFR, Dhanbad and a pilot plant of 4000 Liters/hour is functional at PB Project site of BCCL. Similar plants have been proposed at other sites of BCCL.
- A scheme titled 'Scheme for multi-purpose utilization of surplus mine water of Barora Area, Block II and Govindpur Area of BCCL' was prepared with a view to harness the excess water discharge to take care of the persistence problem of water scarcity in the nearby villages. In the scheme, two water reservoirs of capacity 27 MG and 17 MG have been proposed in the non-coal bearing area for storage of 3250 GPM and 2000 GPM surplus mine water which will be fed by mine discharge at mines of Barora, Block-II and Govindpur Area through pipe line.
- Rooftop rainwater harvesting (RWH) has been taken up in the project areas using the administrative buildings. 138 no. of quarters having roof-top area of about 14950 sq. m. is ready to harvest rainwater and around 13150 cum/annum of water is going to recharge the nearby groundwater system through RWH structures. Proposal has already been made to facilitate this kind of RWH structure at suitable locations i.e., Lodna Area, Kusunda Area (Jawahar Nagar, Matkuria, Coal Board Colony), Sijua Area (Nichitpur and Tetulmari Colony) within Jharia Coalfield to augment groundwater recharge.
- After cessation of mining, with plenty of rainfall and abundant ground water recharge, the water levels will recoup and attain normalcy. Thus, the impact of mining on groundwater system may be considered as a temporary phenomenon. The abandoned mine workings (UG) behave as water pool and improves the resources availability in the coalfield area.
- Utilization of treated mine water discharge by both, industry and local people, in the mine influence area. The excess mine water can be used to recharge groundwater system by connecting pipelines to abandoned dug wells. Utilization of mine water for irrigation will also enhance the ground water recharge potential through artificial recharge in the area.
- Increase vegetative cover by plantation in the mine area under land amelioration measures. This will contain the surface run-off and increase the groundwater recharge.
- Imparting awareness among workers and local peoples about Rainwater harvesting and artificial recharge will have priority. This aspect is usually covered during the Environmental Week celebrated every year (5 to 12 June).

- Monitoring of water quality of mine water discharge, local River/nala and domestic water source (dug well/hand pump wells) will continue under routine monitoring (May, August, November & Jan).

10.0 EXISTING/PROPOSED RAINWATER HARVESTING STRUCTURES IN BCCL COAL MINES

Fig-3 to 4.



Proposed Rain Water Harvesting Site GVTC, Cluster-I, Barora Area



Proposed Rain Water Harvesting Site Nehru Balika Vidhalaya, Cluster-I, Barora Area

Fig-5 to 6.



Proposed Rain Water Harvesting Site Barora Area Guest House, Cluster-I, Barora Area



Proposed Rain Water Harvesting Site Regional Hospital Baghmara, Cluster-I, Barora Area

Fig-7 to 8.



Proposed Rain Water Harvesting Site – Barora Area Office, Cluster-I, Barora Area



RECHARGE POND / ABANDONED IN THE JCF MINE AREA

Fig-9 to 10.



RECHARGE POND / ABANDONED IN THE JCF MINE AREA



FILTER PLANT IN THE MINE AREA

Fig-11 to 12.



RECHARGE POND / ABANDONDED IN THE JCF MINE AREA



RECHARGE POND / ABANDONDED IN THE JCF MINE AREA

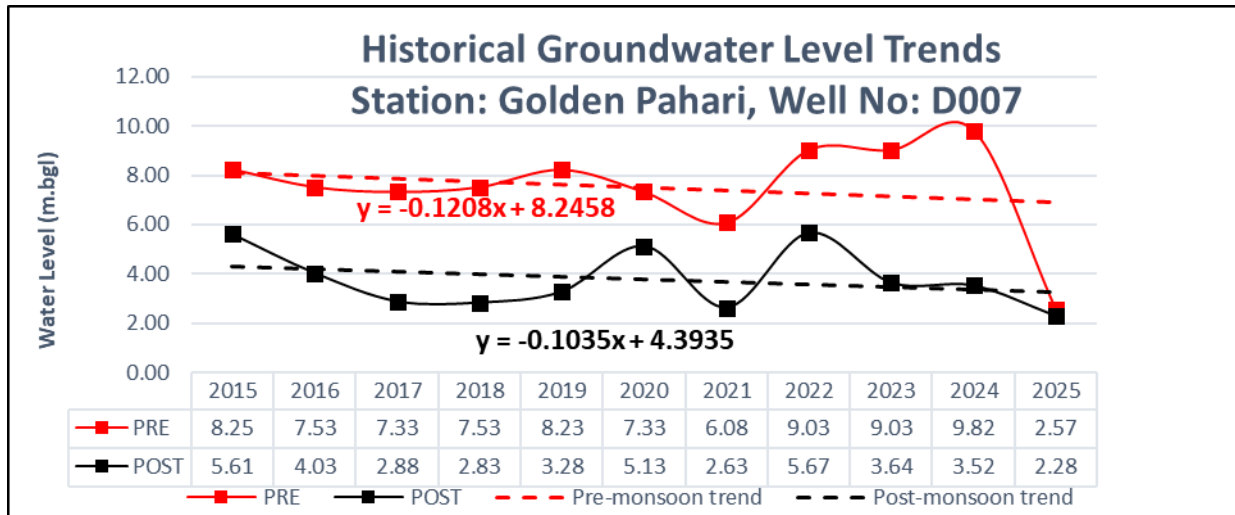
Fig-13 to 14.



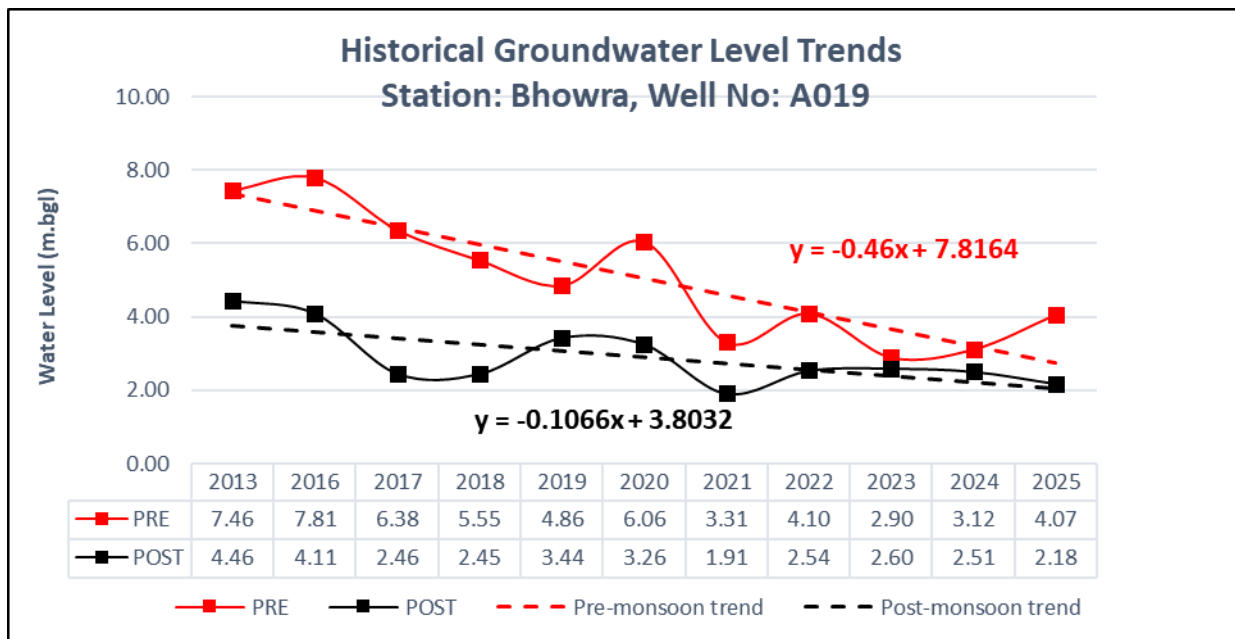
RECHARGE POND / ABANDONED IN THE JCF MINE AREA

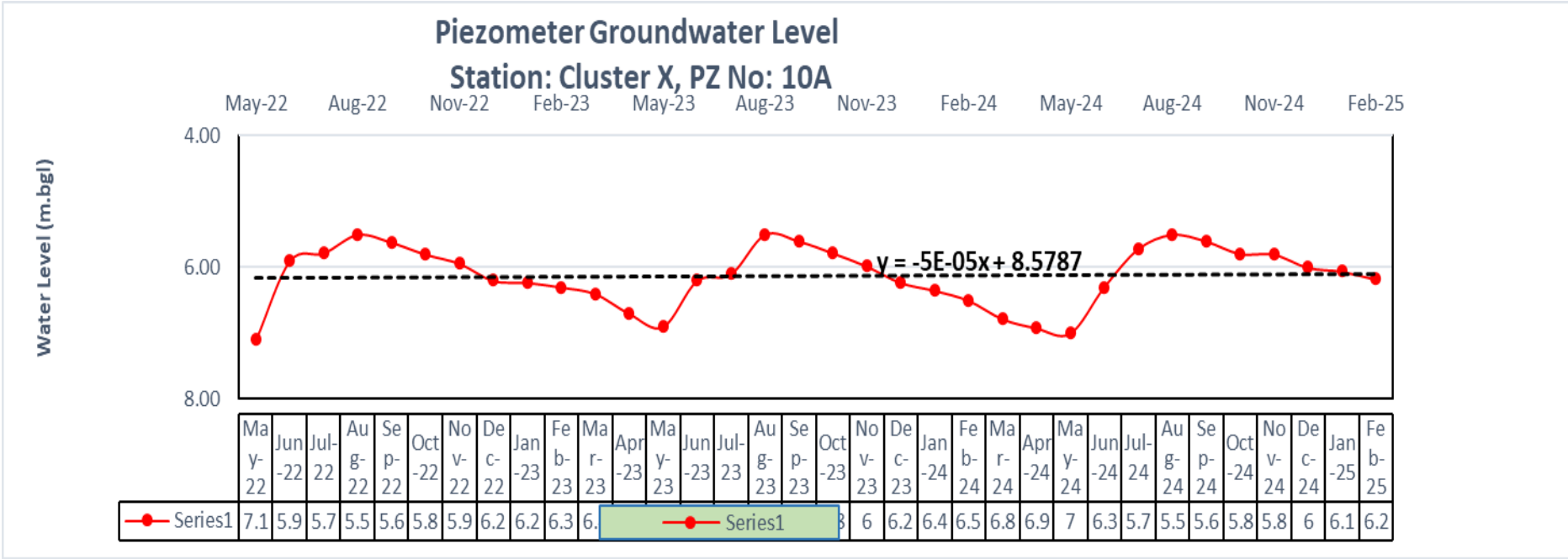


HYDROGRAPHS OF CLUSTER-IX



HYDROGRAPHS OF CLUSTER-X





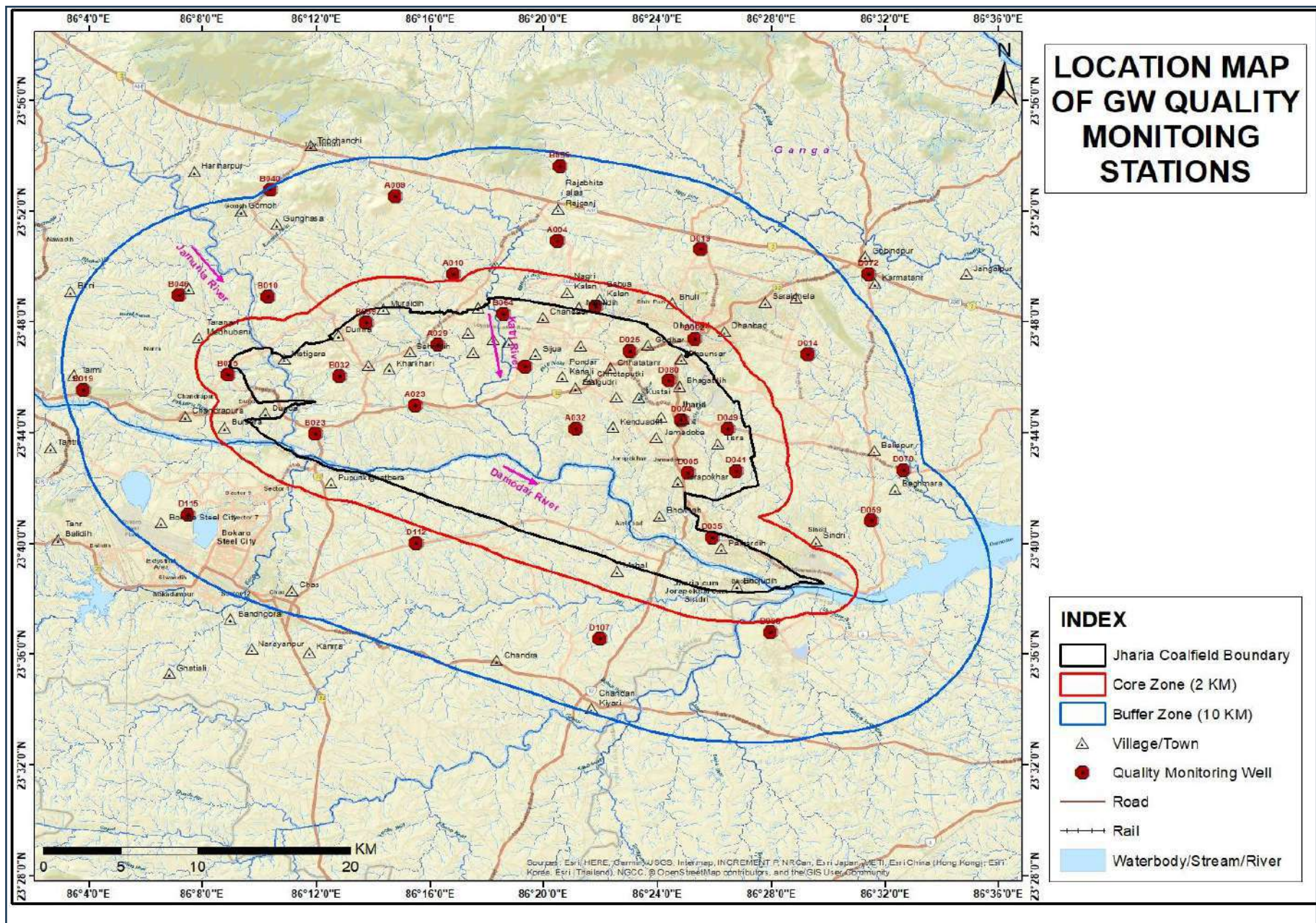


Plate- II: Location Map of Groundwater Quality Monitoring stations



Plate- III: Location Map of Piezometers

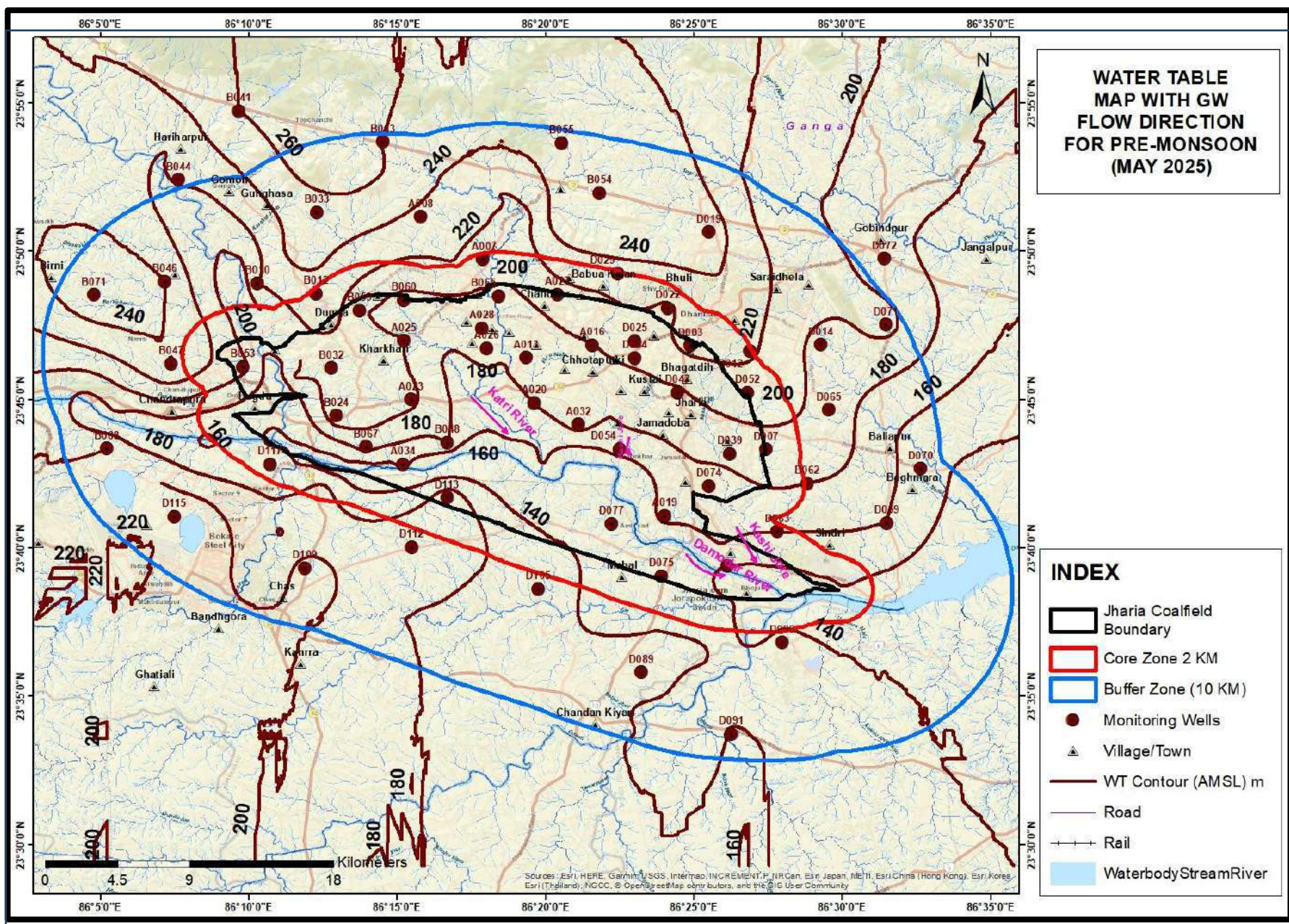
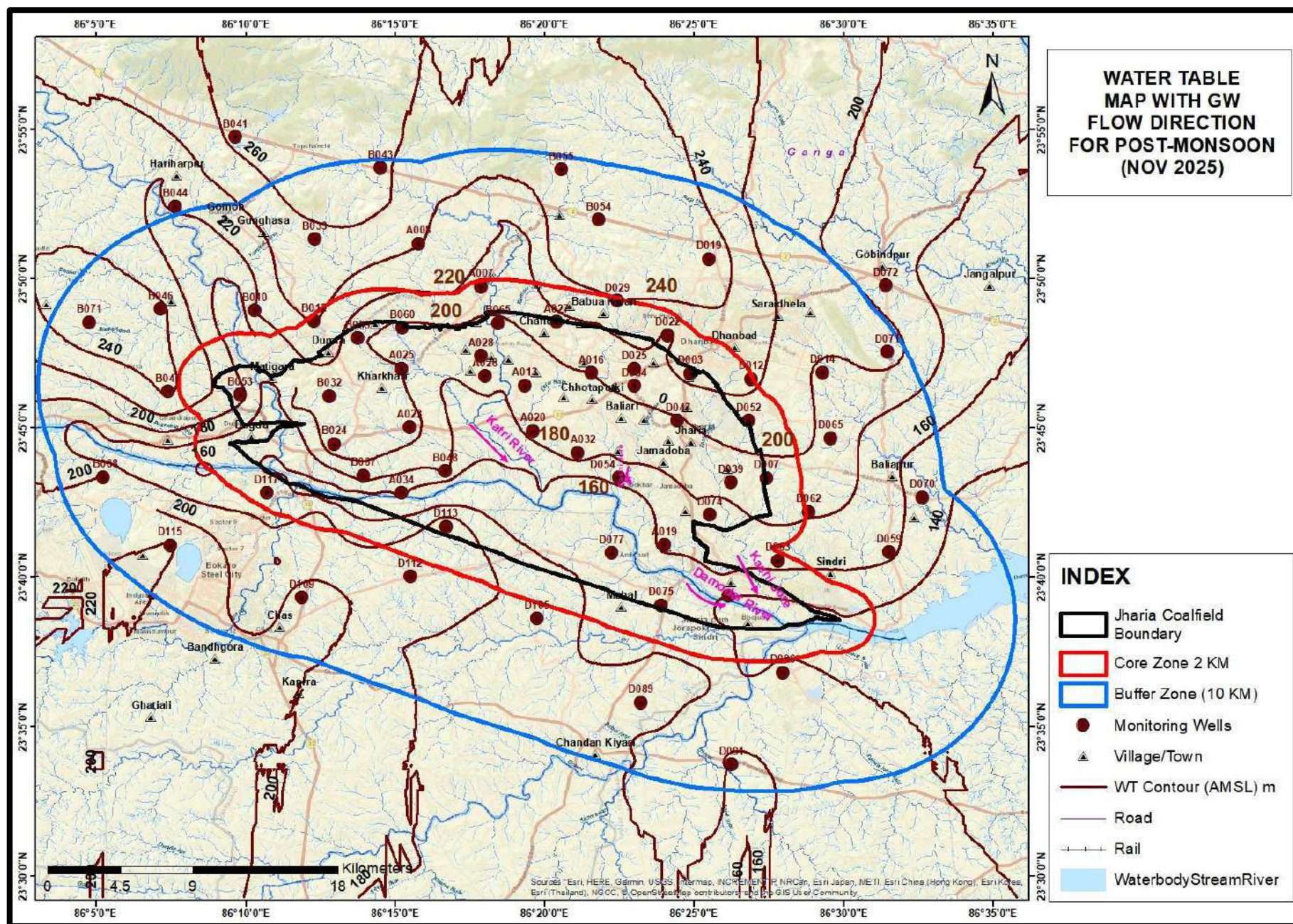


Plate- IVA: Water table Contour Map of JCF, Pre Monsoon (May'25)



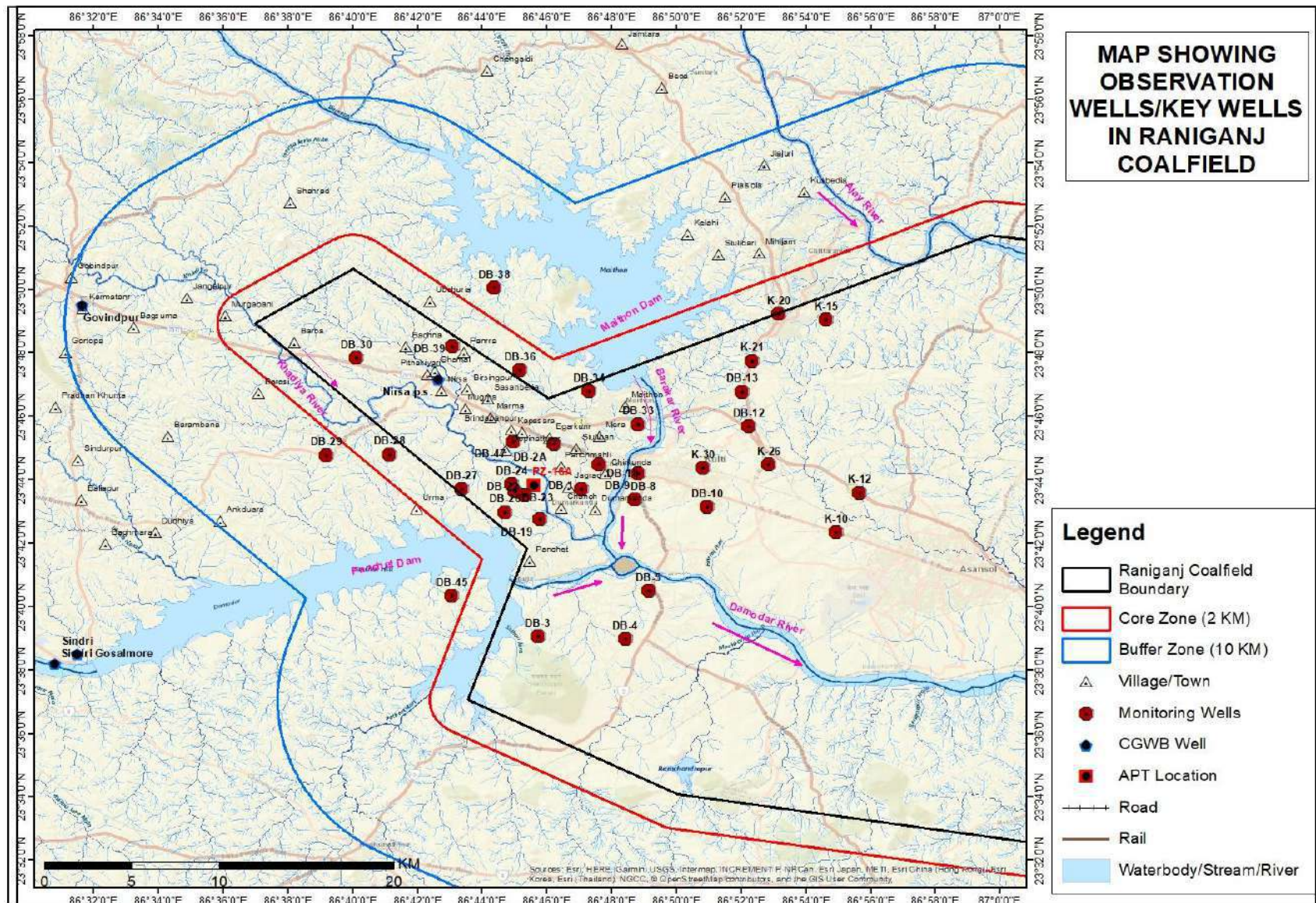


Plate- VI: Drainage Map (Part of RCF Coalfield under BCCL Command Area)

भारत कोकिंग कोल लिमिटेड Bharat Coking Coal Limited (A Mini Ratna Company) (A Subsidiary of Coal India Ltd.) (www.bccclweb.in)		पं.का - १, कोयला भवन, कोयला नगर, धनबाद - 826005 Regd. Off: Koyla Bhawan, Koyla Nagar Dhanbad - 826005 CIN: U10101JH1972GOI000918 दूरभाष: 0326-2230190 ईमेल: cos.bcccl@coalindia.in
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बोर्ड सचिवालय/Board Secretariat

पत्रांक : बीसीसीएल/सीएस/एफ-1(A)/418 (H)

दिनांक: 06.11.2024

सेवा में,
महाप्रबंधक (परियोजना व योजना),
बीसीसीएल, कोयला भवन, धनबाद।

विषय: **Certified copy of Minutes of 414th Board Meeting held on 19.10.2024.**

Dear Sir,

We send herewith certified copy of Minutes of Item No. 414.PoT-2 of 414th Meeting of the Board of Directors of Bharat Coking Coal Limited held at Hotel Ramada, Gangtok, Sikkim on 19.10.2024 for taking necessary action at your end.

You are requested to send the Action Taken Report (ATR) on the above, duly approved by the concerned Director, for placing before the next Board Meeting as per the format given below. Soft copy of the same in MS word format to the mail id cos.bcccl@coalindia.in .

Format of ATR:

Department:			
Item No.	Subject	Decision of the Board	Action Taken

Encl: As above

भवदीय,


बी.के.पारुई
कंपनी सचिव




Sr. Deepak

Item No. 414.POT-2**Approval of Mining Plan along with Mine Closure Plan Bhowra (North & South) Colliery, EJ Area.****Background:-**

Bhowra North Colliery and Bhowra South Colliery are two separate mines under the administrative control of EJ area. These mine are situated in the south eastern part of Jharia coalfield in Dhanbad district of Jharkhand state.

Bhowra (North & South) Colliery is situated in Cluster X group of mines of BCCL

Previously, a Mining Plan along with Mine Closure Plan of Bhowra South already been approved in the 348th BCCL Board dated 29.01.2019. Similarly Mine Closure Plan of Bhowra North has been approved in the 376th BCCL Board dated 25.03.2021 for implementation of guidelines issued by Ministry of Coal, Govt. of India vide letter no. 55011-01-2009-CPAM dated 7th January, 2013 and 34011/28/2019-CPAM dated 29.05.2020.

PURPOSE & SCOPE OF THE REPORT:

The purpose/ objective of the preparation of this revised mining plan is as follows:-

1. This Mining Plan has been prepared to comply the statutory requirement as per Rule 22A of Mineral Concession (Amendment) Rules 2020.
2. This mining plan along with Mine Closure Plan has also been prepared for amalgamation of Bhowra North and Bhowra South Colliery.
3. This mining plan along with Mine Closure Plan has been prepared for revision of EC capacity of the mine after amalgamation

Decision:-

After detailed deliberation Board agreed with the recommendation of Empowered Sub Committee (Tech.) for the Mining Plan along with Mine Closure Plan of Bhowra (North & South) Colliery having annual production capacity 2.50 MTPA lease hold 780.41 Ha (Project Area for OC-281.2093 Ha. and for UG-44.1473 Ha.), balance Life of 9 years with total Mine Closure cost being ₹35.4833 Crs, (Including already deposited amount of ₹25.237 Crs).

Board further, agreed with the recommendation of the ESC that the project report for underground mining as envisaged for phase-II be prepared within one year and a comprehensive mining plan prepared within 6 (six) months of the approval of the said project report.

Action: GM (P&P)

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बी. के. पारुई
कंपनी सचिव
भारत कोकिंग कोल लिमिटेड
कोयला भवन
धनबाद- 826005



भारत कोकिंग कोल लिमिटेड
Bharat Coking Coal Limited
(A Mini Ratna Company)
(A Subsidiary of Coal India Ltd.)
(www.bcclweb.in)

पं.का - कोयला भवन, कोयला नगर, धनबाद - 826005
Regd. Off: Koyla Bhawan, Koyla
Nagar Dhanbad - 826005
CIN: U10101JH1972GOI000918
दूरभाष: 0326-2230190
ईमेल: cos.bccl@coalindia.in

बोर्ड सचिवालय/Board Secretariat

पत्रांक: बीसीसीएल/सीएस/एफ- 1(A): 420 (H)

दिनांक : 06.11.2024

सेवा में,
महाप्रबंधक (परियोजना व योजना)
बीसीसीएल, कोयला भवन

Sub: Certified copy of Minutes of 40th ESC (Tech.) Meeting held on 18.10.2024.

Dear Sir,

We send herewith certified copy of Minutes of **Item No. 40.4** of 40th ESC (Tech.) Meeting of Bharat Coking Coal Limited held at Regd. Office, Koyla Bhawan, Dhanbad on 18.10.2024 for taking necessary action at your end.

Encl: As above

भवदीय,


बी.के. पारुई
कंपनी सचिव

Item No. 40.4

Approval of Mining Plan along with Mine Closure Plan Bhowra (North & South) Colliery, EJ Area

Background:

Bhowra North Colliery and Bhowra South Colliery are two separate mines under the administrative control of EJ area. These mine are situated in the south eastern part of Jharia coalfield in Dhanbad district of Jharkhand state.

Bhowra (North & South) Colliery is situated in Cluster X group of mines of BCCL

Previously, a Mining Plan along with Mine Closure Plan of Bhowra South already been approved in the 348th BCCL Board dated 29.01.2019. Similarly Mine Closure Plan of Bhowra North has been approved in the 376th BCCL Board dated 25.03.2021 for implementation of guidelines issued by Ministry of Coal, Govt. of India vide letter no. 55011-01-2009-CPAM dated 7th January, 2013 and 34011/28/2019-CPAM dated 29.05.2020.

Decision:

The proposal was discussed at length and ESC was informed that this current mining plan which has been proposed for approval will again be modified in view of plan for operating underground and OC mines. If this be the fact it was advised by the ESC that Project Report (PR) of the proposed mines be finalized within 1 year and mining plan be made ready for approval of the Board within 6 months thereafter.

Subject to above, the Mining Plan along with Mine Closure Plan of Bhowra (North & South) Colliery having annual production capacity 2.50 MTPA lease hold 780.41 Ha (Project Area for OC-281.2093 Ha. and for UG- 44.1473 Ha.), balance Life of 9 years with total Mine Closure cost being ₹35.4833 Crs, (Including already deposited amount of ₹25.237 Crs)" was deliberated and recommended by ESC for approval of Board.

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बी. के. पारुई
कंपनी सचिव
भारत कोकिंग कोल लिमिटेड
कोयला भवन
धनबाद- 826005

भारत कोकिंग कोल लिमिटेड
Bharat Coking Coal Limited
(A Mini Ratna Company)
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पं.का :- कोयला भवन, कोयला नगर, धनबाद - 826005
Regd. Off: Koyla Bhawan, Koyla Nagar
Dhanbad - 826005
CIN: U10101JH1972GOI000918
दूरभाष: 0326-2230190
ईमेल: cos.bccl@coalindia.in

बोर्ड सचिवालय/Board Secretariat

पत्रांक : बीसीसीएल/सीएस/एफ-1(A)/91 (H)

दिनांक: 28.03.2025

सेवा में,
महाप्रबंधक(परियोजना व योजना),
बीसीसीएल, कोयला भवन, धनबाद।

विषय: **Certified copy of Minutes of 419th Board Meeting held on 18.03.2025.**

Dear Sir,

We send herewith certified copy of Minutes of Item No. 419.6E of 419th Meeting of the Board of Directors of Bharat Coking Coal Limited held at Hotel Le Meridian, New Delhi on 18.03.2025 for taking necessary action at your end.

You are requested to send the Action Taken Report (ATR) on the above, duly approved by the concerned Director, for placing before the next Board Meeting as per the format given below. Soft copy of the same in MS word format to the mail id cos.bccl@coalindia.in .

Format of ATR:

Department:			
Item No.	Subject	Decision of the Board	Action Taken

Encl: As above

भवदीय,

बी.के.पारुई
कंपनी सचिव



162 29-3-25

भारत कोकिंग कोल लिमिटेड
कोयला भवन, कोयला नगर,
धनबाद - 826005

Dr. Reddy's

Item No. 419.6E

Approval for Review of Mining Plan along with Mine Closure Plan of Amalgamated Sudamdih-Patherdih Colliery, Eastern Jharia Area.

Background:-

Amalgamated Sudamdih-Patherdih Colliery is under the administrative control of Eastern Jharia Area. The area of Amalgamated Sudamdih-Patherdih Colliery under consideration falls within Patherdih, Gauri, Sudamdih and Bhowrah Blocks (all partly) of Jharia coalfield, District: Dhanbad, Jharkhand. The coal block lies between Latitude 23°39'03" to 23°40'32" (N) and Longitude 86°24'38" to 86°27'17" (E).

Amalgamated Sudamdih-Patherdih Colliery is situated in Cluster X group of mines of BCCL

Previously, a Mining Plan along with Mine Closure Plan of Amalgamated Sudamdih-Patherdih Colliery Eastern Jharia has already been approved in the 348th BCCL Board dated 29.01.2019 for implementation of guidelines issued by Ministry of Coal, Govt. of India vide letter no. 55011-01-2009-CPAM dated 7th January, 2013.

Decision:-

The matter was discussed at length and rational for moving the proposal was explained by D(T) OP.

After detailed deliberation of the proposal, recommendation of the ESC (Tech.) for the Mining Plan along with Mine Closure Plan of Amalgamated Sudamdih-Patherdih Colliery having annual Capacity 0.545 MTPA lease hold/project area 498.61 Ha, balance Life of 28 years with total Mine Closure cost being ₹140.6159 Crs, (including already deposited amount ₹7.7328 Crs.) was approved by the Board.

Action: GM (P&P)

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बी. के. पारुई
कंपनी सचिव
भारत कोकिंग कोल लिमिटेड
कोयला भवन
धनबाद- 826005

महाप्रबंधक का कार्यालय, पूर्वी झरिया क्षेत्र
OFFICE OF THE GENERAL MANAGER, EASTERN JHARIA AREA

Ref. No.: BCCL/EJ/GM/ENVT./2026/43

Date: 07/04/2026

To,
Prof. (Dr.) M.K. Jain
Professor
Department of Environmental Science & Engineering
Indian Institute of Technology (Indian School of Mines), Dhanbad

Sub.: : Work Order for the work "Third party audit for air & water quality in Cluster-X, BCCL" Eastern Jharia (E.J.) Area, BCCL.

Ref: 1. Our E-mail dated 20.11.2025
2. Your Offer vide E-mail dated 26.11.2025
3. LOA issued vide no. BCCL/EJ/GM/ENVT./2026/39 dated 30.03.2026
4. Acceptance of LOA vide email dated 01.04.2026

Dear Sir,

With reference to the above referred LOA & emails, this is to bring to your kind attention that competent authority is pleased to award you the work **"Third party audit for air & water quality in Cluster- X Coal mines, Eastern Jharia (E.J.) Area, BCCL"** for a value of Rs. 4,13,000/- (Rs. Four lakh thirteen thousand only) including GST@18% with following terms and condition:

- 1. Scope of Work:** Scope of work will be as follows:
 - (i) Air quality: 5 monitoring stations / two times 24 hr measurement in a month. Parameters PM10, PM2.5, SO2 and NOx.
 - (ii) Water quality: 1 Ground water station, 2 Mine water sample (ABNS Colliery & ASP colliery) and 2 Surface water stations (U/s, D/s of Damodar river) / fortnightly. 33 parameters (as per GSR 801(E) EPA 1993), including pH, COD, TSS, Oil & Grease, heavy metals (iron, chromium, nickel), TDS, and BOD.
 - (iii) Third party audit for air and water quality for Cluster X coal Mines of BCCL as per MoEFCC/ CPCB guidelines.
 - (iv) Submit the audit report with outcomes and recommendations.
 - (v) Development of Study in compliance to guidelines of MoEF&CC, New Delhi
 - (vi) Any other additions will be included as per requirement/ guidelines from BCCL HQ/ MoEFCC, New Delhi.
- 2. Duration of the work** shall be 12 months from the date of acceptance of work by IIT (ISM) Dhanbad.
- 3. Paying Authority:** Area Finance Manager, E.J. Area, BCCL.
- 4. BCCL** shall not provide any local accommodation and travel arrangements for visiting the sites.
- 5. BCCL** shall not be liable to any loss/damage caused to IIT (ISM) Dhanbad during your site visits for the work.

6. Data generated during the study shall be property of BCCL only. The copyright of all documents prepared by the consultant in connection with the study shall rest with the BCCL.
7. The audit report will be submitted to MoEF&CC. Any modification suggested by MoEF&CC in the report shall be incorporated by IIT (ISM) Dhanbad without any additional cost.
8. 80% advance payment shall be made to IIT (ISM) Dhanbad after submitting advance payment request/ invoice by you.
9. Final 20% payment will be made after acceptance of the study report by General Manager, E.J. Area, BCCL.
10. Any dispute shall be in jurisdiction of Dhanbad Court Only.
11. **Deliverable:** 02 hard colour copies of draft report & 05 colour copies of final report. All the studies, data generated during study and the final study report shall be submitted to BCCL in editable soft copies.
12. If due to any reasons, beyond control of BCCL and IIT (ISM) Dhanbad, work cannot be completed after 80% advance payment, IIT (ISM) Dhanbad shall return the amount to BCCL after deducting expenses incurred by IIT (ISM), if any.
13. **Force Majeure:** For the purpose of and within the scope of the contract by way of indication and not of limitation, the term 'Force Majeure' shall mean acts of nature, strikes, Lockouts, or other industrial disturbances, act of public/enemy, wars, blockades, insurrection, riots, epidemics, landslides, earthquakes, storms, lightening, flood, washouts, civil disturbances, explosions and any other similar event not within the control of either party and which by exercises of due care and diligence neither party is able to prevent or overcome. Should the occurrence of force majeure last more than 15 days, extension of time will be given with the mutual consent of IIT (ISM) Dhanbad and BCCL.
14. **Penalty Clause:** The BCCL, management reserve the right to impose penalty at the rate of 0.5% of the total awarded value of the work for each week of delay or par thereof in submission of final report up to the ceiling limit of 10% of the awarded value of the work. The aforesaid penalty will be deducted from the payment of bills.

Yours faithfully

Bhowan
07/4/26
General Manager
E. J. Area, BCCL

Copy to:

1. GM/HoD (Env), BCCL, Koyla Bhawan, HQ
2. AFM, EJ Area
3. AM (Env), EJ Area
4. Project Officer- ABNS/ASP/ Sud. Shaft/Amlabad
5. Office Copy

Office Address: Office of The General Manager, Bhowra, Dist: Dhanbad, PIN- 828302, Email- gmej.bccl@coalindia.in

कार्यालय का पता: महाप्रबंधक का कार्यालय, भौरा, जिला: धनबाद, पिन: 828302, ई-मेल: gmej.bccl@coalindia.in

Reg. Office: Koyla Bhawan, Koyla Nagar, Dhanbad-826005, Jharkhand. C&N: U10101JH1972GOI000918, Website – www.bcclweb.in



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ENVIRONMENTAL MONITORING REPORT OF BHARAT COKING COAL LIMITED, CLUSTER – X

(FOR THE MONTH MARCH, 2026)

E. C. no. J-11015/380/2010-IA.II (M) dated 12th June, 2019.



CMPDI

ISO 9001 Company
Regional Institute-II
Dhanbad, Jharkhand

CONTENTS

SL. NO.	CHAPTER	PARTICULARS	PAGE NO.
1.	CHAPTER - I	EXECUTIVE SUMMARY	3-5
2.	CHAPTER-II	INTRODUCTION	6
3.	CHAPTER-III	RESULTS	7-22
4.	CHAPTER-IV	STANDARDS AND PLANS	23-24

EXECUTIVE SUMMARY

1.0 Introduction

The purpose of environmental monitoring is to assess the quality of various attributes that affects the fauna and flora. In accordance with the quality of these attributes appropriate strategy is to be developed to control the pollution level within the permissible limits. The three major attributes are air, water and noise level.

Bharat Coking Coal Limited (BCCL), a Subsidiary company of Coal India Limited is operating Underground and Opencast Mines in Jharia Coalfield (JCF) is a part of Gondwana Coalfields located in Dhanbad district of Jharkhand, the JCF is bounded by 23°37' N to 23°52' N latitudes and 86°09' E to 86°30' E longitude occupying an area of 450 Sq.km. BCCL has awarded Environmental monitoring work of Jharia Coalfield (JCF) to Central Mine Planning & Design Institute Limited (CMPDIL). The environmental monitoring has been carried out as per the conditions laid down by the MoEF&CC while granting environmental clearance of project, consent letter issued by the respective SPCB, and other statutory requirements.

2.0 Sampling location and rationale

2.1 Ambient air sampling locations

The ambient air quality monitoring stations were selected to represent core, buffer zone area. The rationale has been based on the guidelines stipulated by MoEF&CC, consent letter of SPCB, as well as other statutory requirements.

2.2 Water sampling stations

The Water sampling stations were selected for mine sump water.

2.3 Noise level monitoring locations

Noise levels vary depending on the various activities in mining areas. The monitoring of noise level in different locations will be helpful to take appropriate mitigating measures. The noise levels were recorded in mining area, washery and in residential area.

3.0 Methodology of sampling and analysis

3.1 Ambient air quality

Parameters chosen for assessment of ambient air quality were Particulate Matter (PM₁₀), Fine Particulate Matter (PM_{2.5}), Sulphur Di-oxide (SO₂) and Nitrogen Oxides (NO_x). Respirable Dust Samplers (RDS) and Fine Dust

Sampler (PM_{2.5} sampler) were used for sampling of PM₁₀, SO₂, & NO_x and Fine Dust Sampler (PM_{2.5} sampler) were used for sampling of PM_{2.5} at 24 hours interval once in a fortnight and the same for the gaseous pollutants. The samples were analyzed in Environmental Laboratory of CMPDI, RI-II, Dhanbad.

3.2 Water quality

Water samples were collected as per standard practice. The Mine effluent samples were collected and analyzed for four parameters on fortnightly basis. Thereafter the samples were preserved and analyzed at the Environmental Laboratory of CMPDI, RI- II, Dhanbad.

3.3 Noise level monitoring

Noise level measurements in form of 'L_{EQ}' were taken using Integrated Data Logging Sound Level Meter. Noise levels were measured in Decibels, 'A' weighted average, i.e. dB(A).

4.0 Results and interpretations

4.1 Air quality

It has been seen from the analysis results that the 24 hours average concentration parameters like PM₁₀, PM_{2.5}, SO₂ and NO_x are mostly within the permissible limits in all sampling locations as per MoEF&CC Gazette Notification No. GSR 742(E) dt 25.09.2000 Standards for Coal Mines and National Ambient Air Quality Standard -2009. Sometimes the concentration of PM₁₀& PM_{2.5} exceeds the limits due to heavy public traffic, poor road condition, coke oven plants, burning of coal by surrounding habitants, brick making, municipal waste dumps and industries like Steel Plant, thermal Plants including their fly ash etc.

The following preventive and suppressive mitigative measures can be undertaken to contain the pollution level within prescribed level:-

- Wet drilling and controlled blasting should be practice.
- Explosive used should be optimised to restrict the dust generation.
- Transportation roads should be permanently asphalted free of ruts, potholes etc.
- Water should be sprayed on coal transportation road, service road more frequently and at regular interval.
- Dust from roads should be removed physically or mechanically.
- Greenbelts around industrial sites, service building area besides Avenue plantation along roads should be created.
- Coal dust should be suppressed by using fixed sprinklers.
- Regular maintenance of plant and machinery should be undertaken.

4.2 Water quality

The test results indicate that the major parameters compared with MoEF&CC Gazette Notification No. GSR 742(E) dt 25.09.2000 Standards for Coal Mines were within permissible limits.

4.3 Noise Level

During the noise level survey it has been observed that the noise level in the sampling locations is within the permissible limits prescribed as per MoEF&CC Gazette Notification No. GSR 742(E) dt 25.09.2000 Standards for Coal Mines for Industrial Area and Noise pollution (Regulation and Control) Rules, 2000.

INTRODUCTION

- 1.0 Any industry and development activities including coal mining is bound to affect environmental attributes. There are positive as well as negative impacts of such operations. For controlling the adverse impacts a regular monitoring is essential. The environmental monitoring is being done as per the guide-lines stipulated by Ministry of Environment, Forest and Climate Change (MoEF&CC), Govt. of India.

The very purpose of environmental monitoring is to assess the quality of various attributes which affects the environment. As per quality of these attributes appropriate strategy is to be developed to control the pollution level within the permissible limits. The three major attributes are air, water and noise level.

Bharat Coking Coal has awarded Environmental Monitoring work of all Projects, Cluster wise, to Central Mine Planning & Design Institute Limited (CMPDIL). The environmental monitoring has been carried out as per conditions laid down by MoEF&CC while granting environmental clearance to different projects. CMPDI has trained manpower and well equipped laboratory to carry out monitoring, analysis and R&D work in the field of environment.

- 1.1 The Cluster-X is in the Eastern part of the Jharia coalfield. It includes a group of 6 Mines (viz. Amlabad UG, Bhowra north UG/OC, Bhowra South UG/OC , Amalgamated Sudamdih Patherdih Mine, Sudamdih Shaft, Sudamdih Coal Washery The Cluster-X is situated about 25 - 30 kms from Dhanbad Railway Station. The mines of this Cluster-X are operating since pre nationalization period (prior to 1972-73). It is connected by both Railway and Road. The drainage of the area is governed by Damodar River.

- 1.2 The Cluster-X is designed to produce 1.762 MTPA (normative) and 2.289 MTPA (peak) capacity of coal and coal washery of 2.08 MTPA.

The Project has Environmental Clearance from Ministry of Environment, Forests and Climate Change (MoEF&CC) for a rated capacity 1.762 MTPA (normative) and 2.289 MTPA (peak) capacity of coal production vide letter no. J-11015/380/2010-IA.II (M) dated 12th June, 2019.

Ministry of Environment, Forest and Climate Change while granting environmental clearance has given one of the General conditions that “ Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone for PM₁₀, PM_{2.5}, SO₂, NO_x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets, other conditions regarding water / effluent and noise level monitoring in consultation with the State Pollution Control Board.”

In compliance of these conditions the Environmental Monitoring has been carried out & report prepared for submission to MoEF&CC & JSPCB and other statutory authorities.

AMBIENT AIR QUALITY MONITORING

2.1 Location of sampling station and their rationale:

(As per G.S.R. 742 (E) dt. 25th December, 2000)

2.1.1 Ambient Air Quality Sampling Locations

I. CORE ZONE Monitoring Location

i) Bhowrah North (A14): Industrial Area

The location of the sampling station is 23°41'37.00"N 86°23'54.00"E. The sampler was placed at an elevated platform of around 1.5m height from ground level at Guest House of EJ Area.

ii) Sudamdih Washery (A15): Industrial Area

The location of the sampling station is 23°39'31.00"N 86°25'48.00"E. The sampler was placed at elevated platform of around 1.5m height from ground level at Coal lab near washery.

iii) Sudamdih Mine shaft (A41): Industrial Area

The location of the sampling station is 23°39'37"N 86°25'39"E. The sampler was placed at elevated platform of around 1.5m height from ground level at electric substation of sudamdih shaft mine.

II. BUFFER ZONE Monitoring Location

i) Jeenagora (A13): Industrial Area

The location of the sampling station is 23°42'31.00"N 86°26'38.00"E. The sampler was placed elevated platform of around 1.5m height from ground level at Safety Office.

ii) Sitanala (A30): Industrial Area

This location of the sampling station is 23°41'15.00"N 86°22'39.00"E, at the Amlabad Project office which is currently in-operational. It has been selected to study the impact of Air pollution in the buffer zone on the Cluster.

AMBIENT AIR QUALITY DATA

 		CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED Environment Laboratory, Regional Institute-II Ambient Air Quality Test Report				CMPDI, RI-II KOYLA BHAWAN COMPLEX DHANBAD. -826005 Phone:0326-223-850 email: rdri2cmpdi@coalindia.in		
Test Report for Ambient Air Samples								
Month & Year	03/2026	Cluster	Cluster X			ULR No.	TC1432126000002467F	
Customer	Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)					Date of Issue	04.05.2026	
Project	Bhowrah North	Sample Ref. No.	REM/BCCL/2026/03	Sampling Method		CMPDI/RI-II/LPM 11, (IS 5182)		
Date of Sampling	05.03.26	17.03.26	Period of Analysis	05.03.2026 to 25.04.2026		Zone of Station:	Core Zone	
Sl. No.	Parameter	Method of Analysis	Observed Values (in $\mu\text{g}/\text{m}^3$)		Range Of Testing	LDL	MoEF Standards Notification dated 25th September,2000 (GSR 742 E)	NAAQS, 2009
			A5423	A5497				
1	PM ₁₀	IS -5182(Part 23):2006, R-2017	148	133	10 $\mu\text{g}/\text{m}^3$ - 1000 $\mu\text{g}/\text{m}^3$	10 $\mu\text{g}/\text{m}^3$	300	100
2	PM _{2.5}	IS -5182(Part 24):2019	67	69	10 $\mu\text{g}/\text{m}^3$ - 400 $\mu\text{g}/\text{m}^3$	10 $\mu\text{g}/\text{m}^3$	Not Specified	60
3	SO ₂	IS-5182(Part-2): 2001 , R-2017	<10	<10	10 $\mu\text{g}/\text{m}^3$ - 1050 $\mu\text{g}/\text{m}^3$	10 $\mu\text{g}/\text{m}^3$	120	80
4	NO ₂	IS-5182 (Part-6): 2006 , R-2017	23	23	06 $\mu\text{g}/\text{m}^3$ - 420 $\mu\text{g}/\text{m}^3$	06 $\mu\text{g}/\text{m}^3$	120	80
* LDL indicates Lower Detection Limit,								
**All units are in $\mu\text{g}/\text{m}^3$, 24 hourly Average,								
 ANALYSED BY		 REVIEWED BY			 Authorised Signatory			
Note: The results above relate to the samples tested as received. This report can not be reproduced in part or full without the written permission of the HOD(Env) , CMPDI, RI-II.								
---- End of Report ----								
Page -1 of 1								

CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED
Environment Laboratory, Regional Institute-II
Ambient Air Quality Test Report



CMPDIL, RI-II
 KOYLA BHAWAN COMPLEX
 DHANBAD. -826005
 Phone:0326-223-850
 email: rdri2cmpdi@coalindia.in

Test Report for Ambient Air Samples											
Month & Year		03/2026		Cluster		Cluster X		ULR No.		TC1432126000002467F	
Customer		Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)						Date of Issue		04.05.2026	
Project		Sudamdih Washery		Sample Ref. No.		REM/BCCL/2026/03		Sampling Method		CMPDI/RI-II/LPM 11, (IS 5182)	
Date of Sampling		05.03.26		17.03.26		Period of Analysis		05.03.2026 to 25.04.2026		Zone of Station: Core Zone	
Sl. No.	Parameter	Method of Analysis	Observed Values (in $\mu\text{g}/\text{m}^3$)		Range Of Testing	LDL	MoEF Standards Notification dated 25th September,2000 (GSR 742 E)	NAAQS, 2009			
			A5427	A5499							
1	PM ₁₀	IS -5182(Part 23):2006, R-2017	112	127	10 $\mu\text{g}/\text{m}^3$ - 1000 $\mu\text{g}/\text{m}^3$	10 $\mu\text{g}/\text{m}^3$	300	100			
2	PM _{2.5}	IS -5182(Part 24):2019	66	71	10 $\mu\text{g}/\text{m}^3$ - 400 $\mu\text{g}/\text{m}^3$	10 $\mu\text{g}/\text{m}^3$	Not Specified	60			
3	SO ₂	IS-5182(Part-2): 2001 , R-2017	<10	<10	10 $\mu\text{g}/\text{m}^3$ - 1050 $\mu\text{g}/\text{m}^3$	10 $\mu\text{g}/\text{m}^3$	120	80			
4	NO ₂	IS-5182 (Part-6): 2006 , R-2017	22	23	06 $\mu\text{g}/\text{m}^3$ - 420 $\mu\text{g}/\text{m}^3$	06 $\mu\text{g}/\text{m}^3$	120	80			
* LDL indicates Lower Detection Limit,											
**All units are in $\mu\text{g}/\text{m}^3$, 24 hourly Average,											
 ANALYSED BY			 REVIEWED BY			 Authorised Signatory					
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Page -1 of 1											



CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED
Environment Laboratory, Regional Institute-II
Ambient Air Quality Test Report

CMPDI, RI-II
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 email: rdri2cmpdi@coalindia.in

Test Report for Ambient Air Samples

Month & Year		03/2026	Cluster	CLUSTER X			ULR No.	TC1432126000002467F
Customer		Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)					Date of Issue	04.05.2026
Project		Sudamdih Mine Shaft	Sample Ref. No.	REM/BCCL/2026/03	Sampling Method		CMPDI/RI-II/LPM 11 , (IS 5182)	
Date of Sampling		05.03.2026	17.03.2026	Period of Analysis	05.03.2026 to 25.04.2026		Zone of Station:	Core Zone
Sl. No.	Parameter	Method of Analysis	Observed Values (in µg/m³)		Range Of Testing	LDL	MoEF Standards Notification dated 25th September,2000 (GSR 742 E)	NAAQS, 2009
			A5425	A5498				
1	PM ₁₀	IS -5182(Part 23):2006, R-2017	97	90	10 µg/m³ - 1000 µg/m³	10 µg/m³	300	100
2	PM _{2.5}	IS -5182(Part 24):2019	39	41	10 µg/m³ - 400 µg/m³	10 µg/m³	Not Specified	60
3	SO ₂	IS-5182(Part-2): 2001, R-2017	<10	<10	10 µg/m³ - 1050 µg/m³	10 µg/m³	120	80
4	NO ₂	IS-5182 (Part-6): 2006 , R-2017	25	27	06 µg/m³ - 420 µg/m³	06 µg/m³	120	80

**All units are in $\mu\text{g}/\text{m}^3$, 24 hourly Average * LDL indicates Lower Detection Limit,

ANALYSED BY

(Gaurav Kant)
REVIEWED BY

(Kumar Vaibhav)
Authorised Signatory

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Page -1 of 1



CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED
Environment Laboratory, Regional Institute-II
Ambient Air Quality Test Report

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Test Report for Ambient Air Samples

Month & Year		03/2026	Cluster	Cluster X			ULR No.	TC1432126000002467F	
Customer		Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)					Date of Issue	04.05.2026	
Project		Jeenagora		Sample Ref. No.	REM/BCCL/2026/03	Sampling Method		CMPDI/RI-II/LPM 11 , (IS 5182)	
Date of Sampling		13.03.26		30.03.26	Period of Analysis	13.03.2026 to 25.04.2026		Zone of Station:	Buffer Zone
Sl. No.	Parameter	Method of Analysis	Observed Values (in $\mu\text{g}/\text{m}^3$)		Range Of Testing	LDL	MoEF Standards Notification dated 25th September,2000 (GSR 742 E)	NAAQS, 2009	
			A5481	A5563					
1	PM ₁₀	IS -5182(Part 23):2006, R-2017	112	129	10 $\mu\text{g}/\text{m}^3$ - 1000 $\mu\text{g}/\text{m}^3$	10 $\mu\text{g}/\text{m}^3$	300	100	
2	PM _{2.5}	IS -5182(Part 24):2019	63	70	10 $\mu\text{g}/\text{m}^3$ - 400 $\mu\text{g}/\text{m}^3$	10 $\mu\text{g}/\text{m}^3$	Not Specified		60
3	SO ₂	IS-5182(Part-2): 2001 , R-2017	<10	11	10 $\mu\text{g}/\text{m}^3$ - 1050 $\mu\text{g}/\text{m}^3$	10 $\mu\text{g}/\text{m}^3$	120	80	
4	NO ₂	IS-5182 (Part-6): 2006 , R-2017	17	28	06 $\mu\text{g}/\text{m}^3$ - 420 $\mu\text{g}/\text{m}^3$	06 $\mu\text{g}/\text{m}^3$	120	80	

* LDL indicates Lower Detection Limit,

**All units are in $\mu\text{g}/\text{m}^3$, 24 hourly Average,

(Signature)

ANALYSED BY

(Signature)

(Gaurav Kant)
REVIEWED BY

(Signature)

(Kumar Vaibhav)
Authorised Signatory

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Page -1 of 1



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Environment Laboratory, Regional Institute-II
Ambient Air Quality Test Report

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Test Report for Ambient Air Samples

Month & Year		03/2026	Cluster	CLUSTER X			ULR No.	TC1432126000002467F	
Customer		Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)					Date of Issue	04.05.2026	
Project		Sitanala		Sample Ref. No.	REM/BCCL/2026/03	Sampling Method	CMPDI/RI-II/LPM 11 , (IS 5182)		
Date of Sampling		02.03.26		16.03.26	Period of Analysis	02.03.2026 to 25.04.2026		Zone of Station:	Buffer Zone
Sl. No.	Parameter	Method of Analysis	Observed Values (in µg/m³)		Range Of Testing	LDL	MoEF Standards Notification dated 25th September,2000 (GSR 742 E)	NAAQS, 2009	
			A5415	A5492					
1	PM ₁₀	IS -5182(Part 23):2006, R-2017	91	93	10 µg/m³ - 1000 µg/m³	10 µg/m³	300	100	
2	PM _{2.5}	IS -5182(Part 24):2019	48	53	10 µg/m³ - 400 µg/m³	10 µg/m³	Not Specified	60	
3	SO ₂	IS-5182(Part-2): 2001 , R-2017	<10	<10	10 µg/m³ - 1050 µg/m³	10 µg/m³	120	80	
4	NO ₂	IS-5182 (Part-6): 2006 , R-2017	25	23	06 µg/m³ - 420 µg/m³	06 µg/m³	120	80	

**All units are in $\mu\text{g}/\text{m}^3$, 24 hourly Average, * LDL indicates Lower Detection Limit,


 ANALYSED BY


 (Gaurav Kant)
 REVIEWED BY

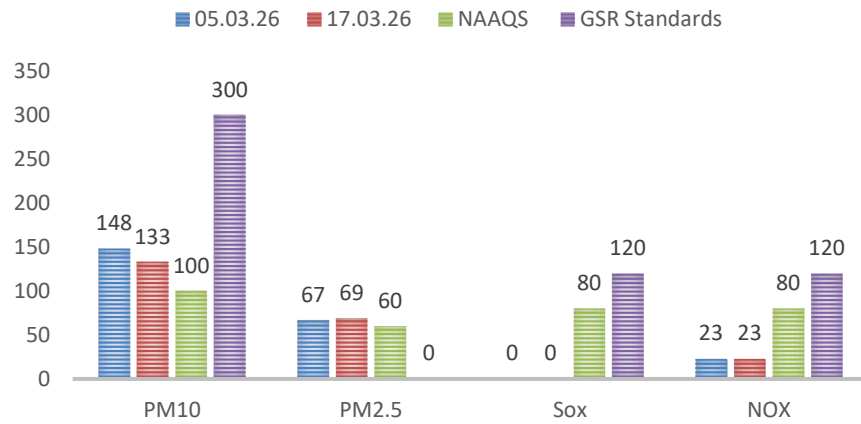

 (Kumar Vaibhav)
 Authorised Signatory

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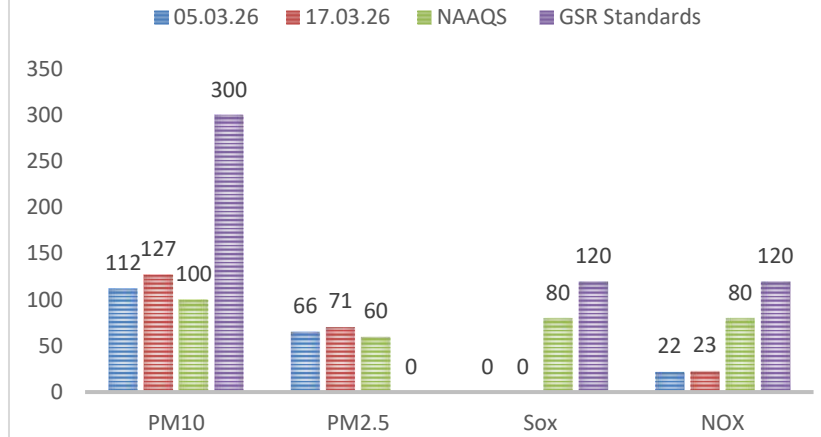
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Page -1 of 1

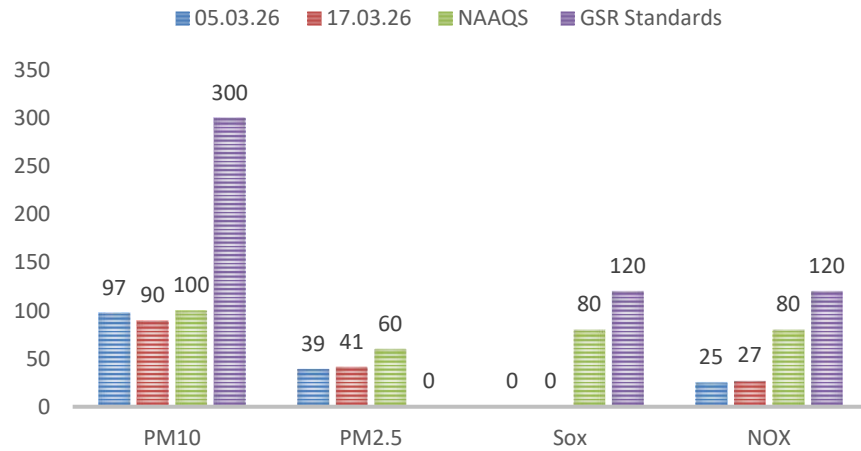
AMBIENT AIR QUALITY AT BHOWRAH NORTH



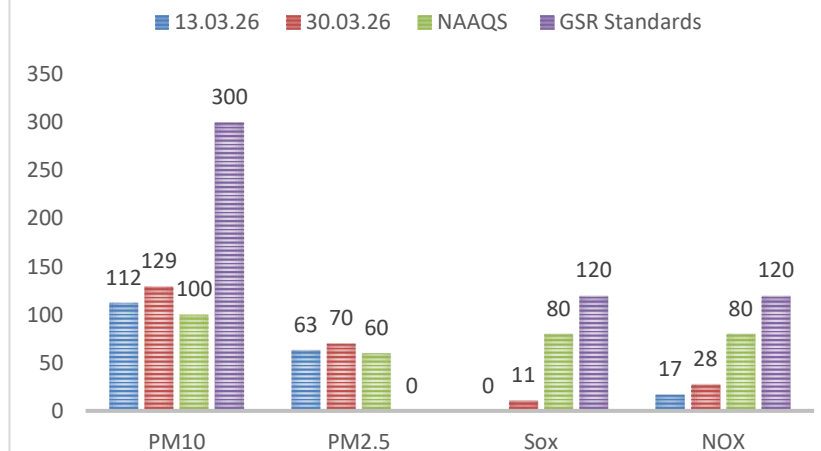
AMBIENT AIR QUALITY AT SUDAMDIH WASHERY

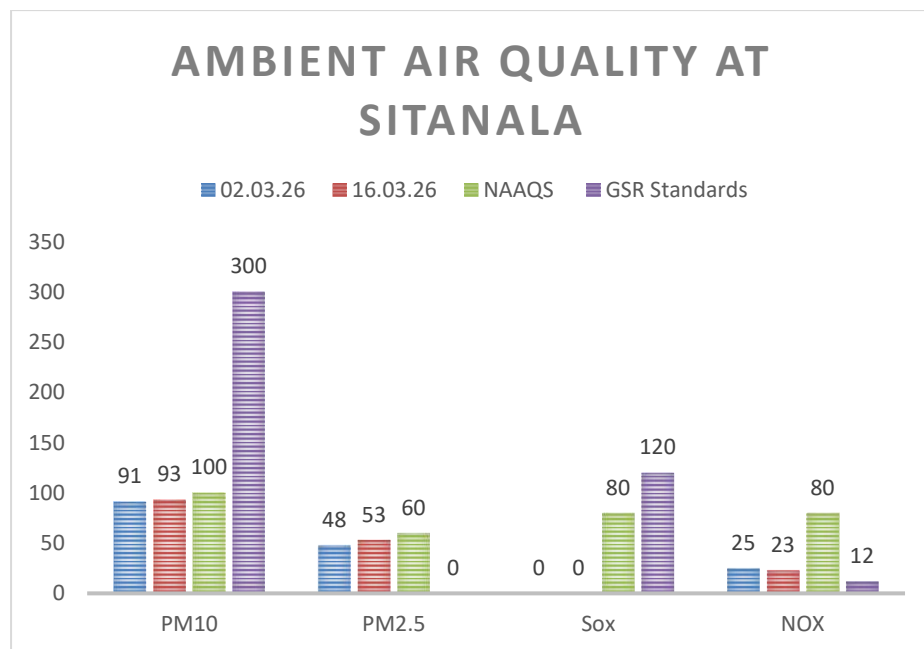


AMBIENT AIR QUALITY AT SUDAMDIH MINE SHAFT



AMBIENT AIR QUALITY AT JEENAGORA





WATER QUALITY MONITORING

3.1 Location of sampling sites

(Refer **Plate No. – II**)

i) Mine Discharge of Bhowrah North (MW10)

A sampling point is fixed to assess the effluent quality of Mine discharge. This location is selected to monitor effluent discharge in to Kashi jore.

3.2 Methodology of sampling and analysis

Water samples were collected as per standard practice. The effluent samples were collected and analyzed for four parameters on fortnightly basis at the Environmental Laboratory of CMPDI RI-II, Dhanbad.

3.3 Results & Interpretations

The results are given in tabular form along with the applicable standards. Results are compared with Schedule - VI, effluent prescribed by MoEF&CC. Results show that most of the parameters are within the permissible limits.



CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED
Environment Laboratory, Regional Institute-II
MINE EFFLUENT TEST REPORT

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Test Report for Mine Effluent samples

Month & Year	03/2026	Cluster	Cluster X		ULR No.		TC1432126000002485F	
Customer	Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)					Date of Issue	04.05.2026	
Project		Sampling Ref. No.	REM/BCCL/2026/03		Sampling Method	IS 3025 (Part-1) CMPDI/RI-II/LPM 13		
Sampling Stations	(i)	Bhowrah North	Sample Collected in 2.5 Ltr Jerricane , Color as observed is transparent					
			Date of Sampling		02.03.26	16.03.26	Period of analysis 02.03.2026 to 31.03.2026	
Sl. No.	Parameter	Method of Analysis	Observed Values		STANDARDS FOR COAL MINES (Stipulated by Ministry of Environment and Forests (MoEF), Vide Notification No. GSR 742(E), Dt: 25.09.2000)		LDL	
			M2042	M2070				
1	Total Suspended Solids	IS 3025/17:1984, R :2017, Gravimetric	42	46	100 (Max)		10	
2	pH	IS-3025/11:1983, R-2017, Electrometric	7.78	7.81	5.5 - 9.0		0.2	
3	Oil & Grease	IS 3025/39:1991, R : 2019, Partition Gravimetric	<4.0	<4.0	10 (Max)		2	
4	COD	APHA 23rd Edition 5220 C Titrimetric Method	32	36	250 (Max)		4	

*LDL indicates Lower Detection Limit & BDL indicates Below Detection Limit,

**Grab sampling carried out for water samples.

**All units in mg/L unless specified otherwise.

ANALYSED BY

(Gaurav Kant)
REVIEWED BY

(Kumar Vaibhav)
Authorised Signatory

---- End of Report ----

Page -1 of 1

NOISE LEVEL QUALITY MONITORING

4.1 Location of sampling sites

- 1. Bhowrah North (N14)**
- 2. Sudamdih Washery (N15)**
- 3. Jeenagora (N13)**
- 4. Sitanala (N30)**
- 5. Sudamdih Mine shaft (N41)**

4.2 Methodology of sampling and analysis

Noise level measurements in form of ' L_{EQ} ' were taken using Integrated Data Logging Sound Level Meter during day time & night time. Noise levels were measured for the complete day & night time, the Intergration time taken was one hour or 3600 seconds. Noise levels were measured in Decibels, 'A' weighted average, i.e. dB (A).

4.3 Results & Interpretations

Ambient noise levels were recorded during day time & night time and the observed values were compared with standards prescribed by MoEF&CC. The results of Noise levels recorded during day & night time on fortnightly basis are presented in tabular form along with the applicable standard permissible limits. The observed values in terms of L_{EQ} are presented. The observed values at all the monitoring locations are found to be within permissible limits.



CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED
Environment Laboratory, Regional Institute-II
Ambient Noise Level Test Report

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Month & Year	03/2026	Cluster	Cluster X				ULR No.	TC1432126000002501F	
Customer	Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)							Date of Issue	04.05.2026
Project		Sample Ref. No.	REM/BCCL/2026/03			Sampling Method	CMPDI/RI-II/LPM 22		
Sampling Stations	i	Bhowrah North		Date of Sampling	05.03.26	17.03.26	Zone Category of Station:	Core Zone	
Sl. No.	Parameter	Hour / Time of day	Observed Values (in Leq dB(A))	Observed Values (in Leq dB(A))	Method of Analysis	Range Of Testing	LDL	NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 Standards	
			First Fortnight	Second Fortnight				Zones	Limits in dB
1	Noise Level dB(A)Leq - Day	06:00 - 07:00	52.8	50.7	CPCB, Protocol for Ambient Level Noise Monitoring - 2015	35 dB-135 dB	35 dB(A)	Industrial Commercial Residential Silence	75 65 55 50
2		07:00 - 08:00	58.6	54					
3		08:00 - 09:00	55.7	56.8					
4		09:00 - 10:00	62.3	61.1					
5		10:00 - 11:00	66.4	60.2					
6		11:00 - 12:00	65.2	62.3					
7		12:00 - 13:00	67.2	64.8					
8		13:00 - 14:00	59.6	55.8					
9		14:00 - 15:00	62.6	53.7					
10		15:00 - 16:00	55.6	59.8					
11		16:00 - 17:00	62	60.2					
12		17:00 - 18:00	54.3	58.7					
13		18:00 - 19:00	50.3	51					
14		19:00 - 20:00	45.9	42.4					
15		20:00 - 21:00	46.2	44.1					
16		21:00 - 22:00	46.5	43.9					
		Leq DAY	61.2	58.5					
1	Noise Level dB(A)Leq -Night	22:00-23:00	44.9	45.4	CPCB, Protocol for Ambient Level Noise Monitoring - 2015	35 dB-135 dB	35 dB(A)	Industrial Commercial Residential Silence	70 55 45 50
2		23:00- 00:00	43.8	44.8					
3		00:00- 01:00	43.6	44.4					
4		01:00-02:00	43.3	44.6					
5		02:00-03:00	43.2	44.8					
6		03:00-04:00	44.2	45.5					
7		04:00-05:00	44.3	45.9					
8		05:00-06:00	44.7	46.2					
		Leq NIGHT	44.0	45.2					

*LDL indicates Lower Detection Limit
 **All noise measurements are integrated for a 01 hour period, All units in dB(A)

	 (Gaurav Kant)	 (Kumar Vaibhav)
ANALYSED BY	REVIEWED BY	Authorised Signatory

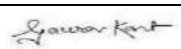
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 Page -1 of 1



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Environment Laboratory, Regional Institute-II
Ambient Noise Level Test Report

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Month & Year	03/2026	Cluster	Cluster X				ULR No.	TC1432126000002501F	
Customer	Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)						Date of Issue	04.05.2026	
Project		Sample Ref. No.	REM/BCCL/2026/03			Sampling Method	CMPDI/RI-II/LPM 22		
Sampling Stations	i	Sudamdih Washery		Date of Sampling	05.03.26	17.03.26	Zone Category of Station:	Core Zone	
Sl. No.	Parameter	Hour / Time of day	Observed Values (in Leq dB(A))	Observed Values (in Leq dB(A))	Method of Analysis	Range Of Testing	LDL	NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 Standards	
			First Fortnight	Second Fortnight				Zones	Limits in dB
1	Noise Level dB(A)Leq - Day	06:00 - 07:00	49.4	50.8	CPCB, Protocol for Ambient Level Noise Monitoring - 2015	35 dB-135 dB	35 dB(A)	Industrial Commercial Residential Silence	75 65 55 50
2		07:00 - 08:00	45.1	53.5					
3		08:00 - 09:00	52.6	56.1					
4		09:00 - 10:00	50.7	62.2					
5		10:00 - 11:00	53.7	63.8					
6		11:00 - 12:00	57	59.1					
7		12:00 - 13:00	55.1	56.2					
8		13:00 - 14:00	56.8	54					
9		14:00 - 15:00	53.1	51					
10		15:00 - 16:00	51.3	50.7					
11		16:00 - 17:00	50.9	49.1					
12		17:00 - 18:00	50.6	50					
13		18:00 - 19:00	49.8	49.8					
14		19:00 - 20:00	50.4	48.8					
15		20:00 - 21:00	48.8	47.7					
16		21:00 - 22:00	48.4	47					
		Leq DAY	52.6	56.4					
1	Noise Level dB(A)Leq - Night	22:00-23:00	43.1	44	CPCB, Protocol for Ambient Level Noise Monitoring - 2015	35 dB-135 dB	35 dB(A)	Industrial Commercial Residential Silence	70 55 45 50
2		23:00- 00:00	43.2	43.9					
3		00:00- 01:00	42.6	42.7					
4		01:00-02:00	42.6	42.2					
5		02:00-03:00	42.2	42					
6		03:00-04:00	42.4	43.7					
7		04:00-05:00	42.5	43.6					
8		05:00-06:00	42.6	43.6					
		Leq NIGHT	42.7	43.3					
**All noise measurements are integrated for a 01 hour period, All units in dB(A) *LDL indicates Lower Detection Limit									
Sampling Assistants		 (Gaurav Kant)				 (Kumar Vaibhav)			
ANALYSED BY		REVIEWED BY				Authorised Signatory			
Note: The results above relate to the samples tested as received. This report can not be reproduced in part or full without the written permission of the HOD(Env) , CMPDI, RI-II.									
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CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED
Environment Laboratory, Regional Institute-II
Ambient Noise Level Test Report

CMPDI, RI-II
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Month & Year	03/2026	Cluster	Cluster X				ULR No.	TC1432126000002501F	
Customer	Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)						Date of Issue	04.05.2026	
Project			Sample Ref. No.	REM/BCCL/2026/03		Sampling Method		CMPDI/RI-II/LPM 22	
Sampling Stations	i	Jeenagora		Date of Sampling	13.03.26	30.03.26	Zone Category of Station:	Buffer Zone	
Sl. No.	Parameter	Hour / Time of day	Observed Values (in Leq dB(A))	Observed Values (in Leq dB(A))	Method of Analysis	Range Of Testing	LDL	NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 Standards	
			First Fortnight	Second Fortnight				Zones	Limits in dB
1	Noise Level dB(A)Leq - Day	06:00 - 07:00	46.1	45.2	CPCB, Protocol for Ambient Level Noise Monitoring - 2015	35 dB-135 dB	35 dB(A)	Industrial Commercial Residential Silence	75 65 55 50
2		07:00 - 08:00	45.3	45.9					
3		08:00 - 09:00	47.8	47.5					
4		09:00 - 10:00	50.9	50.7					
5		10:00 - 11:00	51.5	52.6					
6		11:00 - 12:00	54.5	53.1					
7		12:00 - 13:00	60.1	61.3					
8		13:00 - 14:00	58.1	61.8					
9		14:00 - 15:00	61.5	60.8					
10		15:00 - 16:00	54.4	54					
11		16:00 - 17:00	71.2	69.8					
12		17:00 - 18:00	46.5	50					
13		18:00 - 19:00	45.6	47.6					
14		19:00 - 20:00	46.1	46.4					
15		20:00 - 21:00	46.1	45.2					
16		21:00 - 22:00	47.5	45.5					
		Leq DAY	60.4	59.7					
1	Noise Level dB(A)Leq -Night	22:00-23:00	44.8	45.8	CPCB, Protocol for Ambient Level Noise Monitoring - 2015	35 dB-135 dB	35 dB(A)	Industrial Commercial Residential Silence	70 55 45 50
2		23:00- 00:00	44.1	46.7					
3		00:00- 01:00	43.3	47.8					
4		01:00-02:00	43.2	45.7					
5		02:00-03:00	43.2	44					
6		03:00-04:00	45.2	43.2					
7		04:00-05:00	45.4	46.4					
8		05:00-06:00	47.4	47.2					
		Leq NIGHT	44.8	46.1					
*LDL indicates Lower Detection Limit									
**All noise measurements are integrated for a 01 hour period, All units in dB(A)									
Sampling Assistants			 (Gaurav Kant)			 (Kumar Vaibhav)			
ANALYSED BY			REVIEWED BY			Authorised Signatory			
Note: The results above relate to the samples tested as received. This report can not be reproduced in part or full without the written permission of the HOD(Env) , CMPDI, RI-II.									
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  CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED Environment Laboratory, Regional Institute-II Ambient Noise Level Test Report CMPDI, RI-II KOYLA BHAWAN COMPLEX DHANBAD. -826005 Phone:0326-223-850 email: rdri2cmpdi@coalindia.in									
Month & Year	03/2026	Cluster	Cluster X					ULR No.	TC1432126000002501F
Customer	Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)							Date of Issue	04.05.2026
Project		Sample Ref. No.	REM/BCCL/2026/03			Sampling Method		CMPDI/RI-II/LPM 22	
Sampling Stations	i	Sitanala	Date of Sampling		02.03.26	16.03.26	Zone Category of Station:		Buffer Zone
Sl. No.	Parameter	Hour / Time of day	Observed Values (in Leq dB(A)) First Fortnight	Observed Values (in Leq dB(A)) Second Fortnight	Method of Analysis	Range Of Testing	LDL	NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 Standards	
								Zones	Limits in dB
1	Noise Level dB(A)Leq - Day	06:00 - 07:00	49.2	45.2	CPCB, Protocol for Ambient Level Noise Monitoring -2015	35 dB-135 dB	35 dB(A)	Industrial Commercial Residential Silence	75 65 55 50
2		07:00 - 08:00	54.5	52.3					
3		08:00 - 09:00	56.4	50.7					
4		09:00 - 10:00	57.2	55.6					
5		10:00 - 11:00	56.1	54					
6		11:00 - 12:00	64.3	62					
7		12:00 - 13:00	59.3	61					
8		13:00 - 14:00	60.5	58					
9		14:00 - 15:00	57.1	53.7					
10		15:00 - 16:00	55.1	51.9					
11		16:00 - 17:00	55.1	50.7					
12		17:00 - 18:00	50.2	47					
13		18:00 - 19:00	49.5	45.1					
14		19:00 - 20:00	48.9	44.9					
15		20:00 - 21:00	48.6	44.6					
16		21:00 - 22:00	48.4	44.2					
		Leq DAY	57.0	55.0					
1	Noise Level dB(A)Leq -Night	22:00-23:00	46	44.6	CPCB, Protocol for Ambient Level Noise Monitoring -2015	35 dB-135 dB	35 dB(A)	Industrial Commercial Residential Silence	70 55 45 50
2		23:00- 00:00	45.8	44.2					
3		00:00- 01:00	45.9	44.6					
4		01:00-02:00	45.2	43.5					
5		02:00-03:00	44.6	43.4					
6		03:00-04:00	43.7	43.1					
7		04:00-05:00	43.6	42.9					
8		05:00-06:00	45.2	43.2					
		Leq NIGHT	45.1	43.7					
*LDL indicates Lower Detection Limit									
**All noise measurements are integrated for a 01 hour period, All units in dB(A)									
Sampling Assistants		 (Gaurav Kant)				 (Kumar Vaibhav)			
ANALYSED BY		REVIEWED BY				Authorised Signatory			
Note: The results above relate to the samples tested as received. This report can not be reproduced in part or full without the written permission of the HOD(Env) , CMPDI, RI-II.									
---- End of Report ----									
Page -1 of 1									



CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED
Environment Laboratory, Regional Institute-II
Ambient Noise Level Test Report

CMPDI, RI-II
 KOYLA BHAWAN COMPLEX
 DHANBAD. -826005
 Phone:0326-223-850
 email: rdri2cmpdi@coalindia.in

Month & Year	03/2026	Cluster	Cluster X				ULR No.	TC1432126000002501F	
Customer	Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)							Date of Issue	04.05.2026
Project		Sample Ref. No.	REM/BCCL/2026/03			Sampling Method	CMPDI/RI-II/LPM 22		
Sampling Stations	i	Sudamdih Mine Shaft		Date of Sampling	05.03.26	17.03.26	Zone Category of Station:	Core Zone	
Sl. No.	Parameter	Hour / Time of day	Observed Values (in Leq dB(A))	Observed Values (in Leq dB(A))	Method of Analysis	Range Of Testing	LDL	NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 Standards	
			First Fortnight	Second Fortnight				Zones	Limits in dB
1	Noise Level dB(A)Leq - Day	06:00 - 07:00	48.6	48.8	CPCB, Protocol for Ambient Level Noise Monitoring - 2015	35 dB-135 dB	35 dB(A)	Industrial Commercial Residential Silence	75 65 55 50
2		07:00 - 08:00	48.5	48.9					
3		08:00 - 09:00	50.6	51.1					
4		09:00 - 10:00	48.2	47.8					
5		10:00 - 11:00	50.6	51.1					
6		11:00 - 12:00	53.6	54					
7		12:00 - 13:00	54.7	54.7					
8		13:00 - 14:00	55.1	54.5					
9		14:00 - 15:00	54.3	55.5					
10		15:00 - 16:00	54	53.3					
11		16:00 - 17:00	51	52.9					
12		17:00 - 18:00	50.3	52.7					
13		18:00 - 19:00	48.5	50.6					
14		19:00 - 20:00	48.2	49.7					
15		20:00 - 21:00	48.1	49.4					
16		21:00 - 22:00	48.3	48.2					
		Leq DAY	51.6	52.1					
1	Noise Level dB(A)Leq -Night	22:00-23:00	49.3	46.3	CPCB, Protocol for Ambient Level Noise Monitoring - 2015	35 dB-135 dB	35 dB(A)	Industrial Commercial Residential Silence	70 55 45 50
2		23:00- 00:00	48	46.3					
3		00:00- 01:00	47.6	46.2					
4		01:00-02:00	45.3	46					
5		02:00-03:00	46.8	45.9					
6		03:00-04:00	44	45.7					
7		04:00-05:00	46.7	45.5					
8		05:00-06:00	47.3	45.6					
		LeqNIGHT	47.1	45.9					

*LDL indicates Lower Detection Limit
 **All noise measurements are integrated for a 01 hour period, All units in dB(A)

Sampling Assistants ANALYSED BY	 (Gaurav Kant) REVIEWED BY	 (Kumar Vaibhav) Authorised Signatory
--	--------------------------------------	---

Note: The results above relate to the samples tested as received. This report can not be reproduced in part or full without the written permission of the HOD(Env) , CMPDI, RI-II.

---- End of Report ----
 Page -1 of 1

Ambient Air Quality Standards for Jharia Coal Field
As per the Environment (Protection) Amendment Rules, 2000 notified vide
notification G.S.R. 742(E), dated 25.9.2000.

Category	Pollutant	Time weighted average	Concentration in Ambient Air	Method of Measurement
1	2	3	4	5
III Coal mines located in the coal fields of • Jharia • Raniganj • Bokaro	Suspended Particulate Matter (SPM)	Annual Average * 24 hours **	500 µg/m ³ 700 µg/m ³	- High Volume Sampling (Average flow rate not less than 1.1 m ³ /min)
	Respirable Particulate Matter (size less than 10 µm) (RPM)	Annual Average * 24 hours **	250 µg/m ³ 300 µg/m ³	Respirable Particulate Matter sampling and analysis
	Sulphur Dioxide (SO ₂)	Annual Average * 24 hours **	80 µg/m ³ 120 µg/m ³	1.Improvedwest and Gaeke method 2.Ultraviolet fluorescene
	Oxide of Nitrogen as NO ₂	Annual Average * 24 hours **	80 µg/m ³ 120 µg/m ³	1. Jacob & Hochheiser Modified (Na-Arsenic) Method 2. Gas phase Chemilumine-scence

Note:

* Annual Arithmetic mean for the measurements taken in a year, following the guidelines for frequency of sampling laid down in clause2.

** 24hourly/8hourly values shall be met 92% of the time in a year. However, 8% of the time it may exceed but not on two consecutive days.

NATIONAL AMBIENT AIR QUALITY STANDARDS

New Delhi the 18th November 2009

In exercise of the powers conferred by Sub-section (2) (h) of section 16 of the Air (Prevention and Control of Pollution) Act, 1981 (Act No. 14 of 1981), and in supersession of the notification No(s).S.O.384(E), dated 11th April 1994 and S.O.935(E), dated 14th November 1998, the Central Pollution Control Board hereby notify the National Ambient Air Quality Standards with immediate effect.

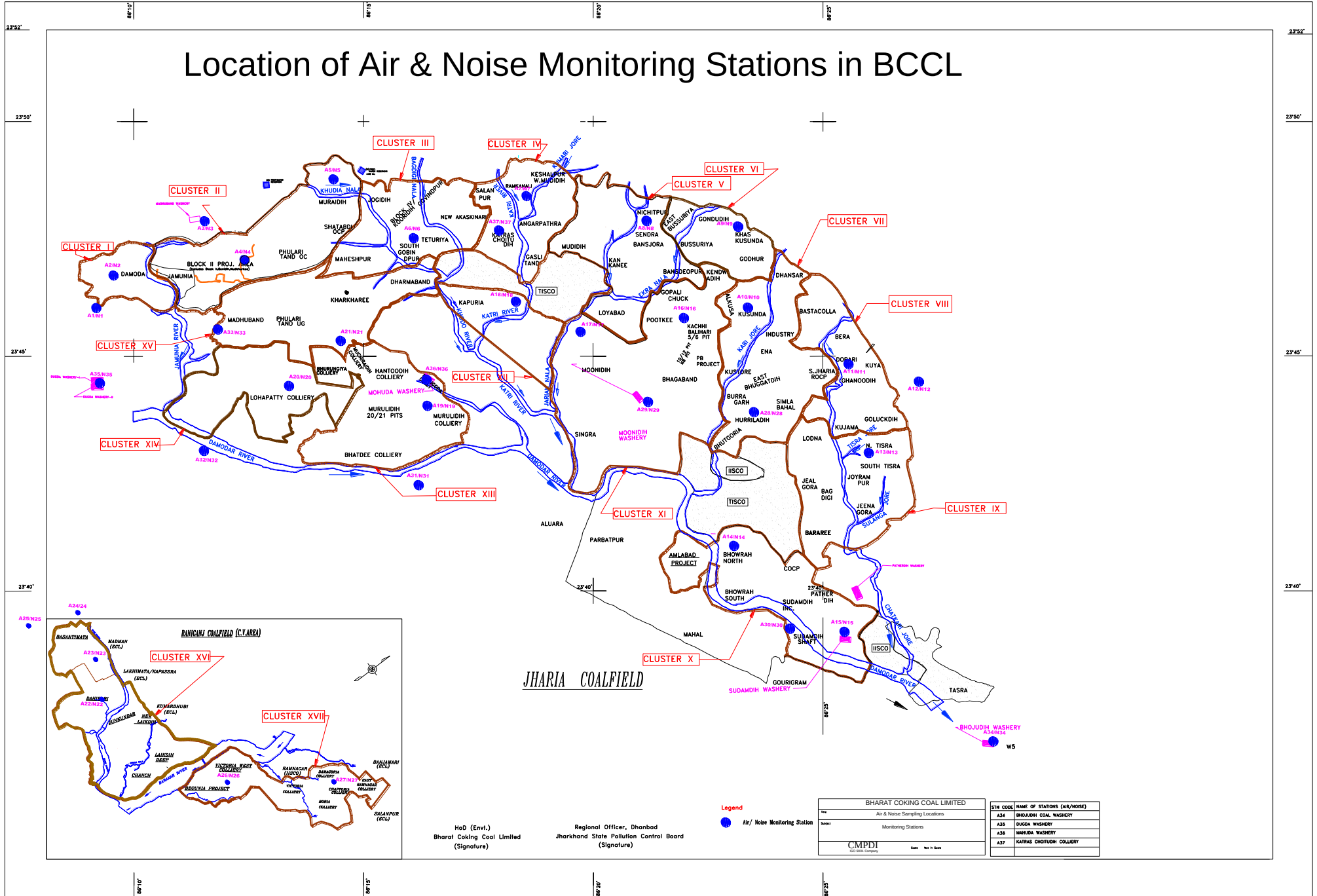
Pollutant	Time Weighted Average	Concentration in Ambient Air		Methods of Measurement
		Industrial, Residential, Rural and other Areas	Ecologically Sensitive Area (Notified by Central Government)	
Sulphur Dioxide (SO₂), µg/m³	Annual * 24 Hours **	50 80	20 80	-Improved West and Gaeke Method -Ultraviolet Fluorescence
Nitrogen dioxide (NO₂), µg/m³	Annual * 24 Hours **	40 80	30 80	-Jacob & Hochheiser modified (NaOH-NaAsO ₂) Method -Gas Phase Chemiluminescence
Particulate Matter (Size less than 10µm) or PM₁₀, µg/m³	Annual * 24 Hours **	60 100	60 100	-Gravimetric -TEOM -Beta attenuation
Particulate Matter (Size less than 2.5µm) or PM_{2.5}, µg/m³	Annual * 24 Hours **	40 60	40 60	-Gravimetric -TEOM -Beta attenuation
Ozone (O₃) , µg/m³	8 Hours * 1 Hour **	100 180	100 180	-UV Photometric -Chemiluminescence -Chemical Method
Lead (Pb) , µg/m³	Annual * 24 Hours **	0.50 1.0	0.50 1.0	-AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper -ED-XRF using Teflon filter
Carbon Monoxide (CO), mg/m³	8 Hours ** 1 Hour **	02 04	02 04	-Non dispersive Infrared (NDIR) Spectroscopy
Ammonia (NH₃), µg/m³	Annual * 24 Hours **	100 400	100 400	-Chemiluminescence -Indophenol blue method
Benzene (C₆H₆), µg/m³	Annual *	05	05	-Gas Chromatography (GC) based continuous analyzer -Adsorption and desorption followed by GC analysis
Benzo(a)Pyrene (BaP) Particulate phase only, ng/m³	Annual *	01	01	-Solvent extraction followed by HPLC/GC analysis
Arsenic (As), ng/m³	Annual *	06	06	-AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper
Nickel (Ni), ng/m³	Annual *	20	20	-AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper

* Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

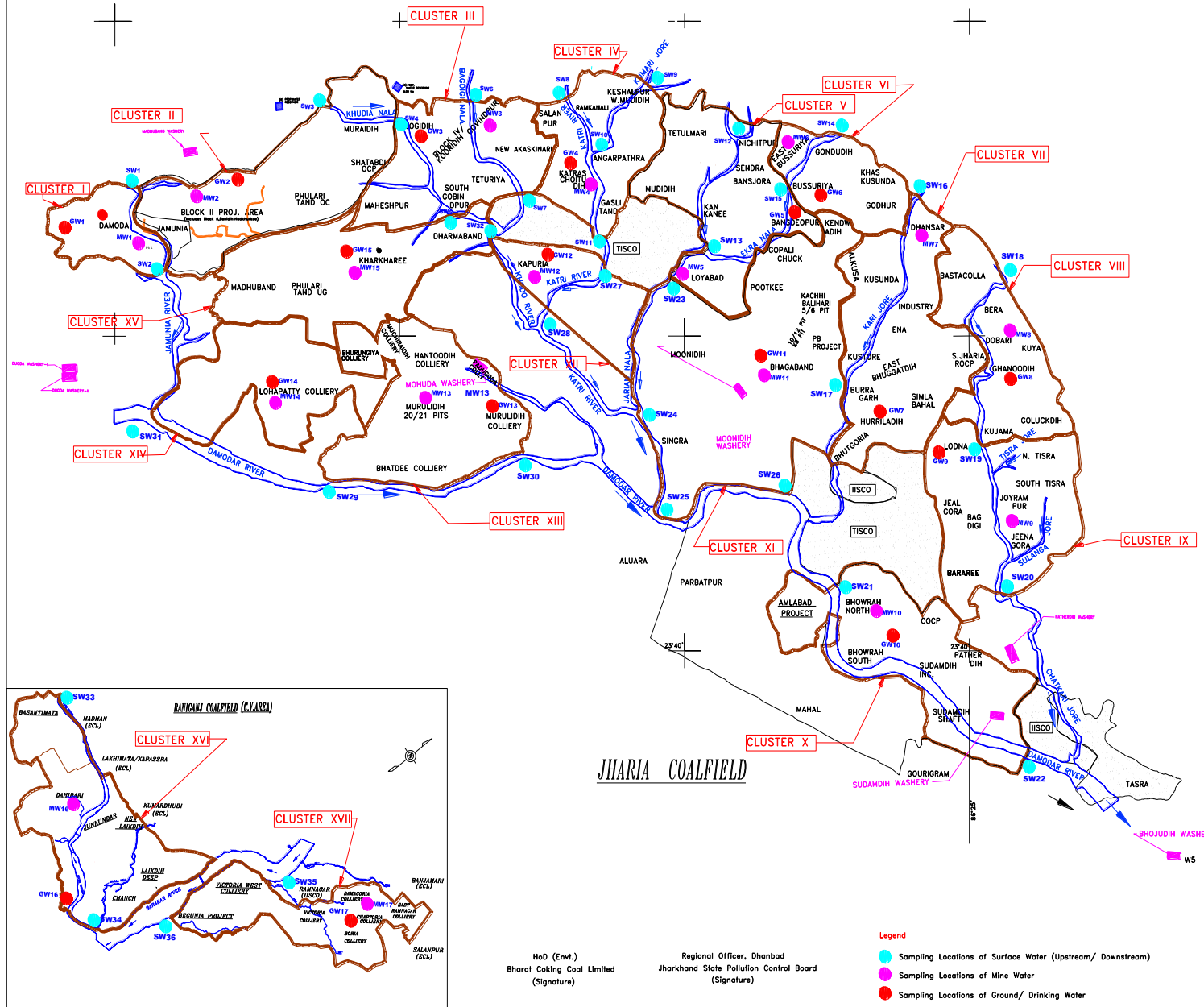
** 24 hourly or 8 hourly or 1 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

NOTE: Whenever and wherever monitoring results on two consecutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigations.

Location of Air & Noise Monitoring Stations in BCCL



Water Sampling Locations in BCCL



INDEX

Cluster	Surface Water (U/S, D/S)	Name of River/ Nala/ Jore	Minel Effluent Water	Sampling Location	Ground Water	Sampling Location
I	SW1, SW2	Jamunia River	MW1	Damoda Area	GW1	Chitway Village
II	SW3, SW4	Khudia Nala	MW2	Block II OCP	GW2	Joyrampur Village
III	SW4, SW5, SW6, SW7	Khudia Nala, Bagdigi Nala	MW3	Gondpur Colliery	GW3	Jogdih Village
IV	SW8, SW11, SW9, SW10	Kain River, Kurnai Jore	MW4	Chotudih	GW4	Kankaneer Village
V	SW12, SW13, SW15	Jarian Nala, Ekra Nala	MW5	Mudidih	GW5	Nichitpur
VI	SW14, SW15	Ekra Nala	MW6	East Bassuria UGP	GW6	Bangora Borewell
VII	SW16, SW17	Kain Jore	MW7	Dobari UGP	GW7	Humridih
VIII	SW18, SW19	Kashi Jore	MW8	Dobari UGP	GW8	Ghanudih
IX	SW19, SW20	Kashi Jore	MW9	Jeamagrah	GW9	Lodna
X	SW21, SW22	Damodar River	MW10	Bhowrah North	GW10	Bhowrah South
XI	SW23, SW24, SW25, SW26	Jarian Nala, Damodar River	MW11	Bhagaband UGP	GW11	Bhagaband
XII	SW27, SW28	Kain River	MW12	Kapura	GW12	Kapura
XIII	SW29, SW30	Damodar River	MW13	Muridih (20/21)	GW13	Muridih
XIV	SW31, SW32	Damodar River	MW14	Lohapatti	GW14	Lohapatti
XV	SW33, SW34	Khudia Nala	MW15	Kharkharee UGP	GW15	Kharkharee
XVI	SW35, SW36	Barakar River	MW16	Dahibani OCP	GW16	Palabani Village
XVII			MW17	Damagoria Colliery	GW17	Chaptoria

HoD (Env.)
Bharat Coking Coal Limited
(Signature)

Regional Officer, Dhanbad
Jharkhand State Pollution Control Board
(Signature)

Legend

- Sampling Locations of Surface Water (Upstream/ Downstream)
- Sampling Locations of Mine Water
- Sampling Locations of Ground/ Drinking Water

Company	BHARAT COKING COAL LIMITED
Title	WATER SAMPLING LOCATIONS
Subject	MONITORING STATIONS
Scale	1:10,000
Drawn by	CHMPDI
Checked by	CHMPDI

STRICTLY RESTRICTED
FOR COMPANY USE ONLY RESTRICTED

The information given in this report is not to be communicated either directly or indirectly to the press or to any person not holding an official position in the CIL / GOVERNMENT.

**TRACE METAL CONCENTRATION OF
AMBIENT AIR QUALITY REPORT
OF
BHARAT COKING COAL LIMITED,
(FOR THE HALF YEAR ENDING, DECEMBER, 2025)**



CMPDI

ISO 9001 Company
**Regional Institute-II
Dhanbad, Jharkhand**

(FOR THE Q.E. DECEMBER, 2025)

CONTENTS

SL. NO.	CHAPTER	PARTICULARS
1.	CHAPTER - I	EXECUTIVE SUMMARY INTRODUCTION
2.	CHAPTER-II	AIR SAMPLING & ANALYSIS
3.	PLATES: PLATE NO. - I	SURFACE PLAN SHOWING AIR & NOISE MONITORING LOCATIONS

EXECUTIVE SUMMARY

1.0 Introduction

The purpose of environmental monitoring is to assess the quality of various attributes that affects the environment around us. In accordance with the quality of these attributes appropriate strategy is to be developed to control the pollution level within the permissible limits. One of these major attributes is water.

Bharat Coking Coal Limited (BCCL), a Subsidiary company of Coal India Limited is operating Underground and Opencast Mines in Jharia Coalfield (JCF) is a part of Gondwana Coalfields located in Dhanbad district of Jharkhand, the JCF is bounded by 23°37' N to 23°52' N latitudes and 86°09' E to 86°30' E longitude occupying an area of 450 Sq.km. BCCL has awarded Environmental monitoring work of Jharia Coalfield (JCF) to Central Mine Planning & Design Institute Limited (CMPDIL). The environmental monitoring has been carried out as per the conditions laid down by the MoEF&CC while granting environmental clearance of project, consent letter issued by the respective SPCB, and other statutory requirements.

2.0 Sampling location and rationale

2.1 Ambient air sampling locations

The ambient air quality monitoring stations were selected to represent core, buffer zone area. The rationale has been based on the guidelines stipulated by MoEF&CC, consent letter of SPCB, as well as other statutory requirements.

3.0 Methodology of sampling and analysis

3.1 Heavy Metal in Ambient Air

Parameters chosen for assessment of Heavy metal in Ambient Air Quality were Cadmium (Cd), Mercury (Hg), Arsenic (As), Chromium (Cr), Nickel (Ni), and Lead (Pb). Respirable Dust Samplers (RDS) were used for sampling these heavy metals on EPM filter paper. These heavy metals are analyzed regularly on half yearly basis. The samples were analyzed in Environment Laboratory of CMPDI, RI-II, Dhanbad.

4.0 Results and interpretations

4.1 Heavy Metal in Ambient Air

The results of Heavy metal in Ambient Air Quality are presented in tabular form for each monitoring station. The concentration of heavy metals in ambient air is well within the permissible limit.

CHAPTER - I

INTRODUCTION

1.0 Any industry and development activities including coal mining is bound to affect environmental attributes. There are positive as well as negative impacts of such operations. For controlling the adverse impacts a regular monitoring is essential. The environmental monitoring is being done as per the guidelines stipulated by Ministry of Environment, Forest and Climate Change (MoEF&CC), Govt. of India.

The very purpose of environmental monitoring is to assess the quality of various attributes which affects the environment. As per quality of these attributes appropriate strategy is to be developed to control the pollution level within the permissible limits. The three major attributes are air, water and noise level.

Bharat Coking Coal Limited (BCCL), a subsidiary company of Coal India Limited (CIL) is operating UG Mines and Opencast Mines in Jharia Coalfield (JCF). The Jharia Coalfield (JCF) having an area of 450 Sq.KM.

Bharat Coking Coal has awarded Environmental Monitoring work of all Projects, Cluster wise, to Central Mine Planning & Design Institute Limited (CMPDIL). The environmental monitoring has been carried out as per conditions laid down by MoEF&CC while granting environmental clearance to different projects. CMPDI has trained manpower and well equipped laboratory to carry out monitoring, analysis and R&D work in the field of environment.

In compliance of these conditions the Environmental Monitoring has been carried out & report prepared for submission to MoEF&CC & JSPCB and other statutory authorities.

CHAPTER – II

AMBIENT AIR QUALITY MONITORING

2.1 Results and interpretations

The results of Heavy metal in Ambient Air Quality are presented in tabular form for each monitoring station. The concentration of heavy metals in ambient air is well within the permissible limit.

TRACE METAL CONCENTRATION IN AMBIENT AIR QUALITY

Name of the Company: **Bharat Coking Coal Limited**

Year : **2025-26.**

PERIOD: **HALF YEAR ENDING DECEMBER, 2025**

HEAVY METAL ANALYSIS REPORT OF AMBIENT AIR QUALITY

Results of 6 Heavy Metal for the month of NOV-2025								
SAMPLE CODE	DATE	Station Name	Cd CONC. IN $\mu\text{g}/\text{m}^3$	Hg CONC. IN $\mu\text{g}/\text{m}^3$	As CONC. IN ng/m^3	Cr CONC. IN $\mu\text{g}/\text{m}^3$	Ni CONC. IN ng/m^3	Pb CONC. IN $\mu\text{g}/\text{m}^3$
A1	24.11.25	Karmatand Village	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A2	18.11.25	Damoda	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A3	19.11.25	Madhuband Washery	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A4	25.11.25	Block-II	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A5	19.11.25	Muraidih	<0.001	<0.001	<1.0	<0.01	2.05	<0.005
A6	21.11.25	Block-IV	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A7	28.11.25	Govindpur/Ramkanali	<0.001	<0.001	<1.0	<0.01	<2.0	0.016
A8	24.11.25	Nichitpur	<0.001	<0.001	<1.0	<0.01	<2.0	0.005
A9	27.11.25	East Basseriya	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A10	24.11.25	Dhansar/Kusunda	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A11	21.11.25	Dobari	<0.001	<0.001	<1.0	<0.01	<2.0	0.005
A12	21.11.25	Kusmatand Village	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A13	26.11.25	Jeenagora	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A14	26.11.25	Bhowrah North	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A15	25.11.25	Sudamdih Washery	<0.001	0.001	<1.0	<0.01	<2.0	<0.005
A16	26.11.25	Pootki	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A17	27.11.25	Moonidih UGP	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A18	21.11.25	Rudih Basti	<0.001	<0.001	<1.0	<0.01	<2.0	0.007
A19	27.11.25	Murlidih 20/21	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A20	21.11.25	Lohapatti	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005

Results of 6 Heavy Metal for the month of NOV-2025

SAMPLE CODE	DATE	Station Name	Cd CONC. IN $\mu\text{g}/\text{m}^3$	Hg CONC. IN $\mu\text{g}/\text{m}^3$	As CONC. IN ng/m^3	Cr CONC. IN $\mu\text{g}/\text{m}^3$	Ni CONC. IN ng/m^3	Pb CONC. IN $\mu\text{g}/\text{m}^3$
A21	20.11.25	Kharkharee	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A22	20.11.25	Dahibari	<0.001	<0.001	<1.0	<0.01	<2.0	0.020
A23	20.11.25	Basantimata	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A24	20.11.25	Gopinathpur	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A25	21.11.25	Guliardih	<0.001	<0.001	<1.0	<0.01	<2.0	0.005
A26	18.11.25	Begunia	<0.001	<0.001	<1.0	<0.01	<2.0	0.011
A27	17.11.25	Damagoria	<0.001	<0.001	<1.0	<0.01	<2.0	0.020
A28	26.11.25	Hurriladih	<0.001	<0.001	<1.0	<0.01	<2.0	0.014
A29	27.11.25	Moonidih Washery	<0.001	0.005	<1.0	<0.01	<2.0	<0.005
A30	24.11.25	Sitanala	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A31	25.11.25	Dumarda	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A32	20.11.25	Telmacho Bridge	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A33	24.11.25	Madhuband UGP	<0.001	0.001	<1.0	<0.01	<2.0	<0.005
A34	24.11.25	Bhojudih Washery	<0.001	0.015	<1.0	<0.01	<2.0	0.024
A35	17.11.25	Dugda Washery	<0.001	0.006	<1.0	<0.01	<2.0	0.016
A36	28.11.25	Mahuda	<0.001	0.005	<1.0	<0.01	<2.0	<0.005
A37	28.11.25	Katras Choitudih	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A38	26.11.25	Sinidih Workshop	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A39	25.11.25	Patherdih	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A40	20.11.25	Koyla Nagar	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A41	25.11.25	Sudamdih Shaft	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A42	20.11.25	RHB	<0.001	<0.001	<1.0	<0.01	2.04	<0.005
A43	17.11.25	Pandwabhitia	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A44	17.11.25	Sadariadih	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A45	24.11.25	Bhojudih Buffer	<0.001	<0.001	<1.0	<0.01	<2.0	<0.012
A46	17.11.25	C.H.D	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005

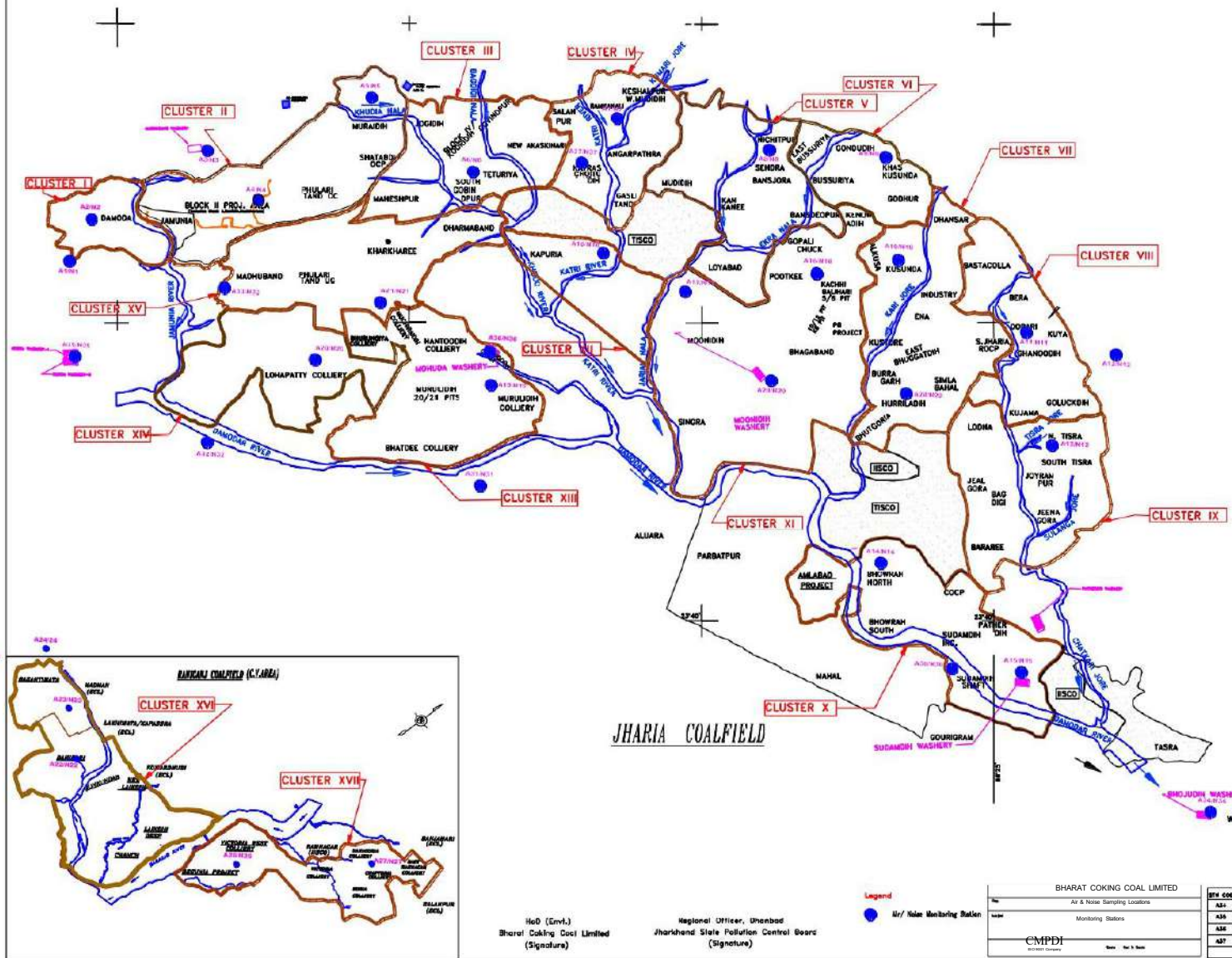
#BDL-Below detection limit

Metal	BDL	Standard as per NAAQS
Hg ($\mu\text{g}/\text{m}^3$)	0.001	*Standard Not defined
Cr($\mu\text{g}/\text{m}^3$)	0.01	*Standard Not defined
As (ng/m^3)	1	6
Pb ($\mu\text{g}/\text{m}^3$)	0.005	0.5
Ni (ng/m^3)	2	20
Cd ($\mu\text{g}/\text{m}^3$)	0.001	*Standard Not defined


 Analysed By
 JSA/SA/SSA


 Checked By
 Lab In Charge
 RI-2, CMPDI, Dhanbad

Location of Air & Noise Monitoring Stations in BCCL



Head (Env.)
Bharat Coking Coal Limited
(Signature)

Regional Officer, Unheated
Jharkhand State Pollution Control Board
(Signature)

BHARAT COKING COAL LIMITED
Air & Noise Sampling Locations
Monitoring Stations
CMPDI
Date: 10/10/2018

कोकिंग कोल लिमिटेड
(नीरत्न कंपनी)
(पिडिया लिमिटेड की एक अनुषंगी कंपनी)
(सरकार का उपक्रम)



Bharat Coking Coal Limited
(A Miniratna Company)
(A Subsidiary of Coal India Limited)
(A Government of India Undertaking)

Office of General Manager, Eastern Jharia (EJ) Area, Dhanbad (JH) -828111
Email: amcivil.ej.bccl@coalindia.in

Ref. No.: BCCL/EJA/CIVIL/WO/2025/ 334 (A)

Date: 16.07.2025

WORK ORDER

To,
M/S VIKASH KUMAR TIWARI,
BARALOTA, BYPASS ROAD,
DALTONGANJ, PALAMU,
JHARKHAND- 822101
Mob: 9931908625
E-Mail ID: constructionvkt@gmail.com

Sub: Work Order for the work of "Construction of PQC Coal Transportation Road at Various Places Under E.J Area."

- Ref : 1. NIT Ref. No. : BCCL/CIVIL/EJA/2024-25/eNIT/86; dated: 02.02.2025
2. LOA Ref. No.: BCCL/Civil/EJA/2025/269, Date: 07.06.2025
3. PR Ref. No.: 1600003115
4. CO Ref No: 4200001963

Dear Sir,

With reference to the above referred tender, this is to inform you that your offer to undertake the subject work at your overall quoted value of Rs. 2,65,60,575.75 (Rupees Two Crore Sixty Five Lakh Sixty Thousand Five Hundred Seventy Five and paise Seventy Five only) (including GST) which is -21.90% (Twenty One point Nine Zero percent) below the Estimated Cost (excl. GST) has been accepted by the Competent Authority based on terms and conditions contained in the NIT & Tender Document subject to the following stipulations:

1. The work is awarded on Item Rate Basis.
2. All the materials and equipment required for the work will be arranged by you.
3. Your PAN is AVUPT3878N and your GST/Registration no 20AVUPT3878N1ZK as per submitted documents.
4. Security Deposit shall consist of two parts & the same shall bear no interest:-

A) Performance Security:-

Rs. 11,25,450.00 (Rupees Eleven Lakh Twenty Five Thousand Four Hundred Fifty only) deposited by you towards performance security

- (i) **VIDE BGR NO.: 01060100001828, DATED 26/06/2025 of AXIS BANK LIMITED BRANCH- RANCHI(JH) SHAMBHU COMPLEX,H B ROAD NEAR FIRAYALAL CHOWK, JHARKHAND in favor of BCCL.**

B) Retention Money:-

All running on account bills shall be paid at 95% (ninety five percent) of work value. This 5% (five percent) deduction towards Retention Money i.e. 11,25,450.00 (Rupees Eleven Lakh

Twenty Five Thousand Four Hundred Fifty only) will be the second part of Security Deposit.
The total security deposit for the whole work shall be Rs. 22,50,900.00 (Rupees Twenty Two Lakh Fifty Thousand Nine Hundred only)

5. The duration of the work is **150 (One Fifty days)** from the date of commencement of the work. The work shall be commenced within 10 (ten) days from the issue of Letter of Acceptance or 7(seven) days after handing over the site of work whichever is later. However, the date of commencement may be decided with mutual consent with the contractor on any date prior to the date as prescribed above.
6. The defect liability period will be applicable as per terms and conditions of NIT.
7. The arrangement of necessary water for construction purpose shall be your responsibility (at your own cost). However, if available and feasible, the Company may arrange water at one point near the site of work for which recovery @ 1% of the contract value of work done will be made from your bills.
8. The arrangements of necessary electricity for the work will be your responsibility (at your own cost). However, if available and feasible, the Company may arrange electricity at one point near the site of work and necessary recovery of cost of energy consumed will be made at rates prescribed by the Company time to time. You shall provide energy meter for this purpose.
9. The license as per Contract Labour (Regulation & Abolition) Act 1970 and subsequent amendments there of shall have to be obtained from your end as elaborated in the tender document. Implementation of contract labour (Regulation & Abolition) Act 1970 including issuance of Form-V to the agency shall be ensured from the Head of the concerned Area/Department, if applicable.
10. The Contractor/Contractors shall not pay less than the minimum wages to the laborer engaged by him/them as per Minimum Wages Act or such other legislation or award of minimum wages fixed by the respective State Govt. or Central Govt. as may be in force.
11. The Contractor/Contractors shall make necessary payments of the provident fund for the workmen employed by him/them for the work as per the laws prevailing under provisions of CMPF and allied scheme and Miscellaneous Provisions Act, 1948 or Employees Provident Fund and Miscellaneous Provisions Act, 1952 as the case may be.
12. Precautions shall be exercised at all times by you for the protection of persons and property. The safety required or recommended by all applicable laws, codes, statutes and regulations shall be observed by you. In case of accident, you will be responsible for compliance with all the requirements imposed by the Workmen's Compensation Act or any other similar laws enforce and indemnify the company against any claim on this account as elaborated in the tender document.
13. The Royalty clearance certificate should be submitted by you from the appropriate State Govt. Authorities prior to payment of final bill/release of Security Deposit as necessary.
14. The contractor has to ensure CMPF/EPF deduction and deposit the same to the CMPF/EPF account of the workers engaged for the work as per the provisions and necessary proof of payment of PF done is to be submitted before the authority issuing labour payment certificate as well as bill accepting authority prior to the payment of running on account/ final bill.
15. The payment of minimum wages through Bank and duly certified by competent authority to be ensured during execution of work.

BHARAT COKING COAL LIMITED

COLLIERY UNIT

CONTRACTOR'S BILL FORM

Vendor Code : 10110576

ORIGINAL / DUPLICATE

AREA NO. XI

- On A/c of final
- Name of work

3rd & final Bill
Construction of PQC Coal Transportation Road at Various
Places Under E.J Area

7. date of Completion of the work as per the

Agreement/Work Order : 12.12.2025

8. Extension to time granted, if any, with

reference to the Order : Not required

PO No

5500011208

4. Agreement / Work Order No.

: BCCL/Civil/EJA/2024-25/WO/2025/334(A) dt.16.07.2025

5. Name of Contractor

: MS Vikash kumar Thwari

6. Date of commencement of the work

: 16.07.2025

Actual date of completion of the work in process 13.09.2025

10. Claims for the work done

from : 02.09.2025 13.09.2025

DESCRIPTION OF WORK	QUANTITIES OF WORK			Rate & Unit		AMOUNT (Rs.)		
	Paid for as per last bill	Since last bill	Total up to date	Quoted Rate		Paid/as per last bill	Since last bill	Total up
1	2	3	4	5		6	7	8
1 Embankment Construction	3443.15	0.00	3443.15	100	/ M3	344315.00	0.00	344315.00
2 Construction of subgrade	3624.51	0.00	3624.51	100	/ M3	362451.00	0.00	362451.00
3 Granular Sub- Base	3691.27	0.00	3691.27	1500	/ M3	5536905.00	0.00	5536905.00
4 Dry Lean Concrete	1319.05	0.00	1319.05	1900.00	/ M3	2506195.00	0.00	2506195.00
5 PQC	2833.67	40.60	2874.27	5185.00	/ M3	14692578.95	210511.00	14903089.95
6 Shoulder	527.180	0.00	527.18	100	/ M3	52718.00	0.00	52718.00
7 Surface drain	2410.00	0.00	2410.00	10	/ M	24100.00	0.00	24100.00
8 Dismanteling of cement concrete	203.85	411.65	615.50	1415	/ M3	288447.75	582489.00	870936.75
9 Dismantling of structure	1.107	0.000	1.11	1068.00	/ M3	1182.28	0.00	1182.28
10 P/L R.C.C (1:1.5:3)	4.428	10.80	15.23	6856.30	/ M3	30359.70	74048.04	104407.74
11 Excavation in ordinary Rock	3053.75	3458.75	6512.50	230.00	/ M3	702362.50	795512.50	1497875.00
12 Steel Reinforcement R.C.C	420.178	0.00	420.18	75.65	/ KG	31786.47	0.00	31786.47

0 TOTAL - 26235962.17

Less from 2nd RA. 24573418.01

1562544.16

Add (+) GST (18%) - 299257.95

TOTAL - 1961802.11

P.T.O.

Form 59

[See rules 115 (2)]

Pollution Under Control Certificate

Authorised By :
Government of Jharkhand

Date : **29/08/2024**
Time : **15:32:52 PM**
Validity upto : **28/08/2025**



Certificate SL. No. : JH01001020010609
Registration No. : JH10CM1822
Date of Registration : 29/Aug/2022
Month & Year of Manufacturing : August-2022
Valid Mobile Number : *****2903
Emission Norms : BHARAT STAGE VI
Fuel : DIESEL
PUC Code : JH0100102
GSTIN :
Fees : Rs.300.00
MIL observation : No

Vehicle Photo with Registration plate
60 mm x 30 mm



Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High idling emissions	CO	percentage (%)		
	RPM	RPM	2500 ± 200	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	0.7	0.46

This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.

Note : 1. Vehicle owners to link their mobile numbers to registered vehicle by logging to <https://puc.parivahan.gov.in>

Authorised Signature with stamp of PUC Operator
60mm x 20 mm

Form 59

[See rules 115 (2)]

Pollution Under Control Certificate

Authorised By :
Government of Jharkhand

Date : **29/08/2024**
Time : **15:40:54 PM**
Validity upto : **28/08/2025**



Certificate SL. No. : JH01001020010611
Registration No. : JH10CM1522
Date of Registration : 29/Aug/2022
Month & Year of Manufacturing : August-2022
Valid Mobile Number : *****2903
Emission Norms : BHARAT STAGE VI
Fuel : DIESEL
PUC Code : JH0100102
GSTIN :
Fees : Rs.300.00
MIL observation : No

Vehicle Photo with Registration plate
60 mm x 30 mm



Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High idling emissions	CO	percentage (%)		
	RPM	RPM	2500 ± 200	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	0.7	0.39
This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.				

Note : 1. Vehicle owners to link their mobile numbers to registered vehicle by logging to <https://puc.parivahan.gov.in>

Authorised Signature with stamp of PUC Operator
60mm x 20 mm

Form 59

[See rules 115 (2)]

Pollution Under Control Certificate

Authorised By :
Government of Jharkhand

Date : **29/08/2024**
Time : **15:46:12 PM**
Validity upto : **28/08/2025**



Certificate SL. No. : JH01001020010613
Registration No. : JH10CM1222
Date of Registration : 29/Aug/2022
Month & Year of Manufacturing : August-2022
Valid Mobile Number : *****2903
Emission Norms : BHARAT STAGE VI
Fuel : DIESEL
PUC Code : JH0100102
GSTIN :
Fees : Rs.300.00
MIL observation : No

Vehicle Photo with Registration plate
60 mm x 30 mm



Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High idling emissions	CO	percentage (%)		
	RPM	RPM	2500 ± 200	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	0.7	0.44

This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.

Note : 1. Vehicle owners to link their mobile numbers to registered vehicle by logging to <https://puc.parivahan.gov.in>

Authorised Signature with stamp of PUC Operator
60mm x 20 mm

Pollution Under Control Certificate

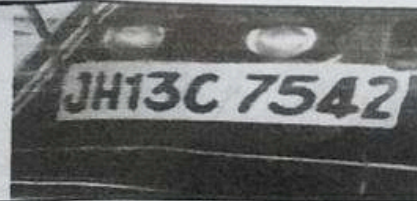
Authorised By :
Government of Jharkhand

Date : 03/06/2024
Time : 12:35:01 PM
Validity upto : 02/12/2024



Certificate SL. No. : JH01001020009898
Registration No. : JH13C7542
Date of Registration : 13/Apr/2015
Month & Year of Manufacturing : January-2015
Valid Mobile Number : *****1644
Emission Norms : BHARAT STAGE III
Fuel : DIESEL
PUC Code : JH0100102
GSTIN :
Fees : Rs.300.00
MIL observation : No

Vehicle Photo with Registration plate
60 mm x 30 mm



Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High idling emissions	CO	percentage (%)		
	RPM	RPM	2500 $\pm$ 200	
	Lambda	-	1 $\pm$ 0.03	
Smoke Density	Light absorption coefficient	1/metre	2.45	2.12

This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.

Note : 1. Vehicle owners to link their mobile numbers to registered vehicle by logging to <https://puc.parivahan.gov.in>

Authorised Signature with stamp of PUC operator
60mm x 20 mm

I Anuragi

Pollution Under Control Certificate

Authorised By :
Government of Jharkhand

Date : 20/06/2024
Time : 11:56:10 AM
Validity upto : 19/06/2025



Certificate SL No. : JH01001020010007
Registration No. : JH10CR420
Date of Registration : 14/Mar/2019
Month & Year of Manufacturing : September 2018
Valid Mobile Number : *****2562
Emission Norms : BHARAT STAGE IV
Fuel : DIESEL
PUC Code : JH0100102
GSTIN :
Fees : Rs.300.00
NIL observation : No

Vehicle Photo with Registration plate
60 mm x 30 mm



Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High idling emissions	CO	percentage (%)		
	RPM	RPM	2500 $\pm$ 200	
	Lambda	-	1 $\pm$ 0.03	
Smoke Density	Light absorption coefficient	1/metre	1.62	1.11

This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.

Note : I. Vehicle owners to link their mobile numbers to registered vehicle by logging to:
<https://puc.parivahan.gov.in>

Authorised Signature with stamp of PUC Operator
60mm x 20 mm

Pollution Under Control Certificate

Authorised By :

Government of Jharkhand

Date : 25/01/2024

Time : 10:48:01 AM

Validity upto : 24/01/2025



Certificate SL. No. : JH01001020008156
Registration No. : JH05CH9579
Date of Registration : 28/Feb/2019
Month & Year of Manufacturing : November-2018
Valid Mobile Number : *****1690
Emission Norms : BHARAT STAGE IV
Fuel : DIESEL
PUC Code : JH0100102
GSTIN :
Fees : Rs.300.00
MIL observation : No

Vehicle Photo with Registration plate

60 mm x 30 mm



Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High idling emissions	CO	percentage (%)		
	RPM	RPM	2500 $\pm$ 200	
	Lambda	-	1 $\pm$ 0.03	
Smoke Density	Light absorption coefficient	1/metre	1.62	1.12

This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.

Note : I, Vehicle owners to link their mobile numbers to registered vehicle by logging to <https://puc.parivahan.gov.in>

Authorised Signature with stamp of PUC Operator

60mm x 20 mm

[See rules 115 (2)]

Pollution Under Control Certificate

Authorised By :

Government of Jharkhand

Date : 22/08/2024
 Time : 09:36:16 AM
 Validity upto : 21/08/2025



Certificate SL. No. : JH01001020010519
 Registration No. : JH10BL2919
 Date of Registration : 22/Mar/2018
 Month & Year of Manufacturing : January-2018
 Valid Mobile Number : *****1644
 Emission Norms : BHARAT STAGE IV
 Fuel : DIESEL
 PUC Code : JH0100102
 GSTIN :
 Fees : Rs.300.00
 MIL observation : No

Vehicle Photo with Registration plate
 60 mm x 30 mm



Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High idling emissions	CO	percentage (%)		
	RPM	RPM	2500 ± 200	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	1.62	1.31

This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.

Note : 1. Vehicle owners to link their mobile numbers to registered vehicle by logging to <https://puc.parivahan.gov.in>

Authorised Signature with stamp of PUC Operator
 60mm x 20 mm

I A. S. S. S. S.

Form 59

(See rules 115 (2))

Pollution Under Control Certificate

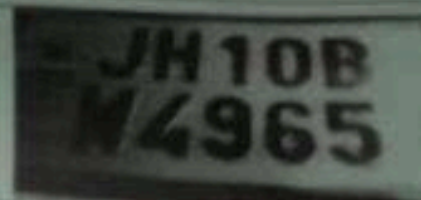
Authorized By
Government of Jharkhand

Date : 07/10/2024
Time : 09:52:08 AM
Validity upto : 06/10/2025



Certificate DL No : JH01001630004206
Registration No : JH10B4965
Date of Registration : 14/Sep/2019
Month & Year of Manufacturing : June-2019
Vehic Mobile Number : 11111111
Engine Number : 11111111
Fuel : BHARAT STAGE IV
PUC Code : DIESSEL
DL No : JH0100163
Fee : Rs. 300.00
No.

Vehicle Photo with Registration plate
60 mm x 30 mm



Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High Idling emissions	CO	percentage (%)		
	RPM	RPM	2500 ± 200	
	Lambda		1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	1.62	1.08

This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.

Note : 1. Vehicle owners to link their mobile numbers to registered vehicle by logging to <https://puc.parivahan.gov.in>

Authorized Signature with stamp of PUC Operator
60mm x 20 mm

T. Anand

Pollution Under Control Certificate

Authorised By
Government of Jharkhand

Date : 30/10/2024
Time : 10:38:08 AM
Validity upto : 29/10/2025



Certificate SL No. JH01001710026006
Registration No. JH10CF6537
Date of Registration 21/Jun/2021
Month & Year of Manufacturing October-2020
Valid Mobile Number *****0259
Emission Norms BHARAT STAGE VI
Fuel DIESEL
PUC Code JH0100171
GSTIN
Fees Rs. 300.00
REL observation No.

Vehicle Photo with Registration plate
60 mm x 30 mm



Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High idling emissions	CO	percentage (%)		
	RPM	RPM	2500 ± 200	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	0.7	0.47

This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.

Vehicle owners to link their mobile numbers to registered vehicle by logging to <https://puc.parivahan.gov.in>

Authorised Signature with stamp of PUC Operator



Form 59

[See rules 115 (2)]

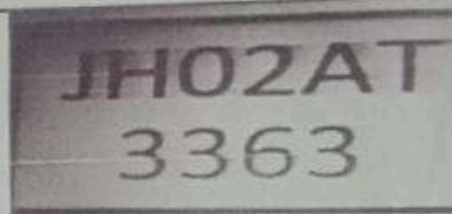
Pollution Under Control CertificateAuthorised By
Government of Jharkhand

Date : 22/10/2024
Time : 12:54:23 PM
Validity upto : 21/10/2025



Certificate SL. No. : JH01001020011271
Registration No. : JH02AT3363
Date of Registration : 22/Feb/2018
Month & Year of Manufacturing : November-2017
Valid Mobile Number : *****8254
Emission Norms : BHARAT STAGE IV
Fuel : DIESEL
PUC Code : JH0100102
GSTIN :
Fees : Rs.300.00
MIL observation : No

Vehicle Photo with Registration plate
60 mm x 30 mm



Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High Idling emissions	CO	percentage (%)		
	RPM	RPM	2500 $\pm$ 200	
	Lambda	-	1 $\pm$ 0.03	
Smoke Density	Light absorption coefficient	1/metre	1.62	1.35

This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.

Note 1 Vehicle owners to link their mobile numbers to registered vehicle by logging to <https://puc.parivahan.gov.in>

Authorised Signature with stamp of PUC Operator
60mm x 20 mm

I Anil Kumar

[See rules 115 (2)]

Pollution Under Control Certificate

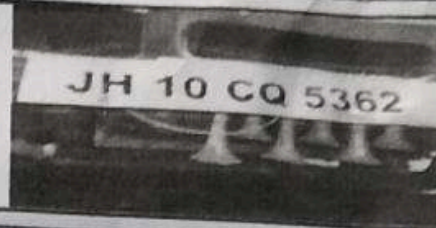
Authorised By :
Government of Jharkhand

Date : 18/03/2024
Time : 12:04:04 PM
Validity upto : 17/03/2025



Certificate SL. No. : JH01001020008954
Registration No. : JH10CQ5362
Date of Registration : 28/Feb/2019
Month & Year of Manufacturing : November-2018
Valid Mobile Number : *****1644
Emission Norms : BHARAT STAGE IV
Fuel : DIESEL
PUC Code : JH0100102
GSTIN :
Fees : Rs.300.00
MIL observation : No

Vehicle Photo with Registration plate
60 mm x 30 mm



Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High idling emissions	CO	percentage (%)		
	RPM	RPM	2500 ± 200	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	1.62	1.09

This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.

Note : 1. Vehicle owners to link their mobile numbers to registered vehicle by logging to <https://puc.parivahan.gov.in>

Authorised Signature with stamp of PUC operator
60mm x 20 mm

M. J. Y. V. A. N.



भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)

NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:		Cluster-x Consists Bhowrah North Bhowrah South Sudamidh Incline Patherdih Sud. Shaft Amlabad										
Project Address:		Office Of The General Manager, Eastern Jharia Area, Bccl, Bhowra, Dhanbad										
Town:		Jharia		Block:		Jharia						
District:		Dhanbad		State:		Jharkhand						
Pin Code:												
Communication Address:		Office Of The General Manager, Eastern Jharia Area, Bccl, Bhowra, Dhanbad, Jharia, Dhanbad, Jharkhand - 828302										
Address of CGWB Regional Office :		Central Ground Water Board Mid Eastern Region, 6th & 7th Floor, Lok Nayak Jai Prakash Bhawan, Frazer Road Dak Banglow, Patna, Bihar - 800011										
1.	NOC No.:	CGWA/NOC/MIN/REN/1/2025/11321			2.	Date of Issuence	03/04/2025					
3.	Application No.:	21-4/318/JH/MIN/2018			4.	Category: (GWRE 2024)	Semi Critical					
5.	Project Status:	Existing With Additional Ground Water Requirment			6.	NOC Type:	Renewal					
7.	Valid from:	17/02/2024			8.	Valid up to:	16/02/2026					
9. Ground Water Abstraction Permitted:												
Fresh Water		Saline Water		Dewatering		Total						
m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year					
0.00	0.00			15507.00	5660055.00	15507.00	5660055.00					
10. Details of ground water abstraction /Dewatering structures												
Total Existing No							Total Proposed No					
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
Dewatering Structure*	0	0	0	0	0	5	0	0	0	0	0	1
*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps												
11. Ground Water Abstraction/Restoration Charges paid (Rs.):							119101857.00					
12. Environment Compensation (if applicable) paid (Rs.):							0.00					
13. Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.							No. of Piezometers		Monitoring Mechanism			
									Manual	DWLR**	DWLR With Telemetry	
**DWLR - Digital Water Level Recorder							2		0	1	1	

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

Phone: (011) 23383561 Fax: 23382051, 23386743

Website: cgwa-noc.gov.in

पानी बचाये - जीवन बचाये
SAVE WATER - SAVE LIFE

CENTRAL GROUND WATER AUTHORITY

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

Phone: (011) 23383561 Fax: 23382051, 23386743

Website: cgwa-noc.gov.in

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(Compliance Conditions given overleaf)

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CENTRAL GROUND WATER AUTHORITY

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Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

- 1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.
- 2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.
- 3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.
- 4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.
- 5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.
- 6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.
- 7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.
- 8) Industries abstracting ground water in excess of 100 m³/d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.
- 9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.
- 10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

- 11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).
- 12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).
- 13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.
- 14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.
- 15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.
- 16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.
- 17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.
- 18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.
- 19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.
- 20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.
- 21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.
- 22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.
- 23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.
- 24) Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.
- 25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCB list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.
- 26) In case of new infrastructure projects having ground water abstraction of more than 20 m³/day, the firm/entity shall ensure implementation of dual water supply system in the projects.
- 27) In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.
- 28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.
- 29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
- 30) This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).
- 31) In the self-compliance report, the PP shall submit details of Drilling Agency/ Agencies, which has/ have constructed BW(s)/ TW(s) along with undertaking to the effect that all necessary measures have been taken as per directions of Hon'ble Supreme Court provided in Annexure-VII of guidelines dated 24.09.2020 in respect of abandoned/ failed BW(s)/ TW(s)/Piezometer(s), if any. The PP is advised to engage registered drilling agency/ agencies. In the event of any mishap/ unfortunate incident due to negligence in taking measures for prevention of accident due to falling in Bore Well, both PP and concerned drilling agency shall jointly be held responsible and penal action as per extant Government rules shall be taken.

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

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CENTRAL GROUND WATER AUTHORITY

Department of Water Resources, River Development and Ganga Rejuvenation
Ministry of Jal Shakti, Govt. of India

Receipt

(As per the guideline Gazette Notification S.O. 3281(E) regarding the New Guidelines dated 24.09.2020 of CGWA, MoJS, Govt. of India)
<https://cgwa-noc.gov.in>

Application No.:	21-4/318/JH/MIN/2018	Date of Issuance:	03/04/2025
Name of Firm:	CLUSTER-X CONSISTS BHOWRAH NORTH BHOWRAH SOUTH SUDAMIDH INCLINE PATHERDIH SUD. SHAFT AMLABAD		
AppType Category:	Coal		
Application Type:	Mining		
PAN/GSTIN No. of Firm/Individual:	/		

S N	Description	Amount (Rs.)
1.	Application Processing Fee	5000.00
2.	Ground Water Abstraction charges	119101857.00
3.	Ground Water Restoration charges	0
4.	Environmental Compensation Charges (ECRGW) (Date From to) Days-	
5.	Penalty for non-Compliance of NOC conditions Condition to be mentioned	450000.00
6.	Adjustment Charges	
7.	Rebate	
8.	Charges for correction/modification in the existing issued No Objection Certificate	
S.No.	Description	Rate
(i)	Change in User ID	Rs. 1000
(ii)	Change in firm Name	Rs. 5000
(iii)	Extension of No Objection Certificate	Rs. 5000
(iv)	Issuance of duplicate No Objection Certificate	Rs. 5000
(v)	Issuance of corrigendum to No Objection Certificate	Rs. 5000
(vi)	Any other items/correction etc.	Rs. 500
Rs. Rupees Eleven Crore Ninty Five Lakh Fifty Six Thousand Eight Hundred Fifty Seven Only		119556857.00

This is an system generated invoice, hence, does not require ink signed.

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

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Term and conditions:

- i. All disputes are subject to Delhi Jurisdiction.
- ii. Any complaint in regard to the rates will not be entertained.

Member-Secretary
CGWA, New Delhi

CENTRAL GROUND WATER AUTHORITY

महाप्रबंधक का कार्यालय, पूर्वी झरिया क्षेत्र
OFFICE OF THE GENERAL MANAGER, EASTERN JHARIA AREA

Ref. No.: BCCL/EJ/GM/ENVT./2026/ 19

Date: 18/02/2026

To,
Prof. (Dr.) S. K. Gupta
Professor (HAG)
Department of Environmental Science & Engineering
Indian Institute of Technology (Indian School of Mines), Dhanbad

Sub.: : Work Order for the work "Surface drainage plan including surface water conservation plan" and "Revarian/Riparian ecosystem conservation and management plan" for Cluster- X Coal mines, Eastern Jharia (E.J.) Area, BCCL.

- Ref: 1. Our E-mail dated 25.06.2025
2. Your Offer vide E-mail dated 11.07.2025
3. LOA issued vide no. BCCL/EJ/GM/ENVT./2026/12 dated 09.02.2026
4. Acceptance of LOA vide email dated 11.02.2026

Dear Sir,

With reference to the above referred LOA emails, this is to bring to your kind attention that competent authority is pleased to award you the work "Surface drainage plan including surface water conservation plan" and "Revarian/Riparian ecosystem conservation and management plan" for Cluster- X Coal mines, Eastern Jharia (E.J.) Area, BCCL for a value of Rs. 29,50,000/- (Rs. Twenty nine Lakh fifty Thousand only) including GST@18% with following terms and condition:

1. **Scope of Work:** Scope of work will be as follows:

- Prepare Surface Drainage Plan, including the Surface Water Conservation Plan, for the area influenced or affected by the proposed mining operations. The plan shall consider the presence of any rivers/rivulets/ponds/lakes, etc., and assess the impact of mining activities on these water bodies.
- Prepare in accordance surface drainage plan and/or proposed diversion of natural watercourses shall be prepared in accordance with the provisions of the approved Mining Plan and EIA-EMP submitted to the Ministry, with due approval from the concerned State and/or Govt authorities.
- Study shall also include the construction of embankments or similar protective structures to prevent any potential inrush of surface water into the mine.
- Prepare the Riverain/Riparian Ecosystem Conservation and Management Plan in consultation with the Irrigation/Water Resources Department of the State Government.
- Analysis of the water quality parameters to ascertain the impact of mining upon local water quality.
- Development of Study in compliance to guidelines of MoEF&CC, New Delhi.

2. **Duration of the work** shall be 05 months from the date of acceptance of work by IIT (ISM) Dhanbad.

3. **Paying Authority:** Area Finance Manager, E.J. Area, BCCL.

4. BCCL shall not provide any local accommodation and travel arrangements for visiting the sites.

5. BCCL shall not be liable to any loss/damage caused to IIT (ISM) Dhanbad during your site visits for the work.
6. Data generated during the study shall be property of BCCI only. The copyright of all documents prepared by the consultant in connection with the study shall rest with the BCCL.
7. The study report will be submitted to MoEF&CC. Any modification suggested by MoEF&CC in the report shall be incorporated by IIT (ISM) Dhanbad without any additional cost.
8. 50% advance payment shall be made to IIT (ISM) Dhanbad after submitting advance payment request/ invoice by you.
9. Final 50% payment will be made after acceptance of the study report by General Manager, E.J. Area, BCCL.
10. Any dispute shall be in jurisdiction of Dhanbad Court Only.
- 11. Deliverable:** 02 hard colour copies of draft report & 05 colour copies of final report. All the studies, data generated during study and the final study report shall be submitted to BCCL in editable soft copies.
12. If due to any reasons, beyond control of BCCL and IIT (ISM) Dhanbad, work cannot be completed after 50% advance payment, IIT (ISM) Dhanbad shall return the amount to BCCL after deducting expenses incurred by IIT (ISM), if any.
- 13. Force Majeure:** For the purpose of and within the scope of the contract by way of indication and not of limitation, the term 'Force Majeure' shall mean acts of nature, strikes, Lockouts, or other industrial disturbances, act of public/enemy, wars, blockades, insurrection, riots, epidemics, landslides, earthquakes, storms, lightening, flood, washouts, civil disturbances, explosions and any other similar event not within the control of either party and which by exercises of due care and diligence neither party is able to prevent or overcome. Should the occurrence of force majeure last more than 15 days, extension of time will be given with the mutual consent of IIT (ISM) Dhanbad and BCCL.
- 14. Penalty Clause:** The BCCL, management reserve the right to impose penalty at the rate of 0.5% of the total awarded value of the work for each week of delay or par thereof in submission of final report up to the ceiling limit of 10% of the awarded value of the work. The aforesaid penalty will be deducted from the payment of bills.

Yours faithfully

12/02/26
General Manager
E. J. Area
भारत

Copy to:

1. GM/HoD (Env), BCCL, Koyla Bhawan, HQ
2. AFM, EJ Area
3. AM (Env), EJ Area
4. Project Officer- ABNS/ASP/ Sud. Shaft/Amlabad
5. Area Civil Engineer, EJ area
6. Area Survey Officer, EJ Area
7. Office Copy



DEPARTMENT OF ENVIRONMENTAL SCIENCE & ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES) DHANBAD
JHARKHAND- 826004

No. IIT(ISM)/ESE/QUO/SKG-BCCL/01/2025-26

Dated: July 11, 2025

To,
Harish Kumar
Area Manager (Envr.)
E.J. Area, BCCL, Dhanbad-828302, Jharkhand
Mob.: 6287695833 / 9798140687(WhatsApp)
Gmail: ejarea.environment@gmail.com

Subject: Budgetary offer for “Surface drainage plan including surface water conservation plan” and “Revarian /Riparian ecosystem conservation and management plan” for Cluster X coal mine project, BCCL, Dhanbad.

Dear Sir,

In reference to your email dated **June 25,2025**, the budgetary offer for “Surface drainage plan including surface water conservation plan” and “Revarian/Riparian ecosystem conservation and management plan” is attached for your kind perusal and consideration.

Thanking You,

Sincerely,

(Prof. S.K. Gupta)
Professor (HAG)
Dept. of ESE
IIT(ISM), Dhanbad-826004
E-mail: sunil@iitism.ac.in
Ph: +91-9431126495



DEPARTMENT OF ENVIRONMENTAL SCIENCE & ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES) DHANBAD
JHARKHAND- 826004

BUDGETARY OFFER & SCOPE OF STUDY

S. N.	Scope of work/Methodology	Estimated Cost (₹)
1.	To prepare for Surface Drainage Plan , including the Surface Water Conservation Plan , for the area influenced or affected by the proposed mining operations. The plan will consider the presence of any rivers/rivulets/ponds/lakes, etc., and assess the impact of mining activities on these water bodies. To prepare in accordance surface drainage plan and/or proposed diversion of natural watercourses will be prepared in accordance with the provisions of the approved Mining Plan and EIA-EMP submitted to the Ministry, with due approval from the concerned State and/or GoI authorities. The proposal will also include the construction of embankments or similar protective structures to prevent any potential inrush of surface water into the mine.	25,00,000/-
2.	To prepare for the riverain/riparian Ecosystem Conservation and Management Plan in consultation with the Irrigation/Water Resources Department of the State Government.	
GST @ 18%		4,50,000/-
Grand Total (₹)		29,50,000/-
Rs twenty-nine Lakhs fifty thousand Only		

General terms and conditions

- The secondary data will be provided by clients, if and when required.
- IIT (ISM) Dhanbad is a centrally funded technical institute and is exempt from TDS
- GSTIN of IIT(ISM) Dhanbad: 20AAAAI0686D1ZA
- Payment terms and Conditions: Advance Payment of 50% on acceptance of the work order. Remaining 50% **after submission of final project report.**

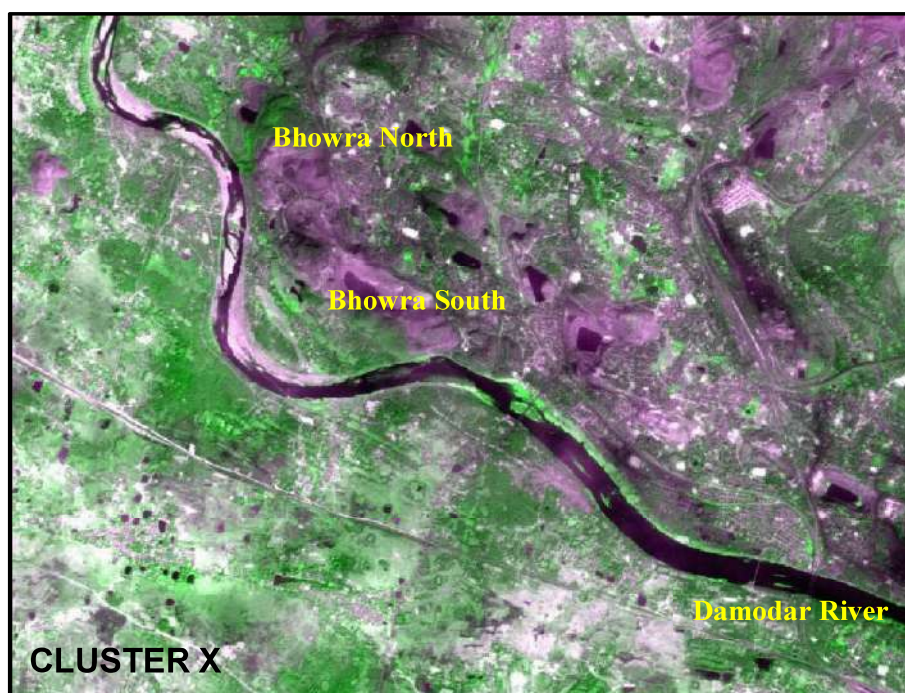
Thanking You,

Sincerely,

(Prof. S.K. Gupta)
Professor (HAG)
Dept. of ESE

E-mail: sunil@iitism.ac.in
Ph: +91-9431126495

**Land Reclamation/ Restoration Monitoring of Five Clusters of
(Opencast + Underground) Coal Mines of Bharat Coking Coal
Limited based on Satellite Data of the Year 2021**



Submitted to
Bharat Coking Coal Limited



cmpdi
A Mini-Ratna Company

**Land Reclamation/ Restoration Monitoring of Five Clusters
of (Opencast + Underground) Coal Mines of Bharat Coking
Coal Limited based on Satellite Data of the Year 2021**

March - 2022



**Remote Sensing Cell
Geomatics Division
CMPDI, Ranchi**

CONTENTS

Executive Summary iii

1	Background	1
2	Objective	2
3	Methodology	2
4	Land Reclamation Status in Bharat Coking Coal Ltd.	6

List of Tables

Table -1	Cluster wise Land Reclamation Status	iv
Table -2	Area Statistics of Land Use Classes in Clusters	9

List of Figures

Figure-1	Cluster wise Land Reclamation Status-2021 (BCCL)	v
Figure-2	Methodology of Land Reclamation Monitoring	3
Figure-3	Bar-chart of Land Reclamation Status of Cluster I	15
Figure-4	Bar-chart of Land Reclamation Status of Cluster IV	15
Figure-5	Bar-chart of Land Reclamation Status of Cluster VII	16
Figure-6	Bar-chart of Land Reclamation Status of Cluster X	16
Figure-7	Bar-chart of Land Reclamation Status of Cluster XI	17

List of Plates

Plate -1:	Land Use Map of Cluster I	10
Plate -2:	Land Use Map of Cluster IV	11
Plate -3:	Land Use Map of Cluster VII	12
Plate -4:	Land Use Map of Cluster X	13
Plate -5:	Land Use Map of Cluster XI	14

List of Photographs

Photo-1:	Social Forestry Plantation in Cluster XI	17
Photo-2:	Ecological Restoration Site in Cluster I	18
Photo-3:	Plantation on OB Dump in Cluster I	18
Photo-4:	Plantation on OB Dump in Cluster IV	19
Photo-5:	Parasnath Udyaan in Cluster IV	19
Photo-6:	Road side Plantation in Cluster VII	20
Photo-7:	Plantation on OB Dump in Cluster X	20

Executive Summary

1. **Project** Land reclamation/ restoration monitoring of five clusters of (Opencast + Underground) coal mines of Bharat Coking Coal Ltd. (BCCL) based on satellite data on every three-year basis.
2. **Objective** Objective of land reclamation/ restoration monitoring is to assess the area of backfilled, plantation, social forestry, active mining area, water bodies, distribution of wasteland, agricultural land and forest in the leasehold area of the project. This will help in assessing the progressive status of mined land reclamation and to take up remedial measures, if any, required for environmental protection.
3. **Salient Findings**
 - Out of 5 Clusters of mines viz. I, IV, VII, X and XI considered for land reclamation monitoring during the year 2021-22; cluster XI group of mines is added during the year 2021-22. These clusters consist of mainly opencast mines.
 - Out of the total mine leasehold area of 9411.54 Ha. of the 05 clusters considered for monitoring during the year 2021-22; total excavated area is 1218.18 Ha. out of which 61.92 Ha. area (5.08%) has been planted on backfill (Biological Reclamation) and 712.90 Ha. area (58.52%) is under backfilling (Technical Reclamation) and 443.36 Ha. area (36.40%) is under active mining. Cluster wise details of land reclamation of the above Clusters is given in Table-1.
 - Total area under plantation (green cover) covers an area of 968.94 Ha. which is 10.30% of total leasehold area.
 - This report and the findings will be considered as basis for further monitoring and reclamation related activities.

Table 1
Land Reclamation Status in five Clusters (Underground + Opencast Mines) of BCCL based on Satellite Data of the Year 2021

Sl. No.	Cluster No.	Total Leasehold Area		Technical Reclamation	Plantation							Area under Active Mining	Total Excavated Area	Total Area under Plantation (% Green Cover Generated in Leasehold)	Total Area under Reclamation		
					Biological Reclamation	Other Plantations											
						Plantation on Excavated / Backfilled Area	Plantation on External OB Dumps	Social Forestry, Avaneue Plantation Etc.	7	8	9					10	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
		2018	2021	2018	2021	2018	2021	2018	2021	2018	2021	2018	2021	2018	2021		
1	Cluster I	575.00	575.00	10.11	11.10	7.29	7.29	25.53	25.53	28.39	27.61	45.79	46.00	80.81	78.03	17.40	18.39
				22.08%	24.13%	15.92%	15.85%			62.00%	60.02%			14.05%	13.57%	38.00%	39.98%
2	Cluster IV	1123.79	1123.79	147.22	176.03	0.00	0.00	165.09	165.09	166.67	152.29	313.89	328.32	192.20	192.20	176.03	
				46.90%	53.62%	0.00%	0.00%			53.10%	46.38%			17.10%	17.10%	46.90%	53.62%
3	Cluster VII	2127.70	2127.70	351.54	351.68	37.47	25.47	238.67	238.67	122.23	183.42	511.24	560.57	291.66	275.57	389.01	377.15
				68.76%	62.74%	7.33%	4.54%			23.91%	32.72%			13.71%	12.95%	76.09%	67.28%
4	Cluster X	2057.47	2057.47	116.28	143.64	29.16	29.16	140.75	140.75	59.41	45.71	204.85	218.51	236.00	236.00	145.44	172.80
				56.76%	65.74%	14.23%	13.34%			29.00%	20.92%			11.47%	11.47%	71.00%	79.08%
5	Cluster XI	-	3527.58	-	30.45	-	0.00	-	187.14	-	34.33	-	64.78	-	187.14	-	30.45
					47.01%		0.00%				52.99%				5.31%		47.01%
	TOTAL	5883.96	9411.54	625.15	712.90	73.92	61.92	570.04	575.18	376.70	443.36	1075.77	1218.18	800.67	968.94	699.07	774.82
				58.11%	58.52%	6.87%	5.08%			35.02%	36.40%			13.61%	10.30%	64.98%	63.60%
										(% is calculated with respect to Excavated Area as applicable)							

(% is calculated with respect to Excavated Area as applicable)

Note: In reference of the above Table, different parameters are classified as follows: (Cluster XI started from current year)

1. Area under Biological Reclamation includes Areas under Plantation done on Backfilled Area Only.
2. Area under Technical Reclamation includes Area under Barren Backfilling only.
3. Area under Active Mining includes Coal Quarry, Advance Quarry Site and Quarry filled with water etc., if any.
4. Social Forestry and Plantation on External OB Dumps are not included in Biological Reclamation and are put under separate categories as shown in the above Table.
5. (%) calculated in the above Table is in respect to Total Excavated Area except for "Total Area under Plantation" where % is in terms of "Leasehold Area".

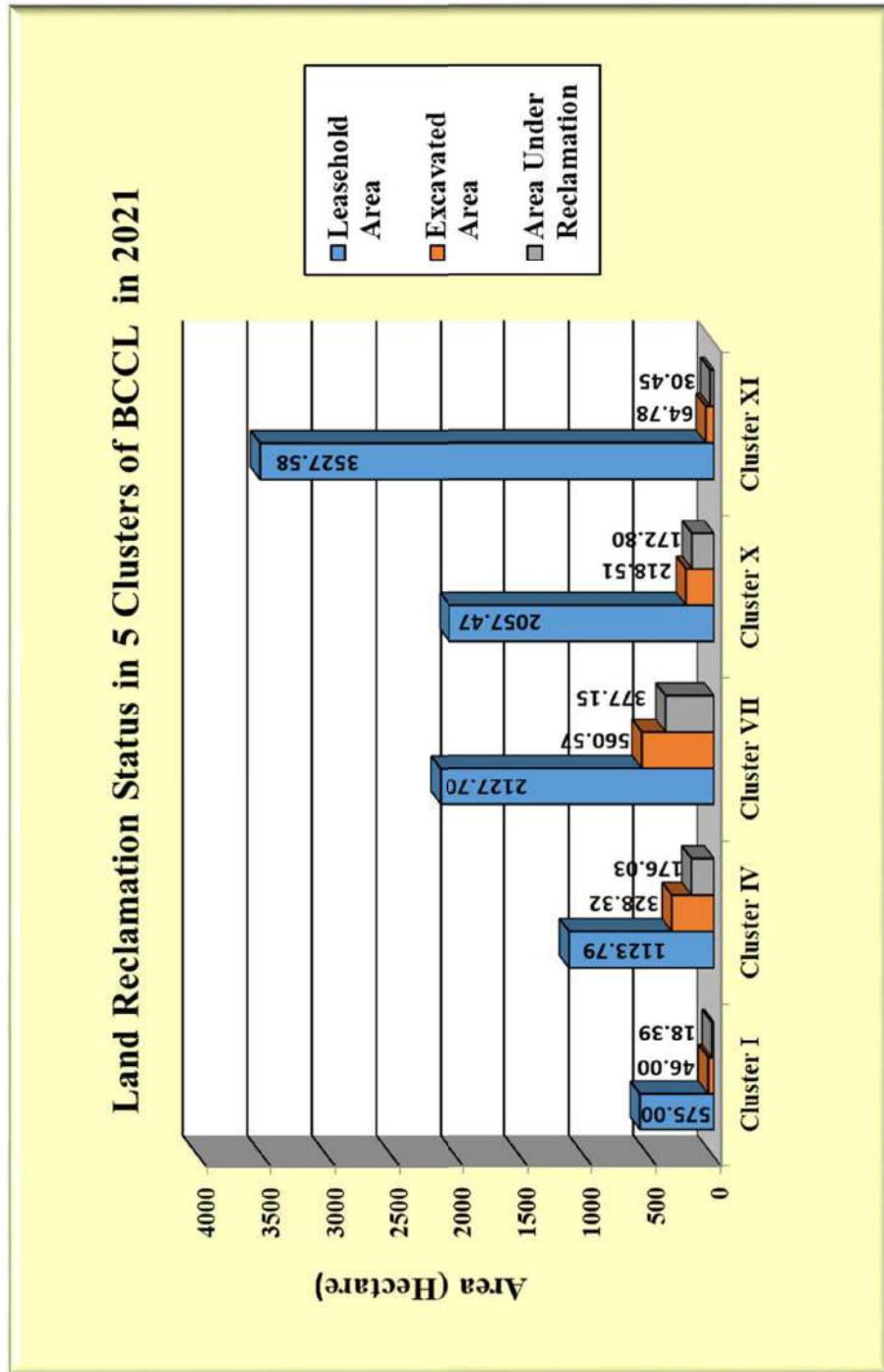


Fig. 1: Cluster wise Land Reclamation Status in five Clusters - 2021 (BCCL)

4. Land Reclamation Status in Bharat Coking Coal Ltd.

4.1 Following 5 clusters of mines comprising both underground and opencast projects of Bharat Coking Coal Ltd. have been taken up for land reclamation monitoring during the year 2021-22:

- **Cluster I** (Damoda OCP)
- **Cluster IV** (Salanpur Colliery, Amalgamated Keshalpur West Mudidih Colliery, Amalgamated Gaslitand Katras Choitudih Colliery)
- **Cluster VII** (Kusunda OCP, Kustore OCP, Alkusa OCP, Dhansar OCP, Industry, Ena OCP, Rajapur OCP, Amalgamated East Bhuggatdih Simlabahal Colliery)
- **Cluster X** (Bhowra North Colliery, Bhowra South Colliery, Patherdih Colliery, Sudamdih Shaft, Sudamdih INC, Amlabad Colliery)
- **Cluster XI** (Gopalichuck, Pootkee, Kendwadih)

4.2 Cluster wise Land Reclamation status of above mentioned clusters in BCCL is given in Table 1 and also shown graphically in Fig 1. Area statistics of different land use classes present in the mine leasehold of the above clusters for the year 2021 are shown in Table 2. Land use maps derived from the satellite data are shown in Plate 1 - 5. Different land use classes based on satellite data are depicted in bar charts in Fig. 3 - 7.

4.3 Study reveals that out of total mine leasehold area of 9411.54 Ha. of the 5 clusters of mines (Underground + Opencast) of BCCL mentioned above taken for this study in 2021-22, total excavated area is 1218.18 Ha. out of which 61.92 Ha. (5.08%) has been planted (*Biologically Reclaimed*), 712.90 Ha. (58.52%) is under backfilling (*Technically Reclaimed*) and balance 443.36 Ha. (36.40%) is under active mining.

- 4.4** Land reclamation monitoring for cluster XI of BCCL is taken up for the first time in the year 2021-22. Hence comparison of this cluster in year 2021 has not been made with respect to year 2018. The data thus generated in the year 2021 will be considered as base data for comparison of land reclamation of this cluster of mines at the interval of every three years.
- 4.5** Study indicates that overall all the projects of BCCL considered for this study in the year 2021-22 indicate increase or static trend in Technical reclamation (area under backfill) with respect to the year 2018.
- 4.6** After analyzing the satellite data of the year 2018 vs 2021, it reveals that area under total plantation (Green cover) carried out on backfilled area, OB dumps as well as under social forestry in all the clusters of BCCL has increased from 800.67 Ha. (13.61%) to 968.94 Ha. (10.30%) in span of last three years. This significant increase of 168.27 Ha. area under total plantation (Green Cover) in the leasehold boundary during three years is due to addition of cluster-XI.
- 4.7** On comparing the status of land reclamation for the year 2021 with respect to the year 2018 in all cluster of mines of BCCL considered for land reclamation in the year 2021-22, it is evident from the analysis that area under total land reclamation has increased from 699.07 Ha. (Yr 2018) to 774.82 Ha. (Yr 2021). This increase of 75.75 Ha. area under total land reclamation in the period of three years is the result of sincere effort made by BCCL towards land reclamation.
- 4.8** In Cluster VII, it is seen that area under plantation on backfill (Biological Reclamation) has decreased from 37.47 Ha. in the year 2018 to 25.47 Ha. in the year 2021. This decrease of 12 Ha. area in Biological reclamation is due to rehandling of backfill and also there is effect of mine fire in this

cluster. Hence total area under plantation on backfill has decreased from 73.92 Ha. (Yr 2018) to 61.92 Ha. (Yr 2021).

4.9 Out of the 5 Clusters in BCCL considered for satellite data based land reclamation monitoring in 2021, Cluster X tops with 79.08% reclamation followed by Cluster VII with 67.28%, Cluster IV with 53.62%, Cluster XI with 47.01% and Cluster I with 39.98%.

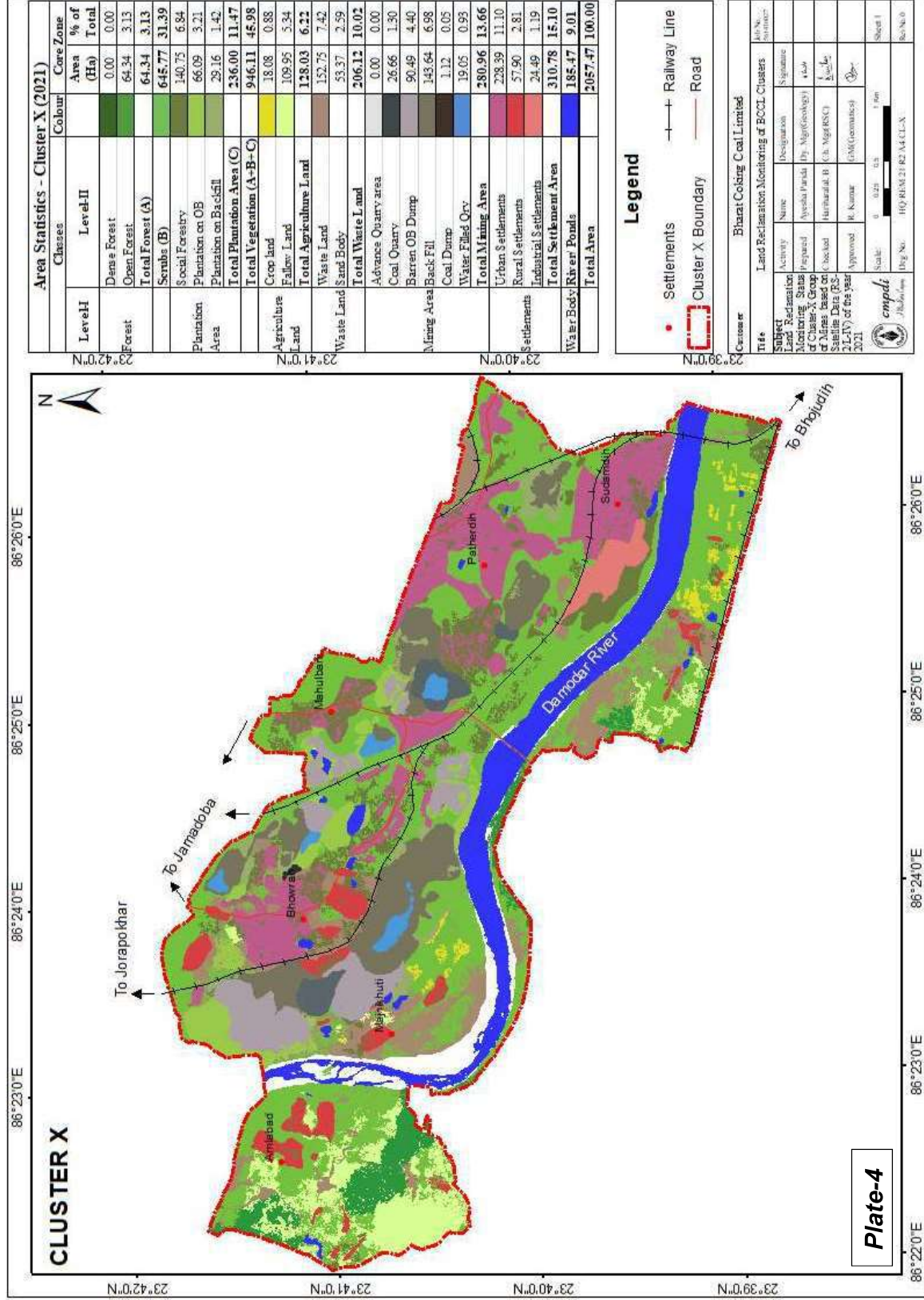
4.10 The area under total plantation (Green Cover) is maximum in Cluster IV (17.10%) followed by Cluster I with (13.57%), Cluster VII with (12.95%), Cluster X with (11.47%) and Cluster XI with (5.31%).

4.11 This study will again will be carried out after an interval of three years to assess the land reclamation status in the above projects.

Table 2

Cluster wise Area Statistics of Land Use/ Cover classes in five Clusters of (OC+UG) mines of BCCL based on Satellite Data of the year 2021

Status of Land Reclamation in 5 Clusters of (UG+OC) mines of Bharat Coking Coal Ltd. based on Satellite data of the Year 2021														
(Area in Hectare)														
			CLUSTER I		CLUSTER IV		CLUSTER VII		CLUSTER X		CLUSTER XI		TOTAL	
			Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
FORESTS	Dense Forest		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Open Forest		0.00	0.00	0.00	0.00	0.00	0.00	64.34	3.13	0.00	0.00	64.34	0.68
	Total Forest (A)		0.00	0.00	0.00	0.00	0.00	0.00	64.34	3.13	0.00	0.00	64.34	0.68
SCRUBS	Scrubs (B)		230.09	40.02	172.78	15.37	572.72	26.92	645.77	31.39	1177.06	33.37	2798.42	29.73
PLANTATION	Social Forestry/Avenue Plantation		25.53	4.44	165.09	14.69	238.67	11.22	140.75	6.84	187.14	5.31	757.18	8.05
	Plantation on OB Dump		45.21	7.86	27.11	2.41	11.43	0.54	66.09	3.21	0.00	0.00	149.84	1.59
	Plantation on Backfill (Biological Reclamation)		7.29	1.27	0.00	0.00	25.47	1.20	29.16	1.42	0.00	0.00	61.92	0.66
	Total Plantation (C)		78.03	13.57	192.20	17.10	275.57	12.95	236.00	11.47	187.14	5.31	968.94	10.30
Total Vegetation (A+B+C)			308.12	53.59	364.98	32.48	848.29	39.87	946.11	45.98	1364.20	38.67	3831.70	40.71
ACTIVE MINING	Coal Dump		1.99	0.35	1.94	0.17	8.92	0.42	1.12	0.05	0.73	0.02	14.70	0.16
	Coal Quarry		11.14	1.94	145.67	12.96	177.97	8.36	26.66	1.30	31.66	0.90	393.10	4.18
	Advance Quarry Site		1.73	0.30	0.00	0.00	0.00	0.00	0.00	0.00	2.67	0.08	4.40	0.05
	Quarry Filled With Water		14.74	2.56	6.62	0.59	5.45	0.26	19.05	0.93	0.00	0.00	45.86	0.49
	Total Area under Active Mining		27.61	4.80	152.29	13.55	183.42	8.62	45.71	2.22	34.33	0.97	443.36	4.71
	Barren OB Dump		21.18	3.68	110.42	9.83	53.57	2.52	90.49	4.40	22.66	0.64	298.32	3.17
RECLAIMED	Area Under Backfilling (Technical Reclamation)		11.10	1.93	176.03	15.66	351.68	16.53	143.64	6.98	30.45	0.86	712.90	7.57
Total Area under Mine Operation			61.88	10.76	440.68	39.21	597.59	28.09	280.96	13.66	88.17	2.50	1469.28	15.61
WASTELAND	Waste Lands		65.94	11.47	82.19	7.31	182.23	8.56	152.75	7.42	708.59	20.09	1191.70	12.66
	Fly Ash Pond / Sand Body		15.55	2.70	0.00	0.00	0.00	0.00	53.37	2.59	15.83	0.45	84.75	0.90
	Total Wasteland		81.49	14.17	82.19	7.31	182.23	8.56	206.12	10.02	724.42	20.54	1276.45	13.56
WATERBODIES	Reservoir, Nallah, Ponds		15.38	2.67	12.13	1.08	20.60	0.97	185.47	9.01	63.67	1.80	297.25	3.16
	Total Waterbodies		15.38	2.67	12.13	1.08	20.60	0.97	185.47	9.01	63.67	1.80	297.25	3.16
AGRICULTURE	Crop Lands		3.42	0.59	3.45	0.31	38.23	1.80	18.08	0.88	81.78	2.32	144.96	1.54
	Fallow Lands		80.92	14.07	37.02	3.29	20.12	0.95	109.95	5.34	822.67	23.32	1070.68	11.38
	Total Agriculture		84.34	14.67	40.47	3.60	58.35	2.74	128.03	6.22	904.45	25.64	1215.64	12.92
SETTLEMENTS	Urban Settlement		7.17	1.25	166.29	14.80	390.66	18.36	228.39	11.10	336.58	9.54	1129.09	12.00
	Rural Settlement		14.04	2.44	16.81	1.50	9.41	0.44	57.90	2.81	14.68	0.42	112.84	1.20
	Industrial Settlement		2.58	0.45	0.24	0.02	20.57	0.97	24.49	1.19	31.41	0.89	79.29	0.84
	Total Settlements		23.79	4.14	183.34	16.31	420.64	19.77	310.78	15.10	382.67	10.85	1321.22	14.04
Grand Total			575.00	100.00	1123.79	100.00	2127.70	100.00	2057.47	100.00	3527.58	100.00	9411.54	100.00



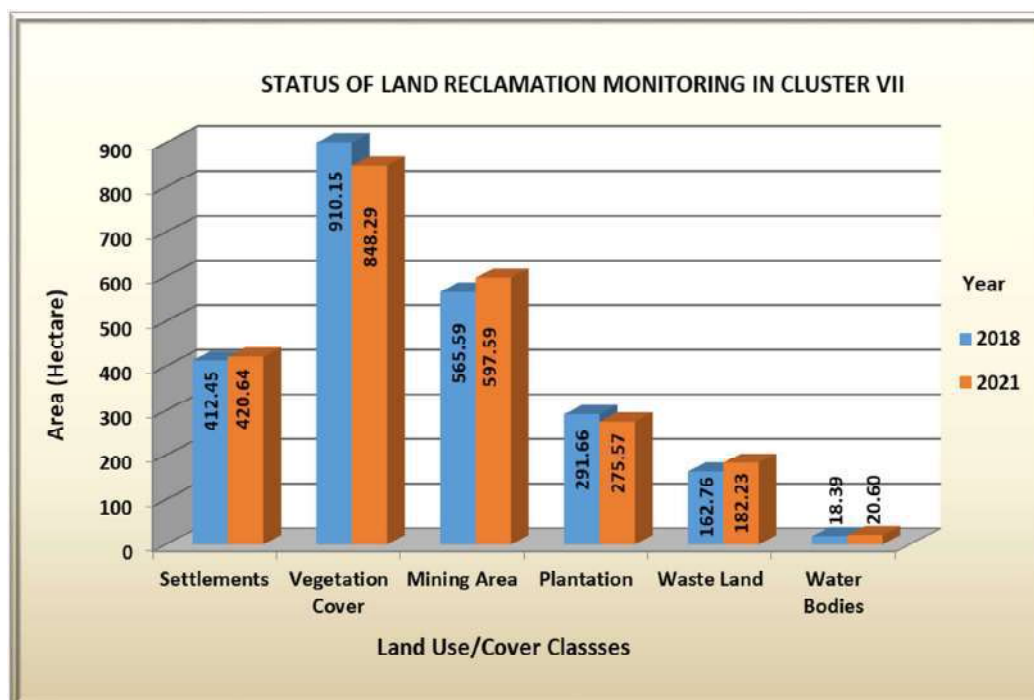


Fig. 5: Land Reclamation Status of Cluster VII

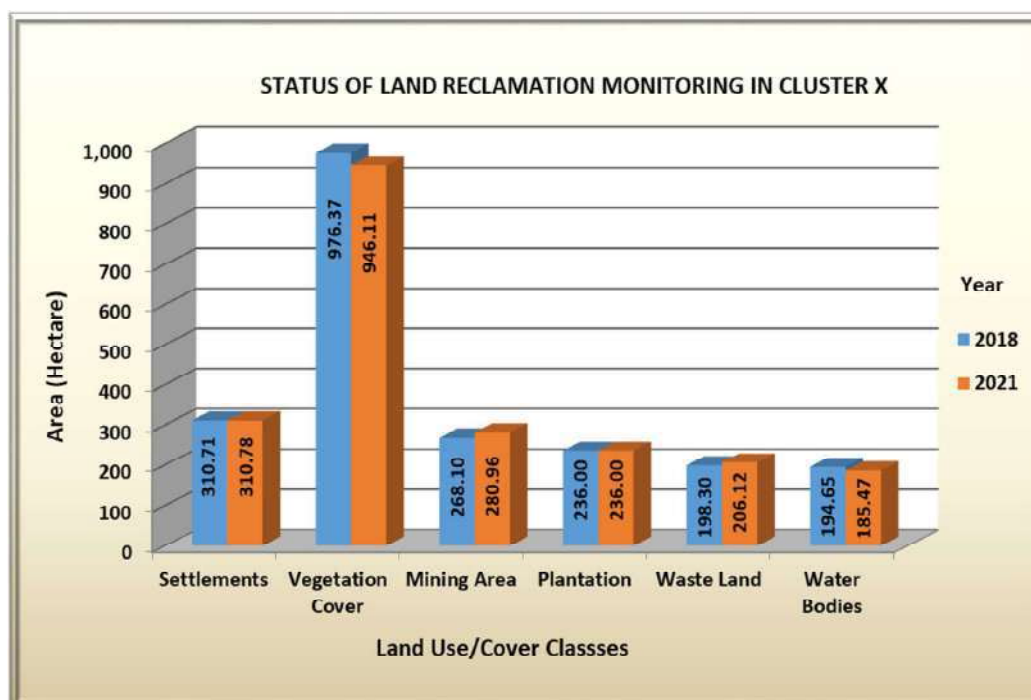


Fig. 6: Land Reclamation Status of Cluster X



Photo 6: Road side Plantation in Cluster VII



Photo 7: Plantation on OB Dump in Cluster X



BHARAT COKING COAL LIMITED



COPRPORATE ENVIRONMENT POLICY 2025

Back Ground:

Bharat Coking Coal Limited (BCCL) subscribes to the view of Sustainable Development. Unless the environment can sustain all the developmental activities, any pursuit of development in isolation can cause irreparable damage to the ecosystem and associated environmental attributes.

The present policy is the revision of the Corporate Environment Policy 2019 and is complimentary to the National Environmental Policy, 2006. This modification in the present policy is the outcome of the experience gained since 2019 keeping in view the modifications / amendments made time to time in environmental policies and additional stipulations notified by MoEF&CC (Ministry of Environment, Forest & Climate Change) and other organizations concerning mine closure, reclamation of degraded land, environmental clearance etc. and also with the objective of revisiting the corporate policy. Government of India is signatory to few international conventions/agreements relevant to BCCL amongst others and activities associated with such conventions/agreements are embodied in the present policy. This Policy has a vision of Green Mining and mission of 100% compliance of environmental statutes applicable to coal mining industry.

Policy Statement: Bharat Coking Coal Limited (BCCL) is committed to promote low carbon, sustainable and socially inclusive coal mining by protecting the environment through integrated project planning & design, prevention/mitigation of pollution, conservation of natural resources, restoration of ecology & biodiversity, recycling/ proper disposal of wastes, addressing climate change and inclusive growth. It also aims to bring awareness amongst its stakeholders for continual improvement in environmental performances following good environmental practices.

Objectives:

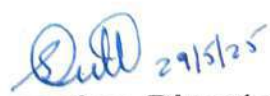
BCCL shall endeavour to-

- 1. Plan & design projects with due consideration to environmental and social concerns for Sustainable Development and reduction in emission intensity of its operations.*
- 2. Conduct mining and associated operation in an environmentally responsible manner to comply with applicable laws and other requirements related to environmental aspects.*
- 3. Prevent pollution in surrounding habitation by continuous monitoring and adopting suitable measures for environment protection.*
- 4. Ensure effective implementation of Environment Management Plans (EMPs) in all our mines / projects to mitigate pollution, conservation of natural resources and restoration of ecology & biodiversity.*

5. *Ensure compliance of all statutory conditions prescribed by regulatory agencies.*
6. *Ensure waste management in each unit on the principle of REDUCE, REUSE, RECYCLE and SAFE DISPOSAL.*
7. *Put special thrusts on efficient energy utilization / renewable energy and other measures to reduce carbon foot-print.*
8. *Strive for continual improvement in our environmental performances by setting targets, measuring progress and taking corrective action.*
9. *Take measures to gainful repurposing of land and render productive post mining land use for ensuring environmentally sustainable closure of mine, keeping in view the social needs and requirement of the locals.*
10. *Take steps for dealing, prevention and control of coal mine fire and related subsidence.*
11. *Ensure implementation of activities applicable to BCCL arising out of International Conventions.*
12. *Create environmental awareness and ensure environmental education among the employees, local communities and other stakeholders through pro-active communication and training.*
13. *Promote R&D projects/innovations addressing various environmental concerns like minimization of carbon footprints of BCCL and environmental issues in mining & surrounding areas.*
14. *Establish eco-parks in the reclaimed mined areas and promote eco-mining tourism in the coalfield areas.*
15. *Ensure transparency in Environmental reporting / disclosure to stakeholders.*

Review of Environmental Policy:

In view of the present fast changing social, economic and environmental scenario, this policy shall be reviewed every 5 years to incorporate the changes in the legal, technical, environmental, economic and social inputs prevailing at that time. Whenever, there is change in National Environmental Policy or other National / State relevant policies, Acts etc, this Corporate Environmental Policy would be reviewed and suitably revised.


Chairman-cum-Managing Director,

BCCL

Place: Dhanbad

No. J-11015/380/2010-IA.II (M)
Government of India
Ministry of Environment & Forests

Paryavaran Bhawan,
CGO Complex, Lodi Road,
New Delhi-110003.

To

Dated: 6th February, 2013

General Manager (E&F)
M/s Bharat Coking Coal Ltd.,
Koyala Bhawan,
Dhanbad-826005
Jharkhand

Sub: Cluster X (6 mines of 1.762 MTPA of normative and peak production of 2.289 MTPA in a combined ML area of 2057.95 ha) and Sudamdih Coal Washery (Within the lease hold of Sudamdih Shaft Mine) of 1,6 MTPA of normative and 2,08 MTPA peak production for a area of 18 ha of M/s Bharat Coking Coal Ltd., located in Jharia Coalfields, Dist. Dhanbad, Jharkhand (EC based on TOR granted on 09.02.2011) - **Environment Clearance –reg.**

Sir,

This is with reference to letter no.43011/41/2010-CPAM dated 04.11.2010 along with the application for Terms of Reference (TOR) and this Ministry's letter Dated 09.02.2011 granting the TOR. Reference is also invited to the letter No. BCCL/GM (Env.)/EMP (X)-12/460 dated 01 June, 2012 and 25.12.2012 for environmental clearance on the above-mentioned subject.

2. The Ministry of Environment & Forests has considered the application. The proponent has informed that:

- i. The proposal is for grant of Environmental Clearance for Cluster X, a group of 6 mines (five operating mines namely, Bhowrah North Colliery (mixed), Bhowrah South Colliery (mixed), Patherdih Colliery (mixed), Sudamdih Incline (UG), Sudamdih Shaft mine (UG) and Amlabad colliery (UG) and a washery within the ML of Sudamdih Shaft mine. Of the above mines, 3 mines are mixed mines namely Bhowrah North Colliery (mixed), Bhowrah South Colliery (mixed), Patherdih Colliery (mixed) are in operation, 2 mines are UG mines namely Sudamdih Incline (UG) and Sudamdih Shaft mine (UG) are in operation. One mine namely Amlabad colliery (UG) is closed for production.
- ii. This proposal does not involve increase in lease hold area, change in technology or change in product mix in the mines. The area has undulating topography.
- iii. The mines in the cluster have a combined ML area of 2057.47 ha and production capacity of **1.762 MTPA** (normative) and **2.289 MTPA** (peak) as given below

Sl. No	Name of Mines		Production Capacity (MTY)		Lease Hold Area (Ha)	Life (Years)	Status
			Normative	Peak			
	Bhowrah	UG Section	0.11	0.143	208.83	>30	In Operation

1	North	OC Section	0.42	0.546		4	In Operation
2	Bhowrah South	UG Section	0.29	0.377	571.58	>30	In Operation
		3 Pit OC Section	0.235	0.305		4.5	In Operation
		Chandan OC Section	0.158	0.205		2.5	In Operation
3	Patherdih	UG Section	0.054	0.07	244.34	>30	In Operation
		Chandan OC Section	0.22	0.286		4	In Operation
4	Sudamdih Incline (UG)		0.09	0.117	254.27	>30	In Operation
5	Sudamdih Shaft (UG)		0.185	0.24	391.5	>30	In Operation
6	Amlabad UG Mine				386.95		Closed for Production
	Total		1.762	2.289	2057.47		
	Sudamdih Coal Washery (Within the lease hold of Sudamdih Shaft Mine)		1,6	2,08	18	18	In Operation

iv. Cluster-X group of mines of BCCL is a group of six mines consisting of opencast and underground mines of the Bharat Coking Coal Limited in the Dhanbad District of Jharkhand State. The cluster is flanked in the east and in the north by TISCO mines and in the west and south by metamorphic. The cluster is drained by River Damodar flowing easterly along the southern part of the cluster.

v. **The major project parameters of the mines of Cluster-X are given below:**

TECHNICAL PARAMETERS OF CLUSTER X MINES									
Name of Mines	Bhowrah North		Bhowrah South			Patherdih		Sudamdih Incline	Sudamdih Shaft (UG)
	UG Section	OC Section	UG Section	3 pit OC Section	COCP Section	UG Section	OC Section		
Lease Area (Ha)	208.83		571.58			244.34		254.27	391.5
Life (in years)	30	4	30	2	2.5	30	4	30	30

Max. depth	260	100	350	110	90	270	100	160	400
Method of Mining	Bord & Pillar	Shovel Dumper Combination	Bord & Pillar	Shovel Dumper Combination	Shovel Dumper Combination	Bord & Pillar	Shovel Dumper Combination	Bord & Pillar	JANC KOWICE
Proposed peak Production (MTPA)	0.143	0.546	0.377	0.305	0.205	0.070	0.286	0.117	0.240
Production in 2011-12 (MTPA)	0.048	0.155	0.051	0.185	0	0.015	0.132	0.039	0.021
Cost Price (Rs/T)	11239	521.10	14083.85	455.97	-	16854.81	4433.86	13757.71	35993.24
Selling Price (Rs./T)	3578.83	5134.52	2013.44	5020.54	-	1907.71	1326.04	1909.44	3598.96
Manpower	900	145	1074	142	300	462	338	936	1151
Grade of Coal	W- II, W- IV	ST-II	St-1 to W- IV	St-II & W-II	NL W- IV	W- IV	W- III, W- IV	W-IV	W-I & W-IV
Mineable Reserve (Mt)	13.3	1.6	48.47	0.485	0.44	2.52	0.9	3.944	6.748
Seams to be worked	VIII, VII, VI, V, IVT, IVB	XIV, XV & XIVA	XVII, VII, VI, V, IV T/IV B, III	XIV, XIII, XI/XII, IX/X	IV Top, IV Bot, III, II, I T, IB	VI	III, II, I T/I M, IB	VIII, VII, VI, IV	XI/XII, VIIIA, Local, VIII, VII

- vi. The fire in the cluster will be dealt in accordance with the approved Master Plan. Isothermal mapping using thermal imaging by NRSA. Measures would be taken to prevent ingress of air (ventilation) in ug fire areas such areas, which may re-start fresh fires. Opencast mining is proposed before start of underground mining. There would be no external OB dumps. Total of 27.01 Mcum of OB will be generated from the 4 OC patches would be backfilled. At the end of the mining there would be no void. The backfilled area will be technically & biologically reclaimed.

vii. The details of post-mining land use of Cluster-X are given below:

S.No	Type Land Use	Present Mining Land Use(In Ha)	Post- Mining Land Use(In
1.	Running quarry		
	Backfilled	35.12	0.00
	Not Backfilled	66.70	0.00
2.	Abandoned quarry		0.00
	Backfilled	46.15	0.00
	Not Backfilled	69.00	0.00
3.	External OB dump	53.80	0.00
4.	Service building/mne infrastructure	17.27	0.00
5.	Coal dump	15.63	0.00
6.	Road & rail	87.35	87.34
7.	Homestead land	103.31	103.01
8.	Agriculture land	35.81	35.81
9.	Forest land	0.00	0.00
10.	Plantation/reclamation	57.03	755.41
11.	Water body	243.97	286.54
12.	Barren land	1226.35	789.36
	Total	2057.47	2057.47

- viii. For Coal Transportation, in phase-I(10+5 years),it is proposed to continue the existing Road-Rail transport network system in view of the implementation of the Jharia Action Plan (for 10 years) and Another 5 years gestation period after the completion of Jharia Action Plan for consolidation of the backfilled dug out fire areas and unstable areas is required. Thus the period of 15 years make the Phase-I.
- ix. All mitigation measures (like covered trucks, green belting on either sides of the roads, enhanced water sprinkling, strengthening and maintaining the roads etc.) shall be adopted up to 15 years with the existing road-rail transport system. Later, in Phase –II, (after 15 years) the BCCL shall implement conveyor-cum-rail transport to avoid movement of trucks within the cluster for coal transportation in Phase-II which shall start after 15 years from now. It is proposed to carry all coal transport by Rail and Conveyor belt, minimizing the existing road transport system in about 5 mines with about 0.87 MTY that would continue after 15 years. Coal dispatch shall be done via RLS and suitably designed off-take points shall be provided. In cluster X, The proposed Coal transportation 0.947 MTPA peak production of coal from the mines at that time of operation (0.143MTPA of Bhowrah North UG , 0.3771 MTPA Bhowrah South (UG), 0.07 MTPA of Patherdih (UG), 0.117 MTPA from Sudamdih Incline (UG),0.24 MTPA Sudamdih Shaft (UG)) of Cluster- X after 15 years in Phase -II would be mainly transported by Conveyor to railway siding. Presently the transportation of coal is upto railway siding by road.
- x. The subsidence prediction study has been done for the panels as proposed to be depillared in mine projection plans for different seams and considering the geo-mining parameters as provided by Colliery Authority. The site specific subsidence parameters, e.g. subsidence factor, angle of draw, non-effective width of the panels are not available for the mine.
- xi. The Patherdih Colliery, Bhowrah XIII, XIV Seam, Amlabad XIV Seam in cluster X fire affected. BCCL has engaged National Remote Sensing Agency (NRSA), Hyderabad for conducting Thermal Infra Red imaging of the fire areas and monitoring of temperatures and fire spots in

2006. NRSA had used ASTER Satellite Imagery for ascertaining the fire areas for the whole Jharia Coalfield and have prepared isothermal contour map of the Jharia Coalfield which is procured shortly.

- xii. It was informed that OB dump fires would be dealt with by cooling, quenching and removal, excavation of fire material and filling with cohesive soil and surface sealing. In addition to this, BCCL also identified about 45 ha. of mined out lands for ecological restoration to be done for next monsoon and the whole work shall be done through local villagers.
- xiii. It is planned to take up an additional 854.72 ha area and 2136800 nos of plants to be planted. Action Plan has also been prepared for Ecological Restoration OB dumps and Voids.
- xiv. BCCL has formulated its Corporate Environment Policy. BCCL is formulating a detailed Corporate Social Responsibility (CSR) Action Plan through Tata Institute of Social Sciences (TISS), Mumbai which will consist of need-based base-line survey, CSR Action Plan, CSR Auditing and monitoring mechanism etc. This job is expected to be completed by 2012. The normative capacity of the Cluster X is 1.762 MT. 5% of the retained earnings of the previous year subject to minimum of Rs. 5 per tonne of coal production of the previous year will be provided for Corporate Social Responsibility (CSR). An amount to the tune of Rs. 87.71 lakhs will be used for the CSR works per year for Cluster X. This expenditure will be done under the activities mentioned in the scope of CSR above. The cost of EMP (Capital) would be Rs 860.50 Lakh and Recurring cost Rs 45.45 Lakh.
- xv. Total 29.01 Million m³ of OB will be generated from four opencast patches in three mixed mines (Bhowrah North, Bhowrah South & Patherdih) during their whole life. The entire OB produced will be dumped internally over the de-coaled area and backfilled. 40.7 ha of water body will be created with 15-20 m depth which shall be put to use for the local community/pisciculture.
- xvi. Details of Rehabilitation in Cluster-X is as follows:

Details of Rehabilitation in Cluster-X		
S.N.	Parameter	Details
1.	Total Voids	20.511 Mm ³
2.	Total External OB	16.85 Mm ³
3.	Total Unstable Sites	25 no
4.	Total Affected Area	697600 m ²
5.	No. of Houses to be rehabilitated	1670 no. as per JAP
6.	Land for Resettlement	8.50 ha (BCCL land) 23.10 ha (Non-BCCL land)
7.	Total cost of fire dealing	700.00 lakhs
8.	Total resettlement Cost	Rs 7087.75 lakhs

Environmental issues-Mitigation & benefits	
Major Env. issues	Mitigation measures & Benefits
Voids (135.7 Ha.)	95.0 Ha. Backfilling and 40.7 Ha. Water body
Ex. OB Dumps(53.8 Ha.)	Use for backfilling. No external dumps will be there.

Fire/Unstable area (25 sites with 0.7 sqkm consisting of 1670 families)	Dig out fire at cost of Rs. 700.0 lakhs and rehabilitate affected families at cost of Rs. 7087.75 lakhs
Loss of coal (10% locked in barriers)	Recover 7.5 MT of coal from barriers
Reclamation/Mine closure	Plantation in 755.41 Ha. Rs.3876.15lakhs for Mine Closure (Fund allocation for mine closure as per MoC guideline and adopted by BCCL @ Rs.1 lakh/Ha. in case of U/G mines and Rs.6 laks/Ha. in case of OCP mines)
CSR	Rs.87.71 lakhs per year (Fund allocation for CSR as per CIL guideline and adopted by BCCL @ Rs. 5/Tonne of Coal produced

- xvii. Damodar River is the master drainage of the area. Total water discharge of the mines of the cluster is 9140 cum/day The peak water requirement of cluster-X would be 6770 m³/day (2512 m³/day for mining operations and 4258 m³/day for domestic). It was informed that 40.7 ha of the void will be backfilled upto a depth of 15-20m for creation of water body and the remaining void will be backfilled upto the ground level. Water level in the cluster is in the range of 0.85-10.82 (pre-monsoon) and 0.10 m bgl – 7.32 m bgl (post-monsoon) in core area . The existing natural water body is in 243.97 ha area. In the post mining stage an additional 40.7 ha of water body will be created with 15-20 mt and would be used for community /Pisciculture. At the end mining there will be no void.
- xviii. The Public Hearing for Cluster-X was held on 17.03.2012
- xix. The EMP Capital cost Rs 860.50 Lakhs. Mine closure cost would be Rs. 3876.15 Lakh. Additional Capital Cost for the mines in the cluster is 1490.82 Lakhs.
- xx. All the mines of the clusters are pre-nationalization mines, therefore, there is no existing mining plan. Company has adopted “Corporate Environmental Policy” which has been approved by its Board of Directors on 21.04.2012.
- xxi. **Sudamdih Coal Washery :** The Coal Washery at Sudamdih, Dhanbad, Jharkhand with production capacity of 1.6 Mty (nominative) & 2.08 (peak) in an area of 18 Ha within the lease hold of Sudamdih Shaft mine(UG) which is located in south-eastern part of Jharia Coalfield in Dhanbad District of Jharkhand, adjacent to the Damodar River. It is at a distance of 2 Km from Sudamdih Railway Station. In its East side Chasnalla Washery of IISCO is situated, in the South is River Damodar, in the West Sudamdih Incline mine is located. The Washery is connected with Dhanbad-Jharia-Chas State Highway about 3 km away. The raw coal input of the washery in 2011-12 was 0.5114 MT with grade W-III, W-IV. The Clean/ Washed Coal was 0.2025 MT with 39.60 %yield (19.7% ash), Middlings & Slurry Coal 0.3039 MT with 59.42 % yield (37.49% ash) and Rejects was 0.0050 MT(75.26% ash). It is zero discharge washery. Coal from mines of cluster-X and IX of (+) 300 mm sizes are used in the washery. Coal then passes through Rotary Breaker where raw rejects (nearly 1.0%) are separated and remaining coal having sizes of (-) 125mm goes to stock piles by series of conveyor belts. Secondary crushing is done in the size of (-) 37mm by Hammer Crushers. Crushed coal is sent to distributing conveyor which distributes coal on eight no. of declining screens. The over flow of desliming screen having size (-) 37mm to + 0.5mm (coarse coal) is beneficiated in heavy media cyclones and the underflow coal of

screen having size (-) 0.5mm (fine coal) is beneficiated by froth floatation, disc filters and high frequency screens. Effluent, if any, is settled in settling ponds. Settled coal is marketed after grading through external reputed agencies and the water is re-circulated back to the plant. The overflow and underflow of cyclones are rinsed with water on rinsing screens and sent to clean coal and middling coal silos. There are three nos. of clean coal silos having capacity of 2000T each and one no. of middling silo having capacity of 2700T. Loading in railway wagons is done through silos for dispatch to consumers. Major coal consumers are SAIL/ RINLI/ ISCO in respect of Washed Coal and DVC/ NTPC/ /DSP/ BSP/ RSP etc. in respect of Middlings. Water required for the washery is about 0.1 MGD. For dispatch of clean coal and middling well maintained Railway siding with electronic weighbridge is existing at Sudamdih Washery. Loading of washed coal and & middlings takes place through chutes & conveyors from Silos. The Rejects produced will be disposed off to the selected party for utilization in FBC based power generation. Tendering is already under process. The life of washery is 18 years.

3. It was further stated that the Jharia Action Plan, which consists of all fire dousing projects/plans had been surveyed by DGMS and DGMS is also the monitoring and scrutinizing agency constituted by the Hon'ble Supreme Court of India under the WP(PIL) 387/1997 i.e. Haradhan Roy Vs UOI. It was clarified that any new scheme of fire dousing would need the approval of DGMS.

4. This is a violation case. As per the Office Memorandum dated 12.12.2012, issued by the Ministry of Environment and Forests, with regard to the consideration of proposals for ToR/Environment clearance/CRZ clearance involving violation of the Environment (Protection) Act, 1986/EIA notification, 2006/CRZ notification, 2011, the Environmental Clearance will be granted after the written commitment in the form of a formal resolution by the Board of Directors submitted to the MoEF to ensure that violations will not be repeated and the State Government concerned initiates credible action on the violation by invoking powers under Section 19 of the Environment (Protection) Act, 1986 for taking legal action under section 15 of the Act for the period for which the violation has taken place and evidence provided to the MoEF of the action taken. In this case, the Board's resolution has been received. As regards credible action, Jharkhand State Pollution Control Board, has issued directions of closure of collieries of M/S Bharat Coking Coal Limited under section 31A & 33A of Air (Prevention and Control of Pollution) Act, 1981 & Water (Prevention and Control of Pollution) Act, 1974 respectively for operating without obtaining Environmental Clearance. M/s BCCL has filed a Writ Petition (No. 4944/11) challenging the Board's directions of closure. The Jharkhand High Court has passed interim order on 25.08.2011 that "Till then, status quo, as on today, shall be maintained by the parties" and passed order on 18.01.2012 that "Until further orders, the interim order dated 25.08.2011 shall continue". In the light of interim orders of the Jharkhand High Court, the State Pollution Control Board is seeking legal opinion for initiating legal action against the collieries of BCCL in the Court of Law in terms of the OM of the MoEF. The State Government has been asked to expedite taking legal opinion and taking action under intimation to the MoEF.

5. The proposal was considered in the Expert Appraisal Committee (EAC) (Thermal & Coal Mining) and recommended in its 55th meeting held on 27-28 August, 2012 for granting Environmental Clearance. The Ministry of Environment & Forests has examined the application in accordance with the EIA Notification 2006 and under the provisions thereof, hereby accords environmental clearance for the above-mentioned Cluster XIV (2 mines (One Underground & One proposed Patch of OC Section Mine) of a peak production of 0.526 MTPA in a combined ML area of 1577.22 ha) of M/s Bharat Coking Coal Ltd., located in Jharia Coalfields, Dist. Dhanbad, Jharkhand under the provisions of the Environmental Impact Assessment Notification, 2006 and amendments thereto and Circulars issued thereon and subject to the compliance of the terms and conditions in addition to the general conditions as mentioned below:

A. Specific Conditions:

- (i) The maximum production from the opencast and underground section in the cluster shall not exceed beyond that for which environmental clearance has been granted for the cluster X as below:

Sl No	Name of Mines		Production Capacity (MTY)		Lease Hold Area (Ha)	Life (Years)	Status
			Normative	Peak			
1	Bhowrah North	UG Section	0.11	0.143	208.83	>30	In Operation
		OC Section	0.42	0.546		4	In Operation
2	Bhowrah South	UG Section	0.29	0.377	571.58	>30	In Operation
		3 Pit OC Section	0.235	0.305		4.5	In Operation
		Chandan OC Section	0.158	0.205		2.5	In Operation
3	Patherdih	UG Section	0.054	0.07	244.34	>30	In Operation
		Chandan OC Section	0.22	0.286		4	In Operation
4	Sudamdih Incline (UG)		0.09	0.117	254.27	>30	In Operation
5	Sudamdih Shaft (UG)		0.185	0.24	391.5	>30	In Operation
6	Amlabad UG Mine				386.95		Closed for Production
	Total		1.762	2.289	2057.47		
	Sudamdih Coal Washery (Within the lease hold of Sudamdih Shaft Mine)		1,6	2,08	18	18	In Operation

- (ii) All the void /water bodies should be backfilled upto ground level and no OB dump at the end of mining.

- (iii) Extensive plantation should be provided on either side of Damodar River;
- (iv) Details of impact of mining on Damodar River should be assessed and provided;
- (v) Impact of mining on ground water of the area (Impact Zone) should be provided;
- (vi) A Garland drain should be provided and the drain water should not be discharged in to Damodar River;
- (vii) Excess water from mine after treatment should be supplied to the villagers;
- (viii) Rejects of washery along with dry carbon slurry should be utilized in power plant and other recognized vendors;
- (ix) There should be no discharge from the Washery (slurry) in to the Damodar River. The entire washery water should be recycled;
- (x) Damodar River should be protected by plantation on both sides;
- (xi) A herbal garden with medicinal plants be developed;
- (xii) A time schedule for filling of existing and abandoned quarries be done;
- (xiii) Of the total water body area of 286.54 ha in the post-mining land use , consist of 243.97 ha of natural water bodies like Damodar river and no. of water ponds. Only 42.57 ha of mine voids were proposed to be converted to artificial water bodies for catering to domestic use of local villagers. Keeping in view the Damodar river in the vicinity, there should be no additional water bodies be created from mine.
- (xiv) The measure identified in the environmental plan for cluster X groups of mine and the conditions given in this environmental clearance letter shall be dovetailed to the implementation of the Jharia Action Plan.
- (xv) As there is no fire in Cluster X but the measure should be adopted by proponent to control spread of neighbouring fire to this Cluster X. The proponent shall prepare time -series maps of the Jharia Coalfields through NRSA to monitor and prevent fire problems in the Jharia Coalfields by Isothermal mapping /imaging and monitoring temperatures of the coal seams (whether they are close to spontaneous ignition temperatures) and based on which, areas with potential fire problems shall be identified. Measures to prevent ingress of air (Ventilation) in such areas, to prevent restart fresh/spread fires in other areas including in mines of cluster XIV shall be undertaken.
- (xvi) Underground mining should be taken up after completion of reclamation of Opencast mine area after 2 years.
- (xvii) No mining shall be undertaken where underground fires continue. Measure shall be taken to prevent/ check such fire including in old OB dump
- (xviii) A part of cluster X is under River Damodar. It was clarified that although the mine is underground, there is no coal underneath River Damodar, which would be mined. The Committee desired that the data of bore wells near River Damodar require to be monitored for permeability and seepage of waster of River Damodar.
- (xix) The rejects of washeries in Cluster –X should be send to FBC based plant.
- (xx) There shall be no external OB dumps. OB produce from the whole cluster will be 29.01 Mm³. OB from One Patch OCP mine shall be backfilled. At the end of the mining there shall be no void and the entire mined out area shall be re-vegetated. Areas where opencast mining was carried out and completed shall be reclaimed immediately thereafter.

- (xxi) A detailed calendar plan of production with plan for OB dumping and backfilling (for OC mines) and reclamation and final mine closure plan for each mine of cluster- X shall be drawn up and implemented.
- (xxii) The void in 5 ha area shall be converted into a water reservoir of a maximum depth of 15-20 m in post mining stage and shall be gently sloped and the upper benches of the reservoir shall be stabilised with plantation and the periphery of the reservoir fenced. The abandoned pits and voids should be backfilled with OB and biologically reclaimed with plantation and or may be used for pisciculture
- (xxiii) Mining shall be carried out as per statuette from the streams/nalas flowing within the lease and maintaining a safe distance from the Nalas flowing along the lease boundary. A safety barrier of a minimum 60m width shall be maintained along the nalas/water bodies. The small water bodies in OC shall be protected to the extent feasible and the embankment proposed along water body shall be strengthened with stone pitching.
- (xxiv) Active OB dumps near water bodies and rivers should be rehandled for backfilling abandoned mine voids. However, those which have been biologically reclaimed need not be disturbed.
- (xxv) Thick green belt shall be developed along undisturbed areas, mine boundary and in mine reclamation. During post mining stage, a total of 47.63 ha area would be reclaimed by planting native species in consultation with the local DFO/Agriculture Department/institution with the relevant discipline. The density of the trees shall be around 2500 plants per ha.
- (xxvi) The road should be provided with avenue plantation on both side as trees act as sink of carbon and other pollutant.
- (xxvii) Specific mitigative measures identified for the Jharia Coalfields in the Environmental Action Plan prepared for Dhanbad as a critically polluted area and relevant for Cluster -XIV shall be implemented.
- (xxviii) The locations of monitoring stations in the Jharia Coalfields should be finalized in consultation with the Jharkhand State Pollution Control Board. The Committee stated that smoke/dust emission vary from source to source (fuel wood, coal, flyash from TPPs, silica from natural dust, etc) and a Source Apportionment Study should be got carried out for the entire Jharia Coalfields. Mineralogical composition study should be undertaken on the composition of the suspended particulate matter (PM₁₀ and PM_{2.5}) in Jharia Coalfields and also quantified. These studies would help ascertain source and extent of the air pollution, based on which appropriate mitigative measures could be taken.
- (xxix) No groundwater shall be used for the mining activities. Additional water required, if any, shall be met from mine water or by recycling/reuse of the water from the existing activities and from rainwater harvesting measures. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry to dewatering of mine.
- (xxx) Regular monitoring of groundwater level and quality of the study area shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality including Arsenic and Fluoride during the month of May. Data thus collected shall be submitted to the Ministry of Environment & Forest and to the Central Pollution Control Board/SPCB quarterly within one

month of monitoring. Rainwater harvesting measures shall be undertaken in case monitoring of water table indicates a declining trend.

- (xxxi) Mine discharge water shall be treated to meet standards prescribed standards before discharge into natural water courses/agriculture. The quality of the water discharged shall be monitored at the outlet points and proper records maintained thereof and uploaded regularly on the company website.
- (xxxii) ETP shall also be provided for workshop, and CHP, if any. Effluents shall be treated to confirm to prescribed standards in case discharge into the natural water course.
- (xxxiii) Regular monitoring of subsidence movement on the surface over and around the working area and impact on natural drainage pattern, water bodies, vegetation, structure, roads, and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate effective corrective measures shall be taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable material.
- (xxxiv) Sufficient coal pillars shall be left unextracted around the air shaft (within the subsidence influence area) to protect from any damage from subsidence, if any.
- (xxxv) High root density tree species shall be selected and planted over areas likely to be affected by subsidence.
- (xxxvi) Depression due to subsidence resulting in water accumulating within the low lying areas shall be filled up or drained out by cutting drains.
- (xxxvii) Solid barriers shall be left below the roads falling within the blocks to avoid any damage to the roads.
- (xxxviii) No depillaring operation shall be carried out below the township/colony.
- (xxxix) The Transportation Plan for conveyor-cum-rail for Cluster- X should be dovetailed with Jharia Action Plan. Road transportation of coal during Phase-I should be by mechanically covered trucks, which should be introduced at the earliest. The Plan for conveyor-cum-rail for Cluster-XIV should be dovetailed with Jharia Action Plan. The road transpiration of coal during phase-I should be by mechanically covered trucks.
- (xl) A study should be initiated to analyze extent of reduction in pollution load every year by reducing road transport.
- (xli) R&R of 1670 nos of PAF's involved. They should be rehabilitated at cost of Rs 7087.75 Lakhs as per the approved Jharia Action Plan.
- (xlii) Details of transportation, CSR, R&R and implementation of environmental action plan for each of the 17 clusters should be brought out in a booklet for and submitted to Ministry.
- (xliii) A detailed CSR Action Plan shall be prepared for Cluster X group of mines. Specific activities shall be identified for CSR of Rs 20.25/annum @ of Rs 5/ton of coal production. as recurring expenditure. The 47.63 ha of area within Cluster XIV ML existing as waste land and not being acquired shall be put to productive use under CSR and developed with fruit bearing and other

useful species for the local communities. Third party evaluation shall be got carried out regularly for the proper implementation of activities undertaken in the project area under CSR. Issue raised in the Public Hearing shall also be integrated with activities being taken up under CSR. The details of CSR undertaken along with budgetary provisions for the village-wise various activities and expenditure thereon shall be uploaded on the company website every year. The company must give priority to capacity building both within the company and to the local youth, who are motivated to carry out the work in future.

- (xliv) For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhubaneswar.
- (xlv) A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests five year before mine closure for approval. Habitat Restoration Plan of the mine area shall be carried out using a mix of native species found in the original ecosystem, which were conserved in-situ and ex-situ in an identified area within the lease for reintroduction in the mine during mine reclamation and at the post mining stage for habitat restoration.
- (xlvi) A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company for implementing environment policy and socio-economic issues and the capacity building required in this regard.
- (xlvii) Implementation of final mine closure plan for Cluster X, subject to obtaining prior approval of the DGMS in regard to mine safety issues
- (xlviii) Corporate Environment Responsibility:
 - a) The Company shall have a well laid down Environment Policy approved by the Board of Directors.
 - b) The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
 - c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.
 - d) To have proper checks and balances, the company shall 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.

B. General Conditions

- (i) No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.
- (ii) No change in the calendar plan of production for quantum of mineral coal shall be made.
- (iii) Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM₁₀, PM_{2.5}, SO₂ and NO_x monitoring. 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) Data on ambient air quality (PM₁₀, PM_{2.5}, SO₂ and NO_x) and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly submitted to the Ministry including its Regional Office at Bhubaneswar and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognised under the EPA rules, 1986 shall be furnished as part of compliance report.
- (v) 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.
- (vi) Industrial wastewater (workshop and wastewater from the mine) shall 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 before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.
- (vii) Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.
- (viii) Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analysed through a laboratory recognised under EPA Rules, 1986.
- (ix) Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.
- (x) Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed and records maintained thereof. The quality of environment due to outsourcing and the health and safety issues of the outsourced manpower should be addressed by the company while outsourcing.
- (xi) A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.
- (xii) The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bhubaneswar.
- (xiii) The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days 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 may also be seen at the website of the ministry of Environment & Forests at <http://envfor.nic.in>.
- (xiv) A copy of the environmental clearance letter shall be marked to concern Panchayat/ZilaParishad, Municipal corporation or Urban local body and local NGO, if any, from whom any suggestion /representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on company's website.
- (xv) A copy of the environmental clearance letter shall be shall also be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Sector and Collector's Office/Tehsildar's Office for 30 days.
- (xvi) The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated environmental clearance 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.

- (xvii) The project proponent shall submit six monthly compliance reports on status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the Ministry, respective Zonal Office s of CPCB and the SPCB.
 - (xviii) The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/ information/monitoring reports.
 - (xix) The Environmental statement for each financial year ending 31 March in For –V is mandated to be submitted by the project proponent 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 by E-mail
6. The Ministry or any other Competent Authority may stipulate any further condition(s) for environmental protection.
 7. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract the provisions of the Environment (Protection) Act, 1986.
 8. 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. 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 mining operations.
 9. The Environmental Clearance is subject to the outcome of the Writ Petition filed by M/S Bharat Coking Coal Limited (BCCL) in response to the closure orders issued by the Jharkhand State Pollution Control Board which is pending in the Jharkhand High Court.

(Dr. Manoranjan Hota)
Director

Copy to:

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi.
2. Secretary, Department of Environment & Forests, Government of Jharkhand, Secretariat, Ranchi.
3. Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, A-31, Chandrashekarapur, Bhubaneswar – 751023.
4. Chairman, Jharkhand State Pollution Control Board, T.A. Division Building (Ground Floor), H.E.C., Dhurwa, Ranchi – 834004.
5. Chairman, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, New Delhi -110032.
6. Member-Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi.
7. District Collector, dist. Dhanbad Government of Jharkhand.
8. Monitoring File 9. Guard File 10. Record File

(Dr. Manoranjan Hota)
Director

No.J-11015/380/2010-IA-II(M)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division

Indira Paryavaran Bhawan,
Jorbagh Road, N Delhi-3

Dated: 12th June, 2019

To,

The General Manager (E&F)
M/s Bharat Coking Coal Ltd,
Koyala Bhawan,
District **Dhanbad** (Jharkhand) Email: envbccl@gmail.com

Sub: Cluster X Coal Mining Project of capacity 2.289 MTPA and Coal Washery of 2.08 MTPA of M/s Bharat Coking Coal Limited in an area of 2057.47 ha located in District Dhanbad (Jharkhand) - Amendment in Environmental Clearance - reg.

Sir,

This refers to your online proposal No. IA/JH/CMIN/8812/2010 dated 15th September, 2017 and additional information dated 9th February, 2019 on the above mentioned subject.

2. The Ministry of Environment, Forest and Climate Change has considered the proposal for amendment in environmental clearance dated 6th February, 2013 granted by the Ministry in favour of M/s Bharat Coking Coal Ltd for Cluster X Coal Mining Project (comprising six mine lease holds) of total capacity 2.289 MTPA (peak) and coal washery of 2.08 MTPA in a total area of 2057.47 ha in Jharia Coalfields, District Dhanbad (Jharkhand).

3. The amendment in said environmental clearance has been sought due to the proposed restructuring/re-appropriation of individual mines in the Cluster for implementation of the Master Plan dealing with fire and subsidence, with the revised details as under:-

S. No.	Mine	Type of Mine	Production Capacity (MTPA)	Lease Area (ha)	Mine Life (Years)	
		UG/OC				
1	Bhowrah North	UG	0.143	208.83	>20	
	Bhowrah North	OC	0.546		6	
2	Bhowrah South	UG	0.377	571.58	30	Fire dealing
		OC	1.2		43	
3	Amalagamated Sudamdih Patherdih Mine	OC	0.709	498.61	33	Amalgamation of mines for fire dealing
4	Sudamdih Shaft	UG	0.24	391.5	30	
5	Amlabad Closed	UG	0	386.95	NA	
6	Sudamdih Coal Washery (Within lease hold of Sudamdih Shaft Mine)		2.08	18	18	
	TOTAL		2.289	2057.47		

With the proposed restructuring, combined production capacity of the Cluster would remain at 2.289 MTPA (peak) in the same total area of 2057.47 ha.



Revised Mining Plan for the changed capacities of individual mines/lease holds namely, Amalgamated Sudamdih Patherdih OCP and Bhowrah South OCP has been approved by the Board of M/s Bharat Coking Coal Ltd on 29th January, 2019.

4. The proposal was considered by the sectoral Expert Appraisal Committee in its meeting held on 24-25 April, 2019, wherein the Committee recommended the amendments proposed by the project proponent as stated in para 3 above. Based on recommendations of the EAC, Ministry of Environment, Forest and Climate Change hereby accords approval for amendment in environmental clearance dated 6th February, 2013 to effect changes in production capacities of individual mines/lease holds of Cluster X Coal Mining Project of total capacity 2.289 MTPA (peak) and Coal Washery of 2.08 MTPA in an area of 2057.47 ha.

5. All terms and conditions stipulated in the environmental clearance dated 6th February, 2013 shall remain unchanged.


12/6/2019
(S. K. Srivastava)
Scientist E

Copy to:

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi
2. The Additional Principal Chief Conservator of Forests, Regional office (ECZ), Ministry of Environment & Forests, Bungalow No. A-2, Shyamali Colony, Ranchi - 834002
3. The Member Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi
4. The Secretary, Department of Environment & Forests, Government of Jharkhand, Secretariat, Ranchi
5. The Advisor, Coal India Limited, SCOPE Minar, Core-I, 4th Floor, Vikas Marg, Laxmi Nagar, N Delhi
6. The Member Secretary, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 32
7. The Member Secretary, Jharkhand State Pollution Control Board, TA Building, HEC Complex, PO Dhurwa, Ranchi
8. The District Collector, Dhanbad, Government of Jharkhand
9. Monitoring File 10. Guard File 11. Record File 12. Notice Board



File No.: J-11015/380/2010-IA.II(M)
Government of India
Ministry of Environment, Forest and
Climate Change
IA Division



Dated 15/04/2025



To,

Sh. Arun Prasad
M/s. Bharat Coking Coal Limited
Koyla Bhawan, Koyla Nagar, Dhanbad, Jharkhand, 826005 , DHANBAD
E-mail: amenv.bstcla.bccl@coalindia.in

Subject: Cluster X Coal Mining Project and Coal Washery (opencast cum underground coal mining in an reduced ML area from 2057.47 ha to 1670.52 ha and increase in production capacity from 2.289 MTPA to 2.746 MTPA) by M/s Bharat Coking Coal Limited, located at District Dhanbad; State: Jharkhand – Environmental Clearance for 20% (Phase – I) expansion as per the provisions of Ministry's OM dated 11/04/2022 and reduction in ML area from 2057.47 Ha to 1670.52 Ha-regarding.

Sir/Madam,

This is in reference to your application submitted to MoEF&CC vide proposal number IA/JH/CMIN/518716/2025 dated 17/01/2025 along with submission of written information dated 28.03.2025 seeking for grant of prior Environmental Clearance (EC) under the provision of the EIA Notification 2006-and as amended thereof for the project mentioned above.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC25A0605JH5828995N
(ii) File No.	J-11015/380/2010-IA.II(M)
(iii) Clearance Type	Fresh EC
(iv) Category	A
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals,2(a) Coal washeries
(vi) Sector	Coal Mining
(vii) Name of Project	Cluster X Coal Mining Project and Coal Washery
(ix) Location of Project (District, State)	DHANBAD, JHARKHAND
(x) Issuing Authority	MoEF&CC
(xii) Applicability of General Conditions	No

3. M/s. Bharat Coking Coal Limited has made an online application vide proposal no. IA/JH/CMIN/518716/2025 Dated

17/01/2025 along with copy of EIA/EMP report, Form along with the certified compliance report and sought for Environment Clearance (EC) for expansion under para 7(ii)(a) based on OM dated 11.04.2022 under the provisions of the EIA Notification, 2006 for the project mentioned above.

4. The proposed project activity is listed at item no. 1 (a) Under Category “A” of the schedule of the EIA Notification, 2006.

5. The instant Proposal was considered in 22nd EAC meeting held on 17th -18th March, 2025. The written information was submitted on 28.03.2025. The MoM for the same may be seen using the web link: parivesh.nic.in.

Details submitted by the project proponent

6. The project of M/s BCCL is a brownfield project for Expansion (20 % in 1st Phase) of existing EC of Cluster X under para 7(ii) (a) based on OM dated 11.04.2022 with peak capacity change from 2.289 MTPA to 2.746 MTPA with mining lease area reduced to 1670.52 from 2057.47 Ha.

7. **Details of Previous Approvals in chronological orders:** PP submitted the details of previous approvals in the chronological order as follows:

S. No.	Details of Letter No.	EC/Expansion EC/Amendment in EC/Validity extension/Transfer of EC	Date	Capacity (MTPA)	Area (Ha)	Remarks
1	J-11015/380/2010-IA.II (M)	EC	06.02.2013	2.289	2057.95	55 th EAC 27 th -28 th August 2012
2	J-11015/380/2010-IA.II (M)	Amendment in EC	12.06.2019	2.289	2057.47 ha	44 th EAC 24 th -25 th April 2019

Details of EC dated 06.02.2013: Environment Clearance dated 06.02.2013 was accorded by the Ministry to M/s BCCL for Cluster X Coal Mining Project and Coal Washery (opencast cum underground coal mining) in ML area of 2057.95 ha for the production capacity of 2.289 MTPA. The maximum production for the opencast and underground section in the Cluster for which EC was accorded is as follows:

S. No.	Name of Mines		Production capacity (MTPA)		Leasehold Area	Life (years)	Status
			Normative	Peak			
1.	Bhowrah North	UG Section	0.11	0.143	208.83	>30	In operation
		OC Section	0.42	0.546		4	In operation
2.	Bhowrah South	UG Section	0.29	0.377	571.58	>30	In operation
		3 Pit OC Section	0.235	0.305		4.5	In operation
		Chandan OC Section	0.158	0.205		2.5	In operation
3.	Patherdih	UG Section	0.054	0.07	244.34	>30	In operation
		Chandan OC Section	0.22	0.286		4	In operation
4.	Sudamdih Incline (UG)		0.09	0.117	254.27	>30	In operation
5.	Sudamdih Shaft (UG)		0.185	0.24	391.5	>30	In operation
6.	Amlabad UG Mine				386.95		Closed for production
	Total		1.762	2.289	2057.47		
	Sudamdih Coal Washery (within the leasehold area of Sudamdih Shaft Mine)		1.6	2.08	18	18	In operation

Details of EC Amendment dated 12.06.2019: Amendment in Environment Clearance was granted to M/s BCCL for Cluster X Coal Mining Project and Coal Washery (opencast cum underground coal mining) in ML area of 2057.47 ha for the production capacity of 2.289 MTPA, vide letter dated 12.06.2019. The amendment was granted for restructuring/re-

appropriating individual mines in the cluster to implement the master plan dealing with fire and subsidence. The revised details granted were as follows:

S. No.	Mine	Type of Mine	Production capacity (MTPA)	Lease Area (ha)	Mine life (years)	Remarks
1.	Bhowrah North	UG	0.143	208.83	>20	
		OC	0.546		6	
2.	Bhowrah South	UG	0.377	571.58	30	
		OC	1.2		43	Fire Dealing
3.	Amalgamated Sudamdih Patherdih Mine	OC	0.709	498.61	33	Amalgamation of mines for fire dealing
4.	Sudamdih Shaft	UG	0.24	391.5	30	
5.	Amlabad Closed	UG	0	386.95	NA	
6.	Sudamdih Coal Washery (within lease hold of Sudamdih Shaft Mine)		2.08	18	18	
	Total		2.289	2057.47		

8. **Production details of existing EC:** W.r.t the previous approvals, PP submitted the actual production details of the concerned mine and submitted that the mine became operational from 2013 onwards. CTO renewal of Cluster X has been obtained from the JPCB and is valid up to 31.12.2025. Details of the same are as follows:

Year	Actual Production (MTPA)	Planned Coal production as per EC (Peak) (MTPA)	Excess production
2013-14	0.528	2.289	NIL
2014-15	0.269	2.289	NIL
2015-16	0.580	2.289	NIL
2016-17	0.725	2.289	NIL
2017-18	0.757	2.289	NIL
2018-19	1.145	2.289	NIL
2019-20	0.499	2.289	NIL
2020-21	0.900	2.289	NIL
2021-22	0.667	2.289	NIL
2022-23	0.794	2.289	NIL
2023-24	1.117	2.289	NIL
2024-25	1.875	2.289	NIL

Mine-wise production details of the existing EC, since last amendment:

S. No.	Name of the mine	Type of Mine	Lease/ Project Area (Ha)	EC Capacity (MTPA)	Production (in MTPA)					
					2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
1	Bhowrah North	UG	208.83	0.143	0.0065	0.000015	0	0	0	0
		OC		0.546	0	0	0	0	0	0.5459
2	Bhowrah South	UG	571.58	0.377	0.0003	0	0	0	0	0
		OC		1.2	0.318	0.675	0.261	0.362	0.7068	1.1998
3	Amalgamated Patherdih Mine	OC	498.61	0.709	0.175	0.225	0.406	0.432	0.4108	0.1300
4	Sudamdih Shaft	UG	391.5	0.24	0.0	0.0	0.0	0.0	0.0	0
5	Amlabad Closed	UG	386.95	0	-	-	-	-	-	0
	Total		2057.47	2.289	0.4998	0.90015	0.667	0.794	1.117	1.875

9. **Certified Compliance Report:** The Status of compliance of earlier EC was obtained from Regional Office, Ranchi vide letter no. 103-402/13/EPE/10 dated 06.01.2025. The Action taken report regarding the partially/non-complied

condition was submitted to the Regional Office by the proponent vide letter dated 14.01.2025.

10. Details of present proposal: The instant proposal is for reducing the ML area of the cluster from 2057.47 Ha to 1670.52 Ha by removing the Amlabad mine (386.95 ha), amalgamating Bhowrah (North & South) Colliery and for increasing the production capacity of the cluster from 2.289 MTPA to 2.746 MTPA (i.e. first phase of 20% expansion) as per the provisions of Ministry's OM dated 11.04.2022.

The proposed mining scenario of the cluster is as follows:

Name of Mines	Type of Mine	Proposed 20% Expansion	Lease Hold Area (Ha)	Life (Years)	Remarks
Bhowrah (North & South) Colliery	Mixed (UG & OC)	2.30	780.41	9	Amalgamation
Amalgamated Sudamdih Patherdih Mine	OC	0.446	498.61	28	
Sudamdih Shaft (UG)	UG	0.00	391.5	-	In-operative
Amlabad	UG	0	(-) 386.95	-	ML Area removed
Total (Cluster X)		2.746	1670.52 (2057.14 – 386.95)		
Sudamdih Coal Washery (Within lease of Sudamdih Shaft Mine)	Washery	2.08	18	12	In-operative. Under Asset Monetization.

Justification:

a. Amalgamation of Bhowrah (North & South) Colliery: The Bhowra (South) and Bhowra (North) collieries are severely affected by fire, with coal reserves trapped within the burning areas and mine barriers. As a result, excavating the fire-affected coal, removing overburden (OB), and creating storage space for OB are necessary. To facilitate fire dousing and systematic OB stacking for the scientific reclamation of the mines, the amalgamation of Bhowra (North) and Bhowra (South) collieries has been proposed. Bhowra (North) Colliery and Bhowra (South) Colliery are amalgamated with Mining Plan Approved by 414th Board of BCCL on 19.10.2024.

b. Carving out of Amlabad Colliery from Cluster X: Amlabad Colliery has been excluded from Cluster X, as the mine was closed before 2009, and the Environmental Clearance (EC) for the cluster was obtained with no allocated capacity for it. Following the directives of the Ministry of Coal, it is now proposed to reopen and operate such closed mines under a Revenue Sharing model. To facilitate this, resource evaluation, reserve estimation, and a separate mining plan will be developed for the operationalization of Amlabad Colliery, which has remained closed for several years. Additionally, the mine is situated on the southern side of the Damodar River. To ensure a separate EC for its future mining prospects and to prevent planning delays for the currently operational mines within Cluster X, it is proposed to carve out Amlabad Colliery from the cluster. A fresh and separate EC, in accordance with the approved mining plan and the EIA Notification of 2006, will be obtained for Amlabad Colliery.

11. Environmental Site Settings: The project area is covered under Survey of India Topo sheet No- 73 I/6 and is bounded by the geographical coordinates ranging from latitude 23°39'30" to 23°40'9" North and longitudes E 86°23'44" to 86°26'27" East.

Project does not fall in the Critically Polluted Area (CPA)/Severely Polluted Area (SPA), as per CEPI Assessment 2018.

Mining Lease: PP submitted the following details of Mine lease:

S. No.	Govt. Order/Notifications as the case may be	Area (ha)
1	- Lease allotment: Coking Coal Mines (Nationalization) Act, 1972 (Act No. 36 of 1972) - The Coal India (Regulation of Transfers and Validation) Act, 2000 (Act No. 45 Of 2000) - Mineral Concession Rules Amendment dated 01.10.2021 (G.S.R. 717(E) dated 01.10.2021)	1670.52

Period of Lease extended up to 07.12.2050 vide notification issued by Ministry of Coal, New Delhi, on the 1st October,

Forest Area: The project does not involve any forestland and there is no violation of Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980.

Other sensitive receptors:

Project site proximity to sensitive area	Yes			
i. Habitation ii. School iii. River/Water Body iv. Forest v. Archaeological Survey of India (ASI) protected site	i. Habitation (Within 5 km buffer)			
	Village	Distance (km)	Direction	
	Bhowra			
	Gourkuthi	Within leasehold of Cluster X		
	Mohalbani	Within leasehold of Cluster X		
	Pargabad	Within leasehold of Cluster X		
	Patherdih	Within leasehold of Cluster X		
	Chandrabad	Within leasehold of Cluster X		
	Gourigram	Within leasehold of Cluster X		
	Sutukdih	Within leasehold of Cluster X		
	Mohal	Within leasehold of Cluster X		
	Swardih	Within leasehold of Cluster X		
	Mohalbani	Within leasehold of Cluster X		
	Sindri	6	West	
	Jharia	5	North	
	Bhojudih	1	South East	
	Amlabad	1	South West	
	Sitanala	1	South West	
	Jairampur	1	North	
	Jealgora	2	North	
	Bararee	3	North	
	Tisra	3	North	
	ii. School (Within 5 km buffer)			
	School		Distance (Km)	Direction
	Bhowra Govt. High School		Within leasehold of Cluster X	
	Denobli School, Digwadih		3	East
	Rajkriyakrit Primary School, Sitanala		1	South
	TATA DAV School, Jamadoba		2	North West
	iii. River/Water Body (Within 5 Km)			
	Water Body		Distance (Km)	Direction
	Damodar river		Passing through Cluster leasehold area	
	A safety distance of 200 meters has been maintained between the workings and the Damodar River. HFL of Damdoar River in 1978 was 139 m. additionally, a dense green belt will be further developed within the safety barrier between the mines and the river, complementing the existing plantation efforts.			
	iv. Forest (Within 5 km buffer): Nil			
	v. Archaeological Survey of India (ASI) protected site: Nil			
	vi. Others			
	S. No.	Particulars	Distance (Km)	Direction
	1.	Bhowra Regional Hospital	Within leasehold of Cluster X	

Project site proximity to sensitive area	Yes		
	2.	Sudamidh Washery	Within leasehold of Cluster X
	3.	NH-218	Within leasehold of Cluster X
	4.	Jealgora Regional Hospital	7 North

No diversion of water body, road, HT/Transmission line, railway line is proposed in the project. Neither the same has been diverted in past.

Protected Area: The project is not located within 10 KM of any ESZ/ ESA/ national park/ wildlife sanctuary/ biosphere reserve/ tiger reserve/ elephant reserve/tiger corridor/elephant corridor etc. No schedule 1 species are reported in Cluster X as per Flora and Fauna Study done by IIT-ISM Dhanbad.

12. Method of Mining & Mining Plan:

i. Approval of Mine Plan and Mine Closure Plan:

Name of Mine	Approved in BCCL Board	Date of approval
Bhowrah (North & South) Colliery	Approved in 414 th Board	19.10.2024
Amalgamated Sudamdih Patherdih Colliery	Approved in 348 th Board	29.01.2019
Sudamdih Shaft (UG)	Approved in 351 st Board	28.05.2019

ii. Method of Mining:

S. No.	Proposed Mines	Type of Mine
1.	Bhowra (North & South) Colliery	Mixed (Opencast/ Underground)
2.	Amalgamated Sudamdih Patherdih Colliery	Opencast
3.	Sudamdih Shaft	Underground
	Sudamdih Coal Washery (Within lease hold of Sudamdih Shaft Mine)	Coal Washery

iii. The net geological reserves with delineated boundary are 100.64 MT out of which mineable reserves are 96.596 MT and extractable reserves are 95.121 MT. Percentage of extraction is 90%.

iv. There are 20 nos of seams, thickness ranging between 0.08 m to 46.05 m.

v. Grade of coal is ST-I to W-IV.

vi. Stripping ratio is 7.23-9.98 cum/ Te.

vii. Life of mine:

Sl. No	Name of Mines	Balance Life (Years)
1	Bhowrah (North & South) Colliery	9
2	Amalgamated Sudamdih Patherdih Colliery	28
3	Sudamdih Shaft (UG)	-

viii. Top Soil Management:

- Quantity of Top Soil to be generated: 0.04 Mm³
- Storage of Top Soil: Will be used concurrently for Plantation
- Handling/Utilization of Top Soil: Carpeting over the external OB dumps and internal dump before plantation
- Area of Top Soil dump: Top soil will be concurrently used
- Number of Top Soil Dumps: Top soil will be use regularly for spreading on OB dump for plantation purpose; no top soil

dump will be created.

ix. Details of OB Dump:

(a) Dump details:

Details	Mine	Internal Dumps		External Dumps		Remarks
		Nos.	Quantity of Waste/OB stored (Million m ³)	Nos.	Quantity of Waste/OB stored (Mm ³)	Whether external dump is outside mine lease area
Existing	Amalgamated Sudamdih Patherdih Colliery	3	22.014	0	Nil	No
	Bhowrah N&S	2	77.43	0	Nil	No
Proposed	Amalgamated Sudamdih Patherdih Colliery	5	86.88	2	39.88	No
	Bhowrah N&S	4	46.13	4	57.35	No

(b) Specification of each dump:

Amalgamated Sudamdih Patherdih Colliery

Dump No	Area (ha)	Height (m)	Quantity Million m ³	Type (Internal/External)
1.	7.85	25	1.727	Existing internal
2.	16.02	85	13.617	Existing internal
3.	7.85	85	6.67	Existing internal
4.	30.74	85	26.10	Proposed internal
5.	23.34	85	19.50	Proposed internal
6.	22.50	80	17.83	Proposed internal
7.	12.67	90	11.27	Proposed internal
8.	11.50	90	12.18	Proposed internal
9.	26.96	90	22.19	Proposed external
10.	21.50	90	17.69	Proposed external

Bhowrah (North & South) Colliery

Dump No	Area (ha)	Height (m)	Quantity Million m ³	Type (Internal/External)
1.	21.36	65	33.10	Existing internal
2.	28.6	65	44.33	Existing internal
3.	19.81	80	16.17	Proposed internal
4.	18.8	80	12.08	Proposed internal
5.	4.4	60	1.80	Proposed internal
6.	19.8	85	16.08	Proposed internal
7.	19.15	90	26.274	Proposed external
8.	10.4.0	90	12.40	Proposed external
9.	5.1	90	1.74	Proposed external
10.	15.53	90	16.93	Proposed external

x. Land use details:

a. Pre-mining land use:

S. No.	Land Use	Within ML Area (ha)	Outside ML Area (ha)

1	Agricultural Land	35.81	0	
2	Forest land	0	0	
3	Waste land	270.77	0	
4	Grazing land	0	0	
5	Surface Water Bodies	205.8	0	
6	Settlements	86.35	0	
7	Other (Plantation)	57.03	0	
8	Railway	54.175	0	
9	Service building/mine infrastructure	16.26	0	
10	Road	13.165	0	
11	Barren land/abandoned quarry etc	931.16	0	
	Total	1670.52	0	

b. Post mining land use:

S. No.	Land use category	Present	Post closure	Land Use			
				Plantation	Water Body	Public/ Company use	Undisturbed
1	External OB Dump	0	98.64	42.47	-	-	56.17
2	Top Soil Dump	0	0	-	-	-	-
3	Excavation/ Quarry Area	88.16	115.24	56.21	7.23	-	51.8
4	Backfilled Area	219.65	245.24	245.24	-	-	
5	Roads	15.39	10.48	-	-	-	10.48
6	Built Up Area	161.78	98.27	-	-	-	98.27
7	Green Belt	101.41	89.25	89.25	-	-	-
8	Safety Zone	43.73	85.21	48.02	-	-	37.19
9	Undisturbed Area	1040.41	928.19	23.37	205.8	557.59	141.43
	TOTAL	1670.52	1670.52	504.56	213.03	557.59	395.34

xi. Details of transportation:

- In pit:** from face to surface coal dump 0- 3 km by dumpers
- Surface to siding:** By tippers from coal dump to railway siding (6 km; 3 km is public road and another 3 km is dedicated coal transportation road)
- Siding to loading:** pay loader loads the coal into the railway wagons for further transport.
- Quantity being transported by Road/Rail/conveyer/ropeway:** 1.031707 MT. (dispatch in 2023-24) [0.722195 MT by Rail (70% of coal production); 0.309512 MT by Road (30% of coal production up to the distance of 6-7 km)].

As per the original proposal, the coal was supposed to be transported through conveyor to railway siding after dousing of active fire and stabilization of land as per approved Jharia Master Plan. As fire dousing is continuing and accordingly Jharia Master Plan is under revision. The existing transport arrangement of transport up to railway siding by road shall continue.

xii. Reclamation: Afforestation shall be done progressively covering an area of: 504.56 ha at the end of mining. Additionally, Plantation is being undertaken by BCCL in an area of 100 Ha. Via DFO, Dhanbad outside leasehold of Cluster X, EJ Area in FY 2025-26. This will include:

- Reclaimed external OB dump (in ha): 42.47
- Internal dump (in ha): 245.24
- Green belt (in ha): 137.27 (48.02 ha safety zone included)
- Density of tree plantation (in no of plants): 2500/ha
- A void of 7.23 Ha is proposed to be converted into water body at depth 30m.
- 79.58 ha (56.21 ha in Quarry area and 23.37 ha in undisturbed area).

- xiii. **Details of plan to deal with fire in cluster and OB dumps:** As per approved Master Plan following method (one or combination) for control of fire will be employed
- Excavation of fire material and filling with cohesive soil
 - isolation by trench cutting and Backfilling
 - Cooling by water curtain/infiltration pond
 - cooling, quenching and removal of fiery coal
 - blanketing by soil

xiv. Details of Sudamdih Coal Washery: Sudamdih coal washery is situated on Eastern Part of Jharia coalfield adjacent to Damoda River. This washery has peak capacity of 2.08 MTPA. However, the washery is closed since 2020 and under Asset Monetization stage.

13. Baseline data:

Period (01 st March to 31 st May 2024)		Remark
AAQ parameters at 12 Locations (min and max)	Core Zone:- · PM ₁₀ = 83 to 125 µg/m ³ · PM _{2.5} = 34 to 66 µg/m ³ · SO ₂ = <10 to 12 µg/m ³ · NO _x = 25 to 33 µg/m ³ Buffer Zone:- · PM ₁₀ = 61 to 125 µg/m ³ · PM _{2.5} = 25 to 62 µg/m ³ · SO ₂ = <10 to 15 µg/m ³ · NO _x = 21 to 33 µg/m ³	The predicted values at core zones are within the permissible limits as per GSR 742(E) Coal Mines standards.
Incremental GLC Level (as per Addendum EMP)	Core Zone:- Incremental PM ₁₀ GLC at SA1= 55 µg/m ³ Total PM ₁₀ =153 µg/m ³ Incremental GLC at SA2= 24 µg/m ³ Total PM ₁₀ =146 µg/m ³ Incremental GLC at SA3= 21 µg/m ³ Total PM ₁₀ =129 µg/m ³ Incremental PM _{2.5} GLC at SA1: 5.4 µg/m ³ Total PM _{2.5} = 60 µg/m ³ Incremental PM _{2.5} GLC at SA2 = 2.4 µg/m ³ Total PM _{2.5} = 66 µg/m ³ Incremental PM _{2.5} GLC at SA3= 3.0 µg/m ³ Total PM _{2.5} = 65 µg/m ³ Incremental SO ₂ GLC at SA1= 8 µg/m ³ Total SO ₂ =20 µg/m ³ Incremental SO ₂ GLC at SA2=5 µg/m ³ , Total SO ₂ =17 µg/m ³ Incremental SO ₂ GLC at SA3= 5 µg/m ³ , Total SO ₂ =16 µg/m ³ Incremental NO _x GLC at SA1= 8 µg/m ³ Total NO _x =42 µg/m ³ Incremental NO _x GLC at SA2=13 µg/m ³ , Total NO _x =44 µg/m ³ Incremental NO _x GLC at SA3= 9 µg/m ³ , Total NO _x =40 µg/m ³	

	Buffer Zone:- Min-Max Incremental PM₁₀ GLC at Buffer zone = 1 µg/m³ – 23 µg/m³ Total PM₁₀ range at Buffer zones =82 µg/m³ – 128 µg/m³ Min-Max Incremental PM_{2.5} GLC at Buffer zones= 0.2 µg/m³- 1.8 µg/m³ Total PM_{2.5} range at Buffer zones = 38 µg/m³ – 64µg/m³ Min-Max Incremental SO₂ GLC at Buffer zone = 1 µg/m³ – 5 µg/m³ Total SO₂ range at Buffer zones = 11 µg/m³ -- 17 µg/m³ Min-Max Incremental NO_x GLC at Buffer zone = 1 µg/m³ – 4 µg/m³ Total NO_x range at Buffer zones = 26 µg/m³ -- 35 µg/m³	
Ground water quality at 4 Locations	Core Zone:- pH: 7.68 Total Hardness: 562 mg/l, Chlorides: 138 mg/l, Fluoride; 0.44 mg/l. Heavy metals: Iron: 0.27 mg/l, Zinc: <0.1 , Manganese- 0.04 mg/l Sulphates: 122 mg/l Buffer Zone:- pH: 7.48 to 7.50 Total Hardness: 487 to 516 mg/l, Chlorides: 110 to 134 mg/l, Fluoride; 0.57 to 0.89 mg/l. Heavy metals: Iron: <0.2-0.3 mg/l, Zinc: 0.1 to 0.26 mg/l Manganese- <0.02 to 0.03 mg/l Sulphates: 75-138 mg/l	
Surface water quality at 3 Locations	Core Zone:- pH: 7.77 to 7.83 DO: 7.6 mg/l to 7.9 mg/l BOD: <2 mg/l.	All stations lying inside core zone
Mine water quality at 3 Locations	Core Zone:- pH: 7.74 to 7.86; COD: 36 to 40 mg/l and, BOD: <2.0 mg/l Fluoride; 0.62 to 0.92 mg/l.	All mine effluent stations lying within core zone
Noise levels Leq (Day and Night) at 12 locations	32.6 dB (A) to 62.3 dB(A) for the day time and 32.1 dB(A) to 42.0 dB(A) for the Night time in core zone.	
Traffic assessment study findings	The level of service falls under category “D for Section 1, B for Section 2 and for section 3 falls under Category E. There is a marginal Increase in traffic congestion in all three sections due to increase in production. The proposed mitigative measures of diverting the existing HCV traffic of BCCL will decrease the level of service and mitigate the predicted congestion on Section 3.	
Flora and fauna	No schedule I fauna and endangered Flora found. There are no endangered or endemic species of flora and fauna in core zone. No migratory species were found in the core zone.	
Water Requirement	Source of Water: Mine water Ground Water Intersection: Yes, Ground water is reported to be between 1.85 m-7.75 m during pre-monsoon period and between 0.60 m-4.55 m during post-monsoon period. Water Requirement: 6,827 KLD NOC (For surface water): NA	

	NOC (Ground Water): CGWA grant the NOC for ground water abstraction vide ref. no. CGWA/NOC/MIN/ORIG/2022/14594 from 17.02.2022 with validity upto 16.02.2024 and first renewal of Ground water clearance is applied vide Application no: 21-4/318/JH/MIN/2018 dated 16.02.2024 for 15156 KLD (Application under progress, quantum as per CGWB will be finalized upon approval).	
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14. Water Requirement: Water requirement submitted by the proponent is 6827 KLD and the same will be sourced from mine seepage water. NOC for the same has been obtained from CGWA vide ref. no. CGWA/NOC/MIN/ORIG/2022/14594 from 17.02.2022 with validity up to 16.02.2024 and first renewal of Ground water clearance is applied vide Application no: 21-4/318/JH/MIN/2018 dated 16.02.2024 for 15156 KLD. PP submitted that the excess water is being treated and is left in the nearby water bodies. No diversion of water body is involved in the present proposal.

PP also submitted that as per the approved mining plan, a safety distance of 200 meters has been maintained between the workings and the Damodar River. HFL of Damodar River in 1978 was 139 m. additionally, a dense green belt will be further developed within the safety barrier between the mines and the river, complementing the existing plantation efforts.

15. Power Requirement and details of diversion of Hi-Tension/ Transmission Line: Power requirement is of 6.90 MW being fulfilled from JBVNL/DVC. No diversion of HT line is proposed.

16. Solid and Hazardous Waste:

S. No	Type of Waste	Source	Quantity (TPA)	Mode of Disposal	Mode of Transport
1.	Solid Waste (Domestic waste)	From Offices and Quarters under Cluster X , EJ Area	2993	Through municipal solid waste collection and disposal mechanism	By Road
2.	Plastic Waste (Packing material)	Plastic waste from packaging at stores	0.08	To authorized recyclers	By Road
4.	E-waste IT equipment, electronic parts, cartridges of printer)	Office equipment etc.	0.04	As per e-Waste Rules, 2016	By Road
5.	Batteries Waste	Batteries of Heavy Earth Moving Machinery, Light Vehicles	1.20	As per Battery (Management & handling) Rules.	By Road
6.	Hazardous Waste (Sludge and filter contaminated with oil, Used or Spent Oil, Empty Barrels/ container, Waste / Residue containing oil)	HEMM Workshop	Sludge- 1.14 TPA Used or Spent Oil- 5.4 KL/yr	Sent to authorized recyclers as per Hazardous and other waste (Management and transboundary movement) Rule 2016	By Road

17. Status of implementation of action plan as per the Public Consultation held on 17.03.2012 for the EC accorded on 6/02/2013:

Details of advertisement given	17.02.2012
Date of public consultation	17.03.2012
Venue	Bhowrah area stadium
Presiding Officer	Additional Collector, Dhanbad
Number of Person Attended Hearing	227
Number of representation received in writing from the district and outside of district.	Nil
Major issues raised	Dust suppression measures, Drinking/Domestic Water, Electricity/Amenities, Plantation, water sprinkling/covered truck

	transportation, Drinking water and Domestic water availability, Plantation, Health, Infrastructure and Employment
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Compliance of PH action plan:

S. No.	Issue raised	Action taken by BCCL	Expenditure incurred	Proposed action to be taken by BCCL
1.	Dust Suppression Measures (Water Sprinkling/Covered Truck transportation/Pollution)			
	- Transportation of coal should not be done by open trucks. - Water Spraying should be done on road. - Pollution is spreading due to Transportation of coal. Drains should be cleaned. - Trucks should not be overloaded to prevent fall of coal on road. - Coal transportation should not be done through public road. - Pollution near o/c should be stopped. - Drain water should not be discharged to river. - Road is in poor condition - Air, water and land pollution should be minimised	Dust Suppression 8 nos. of Mobile water sprinkler are deployed for water sprinkling 1 no. Of Truck Mounted Fog Canon and 02 no. of Trolley Mounted Fog Canon are operational - Wheel washing facility installed at ASP colliery 15 Fixed Sprinklers installed and commissioned at Weigh Bridge 1 Mechanical Sweeper Covered Transport - Coal Transport contracts are issued with condition of covered transportation. - CISF Check points and weighbridge to ensure covered truck transportation only	Dust Suppression Machinery: 125 Lakhs (Excludes operational and maintenance cost)	- Construction of PCC transportation road: 300 lakhs - Procurement of 3 Trolley and 3 Truck Mounted Fog canons: 120 lakhs
2.	Drinking Water/Domestic Water			
	- Drinking water should be made available adequately - water for agriculture should be arranged - Demand for water and plantation at Swardih Basti - Demand for drinking water at colony near 3-pit OCP, Jahajtand no. 19 & no.4 Basti. Jahajtand Basti - Pond should be arranged adequately - Mine water should be used for plantation and agriculture. - Pit water should be provided to villagers - O/C mines should be filled up for agriculture use. - Drinking water should be arranged for marriage, social works etc.	- Mine water through pipeline is being supplied to Parkhabad, Hathi Tola, Jhajtarh, Sudamdih Basti, Majhi Basti, Bhowra Area nearby River Side - In addition to this Cluster-X BCCL is paying to JMADA (Jharkhand Mineral Area Development Authority) as well for the supply of water to localities in EJ Area	- Mine Water provided free of cost to nearby population through pipeline - Details of payment made to JMADA is as mentioned below: 5 lacs per annum	
3.	Electricity/Amenities			
	Street light should be provided at	Street lights have been	Electricity charges	

S. No.	Issue raised	Action taken by BCCL	Expenditure incurred	Proposed action to be taken by BCCL
	Damodar river ghat · Electricity should be arranged · Street light should be arranged from Mohalbani to Check post · Electricity to be arranged for displaced people	provided at Damodar river ghat. · Electricity supply has been arranged near river ghat. · Street light provided from Mohalbani to Check post · Electricity arranged for displaced people. · Electricity supply has been provided to nearby community centre, hall, colony and for nearby people.	are borne by BCCL	
4.	Plantation			
	· Plantation should be done at COCP (Patherdih) · Eco. restoration is not sufficient, Plantation has been done till 1995 only, · Maintenance of plantation is not adequate · After mining, land should be reclaimed for agriculture & returned to villagers. · Plantation & gardening should be started again. · Plantation work should be on regular basis · plantations should be arranged at Swardih Basti · Plantations should be arranged at Jahajtand Basti. · Land for agriculture should be restored · Dumping of OB from SAIL to EJ Area should be stopped · Soil should be covered on ash being dumped at Parsiabad	Plantation done over 61.26 ha after obtaining EC. (50 ha plantation done before 2013) Plantation of 15 ha at Riverside Plantation given to State Forest Department. Preparatory work ongoing (fencing/digging of holes)	Approx. 1019.21 Lakhs	ü In Cluster X, plantation over 504.56 ha is proposed along with 100 ha outside leasehold area. The total plantation will be 604.56 ha. ü Total cost to be incurred will be approx. Rs. 42.32 crs. for 504.56 ha and Rs. 2.82 cr for 100 ha.
5.	Employment			
	· Employment should be provided to displace people. · Compensation & employment should be given. · Employment is not provided to land ousters.	Employment and Compensation is provided as per CIL R&R Policy Apart from that Local people are engaged in mines/collieries for work of operator, fitter, driver, etc as per their capabilities.	Employment given in outsourcing projects & as per R&R Policy	Employment and Compensation will be provided as per CIL R&R Policy.
6.	Health			

S. No.	Issue raised	Action taken by BCCL	Expenditure incurred	Proposed action to be taken by BCCL
	- People suffering from pollution should be medically treated free of charge - Sick villagers should be treated free of cost.	1 Ambulance operating for providing Emergency transport facility - Regional Hospital, Bhowrah & Sudamdih Main Colony Hospital provided free of Cost OPD consultation and critical cases are sent to Central Hospital Dhanbad - Free Check Up camps, mega health camps and Medicine Distribution camps are organised periodically -500 beneficiaries every year.	Expenditure: 30 lakhs (recurring)	Renovation of Health Centre with increased capacity of handling OPD patients Expenditure; 100 lakhs
7.	Repairing/Maintenance/construction			
	- Pipe lines should be laid in health centers - Arrangements of drainage of dirty water should be made - Roof of quarter is falling down - Repairing of no. 16 basti school - Repairing of company quarters should be arranged - Drains should be cleaned properly	- ETP has been commissioned in EJ Area - Repairing of quarters carried out for Main colony, Riverside Colony, Kandra Colony, Thana Basti, Gosai Asthan Colony, New Mines Colony etc.	ETP : 9.2 lakhs Repairing of Quarters: 80 lakhs	Up gradation of quarters and Roof Repair: 200 Lakhs
8.	Infrastructure			
	- There is provisions of Rs.2 crores for development of colonies but nothing has been done for development of village - Development work should be done in the radius of 8 kms. - Expenditure should be done on P.P.P. model so that villagers are involved.	- Repairing of quarters carried out for Main colony, Riverside Colony, Kandra Colony, Thana Basti, Gosai Asthan Colony, New Mines Colony etc. - Rehabilitation colony developed for shifting of PAFs	C-Type quarters and Quarters at Patherdih Colony developed under JMP head: 400 lakhs	Up gradation of quarters and Roof Repair: 200 Lakhs
	Total		1668.41 Lakhs	4536 Lakhs

PH Action Plan as per MoEFCC OM dated 03.09.2020

S No.	Activity	Proposed year wise expenditure (in Lakhs) for next three years		
		Year 1	Year 2	Year 3
1.	Dust Suppression Measures	150	100	50
2.	Drinking Water/Domestic Water	5	3	2
3.	Electricity/Amenities	5	3	2
4.	Plantation	200	200	300
5.	Health	80	10	10

6.	Repairing/Maintenance/construction & Infrastructure	100	50	50
	Total	540	366	414
	Total (A) (Amount being spent in first 3 years)	1320 Lakhs		
	Total (B) (Amount to be spent in remaining years during mine life)	3216 Lakhs		
	Grand Total (A+B) =	4536 Lakhs		

18. EMP Budget: The capital cost of the existing and proposed project is Rs 114.65 Crores and the capital cost for environmental protection measures is proposed as Rs 5047.24 Lakhs. The annual recurring cost towards the environmental protection measures is proposed as Rs 220 Lakhs. The employment generation from the proposed project / expansion is 210 nos. (Estimated Contractual employment).

The details of cost for environmental protection measures are as follows:

Sl. No.	Activity	Capital Investment (Rs. Lakh)
1	Construction of Toe wall with quarry boulder random rubble masonry & garland drain with siltation pond along OB dump of Bhowrah North & South Colliery, ASP Colliery	35
2	Construction of additional wheel washing system at Bhowrah North & South Colliery, EJ AREA	26
3	Construction of Check dams along river bank/ nallah/ Jore/ other water bodies	8
4	Construction of Additional sheds and concrete flooring for storage of used oil / compliance of Hazardous waste Rule	5
5	Construction of green net covering along siding	2
6	Construction of Hanging water curtains at ASP & Bhowrah North & South, E.J. Area	5
7	Construction of two (2) nos. roof top Rain Water Harvesting Structure at CISF barrack river side Sudamdih under E.J. Area	10
8	Layout of pipeline & Fixed water sprinklers at Railway siding, different coal dumps & weighbridges of EJ Area	10
9	Development of Eco-parks/ Netaji Subash park at EJ area	30
10	Biological reclamation activity/ Avenue plantation/ Greenery development/ (Through the entire mine life)	4232.24
11	Kayakalp of Kamini Kalyan Herbal garden at ASP Colliery, E.J. Area	15
12	Procurement of continuous mine water discharge quality monitoring system	6
13	Ground water related work / Equipments	6
14	Ground water modelling study for coalfields for ground water clearance	15
15	Miscellaneous activities related to Environment to meet any exigency for Env. Compliance of EJ area	40
16	Proposed water Pollution control measures	602
	Total Cost	5047.24

Recurring cost for EIA & EMP

S. No.	Particulars/ Works	Annual Operating cost (in Rs. Lakhs)
1	Environmental Monitoring cost of Air, water and noise levels in and around project area of Cluster X	80.00
2	Operation and maintenance of ETP	25.00
3	Operation and maintenance of Water tankers and Sprinklers	50.00
4	De-siltation / cleaning of Garland drains and culverts in different places of different mines at Cluster X	45.00
5	Other miscellaneous expenditure like World environment day and distribution of	10.00

S. No.	Particulars/ Works	Annual Operating cost (in Rs. Lakhs)
	Fruit bearing plants among employee and villagers	
6.	Operation & maintenance of 01 no. CAAQMS, and 02 nos. online PM10 analysers of EJ Area.	10.00
Total Revenue Expenditure		220.00

19. Plantation: Plantation done over 61.26 ha after obtaining EC. (50 ha plantation done before 2013). A total of 504.56 ha area will be developed as greenbelt inside the Cluster X leasehold. A 7.5 m wide greenbelt, consisting of at least 3 tiers around mine boundary will be developed as greenbelt and green cover as per CPCB/MoEF&CC, New Delhi guidelines. Local and native species will be planted with a density of 2500 trees per hectare with Total no. of 12,61,500 plants. In proposed project, plantation over 504.56 ha is proposed. The total plantation will be done in 504.56 ha (30.20 %) area.

20. Rehabilitation and Resettlement: The mines in the Cluster X are affected by fire and subsidence, thus rehabilitation and resettlement (R&R) of the affected people has been envisaged in the Master Plan approved by Government of India. However, the Jharia Master plan is under revision and revised Jharia Master Plan was prepared by committee vide letter no. 22020/02/2015-CRG- II. The committee has submitted revised Jharia Master Plan to Ministry of Coal which is presently under review for obtaining approval from Govt. of India.

Total no. of Project Affected Families: 1670 (BCCL: 531 to be shifted by BCCL; Non-BCCL: 1139, to be shifted by JRDA)

Total no. of villages involved: 11 (Bhowra, Gourkuthi, Mohalbani, Pargabad Patherdih, Chandrabad Gourigram, Sutukdih, Mohal, Swardih, Mohalbani).

Total fund allocated for R&R: Rs. 70.87 crs

For Cluster X the current status of R&R is as follows:

S. no.	Details on Resettlement	Numbers
1	Total PAF	1670
2	PAF shifted as per provisions of Approved Master Plan	89
3	No. of PAF yet to be Shifted	1581

21. Project Cost: The capital cost of the proposed project is Rs 114.65 Crores and the capital cost for environmental protection measures is proposed as Rs 5047.24 Lakhs. The annual recurring cost towards the environmental protection measures is proposed as Rs 220 Lakhs.

22. Details of pending litigation: PP reported that there is no legal issue/violation wr.t i) Environment (Protection) Act, ii) Air(P&CP) Act, Water (P&CP), Act, Forest Conservation Act, Wildlife Protection Act, CRZ Notification, MMDR Act, Factories Act. Further, there is no court case on the project. However, the WPC no. 4944 of 2011 was filed by BCCL challenging Closure directions issued by Jharkhand State Pollution Control Board in the Hon'ble Jharkhand High Court. In the said Writ Petition following status is submitted:

- Interim Order was passed on 18.01.2012, "Till then status quo as on today, shall be maintained by the parties"
- In Order dated 14.04.2013, interim order was not modified and was maintained with the IA disposed off.
- No further Interim order was passed.
- BCCL has now withdrawn the Writ petition and said Writ Petition is withdrawn and dismissed along with all IAs as per Order of Hon'ble High Court dated 28.01.2025.

23. Written Submissions: PP submitted the following during the meeting:

1. Undertaking of timeline for Compliance of EC Condition:

PP submitted the following timeline against partially complied EC conditions observed by IRO in observation Report dated 14.02.2025 vide file no. 103-402/13/EPE/101 will be adhered for ensuring EC compliance and on completion report will be submitted to office of IRO, MoEFCC, Ranchi and Member Secretary (Coal Mining), MoEFCC:

Condition	Re-assessment by IRO dt 14.02.25	Timeline for completion of Partially complied actions
Sp. Cond. (iii), (x)	Dense plantation (24.7 ha) along the banks of Damodar river has been observed. The proponent informed that 6.0 ha (out of this 4.02 ha under river side plantation) was taken up for plantation work in 2023-24. The proponent also informed that area of 15.00 ha has been awarded to DFO, Dhanbad for plantation work in 2024-2025. (Partially complied)	15 Ha of plantation work awarded to DFO in 2024-2025 will be done by monsoon 2025 i.e. completion work in 2025-26 and annual maintenance work for next 8 years.
Sp. Cond. (xiv), (xv), (xvi), (xxvii), (xxxiii)	Geotagged photographs of the recent fog canons installed and commissioned have been received. Further, the proponent submitted that fire excavations requires removal and placing of OB up to bottom most seam for which space availability within existing colliery is not feasible. (Partially complied)	Action in process for fire dealing and dust suppression: · 2 trolley mounted has been commissioned (Action completed). · Construction of pucca approach road will be completed by October, 2025. (Tender copy submitted) · Truck mounted Fog canon will be procured by November 2025.
Sp. Cond. (vii), (xxix), (xxvi)	Undertaking for completion of renovation of water treatment plant within 4 months with estimated expenditure of 10.40 lakhs to be incurred and work schedule has been received. Comprehensive plantation plan with native plant species	

2. **Undertaking for Bhowra N&S colliery:** PP submitted an Undertaking that Bhowra (N&S) Colliery will operate as opencast upto VII seam and extraction of coal from the remaining seams will be done through underground method.

3. **Undertaking regarding CAAQMS:** PP submitted that one Continuous Ambient Air Quality Monitoring System (CAAQMS) will be procured by August 2025. Following Status of CAAQMS installation is mentioned:

- Procurement action already initiated
- Tender will be done by April 2025.
- Procurement will be done by August 2025

4. Undertaking regarding mine wise land use

LAND USE (MINE WISE)

PP submitted the mine wise land use is submitted as mentioned below:

Land use during Mining of individual mines:

S. No	Land Use during Mining	Bhowra (N+ S)	ASP	Sudamdih Shaft	Total*
1	External OB Dump	0	0	0	0
2	Top soil Dump	0	0	0	0
3	Excavation	224.53	77.98	5.3	307.81
4	Roads	6.09	6.2	3.1	15.39
5	Built up areas	52.02	78.69	31.07	161.78
6	Plantation (apart from Green Belt)	20.18	41.08	40.15	101.41
7	Safety Zone	26.03	17.7	0	43.73
8	Undisturbed Area	451.565	276.96	311.88	1040.41
Total		780.41	498.61	391.5	1670.52

*Present Mining Land Use

Post mining land use of individual mines

BHOWRAH (N&S) COLLIERY							
S. No.	Land use category	Present	Post closure	Land use			
				Plantation	Water Body	Public/ Company use	Undisturbed
1	External Ob Dump	0.00	56.17				56.17
2	Top Soil Dump	0.00	0				
3	Excavation/Quarry Area	51.80	51.8				51.8
4	Backfilled Area	0.00	168.02	168.02			
5	Roads	6.09	1.18				1.18
6	Built Up Area	52.02	0				
7	Green Belt	20.18	13.08	13.08			
8	Safety Zone	26.03	37.19				37.19
8	Undisturbed Area	624.29	452.97		81.2	371.77	0.00
	TOTAL	780.41	780.41	181.10	81.20	371.77	146.34

AMALGAMATED SUDAMDIH PATHERDIH COLLIERY							
S. No.	Land use category	Present	Post closure	LAND USE			
				Plantation	Water Body	Public / Company use	Undisturbed
1	External OB Dump	0.00	42.47	42.47			
2	Top Soil Dump	0.00	0				
3	Excavation/ Quarry Area	36.36	63.44	56.21	7.23		
4	Backfilled Area	41.62	71.92	71.92			
5	Roads	6.20	6.2				6.2
6	Built Up Area	78.69	69.2				69.2
7	Green Belt	41.08	36.02	36.02			
8	Safety Zone	17.70	48.02	48.02			
8	Undisturbed Area	276.96	161.34	0	53.1	102.68	5.56
	TOTAL	498.61	498.61	254.64	60.33	102.68	80.96

SUDAMDIH SHAFT UG							
S. No.	Land use category	Present	Post closure	Land use			
				Plantation	Water Body	Public/ Company use	Undisturbed
1	External OB Dump	0.00	0				
2	Top Soil Dump	0.00	0				
3	Excavation/Quarry Area	0.00	0				
4	Backfilled Area	5.30	5.3	5.3			
5	Roads	3.10	3.1				3.1
6	Built Up Area	31.07	29.07				29.07
7	Green Belt	40.15	40.15	40.15			
8	Safety Zone	0.00	0				
8	Undisturbed Area	311.88	313.88	23.37	71.5	11.08	207.93
	TOTAL	391.50	391.50	68.82	71.50	11.08	240.10

5. **Undertaking regarding Amlabad UG mine:** PP certified that the closed mine being carved out from Cluster X i.e. Amlabad Colliery shall apply and obtain fresh EC with approved mining plan as per EIA Notification 2006.

Observation and deliberation of the EAC:

24. Committee after deliberations noted the following:

1. Cluster X coal mining project and coal washery originally accorded EC vide letter dated 06.02.2013 within ML area of 2057.47 ha for the production capacity of 2.289 MTPA. As per the EC accorded, the cluster involved 6 mines both underground and opencast. Later, PP obtained amendment in the EC dated 06.02.2013 vide EC amendment letter dated 12.06.2019. The amendment was granted for restructuring/re-appropriating individual mines in the cluster to implement the master plan dealing with fire and subsidence.

2. The above EC is being implemented and the PP has achieved the production of 1.117 MTPA in FY 2023-24.

3. MoEF&CC has issued an OM on 11/04/2022 to facilitate all applications seeking prior EC for modernization/ expansion with increase in production capacity up to 50% within the existing premises/ mine lease area, without any additional land acquisition. Through this OM, Ministry has provided guidelines for availing expansion up to 50% of the original EC capacity without Public Hearing in two stages (0-20% & 20-40%). Public Consultation (written comments) shall be required for third stage i.e., 40-50% expansion.

4. The instant proposal is for grant of Environment Clearance to Cluster X Coal Mining Project and Coal Washery (opencast cum underground coal mining in area being reduced from 2057.47 ha to 1670.52 ha and increase in production capacity from 2.289 MTPA to 2.746 MTPA), under para 7(ii) of EIA, 2006 as per MoEF&CC OM dated 11/04/2022 for 20% expansion. Committee observed that the proponent has submitted the compliance of Ministry's OM dated 11/04/2022.

5. Committee observed that the area being reduced is due to removal of Amlabad mine (386.95 ha), since the production from the same has been closed before 2009. And following the directives of the Ministry of Coal, it is now proposed to reopen and operate such closed mines under a Revenue Sharing model. To facilitate this, resource evaluation, reserve estimation, and a separate mining plan will be developed for the operationalization of Amlabad Colliery, which has remained closed for several years.

The proposed mining scenario of the cluster shall be as follows:

Name of Mines	Type of Mine	Proposed 20% Expansion	Lease Hold Area (Ha)	Life (Years)	Remarks
Bhowrah (North & South) Colliery	Mixed (UG & OC)	2.30	780.41	9	Amalgamation
Amalgamated Sudamdih Patherdih Mine	OC	0.446	498.61	28	
Sudamdih Shaft (UG)	UG	0.00	391.5	-	In-operative
Amlabad	UG	0	(-) 386.95	-	ML Area reduced
Total (Cluster X)		2.746	1670.52		
Sudamdih Coal Washery (Within lease of Sudamdih Shaft Mine)	Washery	2.08	18	12	In-operative. Under Asset Monetization.

6. Committee opined that PP shall apply for fresh EC for the Amlabad mine, which is being carved out from the said cluster.

7. Committee also deliberated on the reason for amalgamating Bhowrah (North & South) Colliery and observed that the Bhowra (South) and Bhowra (North) collieries are severely affected by fire, with coal reserves trapped within the burning areas and mine barriers. As a result, excavating the fire-affected coal, removing overburden (OB), and creating storage space for OB are necessary. To facilitate fire dousing and systematic OB stacking for the scientific reclamation of the mines, the amalgamation of Bhowra (North) and Bhowra (South) collieries has been proposed. Bhowra (North) Colliery and Bhowra (South) Colliery are amalgamated with Mining Plan Approved by 414th Board of BCCL on 19.10.2024.

8. The EAC took into consideration the project site through KML file on the Google Earth presented by the project proponent along with DSS of the project site on PARIVESH.

9. Project does not fall in the Critically Polluted Area (CPA)/Severely Polluted Area (SPA), as per CEPI Assessment 2018.

10. The project is not located within 10 KM of any ESZ/ ESA/ national park/ wildlife sanctuary/ biosphere reserve/ tiger reserve/ elephant reserve/tiger corridor/elephant corridor etc. No schedule 1 species are reported in Cluster X as per Flora and Fauna Study done by IIT-ISM Dhanbad. There is no violation of WLP, Act.

11. The project does not involve the forestland.

12. The block was allotted to PP vide Lease allotment: Coking Coal Mines (Nationalization) Act, 1972 (Act No. 36 of 1972), The Coal India (Regulation of Transfers and Validation) Act, 2000 (Act No. 45 of 2000) and Mineral Concession Rules Amendment dated 01.10.2021 (G.S.R. 717(E) dated 01.10.2021). Period of Lease extended up to 07.12.2050 vide notification issued by Ministry of Coal, New Delhi, on the 1st October, 2021 G.S.R. 717(E).

13. The Mine Plan and Mine Closure Plan has been approved by the Board of BCCL vide approval letter dated 19.10.2024, 29.01.2019 and 28.05.2019 for Bhowrah (North & South) Colliery, Amalgamated Sudamdih Patherdih Colliery and Sudamdih Shaft (UG) respectively.

14. Committee also observed that the coal washery which is located within the lease of Sudamdih Shaft mine is in-operative and under asset monetization. However, the Sudamdih Shaft (UG) is a non-operational mine.

15. The extractable reserves as on date submitted by the PP is 95,121 MT. Life of mines in cluster is 9 years and 28 years for Bhowrah (North & South) Colliery and Amalgamated Sudamdih Patherdih Colliery respectively.

16. Committee deliberated on the transportation of coal and observed that currently the 70% of total coal production is being transported from coal dump to nearest railway siding by road at a distance of 6 km, out of which 3 km is public road and 3 km is dedicated coal transportation road. Remaining 30% of the total coal transportation is being done by road to small consumers up to the distance of 6-7 km. Committee opined that a complete mitigation measures shall be carried out to mitigate pollution due to road transportation of coal. Further, Committee opined that proponent shall make sure that dense plantation is developed and maintained on both the side of the coal transportation roads and continuous dust suppression measures shall be taken.

17. Committee observed that there are total 5 internal OB dumps are existing within the cluster and there is no existing external dump. However, the PP has submitted that 9 internal dumps and 6 external dumps are proposed in future in the said cluster. The height of the OB dumps is varying between 25 m to 90 m.

18. Committee deliberated on the baseline data submitted by the PP and observed that the PM10 parameters are on the higher side. Committee opined that ambient air quality of the core and buffer zone shall be continuously monitored and 4 nos of additional CAAQMS shall installed and all the pollution mitigation equipments shall be in good working condition and regular maintenance shall be carried out. Along with that plantation activities should be diligently done and PP shall undertake gap plantation in the cluster area.

19. Committee observed that the water requirement for the said mines is 6827 KLD and the same will be sourced from mine seepage water. Renewal application for the same has been submitted to CGWA for 15156 KLD. Committee also observed that excess mine seepage water will be treated and released into the nearby water bodies. There is no diversion of any water body proposed for the instant project. Committee opined that the excess water shall be treated and the water requirement of villagers shall be fulfilled. The remaining treated water shall be released in nearby water bodies.

20. Committee also observed that Damodar River passes through the cluster in north and south direction. Committee deliberated on the safety aspects of the same and opined observed that HFL of Damdoar River in 1978 was 139 m and a safety distance of 200 meters has been maintained between the workings and the Damodar River. Committee opined that dense plantation shall be done along the safety barriers of Damodar River and only treated water shall be released into the Damodar River.

21. Power requirement for the project is 6.90 MW and the same will be fulfilled from JBVNL/DVC. Committee observed that HT line is proposed for diversion.

22. Committee deliberated on the compliance of Public hearing action plan for the Public Hearing held on 17.03.2012 and further observed the actions proposed to be taken by BCCL in this regard. Committee opined that the actions proposed to be taken for compliance of PH action plan shall be implemented in a time bound manner. PP shall also take measures to strengthen the Primary Health Centres and Community Health Centres in the core zone and buffer zone of the cluster area. Committee observed that expenditure of Rs. 1668.41 lakhs has already been made in this regard and expenditure of Rs. 4536 lakhs is further proposed.

23. Committee deliberated on the environmental protection measures and EMP budget submitted for the same. PP submitted the capital cost for environmental protection measures is proposed as Rs 5047.24 Lakhs and annual recurring cost towards the environmental protection measures is proposed as Rs 220 Lakhs. Committee opined that the EMP budget shall be utilized in an efficient and time bound manner. The equipments for environment protection shall be in good working condition and regular maintenance of the same shall be carried out.

24. Committee deliberated on the plantation activities already done by the PP and observed that plantation is already developed on 61.26 ha of land after obtaining the EC. Further the PP has submitted a total of 504.56 ha area will be developed as greenbelt inside the Cluster X leasehold. A 7.5 m wide greenbelt, consisting of at least 3 tiers around mine boundary will be developed as greenbelt and green cover as per CPCB/MoEF&CC, New Delhi guidelines. Local and native species will be planted with a density of 2500 trees per hectare with total no. of 12,61,500 plants. Committee opined that the quantum of plantation carried out by the PP till date is too less and the plantation activities shall be carried out diligently on the onset of monsoon 2025. This shall include 15 ha of riverside plantation and 50000 saplings of mainly fruit bearing species shall distributed to the villagers in the nearby area every year till the life of mine and shall also develop a plan to incentivize the villagers for maintaining the survival of these plants.

25. Committee deliberated on the rehabilitation and resettlement issues of the mines in Cluster X and observed that mines in the Cluster X are affected by fire and subsidence, thus rehabilitation and resettlement (R&R) of the affected people has been envisaged in the Master Plan approved by Government of India. However, the Jharia Master plan is under revision and revised Jharia Master Plan was prepared by committee vide letter no. 22020/02/2015-CRG- II. The committee has submitted revised Jharia Master Plan to Ministry of Coal which is presently under review for obtaining approval from Govt. of India. Committee observed that the total nos of PAFs in the said cluster are 1670 out of which 531 PAFs will be shifted by BCCL and remaining 1139 PAFs will be shifted by Jharia Rehabilitation and Development Authority. There are total 11 nos of villages involved (namely: Bhowra, Gourkuthi, Mohalbani, Pargabad Patherdih, Chandrabad Gourigram, Sutukdih, Mohal, Swardih, Mohalbani) in the said cluster. Out of 1670 PAFs, 89 nos of PAFs has already been rehabilitated as per the provisions of Approved Master Plan. Total fund allocated for R&R is Rs. 70.87 crores.

26. The capital cost of the proposed project is Rs 114.65 Crores.

27. The Committee observed that M/s BCCL had filed a writ petition vide WPC no. 4944 of 2011, challenging Closure directions issued by Jharkhand State Pollution Control Board in the Hon'ble Jharkhand High Court. In the said writ petition an interim order was passed on 18.01.2012, stating "Till then status quo as on today, shall be maintained by the parties". Further, vide Order dated 14.04.2013, interim order was not modified and was maintained with the IA disposed off. M/s BCCL has now withdrawn the Writ Petition and the said Writ Petition is withdrawn and dismissed along with all IAs as per Order of Hon'ble High Court dated 28.01.2025.

28. Committee deliberated on the Certified Compliance Report submitted obtained from Ministry's Regional Office, Ranchi, Action taken Report submitted by the PP thereon and the Closure report of Ministry's RO. Committee observed that there are certain partially complied condition and action being taken on the same has been submitted by the PP. Committee opined that the timeline for the actions to be taken on partially complied conditions shall be reworked and optimized. PP submitted the same.

29. Committee opined that the PP shall align its activities with the sustainable development goals.

30. The Committee noted that the EIA reports are in compliance of the ToR issued for the project, reflecting the present environmental status and the projected scenario for all the environmental components.

31. The EAC also deliberated on the written submission of the project proponent and found it satisfactory.

32. The EAC noted that the Project Proponent has given an undertaking that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has been suppressed in the EIA/EMP reports. If any part of data/information submitted is found to be false/ misleading at any stage, the project will be rejected and Environmental Clearance given, if any, will be revoked at the risk and cost of the project proponent.

Recommendations of the Committee:

25. Based on the discussions held and the documents submitted, the EAC recommended the instant proposal for grant of Environment Clearance for Cluster X Coal Mining Project and Coal Washery (opencast cum underground coal mining in an reduced ML area from 2057.47 ha to 1670.52 ha and increase in production capacity from 2.289 MTPA to 2.746 MTPA) by M/s Bharat Coking Coal Limited, located at District Dhanbad; State: Jharkhand subject to the stipulation of specific conditions in addition to the general/Standard EC conditions (**Annexure-I**).

26. The MoEF&CC has examined the proposal in accordance with the provisions contained in the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and based on the recommendations of the EAC hereby accords Environmental Clearance to **M/s. Bharat Coking Coal Limited** for “*Cluster X Coal Mining Project and Coal Washery (opencast cum underground coal mining in an reduced ML area from 2057.47 ha to 1670.52 ha and increase in production capacity from 2.289 MTPA to 2.746 MTPA, located at District Dhanbad; State: Jharkhand*” subject to compliance of the Specific Environmental safeguard Conditions in addition to the standard EC conditions (**Annexure-I**).

27. 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.

28. The Environmental Clearance to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.

29. The PP is under obligation to implement commitments made in the Environment Management Plan, which forms part of this EC.

30. 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.

31. General Instructions:

(i) The project proponent shall prominently advertise it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days indicating that the project has been accorded environment clearance and the details of MoEF&CC website where it is displayed.

(ii) The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn must display the same for 30 days from the date of receipt.

(iii) The project proponent shall have a well laid down environmental policy duly approved by the Board of Directors (in case of Company) or competent authority, duly prescribing standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions.

(iv) Action plan for implementing EMP and environmental conditions along with responsibility matrix of the project proponent (during construction phase) and authorized entity mandated with compliance of conditions (during operational phase) shall be prepared. The year wise funds earmarked for environmental protection measures shall be kept in separate

account and not to be diverted for any other purpose. Six monthly progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six-Monthly Compliance Report.

(v) Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986

(vi) The Regional Office of this MoEF&CC 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.

(vii) Validity of EC is as per the provision of EIA Notification, 2006 and its subsequent amendment.

32. This issue with an approval of the Competent Authority.

Yours faithfully,

(Sundar Ramanathan)
Scientist 'F'
Tel: 011- 20819378
Email- r.sundar@nic.in

Copy To

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi.
2. The Secretary, Department of Environment & Forests, Government of Jharkhand, Secretariat, Ranchi.
3. Deputy Director General of Forests (C), Ministry of Environment, Forest and Climate Change, Regional Office, 2nd Floor, Headquarter- Jharkhand State Housing Board, Harmu Chowk, Ranchi, Jharkhand – 834 002.
4. The Chairman, Jharkhand State Pollution Control Board, TA building, HEC complex, PO Dhurwa, Ranchi.
5. The Member Secretary, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, Delhi – 32.
6. The Chairman, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi
7. The Regional Director, Central Ground Water Board, Mid-Eastern Region, 6th& 7th Floor, Lok Nayak Jai Prakash Bhawan, Frazer Road, Dak Banglow, Patna- 800011, Bihar.
8. The District Collector, Dhanbad, Government of Jharkhand.
9. PARIVESH Portal.

Annexure 1

Specific EC Conditions for (Mining Of Minerals)

1. Specific Conditions

S. No	EC Conditions						
1.1	The maximum production from the opencast and underground section in the cluster shall not exceed beyond that for which environmental clearance has been granted for the cluster X as below:						
	Name of Mines		Type of Mine	Proposed 20% Expansion	Lease Hold Area (Ha)	Life (Years)	Remarks
	Bhowrah (North & South) Colliery		Mixed (UG & OC)	2.30	780.41	9	Amalgamation

S. No	EC Conditions																								
	<table><tr><td>Amalgamated Sudamdih Patherdih Mine</td><td>OC</td><td>0.446</td><td>498.61</td><td>28</td><td></td></tr><tr><td>Sudamdih Shaft (UG)</td><td>UG</td><td>0.00</td><td>391.5</td><td>-</td><td>In-operative</td></tr><tr><td>Total (Cluster X)</td><td></td><td>2.746</td><td>1670.52</td><td></td><td></td></tr><tr><td>Sudamdih Coal Washery (Within lease of Sudamdih Shaft Mine)</td><td>Washery</td><td>2.08</td><td>18</td><td>12</td><td>In-operative. Under Asset Monetization.</td></tr></table>	Amalgamated Sudamdih Patherdih Mine	OC	0.446	498.61	28		Sudamdih Shaft (UG)	UG	0.00	391.5	-	In-operative	Total (Cluster X)		2.746	1670.52			Sudamdih Coal Washery (Within lease of Sudamdih Shaft Mine)	Washery	2.08	18	12	In-operative. Under Asset Monetization.
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Sudamdih Coal Washery (Within lease of Sudamdih Shaft Mine)	Washery	2.08	18	12	In-operative. Under Asset Monetization.																				
1.2	Project Proponent shall apply for fresh EC for the Amlabad mine, which is being carved out from the said cluster. No operations in the said mine shall be done without obtaining EC for the same.																								
1.3	Project Proponent shall ensure that only 30% of the total coal production is allowed to transport by road, within a distance of 6-7 km. Remaining 70% of the coal shall be transported by railway only as committed.																								
1.4	Project Proponent shall install the closed conveyor belt to the railway siding after the dousing of active fire and stabilization of land as per approved Jharia Master Plan (which is under revision as on date). Thereafter no coal transportation of towards railway siding will be allowed through road.																								
1.5	Adequate air pollution mitigation measures shall be adopted to mitigate the pollution levels in the core zone and buffer zone of the cluster area. Project Proponent shall install four additional continuous ambient air quality monitoring stations in the Cluster X area, 2 each in core zone and buffer zone in consultation with JSPCB within one year from the date of grant of EC.																								
1.6	Project Proponent shall treat the excess mine seepage water and fulfil the requirement of the nearby villagers, thereafter the excess treated mine seepage water shall be released with prior approval from JSPCB.																								
1.7	Project proponent shall strengthen the Primary Health Centres and Community Health Centres in the core zone and buffer zone of the cluster area and the focus shall be on improving facilities for enhancing quality of public health. Compliance status in this regard shall be submitted along with the six monthly compliance to the concerned Regional Office of MoEF&CC.																								
1.8	The budget proposed for PH (for next 3 years) is Rs. 4536 Lakhs. The budget proposed shall be kept in a separate account. Project proponent shall implement the action plan to address the issues raised during public hearing within the stipulated time frame. PP shall submit the progress report regarding the implementation of action plan to concerned RO along with the six monthly compliance report.																								
1.9	Project Proponent shall implement the protective measure proposed in Environment Management Plan (EMP) in a time-bound manner. The budget earmarked for the same is Rs. 5047.24 Lakhs (capital cost) and Rs. 220 Lakhs (recurring cost), should be kept in separate accounts and audited annually. The implementation status along with the amount spent with documentary proof shall be submitted to the concerned Regional Office for the activities carried out during the previous year.																								
1.10	Project Proponent shall develop dense plantation along the safety barriers of Damodar River in an area of 15 ha before the onset of monsoon 2025 itself and gap plantation shall be done on the existing OB dumps. Greenbelt in 504.56 ha shall be developed inside the Cluster X area within 2 years from the date of grant of EC. A 7.5 m wide greenbelt, consisting of at least 3 tiers around mine boundary will be developed as greenbelt and green cover as per CPCB/MoEF&CC, New																								

S. No	EC Conditions												
	Delhi guidelines. Local and native species will be planted with a density of 2500 trees per hectare with total no. of 12,61,500 plants. In addition to this, Agro forestry shall be encouraged in consultation with the land owners. Further, PP shall provide 50,000 plant saplings with 4 feet tall fruit bearing plants to farmers for plantation in barren and agriculture lands in the study area every year till the life of the mine with incentive to improve the green cover in and around the cluster mine lease area.												
1.11	Proponent shall carryout regular maintenance of the potholes on roads, repair and maintenance of roads, scrapping of material fallen on roads, and removal of scraps from mining areas. Along with this, PP shall make sure that all the pollution control equipments are in good working condition and maintenance of those equipment is regularly carried out.												
1.12	As per the approved Master Plan, the remaining 1581 PAFs out of 1670 PAFs, which are yet to be rehabilitated, shall be resettled as per the approved R&R/ Jharia Master Plan. Compliance status in this regard shall be submitted to the concerned Regional Office of MoEF&CC along with the six monthly compliance report.												
1.13	The partially complied conditions as per the Closure Report of RO, shall be complied in the following stipulated timeline, as committed by the Project Proponent: <table><tr><th>Condition</th><th>Re-assessment by IRO dt 14.02.25</th><th>Timeline for completion of Partially complied actions</th></tr><tr><td>Sp. Cond. (iii), (x)</td><td>Dense plantation (24.7 ha) along the banks of Damodar river has been observed. The proponent informed that 6.0 ha (out of this 4.02 ha under river side plantation) was taken up for plantation work in 2023-24. The proponent also informed that area of 15.00 ha has been awarded to DFO, Dhanbad for plantation work in 2024-2025. (Partially complied)</td><td>15 Ha of plantation work awarded to DFO in 2024-2025 will be done by monsoon 2025 i.e. completion work in 2025-26 and annual maintenance work for next 8 years.</td></tr><tr><td>Sp. Cond. (xiv), (xv), (xvi), (xxvii), (xxxiii)</td><td>Geotagged photographs of the recent fog canons installed and commissioned have been received. Further, the proponent submitted that fire excavations requires removal and placing of OB up to bottom most seam for which space availability within existing colliery is not feasible. (Partially complied)</td><td>Action in process for fire dealing and dust suppression: Construction of pucca approach road will be completed by October, 2025. Truck mounted Fog canon will be procured by November 2025.</td></tr><tr><td>Sp. Cond. (vii), (xxix), (xxvi)</td><td>Undertaking for completion of renovation of water treatment plant within 4 months with estimated expenditure of 10.40 lakhs to be incurred and work schedule has been received. Comprehensive plantation plan with native plant species</td><td></td></tr></table>	Condition	Re-assessment by IRO dt 14.02.25	Timeline for completion of Partially complied actions	Sp. Cond. (iii), (x)	Dense plantation (24.7 ha) along the banks of Damodar river has been observed. The proponent informed that 6.0 ha (out of this 4.02 ha under river side plantation) was taken up for plantation work in 2023-24. The proponent also informed that area of 15.00 ha has been awarded to DFO, Dhanbad for plantation work in 2024-2025. (Partially complied)	15 Ha of plantation work awarded to DFO in 2024-2025 will be done by monsoon 2025 i.e. completion work in 2025-26 and annual maintenance work for next 8 years.	Sp. Cond. (xiv), (xv), (xvi), (xxvii), (xxxiii)	Geotagged photographs of the recent fog canons installed and commissioned have been received. Further, the proponent submitted that fire excavations requires removal and placing of OB up to bottom most seam for which space availability within existing colliery is not feasible. (Partially complied)	Action in process for fire dealing and dust suppression: Construction of pucca approach road will be completed by October, 2025. Truck mounted Fog canon will be procured by November 2025.	Sp. Cond. (vii), (xxix), (xxvi)	Undertaking for completion of renovation of water treatment plant within 4 months with estimated expenditure of 10.40 lakhs to be incurred and work schedule has been received. Comprehensive plantation plan with native plant species	
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1.14	Details of impact of mining on Damodar River should be assessed and provided along with the six-monthly compliance report.												

S. No	EC Conditions
1.15	A Garland drain should be provided and the drain water should not be discharged in to Damodar River.
1.16	A herbal garden with medicinal plants be developed.
1.17	The measure identified in the environmental plan for cluster X groups of mine and the conditions given in this environmental clearance letter shall be dovetailed to the implementation of the Jharia Action Plan.
1.18	As there is no fire in Cluster X but the measure should be adopted by proponent to control spread of neighbouring fire to this Cluster X. The proponent shall prepare time -series maps of the Jharia Coalfields through NRSA to monitor and prevent fire problems in the Jharia Coalfields by Isothermal mapping /imaging and monitoring temperatures of the coal seams (whether they are close to spontaneous ignition temperatures) and based on which, areas with potential fire problems shall be identified. Measures to prevent ingress of air (Ventilation) in such areas, to prevent restart fresh/spread fires in other areas including in mines of cluster XIV shall be undertaken.
1.19	No mining shall be undertaken where underground fires continue. Measure shall be taken to prevent/ check such fire including in old OB dump.
1.20	Mining shall be carried out as per statuette from the streams/nalas flowing within the lease and maintaining a safe distance from the Nalas flowing along the lease boundary. A safety barrier of a minimum 60m width shall be maintained along the nalas/water bodies. The small water bodies in OC shall be protected to the extent feasible and the embankment proposed along water body shall be strengthened with stone pitching.
1.21	Regular monitoring of groundwater level and quality of the study area shall be carried out by establishing a network of existing wells and construction of new peizometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post monsoon (November) and winter (January) seasons and for quality including Arsenic and Fluoride during the month of May. Data thus collected shall be submitted to the Ministry of Environment & Forest and to the Central Pollution Control Board/SPCB quarterly within one month of monitoring. Rainwater harvesting measures shall be undertaken in case monitoring of water table indicates a declining trend.
1.22	Regular monitoring of subsidence movement on the surface over and around the working area and impact on natural drainage pattern, water bodies, vegetation, structure, roads, and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate effective corrective measures shall be taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable material.
1.23	Sufficient coal pillars shall be left unextracted around the air shaft (within the subsidence influence area) to protect from any damage from subsidence, if any.
1.24	High root density tree species shall be selected and planted over areas likely to be affected by subsidence.
1.25	Depression due to subsidence resulting in water accumulating within the low lying areas shall be filled up or drained out by cutting drains.

S. No	EC Conditions
1.26	Solid barriers shall be left below the roads falling within the blocks to avoid any damage to the roads.
1.27	No depillaring operation shall be carried out below the township/colony.
1.28	The Transportation Plan for conveyor-cum-rail for Cluster- X should be dovetailed with Jharia Action Plan. Road transportation of coal during Phase-I should be by mechanically covered trucks, which should be introduced at the earliest. The Plan for conveyor-cum-rail for Cluster- XIV should be dovetailed with Jharia Action Plan. The road transpiration of coal during phase-I should be by mechanically covered trucks.
1.29	A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company for implementing environment policy and socio-economic issues and the capacity building required in this regard.
1.30	Implementation of final mine closure plan for Cluster X, subject to obtaining prior approval of the DGMS in regard to mine safety issues.
1.31	Third-party audit (by NEERI/CIMFR/IIT/NITs) for air & water quality shall be carried out annually to keep a check on the same. PP shall implement the recommendations of the audit and submit the outcome of the audit to the concerned RO of MoEF&CC.
1.32	Hon'ble Supreme Court in an Writ Petition(s) Civil No. 114/2014, Common Cause vs Union of India & Ors vide its judgement dated 8th January, 2020 has directed the Union of India to impose a condition in the mining lease and a similar condition in the environmental clearance and the mining plan to the effect that the mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. Compliance of this condition after the mining activity is over at the cost of the mining lease holders/Project Proponent". The implementation report of the above said condition shall be sent to the Regional Office of the MoEF&CC.
1.33	PP shall ensure that all types of plastic waste generated from the plant shall be stored separately in isolated area and disposed of strictly adhering to the Plastic Waste Management Rules 2016 (as amended). In pursuant to the Ministry's OM dated 18/07/2022. PP shall also create awareness among the people working in the project area as well as in its surrounding area on the ban on Single Use Plastic (SUP) in order to ensure compliance of Ministry's Notification published by the Ministry on 12/08/2021. A report along with geo-tagged photograph on the measures taken shall also be included in the six monthly compliance report being submitted by PP.
1.34	Project proponent is advised to implement the 'Ek Ped Maa Ke Naam' Campaign which was launched on 5th June 2024 on the occasion of the World Environment Day to increase the forest cover across the Country. This plantation drive is other than Green belt development. The action in this regard shall be submitted concerned RO in six monthly report.

Standard EC Conditions for (Mining of minerals)

1. Statutory Compliance

S. No	EC Conditions
1.1	The Environmental clearance shall be subject to orders of Hon'ble Supreme Court of India, Hon'ble High Courts, NGT and any other Court of Law, from time to time, and as applicable to the project.
1.2	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
1.3	Solid/hazardous waste generated in the mines needs to be addressed in accordance to the Solid Waste Management Rules, 2016/Hazardous & Other Waste Management Rules, 2016.
1.4	The maximum production or peak production at any given time shall not exceed the limit as prescribed in the EC.
1.5	Validity of EC is as per life of the mine mentioned in EC letter or 30 years as per EIA Notification, 2006 and its amendments therein.

2. Air Quality Monitoring And Mitigation Measure

S. No	EC Conditions
2.1	Project proponent shall obtain requisite consent from State Pollution Control Board for 2.746 MTPA coal mining.
2.2	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 particulates, SO ₂ and NO _x . Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive receptors in consultation with the State Pollution Control Board.
2.3	The Ambient Air Quality monitoring in the core zone shall be carried out to ensure the Coal Industry Standards notified vide GSR 742 (E) dated 25th September 2000 and as amended from time to time by the Central Pollution Control Board. Data on ambient air quality and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly reported to the Ministry/Regional Office and to the CPCB/SPCB.
2.4	Effective control measures such as regular water sprinkling/rain gun/ Fog cannon /mist sprinkling etc., shall be carried out in critical areas prone to air pollution with higher level of particulate matter all through the coal transport roads, loading/unloading and transfer points. Fugitive dust emissions from all 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.
2.5	Major approach roads shall be black topped and properly maintained.
2.6	Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining 'PUC' certificate from the authorized pollution testing centres.
2.7	PP should Install Wind breaker/shield arrangement along the railway siding for reducing the dust propagation in upwind direction.

3. Water Quality Monitoring And Mitigation Measures

S. No	EC Conditions
3.1	PP shall take approval from the CGWA/ Competent Authority prior to commencement of mining operations.
3.2	The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25th September 2000 and as amended from time to time by the Central Pollution Control Board.
3.3	The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No.J-20012/1/2006-IA.11 (M) dated 27th May 2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for its compliance.
3.4	Garland drains (of suitable size, gradient and length) around the critical areas i.e. mine shaft and low lying areas, shall be designed keeping at least 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. The sump capacity shall also provide adequate retention period to allow proper settling of silt material of the surface runoff
3.5	The water pumped out from the mine, after siltation, shall be utilized for industrial purpose viz. watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly
3.6	Industrial wastewater from coal handling plant and mine water shall be properly collected and treated so as to conform to the standards prescribed under the Environment (Protection) Act, 1986 and the Rules made thereunder, and as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluent. Sewage treatment plant of adequate capacity shall be installed for treatment of domestic wastewater.
3.7	The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations shall be prepared, considering the presence of any river/rivulet/pond/lake etc., with impact of mining activities on it, and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the provisions of the approved Mining Plan/ EIA-EMP submitted to this Ministry and the same should be done with due approval of the concerned State/GoI Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved mining plan and as per the permission of DGMS.
3.8	The project proponent shall take all precautionary measures to ensure reverian/ riparian ecosystem in and around the coal mine upto a distance of 5 km. A revarian /riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government.
3.9	Industrial effluent and domestic wastewater shall be treated in the Effluent treatment Plant (ETP) and Sewage Treatment Plant (STP). After treatment, treated water shall be reused for plantation.

4. Noise And Vibration Monitoring And Prevention

S. No	EC Conditions
4.1	Adequate measures shall be taken for control of noise levels as per Noise Pollution Rules, 2016 in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with personal protective equipments (PPE) like ear plugs/muffs in conformity with the prescribed norms and guidelines in this regard. Adequate awareness programme for users to be conducted. Progress in usage of such accessories to be monitored.
4.2	The noise level survey shall be carried out as per the prescribed guidelines to assess noise exposure of the workmen at vulnerable points in the mine premises, and report in this regard shall be submitted to the Ministry/RO on six-monthly basis.

5. Mining Plan

S. No	EC Conditions
5.1	Project proponent shall obtain star rating as per the guidelines of Ministry of Coal.
5.2	Mining shall be carried out under strict adherence to provisions of the Mines Act 1952 and subordinate legislations made there-under as applicable.
5.3	No change in mining method, calendar programme and scope of work shall be made without obtaining prior approval of the Ministry of Environment, Forests and Climate Change (MoEFCC).
5.4	Mining shall be carried out as per the approved mining plan (including Mine Closure Plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General Mines Safety (DGMS).
5.5	Efforts should be made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy.

6. Land Recalvation

S. No	EC Conditions
6.1	Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change (MoEF&CC) from time to time shall be submitted to the Regional Office of MoEF&CC.
6.2	The final mine void depth should preferably be as per the approved Mine Closure Plan, and in case it exceeds 40 m, adequate engineering interventions shall be provided for sustenance of aquatic life therein. The remaining area shall be backfilled and covered with thick and alive top soil. Post-mining land be rendered usable for agricultural/forestry purposes and shall be diverted. Further action will be treated as specified in the guidelines for Preparation of Mine Closure Plan issued by the Ministry of Coal dated 27th August, 2009 and subsequent amendments.
6.3	The entire excavated area, backfilling, external OB dumping (including top soil) and afforestation plan shall be in conformity with the “during mining”/“post mining” land-use pattern, which is an integral part of the approved Mining Plan and the EIA/EMP submitted to this Ministry. Progressive compliance status vis-a-vis the post mining land use pattern shall be submitted to the MOEFCC/RO.

S. No	EC Conditions
6.4	Further, it may be ensured that as per the time schedule specified in mine closure plan it should remain live till the point of utilization. The topsoil shall temporarily be stored at earmarked site(s) only and shall not be kept unutilized. The top soil shall be used for land reclamation and plantation purposes. Active OB dumps shall be stabilized with native grass species to prevent erosion and surface run off. The other overburden dumps shall be vegetated with native flora species. The excavated area shall be backfilled and afforested in line with the approved Mine Closure Plan. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forest and Climate Change/ Regional Office.
6.5	The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.

7. Public Hearing And Human Health Issues

S. No	EC Conditions
7.1	Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored.
7.2	The project proponent shall undertake occupational health survey for initial and periodical medical examination of the personnel engaged in the project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS circulars. Besides regular periodic health check-up, 20% of the personnel identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, as amended time to time
7.3	Personnel (including outsourced employees) working in core zone shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.
7.4	Skill training as per safety norms specified by DGMS shall be provided to all workmen including the outsourcing employees to ensure high safety standards in mines.
7.5	Effective arrangement shall be made to provide and maintain at suitable points conveniently situated, a sufficient supply of drinking water for all the persons employed.
7.6	The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z11013/5712014-IA.I1 (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area'.

8. Corporate Environment Responsibility

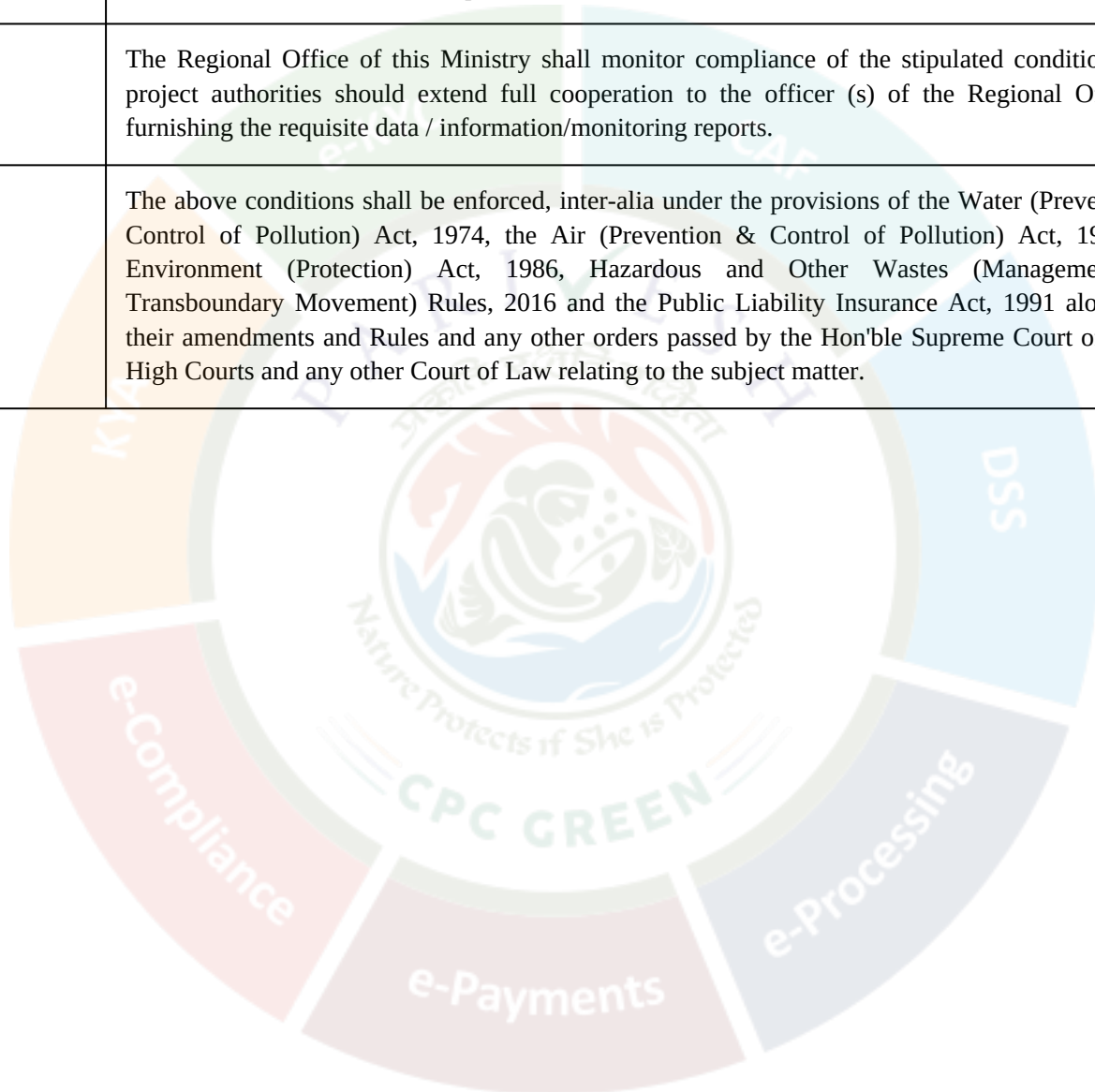
S. No	EC Conditions
8.1	The company shall have a well laid down environmental policy duly approve by the Board of

S. No	EC Conditions
	Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental/forest/wildlife norms/conditions. The company shall have defined system of reporting infringements/deviation/violation of the environmental/forest/wildlife norms/conditions and/or shareholders/stake holders.
8.2	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.

9. Miscellaneous

S. No	EC Conditions
9.1	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
9.2	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
9.3	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
9.4	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
9.5	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
9.6	The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.
9.7	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
9.8	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
9.9	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).

S. No	EC Conditions
9.10	Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
9.11	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
9.12	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
9.13	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.
9.14	The above conditions shall 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, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 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.



BHARAT COKING COAL LIMITED
A MINIRATNA COMPANY
A SUBSIDIARY OF COAL INDIA LIMITED
OFFICE OF THE PROJECT OFFICER
ASP COLLIERY (SUDAMDIIH)
P.O.- Sudamdih Dist -Dhanbad
Pin - 828126, Jharkhand



भारत कोकिंग कोल लिमिटेड
(कोल इंडिया लिमिटेड का एक अंग)
परियोजना पदाधिकारी का कार्यालय
ए.एस.पी. कोलियरी (सुदामडीह)
पी.ओ. - सुदामडीह, जिला - धनबाद
पिन कोड - 828126, झारखंड

Ref. No.: BCCL/EJA/ASPC/25/2080

Date: 13.09.2025

To,
The Member Secretary,
Jharkhand State Pollution Control Board,
TA. Division Building
HEC, Dhurwa.
RANCHI - 834004.

Sub. :-Submission of Environmental Statement (From -V) for the year 2024-25.

Dear Sir,

Please find herewith the Environmental Statement duly filled in the financial year 2024-25 in respect of A.S.P. Colliery.

This is for your kind information, Sir.

Encl. - As Above

Yours faithfully

mil
13-9-25
Project Officer
A.S.P. Colliery

Copy to:

1. Regional Officer, J.S.P.C.B, Dhanbad
2. Area Manager (Env.) E.J. Area.
3. Colliery Manager / Safety Officer, A.S.P. Colliery.
4. Office file.

PROJECT OFFICER
Amakheri Sudamdih-Pashendi
Colliery
F. J. Area, Bhowra

"FORM - V"
(See rule 14)

Environmental statement for the financial year ending 31st March'2022

PART - A

Name and address of the owner / Occupier : Sri Sanjay Kumar Singh, D.T(OP), Koyla Bhawan
of the industry operation or process Koyla Nagar, BCCL, Dhanbad.
Industry category primary (STD Code) : Coal Mining Industry (A.S-P. Colliery)
Production capacity : 0.709 MTPA.
Year of establishment : 1962
Date of last environmental statement submitted : Dt. 24.09.2024 (Ref. No. EJA/ASP/SMD/24/2225)

PART - B

Water and Raw Material consumption:

Water Consumption	
1. Process (Dust suppression)	776.87 KL/ Day
2. Cooling	Nil
3. Domestic	463 KL/ Day

Name of products	Process water consumption per unit of product point	
	During the previous Financial year 2023-24	During the current Financial year 2024-25
N/A	N/A	N/A

2. Raw material consumption:

Name of Raw Material	Name of products	Consumption of Raw Materials per unit of product output	
		During the previous Financial year 2023-24	During the current Financial year 2024-25
Diesel	Coal	4.99Ltrs./Ton.	18.87Ltrs./Ton.
Explosive	Coal	2.464 KG/Ton	1.234 KG/Ton

Industry may two codes if disclosing details of raw material would violate contractual Obligations otherwise all industries have to name the materials used.

PART - C

Pollution discharged to Environment / unit of output (Parameter as specified in the consent issued).

Pollution	Quantity of pollutants discharged (mass/day)	Concentrations of Pollution in discharges (mass / volume)	Percentage of variation from prescribed stack with reason.
a) Water	—	Total Dissolved solid – 251 pH – 7.98 Zinc - <0.1 mg/l Sulphate – 45mg/l Fluoride : 0.68 mg/l	Within the limit Within the limit Within the limit Within the limit Within the limit
b) Air	—	PM10 – 79 PM 2.5 – 40 SO ₂ – 10 NO _x – 30	Within the limit Within the limit Within the limit Within the limit

PART – D

Hazardous wastes (As specified under Hazardous wastes Management and Handling rules 1989.

Hazardous waste	Total Quantity	
	During the previous Financial year 2023-24	During the current Financial year 2024-25
a) From process	Quantity of Burnt Oil – 4143Ltrs. Cotton waste – 1250 Kg. Oil soaked filters – 1160Nos.	Quantity of Burnt Oil – 5532Ltrs. Cotton waste – 650 Kg. Oil soaked filters – 176 Nos.
b) From pollution control facilities	N/A	N/A

PART – E

Solid wastes

Solid wastes	Total Quantity	
	During the previous Financial year 2023-24	During the current Financial year 2024-25
a) From process	Quantity of Overburden generated – 1436341.95 M ³	Quantity of Overburden generated – 2761864.52 M ³
b) From Pollution control facilities	Oil & Grease trap's bottom sludge – N/A	Oil & Grease trap's bottom sludge – N/A
c) Quantity of recycled or reutilized with the unit.	Quantity of O/B used for back filling - Nil	Quantity of O/B used for back filling - 2761864.52 M ³

PART - F

Please specify the characterization (in terms of composition of quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes

Type of rock : Sedimentary

Type of soil : There is no soil. All soil has been removed earlier.

Chemical properties of soil - N/A

Disposal process for solid waste (Back filling practice) - By dumper for back filling of the excavated area.

PART - G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.

Ecological restoration work is going on.

PART - H

Additional measures / investment proposal for environmental protection including abatement of pollution, prevention of pollution.

- (i) There are two water tankers of 20 KL. Capacity, which sprinkle 04 trips water daily (except rainy season).
- (ii) Fencing of ecological restoration site is being done.
- (iii) There is no pressure filters.
- (iv) Black topping of roads has not been done.
- (v) Monitoring of air quality, water quality and noise levels are being done periodically.
- (vi) Coal is being transported by covered trucks.

PART - I

Any other particulars for improving the quality of the environment.

Carbon sequestration studies done at H.Q. Level / source appointment study and reduction in pollution load by reducing road transport study being done at H.Q. level.

Signature:

Name : Anil Kumar
Designation : Project Officer
Address : A.S.P. Colliery
Post: Sudamdin
Dist: Dhanbad
Jharkhand - 828126



hml
13-9-25

BEARAT COKING COAL LIMITED
A MINI RATNA COMPANY
A SUBSIDIARY OF COAL INDIA LIMITED
OFFICE OF THE PROJECT OFFICER
ASP COLLIERY (SUDAMDIH)
P.O. - Sudamdih Dist.-Dhanbad
Pin - 828126, Jharkhand



भारत कोकिंग कोल लिमिटेड
(कोल इंडिया लिमिटेड का एक अंग)
परियोजना पदाधिकारी का कार्यालय
ए० एस० पी० कोलियरी (सुदामडीह)
पी०ओ० - सुदामडीह, जिला-धनबाद
पिन कोड- 828126, झारखंड

Ref. No.: BCCL/ EJA/ASPC/24/ 2225

Date: 24.09.2024

To,
The Member Secretary,
Jharkhand State Pollution Control Board,
T.A. Division Building
HEC, Dharwa.
RANCHI - 834004.

Sub. :- Submission of Environmental Statement (From -V) for the year 2023-24.

Dear Sir,

Please find herewith the Environmental Statement duly filled in the financial year 2023-24 in respect of A.S.P. Colliery.

This is for your kind information, Sir.

Incl. - As Above

Yours faithfully

hrl
24-9-24

Project Officer
A.S.P. Colliery

Copy to:

1. Regional Officer, J.S.P.C.B, Dhanbad
- ✓ 2. Area Manager (Env.) E.J. Area.
3. Colliery Manager / Safety Officer, A.S.P. Colliery.
4. Office file.

"FORM - V"
(See rule 14)

Environmental statement for the financial year ending 31st March'2022

PART - A

Name and address of the owner / Occupier : Sri Sanjay Kumar Singh, D.T(OP), Koyla Bhawan
of the industry operation or process Koyla Nagar, BCCL, Dhanbad.
Industry category primary (STD Code) : Coal Mining Industry (A.S-P. Colliery)
Production capacity : 0.709 MTPA.
Year of establishment : 1962
Date of last environmental statement submitted : Dt. 27.09.2023 (Ref. No. EJA/ASP/SMD/23/2766)

PART - B

Water and Raw Material consumption:

Water Consumption	
1. Process (Dust suppression)	787.76 KL/ Day
2. Cooling	Nil
3. Domestic	466 KL/ Day

Name of products	Process water consumption per unit of product point	
	During the previous Financial year 2022-23	During the current Financial year 2023-24
N/A	N/A	N/A

2. Raw material consumption:

Name of Raw Material	Name of products	Consumption of Raw Materials per unit of product output	
		During the previous Financial year 2022-23	During the current Financial year 2023-24
Diesel	Coal	5.51 Ltrs./Ton.	4.99Ltrs./Ton.
Explosive	Coal	3.213 KG/Ton	2.464 KG/Ton

Industry may two codes if disclosing details of raw material would violate contractual Obligations otherwise all industries have to name the materials used.

PART - C

Pollution discharged to Environment / unit of output (Parameter as specified in the consent issued).

Pollution	Quantity of pollutants discharged (mass/day)	Concentrations of Pollution in discharges (mass / volume)	Percentage of variation from prescribed stack with reason.
a) Water	—	Total suspended solid – 46 pH – 7.81 Oil & Grease – <2.0 COD – 36	Within the limit Within the limit Within the limit Within the limit
b) Air	—	PM10 – 88 PM 2.5 – 47 SO ₂ – 10 NO _x – 28	Within the limit Within the limit Within the limit Within the limit

PART - D

Hazardous wastes (As specified under Hazardous wastes Management and Handling rules 1989.

Hazardous waste	Total Quantity	
	During the previous Financial year 2022-23	During the current Financial year 2023-24
a) From process	Quantity of Burnt Oil – 3885Ltrs. Cotton waste – 1707Kg. Oil soaked filters – 1219 Nos.	Quantity of Burnt Oil – 4143Ltrs. Cotton waste – 1250 Kg. Oil soaked filters – 1160Nos.
b) From pollution control facilities	N/A	N/A

PART - E

Solid wastes

Solid wastes	Total Quantity	
	During the previous Financial year 2022-23	During the current Financial year 2023-24
a) From process	Quantity of Overburden generated 1846847 M ³	Quantity of Overburden generated – 1436341.95 M ³
b) From Pollution control facilities	Oil & Grease trap's bottom sludge – N/A	Oil & Grease trap's bottom sludge – N/A
c) Quantity of recycled or reutilized with the unit.	Quantity of O/B used for back filling Nil	Quantity of O/B used for back filling - Nil

PART - F

Please specify the characterization (in terms of composition of quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes

Type of rock : Sedimentary

Type of soil : There is no soil. All soil has been removed earlier.

Chemical properties of soil - N/A

Disposal process for solid waste (Back filling practice) - By dumper for back filling of the excavated area.

PART - G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.

Ecological restoration work is going on.

PART - H

Additional measures / investment proposal for environmental protection including abatement of pollution, prevention of pollution.

- (i) There are two water tankers of 20 KL Capacity, which sprinkle 04 trips water daily (except rainy season).
- (ii) Fencing of ecological restoration site is being done.
- (iii) There is no pressure filters.
- (iv) Black toping of roads has not been done.
- (v) Monitoring of air quality, water quality and noise levels are being done periodically.
- (vi) Coal is being transported by covered trucks.

PART - I

Any other particulars for improving the quality of the environment.

Carbon sequestration studies done at H.Q. Level /source appointment study and reduction in pollution load by reducing road transport study being done at H.Q. level.

Signature:

Name : Anil Kumar
Designation : Project Officer
Address : A.S.P. Colliery
Post: Sudamdih
Dist: Dhanbad
Jharkhand - 828126

✓



Bharat coking

(A Subsidiary of Coal India Ltd)

Office of the Project Officer, Bhowra (S), Eastern Jharla Area,
P.O. Bhowra, Dist: Dhanbad (Jharkhand), PIN- 828302

1255649731 IN IVR:8274255649731

RL BHOWRA SO (828302)

Counter No:1,25/06/2024,11:38

To:MEMBER SECRETARY,RANCHI

PIN:834004, Dnura SO

From:PROJECT OFFICER,BHOWRA

Wt:18gms,REG=17.0

Amt:25.96,Tax:3.96,Amt.Paid:26.00(Cash)

<Track on www.indiapost.gov.in>

<Dial 18002666868> <Wear Masks, Stay Safe>



Ref. No:- BCCL/EJA/BH(S)/2024/ 810

Date:- 24/06/2024

To,
The Member Secretary,
Jharkhand State Pollution Control Board
T. A. Division Building (Ground Floor)
H. E. C. Dhurva.
Ranchi – 834004

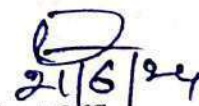
Sub:- Submission of Environmental Statement in Form – V

Dear Sir,

Environmental Statement is Form – V is being submitted to you for financial year 2023-24 in respect of Bhowra (S) Colliery.

Enclosures:- As above.

Yours Faithfully


24/6/24
Project Officer
Bhowra (S) Colliery

Distribution:-

1. The Regional Office, JSPCB Office, HIG Dhanbad
2. The General Manager (Env.), BCCL, Koyla Bhawan.
3. The Area Manager (Env.), E. J. Area, Bhowra.
4. Office File.

(Form - V)

(See rule 14)

Environmental Statement for the financial year ending the 31st March 2024

PART - A

- (i) Name and address of the owner/occupier : Sanjay Kumar Singh, D.T. (P&P) BCCL,
of the industry operation or process Koyla Nagar, Dhanbad
- (ii) Industry category : Coal Mining Industry
- (iii) Production capacity : U/G - 0.143 MTY
OCP - 0.546 MTY
(EC no:- J-11015/380/2010-1A-II(M),
dt: 06/02/13) and EC amended dated:
12.06.2019
- (iv) Year of establishment : Colliery operating since pre nationalization
period and vested in BCCL through Coal
Mine Nationalisation Act 1972-73
- (v) Date of last environmental
BCCL/EJA/BH(N)/2023/1518)
Statement submitted : 06.12.2023, (Ref. No:

PART - B

Water and River Material Consumption

Water Consumption	
Process (Dust separation)	604.904 M ³ /day
Cooling	Nil
Domestic	605.28 M ³ /day

Name of Products	Process water consumption per unit of product output	
	During the previous financial year	During the current financial year
COAL	6.64 KL/T	15.92 KL/T

Raw Material Consumption

Name of materials	Name of products	Consumption of raw material per Unit of output	
		During the previous financial year (2022-23)	During the current financial year (2023-24)
Diesel	Coal	0.0195 L/Te	0.01035 L/Te
Explosive	Coal	8.78 KG/Te	2.90 KG/Te
Timber	Coal	NIL	NIL

*S - wooden sleepers, P- wooden props.

PART- C

Pollution discharged to environment/unit of output (parameter as specified in the consent issued)

Pollutants	Quantity of pollutants discharge	Concentrations of pollutants in discharge(mass/volume)	Percentage of variation from prescribed standards with reasons
Water	--	<u>(MW- 10, 18.03.24)</u>	Within Limit
		TSS - 46	
		PH - 7.81	
		Oil & Grease - <2.0	
		COD - 36	
Air	--	<u>(as on 07.03.24)</u>	Within Limit
		PM 10 - 132	
		PM 2.5 - 42	
		SO ₂ - <10	
		NO _x - 30	

PART – D

Hazardous Wastes

(as specified under Hazardous waste management and handling rules, 1989)

Hazardous Waste	Total Quantity (Kg.)	
	During the previous financial year (2022-23)	During the current financial year (2023-24)
From process	Burnt oil - 824 Litre	Burnt oil - 1275 Litre
From pollution control facilities	N/A	N/A

PART – E

Solid Wastes

Solid Wastes		Total Quantity	
		During the previous financial year	During the current financial year
(a) Process		4043280 M ³	6282624 M ³
(b) Pollution control facility		Nil	Nil
(c)	1.Quantity recycled or re-utilized within the unit	4043280 M ³ (Backfilled)	6282624 M ³ (Backfilled)
	2. Sold	Nil	Nil
	3. Disposed	Nil	Nil

PART – F

Please specify the characterizations (in terms of composition of quantum) of hazardous as well as solid waste and indicate disposal practice adopted for both these categories of wastes.

- | | | | |
|-------|--|-----|-----|
| (i) | Type of Rocks | : - | N/A |
| (ii) | Type of soil | : - | N/A |
| (iii) | Chemical properties of soil: - | | N/A |
| (iv) | Disposal process for Solid Waste (backfilling practice): - | | N/A |

PART – G

Impact of pollution abatement measures taken on conservation of nature resources and on the cost of production

- | | | |
|-------|--------------------------|-------|
| (i) | No. of plants planted | : Nil |
| (ii) | Cost of plants | : Nil |
| (iii) | Plantation cost incurred | : Nil |
| (iv) | Backfilling cost | : Nil |

PART – H

Additional measures/investment proposal for environmental protection including abatement of pollution, prevention of pollution

- (i) Water sprinkling is done in transporting road, coal stock yard, working faces, etc. to reduce dust emission.
- (ii) Proper and timely maintenance of tipper, shovel, dozer, drill, fan, pumps etc. is being done to control noise pollution.
- (iii) Monitoring of air quality and water quality is being done periodically.
- (iv) Covered coal transportation is being done.
- (v) Pucca road prepared for coal transportation.
- (vi) Maintenance of plants.

PART – I

Any other particulars for improving the quality of the environment

--


21/6/24
Project officer
Bhowra (5) Colliery



Bharat coking coal limited

(A Subsidiary of Coal India Ltd)

Office of the Project Officer, Bhowra (N), Eastern Jharia Area,
P.O. Bhowra, Dist: Dhanbad (Jharkhand), PIN- 828302

Ref. No: - BCCL/EJA/BH (N)/2024/ 186

Date:- 15/06/2024

To,
The Member Secretary,
Jharkhand State Pollution Control Board
T. A. Division Building (Ground Floor)
H. E. C. Dhurva
Ranchi - 834004

Sub:- Submission of Environmental Statement in Form - V

Dear Sir,

Environmental Statement in Form - V is being submitted to you for financial year 2023-24 in respect of Bhowra (N) U/G Mines.

Enlosures:- As above.

Yours Faithfully


15/6/24
Project Officer
Bhowra (N) U/G Mines
PROJECT OFFICER
BHOWRA (N) U/G MINES

Distribution:-

1. The Regional Office, JSPCB Office, HIG Dhanbad
2. The General Manager (Env.), BCCL, Koilabhowra
3. The Area Manager (Env.), E. J. Area, Bhowra
4. Office File.

EJ3405418151N IVR:6974340541815
SP BHOWRA SO (828302)
Counter No:1,19/06/2024,13:09
To:THE MEMBER SECRETARY,RANCHI
PIN:834004, Dhurva SO
From:PROJECT OFFICER,BHOWRA
Wt:38gms
Amt:41.30,Tax:6.30,Amt.Paid:41.00(Cash)
(Track on www.indiapost.gov.in)



(Form - V)

(See rule 14)

Environmental Statement for the financial year ending the 31st March 2024

PART - A

- (i) Name and address of the owner/occupier : Sri Sanjay Kumar Singh , D.T. (P&P) BCCL,
of the Industry operation or process Koyla Nagar, Dhanbad
- (ii) Industry category : Coal Mining Industry
- (iii) Production capacity : U/G - 0.143 MTY
OCP - 0.546 MTY
(EC no:- J-11015/380/2010-1A-II(M),
dt: 06/02/13)
- (iv) Year of establishment : Colliery operating since pre nationalization
period and vested in BCCL through Coal
Mine Nationalisation Act 1972-73
- (v) Date of last environmental : 01.12.2023, (Ref.No: BCCL/EJA/BH(N)/2023/452)
Statement submitted

PART - B

Water and River Material Consumption

Water Consumption	
Process (Dust separation)	20 M ³ /day
Cooling	Nil
Domestic	120M ³ /day

Name of Products	Process water consumption per unit of product output	
	During the previous financial year	During the current financial year
COAL (coal production discontinue from 03.04.2020)	0.00 KL/T	0.00 KL/T

Raw Material Consumption

Name of materials	Name of products	Consumption of raw material per Unit of output	
		During the previous financial year (2022-23)	During the current financial year (2023-24)
Diesel	Coal	00 L/Te	00 L/Te
Explosive	Coal	0.00 Kg/Te	0.00 Kg/Te
Timber	Coal	S- 0.00 Nos./T; P-0.00 nos./Te	S- 0.00 Nos./T; P-0.00 nos./Te

*S - wooden sleepers, P- wooden props.

PART - C

Pollution discharged to environment/unit of output (parameter as specified in the consent issued)

Pollutants	Quantity of pollutants discharge	Concentrations of pollutants in discharge(mass/volume)	Percentage of variation from prescribed standards with reasons
Water	—	(MW- 10, 18.03.24) TSS- 46 PH- 7.81 Oil & Grease - <2.0 COD - 36	Within Limit
Air	—	(as on 07.03.24) PM 10- 132 PM 2.5 - 42 SO ₂ - <10 NO _x - 30	Within Limit

PART - D

Hazardous Wastes

(as specified under Hazardous waste management and handling rules, 1989)

Hazardous Waste	Total Quantity (Kg.)	
	During the previous financial year (2022-23)	During the current financial year (2023-24)
From process	Burnt oil - 145 Liter	Burnt oil - 45 Liter
From pollution control facilities	N/A	N/A

PART - E

Solid Wastes

Solid Wastes		Total Quantity	
		During the previous financial year	During the current financial year
(a)	Process	Nil	Nil
(b)	Pollution control facility	Nil	Nil
(c)	1.Quantity recycled or re-utilized within the unit	Nil	Nil
	2. Sold	Nil	Nil
	3. Disposed	Nil	Nil

PART - F

Please specify the characterizations (In terms of composition of quantum) of hazardous as well as solid waste and indicate disposal practice adopted for both these categories of wastes.

- | | | | |
|-------|--|-----|-----|
| (I) | Type of Rocks | : - | N/A |
| (II) | Type of soil | : - | N/A |
| (III) | Chemical properties of soil | : - | N/A |
| (iv) | Disposal process for Solid Waste (backfilling practice): | - | N/A |

PART - G

Impact of pollution abatement measures taken on conservation of nature resources and on the cost of production

- | | | |
|-------|--------------------------|-------|
| (I) | No. of plants planted | : Nil |
| (II) | Cost of plants | : Nil |
| (III) | Plantation cost incurred | : Nil |
| (iv) | Backfilling cost | : Nil |

PART - H

Additional measures/Investment proposal for environmental protection including abatement of pollution, prevention of pollution

- | | |
|-------|--|
| (i) | Water sprinkling is being done in transporting road to reduce dust emission. |
| (ii) | Proper and timely maintenance of machineries like- fan, pumps etc. is being done to control noise pollution. |
| (iii) | Monitoring of air quality and water quality is being done periodically. |
| (iv) | Covered coal transportation is being done. |
| (v) | Pucca road prepared for coal transportation from 23/8 Incl. |
| (vi) | Maintenance of plants provided on both side of roads at 23/8 Incl. is being maintained. |

PART - I

Any other particulars for improving the quality of the environment

15/6/24
Project officer
Bhowra (N) U/G Mines
PROJECT OFFICER
BHOWRA (N) U/G MINES



cmpdi

DESIGN IN CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED

MINE EFFLUENT TEST REPORT

CMPDI, R-II
KOYLA BHAWAN COMPLEX
DHANBAD - 826005
Phone: 0326-223-850
email: rdt@cmpdi.coalindia.in

16

Test Report for Mine Effluent samples

Month & Year	03/2024	Cluster	Cluster X	ULR No.	TC1012224000000658F	
Customer	Environment Department, Bharat Coking Coal Limited (BCEL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bcel@coalindia.in)					
Project	Sampling Ref: No. 03/2024/03					
Sampling Stations	Sample Collected in 2.5 Ltr Jerrycan, Color as observed					
Sl. No.	Parameter	Method of Analysis	Date of Sampling	Sampling Method	IS 3025 (Part-1)	Period of analysis
1	Total Suspended Solids	IS 3025/17-1984, R-2017, Gravimetric	03.03.2024	First Fortnight	04.03.2024	04.03.2024 to 30.03.2024
2	pH	IS-3025/11:1983, R-2017, Electrometric	03.03.2024	Second Fortnight	18.03.2024	LDL
3	Oil & Grease	IS 3025/39:1991, R-2019, Partition Gravimetric	03.03.2024	First Fortnight	04.03.2024	10
4	COD	APHA 23rd Edition 5220 C Titrimetric Method	03.03.2024	Second Fortnight	18.03.2024	0.2

ANALYSED BY: (Kumar Vaibhav)

REVIEWED BY: (Amit Raj Mishra)

Authorised Signatory

Page - 1 of 1

Page - 1 of 1



Automated Quality Test Report

Ambient Air Quality Test Report

COMP. 21-1
ROYAL BURNHAM COMPANY
TE LIMITED, 2000
11-11, Phnom Penh
11-11, Phnom Penh

CMPPDL, R-I-I
KOYLA BHAWAN COMPLEX
DHANBAD - 826005
Phone:0326-223-850
email:rdri2cmppdl@coailindia.in

Test Report for Ambient Air Samples

Test Report for Ambient Air Samples				Test Report for Ambient Air Samples			
Month & Year	Cluster	Cluster X	ULR No.	ULR No.	Date of Issue	Core Zone	
03/2024			TC1012224000000640F	TC1012224000000640F	14.05.2024		
Customer: Enviroment-Dipartimento, Bharia (Eoking Coal Limited (BCCI), Koyla Bhawan, Dhanbad (E-mail: gmenhv.bcci@coalindia.in))							
Project	P. Bhawrah North	Sample Rel. No.	REM/BCCI/2024/0301/N-11/Sampling Method)	Zone of Station:	CMPDI/RI-II/LPM 11. (IS 5182)		
Date of Sampling	07.03.2024	20-03-2024	Period of Analysis: 07.03.2024	15.04.2024			
Observed Values		Observed Values (in µg/m³)		Range of Standards		MOEF Standards	
Sl. No.	Parameter	Method	Analysis	1st FN	2nd FN	Notification dated 25th September, 2000 (GSR 742 E)	
1	PM ₁₀	IS 5182 (Part 23): 2006/R-2017	132	10 µg/m³ - 1000 µg/m³	10 µg/m³	300	
2	PM _{2.5}	IS 5182 (Part 24): 2019	42	10 µg/m³ - 400 µg/m³	10 µg/m³	Not Specified	
3	SO ₂	IS 5182 (Part 2): 2001, R-2017	<10	10 µg/m³ - 1050 µg/m³	10 µg/m³	120	
4	NO ₂	IS 5182 (Part 6): 2006, R-2017	30	06 µg/m³ - 420 µg/m³	06 µg/m³	120	

Special Agent

 RECEIVED BY

(Gaurav Kant)
REVIEWED BY

(Amir's Witness)
Authorised Signature

(Amit Raj Mishra)
Authorised Signatory

Note: The results above relate to the samples tested as received. This report can not be reproduced in part or in full, without the written permission of the NRC City, San Francisco, CA.

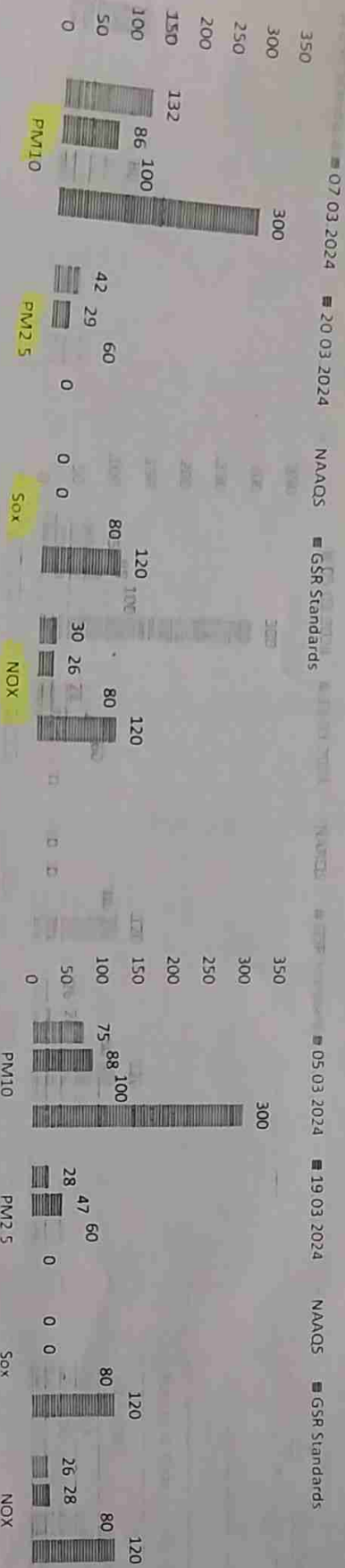
Era of Report ---

--- End of Report ---

Figure 1 of 1

Page-1 of 1

AMBIENT AIR QUALITY AT BHOWRAH NORTH SUDAMDIH WASHERY



AMBIENT AIR QUALITY AT SUDAMDIH MINE SHAFT JEENAGORA

