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

Ref. No.: BCCL/EJ/GM/Envt./2025/95 Date: 29/11/2025

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 April 2025 to September 2025.
(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 April 2025 to September 2025 in respect of Cluster X group of mines of BCCL.

Thanking You.

Encl.: Six monthly compliance report with annexure

Yours faithfully

29/11/25
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 (Envt.), BCCL, Koyla Bhawan, Dhanbad
5. AGM, E.J. Area
6. Project Officer- ASP, Bh(S), Bh(N)
7. Area Manager (Envt.), 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: April 2025 to September 2025)

A. Specific EC Conditions for (Mining of Minerals)

<table>
<tr><th>Sl. No.</th><th>A. Specific Conditions by MOEFCC:</th><th>Compliance</th></tr>
<tr><td>1.1</td><td>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:</td><td>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:

COAL PRODUCTION DATA (IN MT) OF CLUSTER X SINCE GRANT OF EC TILL 2018-19

<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)

COAL PRODUCTION DATA (IN MT) OF CLUSTER X FROM 2019-20 to 2024-25

<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 colspan="2">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 colspan="2">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 colspan="2">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)

COAL PRODUCTION DATA (IN MT) OF CLUSTER X FROM 2025-26

<table>
<tr><th colspan="2">Mine Name</th><th>EC Capacity (Peak) MTPA</th><th>2025-26 till 30th Sept 2025</th></tr>
<tr><td>Amlg. Bhowra North & South (ABNS) Colliery</td><td>Mixed (UG & OC)</td><td>2.30</td><td>1.134</td></tr>
<tr><td>Amlg. Sudamidh-Patherdih (ASP) Colliery</td><td>OCP</td><td>0.446</td><td>0.030</td></tr>
<tr><td>Sudamdih Shaft</td><td>UG</td><td>0.00</td><td>0</td></tr>
<tr><td colspan="2">Total (Cluster X)</td><td>2.746*</td><td>1.164</td></tr>
</table>

*Combined production capacity of the Cluster X would remain at 2.746 MTPA (peak)</td></tr>
<tr><td>1.2</td><td>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.</td><td>Fresh EC for the Amlabad mine will be applied before commencement of the mine. No mining operations will be done without prior EC.</td></tr>
<tr><td>1.3</td><td>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.</td><td>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 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-</td></tr>
</table>

		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 delivery will be done in December 2025. Installation and commissioning will be completed after delivery. (Copy of work order/ tender is attached as Annexure - II)
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><tr><th>S. No.</th><th>Colliery/Mine Name</th><th>Village list for supply of water</th></tr><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>Bhowra Group of mines (Bhowra North & Bhowra South)</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></table>
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	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

	Regional Office of MoEF&CC.	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 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.	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: List of the plants species S. No. | Botanical Name | Local Name | Hindi Name 1 | *Acacia arabica* | Babul | Babul 2 | *Adina cordifolia* | Karam | Karam 3 | *Ailanthus excelsa* | Ghorkaranj/ Ghorkaram | Ghorkaranj/ Ghorkaram 4 | *Alangium Lamarckii* | Dhela | Dhela 5 | *Albizzia lebbek* | Siris | Siris 6 | *Albizzia procera* | Safed Siris | Safed Siris 7 | *Alstonia scholaris* | Chatni | Chatni 8 | *Azadirachta indica* | Neem | Neem 9 | *Bombax ceiba* | Semal | Semal 10 | *Butea frondosa* | Palas | Palas 11 | *Casearia tomentosa* | Beri | Beri 12 | *Cassia fistula* | Dhanraj/Amaltas | Dhanraj/Amaltas 13 | *Dalbergia sissoo* | Shisham | Shisham 14 | *Eugenia jamb* | Jamun | Jamun 15 | *Ficus religiosa* | Pipal | Pipal 16 | *Lagerostroemia parviflora* | Sidha | Sidha 17 | *Mitragyna parviflora* | Guri/Gurikaram | Guri/Gurikaram 18 | *Terminalia arjuna* | Arjun | Arjun 19 | *Phoenix acaulis* | Khejur | Khejur 20 | *Ficus racemosa* | Gular | Gular 21 | *Calotropis procera* | Calotropis | Calotropis 22 | *Ricinus communis* | 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:

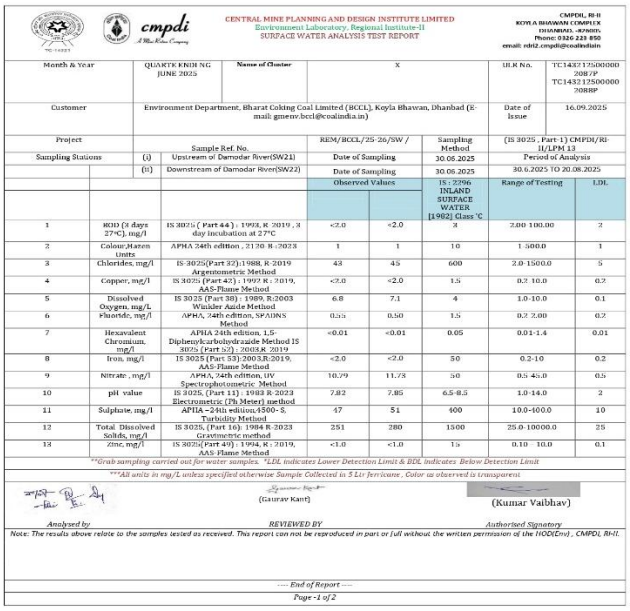
Details of Plantation in EJ Area (Cluster X)

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	2025-26	Total
Bh (N)	Bh N/BLA OB Site	5.2	2016-17	-	-	13000	2850	-	1360	500	200	300	-	-	-	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)												
	Bhowra Chandan OB Site	4.5	2018-19	-	-	-	-	11500	1728	2000	800	-	-	-	-	16028
	Compensatory afforestation	2.6	2021-22	-	-	-	-	-	-	-	-	1150	-	-	-	1150
	OB dump near pump house	15.0	2025-26	-	-	-	-	-	-	-	-	-	-	-	5450	5450
ASP Colliery	COCP/ Vrindavan Site	5.71	2015-16	-	6125	8150	3000	-	2650	250	2750	2200	-	1000	500	25625
	Kamini Kalyan Herbal Garden	3.32	1980 (old)	375 (planted before 2014)		40	50	-	150	150	200	250	-	300	250	1390
	Mohalbani OB Site	3.95	2014-15	10874		1000	1200	-	-	-	200	-	-	-	-	13274
	Gauragram Site	22.10	2020-21	-		-	-	-	-	-	33000	-	-	-	-	33000
	Near kamini kalyan herbal park	1.98	2023-24	-		-	-	-	-	-	-	-	3366	1500	-	4866
	Riverside plantation	4.02	2023-24	-		-	-	-	-	-	-	-	6834	-	-	6834
Plantation at other locations	Schools, along road, colony, etc.								1246	2380	2485	275	200	2500	1550	10636
Total		**76.27**		**23063**	**6125**	**23190**	**14025**	**11500**	**7750**	**7280**	**40085**	**4175**	**10400**	**5300**	**7750**	**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. 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	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:

<table>
<tr>
<td></td>
<td>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.</td>
<td>
<table>
<tr><th>No. of Households</th><th>Shifted</th></tr>
<tr><td>1670</td><td>89</td></tr>
</table>
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.
</td>
</tr>
<tr>
<td>1.13</td>
<td>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</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>
</table>
Status of partially complied conditions as per Closure report of RO is given below:
<table>
<tr><th>Condition</th><th>Partially complied conditions</th><th>Status</th></tr>
<tr><td>Sp. Cond. (iii), (x)</td><td>The proponent also informed that area of 15.00 ha has been awarded to DFO, Dhanbad for plantation work in 2024-2025.</td><td>Work is under progress.</td></tr>
<tr><td>Sp. Cond. (xiv), (xv), (xvi), (xxvii), (xxxiii)</td><td>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.</td><td>• Work order for construction of pucca approach road has been awarded and work is under progress.
• Procurement of two trolley mounted Fog canon has been done & commissioned and procurement of one truck mounted is under process.</td></tr>
<tr><td>Sp. Cond. (vii), (xxix), (xxvi)</td><td>Renovation of water treatment plant</td><td>Work order for upgradation and renovation of water treatment plant has been awarded and work is completed.</td></tr>
</table>
</td>
</tr>
</table>

	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	
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 *"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"* (report attached as Annexure- V) The report states that's "*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*." 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 – VI).  cmpdi CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED Environment Laboratory, Regional Institute-II SURFACE WATER ANALYSIS TEST REPORT CMPDIL, RI-II KOYLA BHAWAN COMPLEX DHANBAD, JHARKHAND Phone: 0326 223 850 email: rdri2.cmpdi@coalindia.in Month & Year: QUARTERLY MONITORING JUNE 2025 Name of Cluster: X ULR No.: TC143217P500000 20879 / TC143217P500000 20889P Customer: Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in) Date of Issue: 16.09.2025 Project: 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: 30.06.2025; (ii) Downstream of Damodar River(SW22) — Date of Sampling: 30.06.2025; Period of Analysis: 30.6.2025 TO 20.08.2025 Observed Values; IS : 2296 INLAND SURFACE WATER [1992] Class 'C'; Range of Testing; LDL 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 — 43 — 45 — 600 — 2.0-1500.0 — 5 4 Copper, mg/l — IS 3025 (Part 42) : 1992 R : 2019, AAS-Flame Method — <2.0 — <2.0 — 1.5 — 0.2-10.0 — 0.2 5 Dissolved Oxygen, mg/L — IS 3025 (Part 38) : 1989, R:2003 Winkler Azide Method — 6.8 — 7.1 — 4 — 1.0-10.0 — 0.1 6 Fluoride, mg/l — APHA, 24th edition, SPADNS Method — 0.55 — 0.50 — 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 — <2.0 — <2.0 — 50 — 0.2-10 — 0.2 9 Nitrate , mg/l — APHA, 24th edition, UV Spectrophotometric Method — 10.79 — 11.73 — 50 — 0.5-45.0 — 0.5 10 pH value — IS 3025, (Part 11) : 1983 R-2023 Electrometric (Pb Meter) method — 7.82 — 7.85 — 6.5-8.5 — 1.0-14.0 — 2 11 Sulphate, mg/l — APHA – 24th edition,4500- S, Turbidity Method — 47 — 51 — 400 — 10.0-400.0 — 10 12 Total Dissolved Solids, mg/l — IS 3025, (Part 16) : 1984 R-2023 Gravimetric method — 251 — 280 — 1500 — 25.0-10000.0 — 25 13 Zinc, mg/l — IS 3025(Part 49) : 1994, R : 2019, AAS-Flame Method — <1.0 — <1.0 — 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 (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(Cmd) , CMPDI, RI-II. --- End of Report --- Page -1 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/waterbody and work is under progress. Work of Heightening of existing toe wall of 780 mtr and 700 m of pucca garland drains have already been constructed wrt above work order and remaining work i.e. *construction of*

siltation pond will be completed soon. (copy of work order is attached as Annexure -VII)

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	Bhowra (N&S) colliery	780 m
Toe wall around OB Dump	ASP Colliery	365 m
Pucca Garland drain around OB dump	Bhowra (S) 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

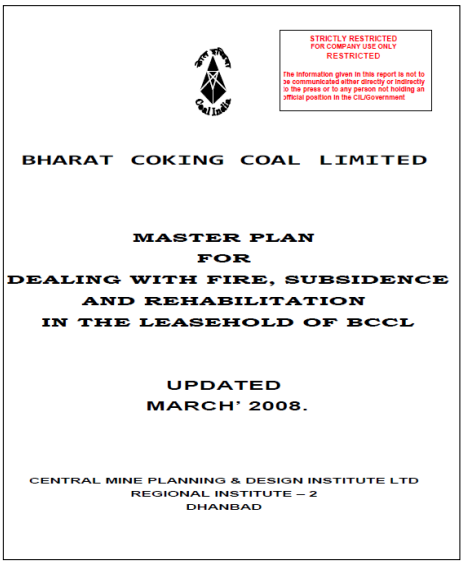
is:

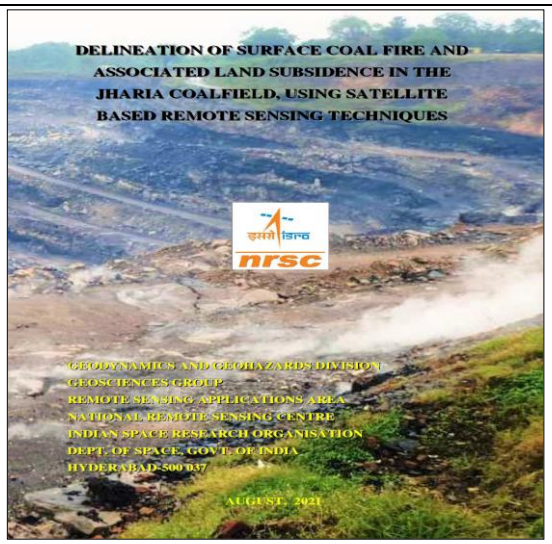
S. No.	Biological Names	Local Names	Hindi Names
1	Aegle marmelos	Bel	Bel
2	Alangium Lamarckii	Dhela	Dhela
3	Albizzia lebbek	Siris	Siris
4	Alstonia scholaris	Chatni	Chatni
5	Azadirachta indica	Neem	Neem
6	Bombax ceiba	Semal	Semal
7	Butea frondosa	Palas	Palas
8	Casearia tomentosa	Beri	Beri
9	Dalbergia 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

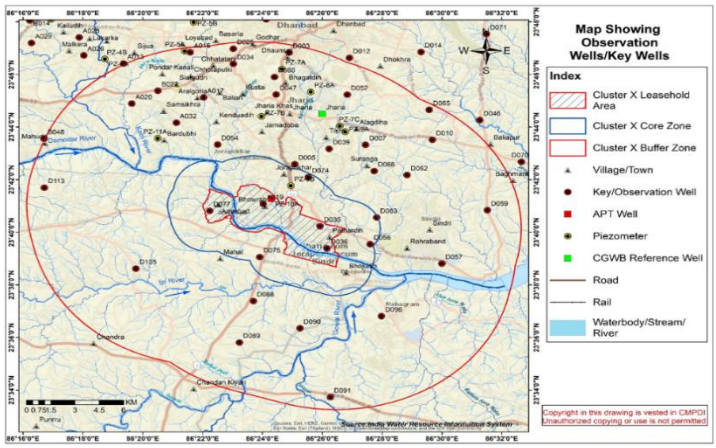
List of medicinal herbs and shurbs present at Kamini Kalyan Garden

S. No.	Biological Names	Local Names	Hindi Names
1	*Ocimum tenuiflorum*	Tulsi	Tulsi
2	*Costus Igneus*	Insulin	Insulin
3	*Aloe vera*	Aloe vera	Aloe vera
4	*Elettaria Crdamoum*	Elaichi	Elaichi
5	*Myctanthus Arbor tistis*	Harsingar	Harsingar
6	*Catharanthus roseus*	Sadabahar	Sadabahar
7	*Asparagus racemosus*	Satawar	Satawar
8	*Cymbopogon cipratus stapf*	Lemon grass	Lemon grass
9	*Plectanthus Amboinicus*	Patta Ajwain	Patta Ajwain
10	*Jatropha curcas*	Ratanjot	Ratanjot
11	*Murraya koenigii*	Kari patta	Kari patta
12	*Sansevieria trifasciata*	Nagdaman	Nagdaman
13	*Euphorbia tithymaloides*	Nagdon	Nagdon
14	*Allium bisceptrum*	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	Master plan/ Jharia Action Plan is dovetailed with environmental clearance conditions. Jharia Master Plan is approved by Govt. of India attached as Annexure- VIII. The Jharia Master plan is under revision at Ministry of Coal which is presently under review for

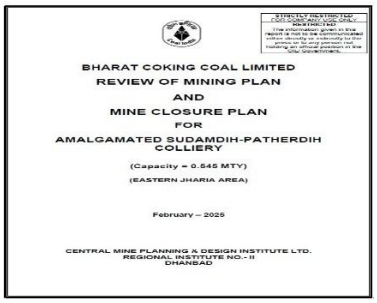
	clearance letter shall be dovetailed to the implementation of the Jharia Action Plan.	obtaining approval from Govt. of India.  STRICTLY RESTRICTED FOR COMPANY USE ONLY RESTRICTED The information given in this report is not to be communicated either directly or indirectly to the press or to any person not holding an official position in the CIL/Government BHARAT COKING COAL LIMITED MASTER PLAN FOR DEALING WITH FIRE, SUBSIDENCE AND REHABILITATION IN THE LEASEHOLD OF BCCL UPDATED MARCH' 2008. CENTRAL MINE PLANNING & DESIGN INSTITUTE LTD REGIONAL INSTITUTE – 2 DHANBAD 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 km^2; 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: <table><tr><th>Cluster</th><th>Location Details</th><th>No. of Wells</th><th>Depth</th><th>Latitude & Longitude</th></tr><tr><td>Cluster X</td><td>Bandhponda Village, East side of 17 no. incline of South Bhowra Colliery</td><td>01 (PZ-10A)</td><td>135 m</td><td>E.J. Area 23º40’28.14”N 86º23’34.56” E RL: 476 ft Depth: 135 m</td></tr></table>
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	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.

	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. **Certificate of high root density plant for controlling subsidence** This is to certify that BCCL has been doing plantation/ecological restoration under the guidelines of Forest Research Institute. The various species selected for the restoration are having a tap root system with branches which serve the purpose. These species have high root density and are already being planted at all the ecorestoration/plantation sites of BCCL. The various species having tap root system are given below. S.No. Species Common name 1. *Acacia nilotica* Kikkar 2. *Albizia odoratissima* Kala siris 3. *Bauhinia variegata* Kachnar 4. *Cassia fistula* Amaltas 5. *Ficus benghalensis* Baniyan /bargad 6. *Ficus racemosa* Gular 7. *Ficus religiosa* Pipal 8. *Gmelina arborea* Ghamar 9. *Lagerstroemea parviflora* Jarul 10. *Lannea coromandelica* Zhingan 11. *Madhuca latifolia* Mahua 12. *Mangifera indica* Aam 13. *Morus alba* Shahtoot 14. *Phyllanthus emblica* Aonla 15. *Pithecellobium dulce* Jangal jalebi 16. *Pongamia pinnata* Karanj 17. *Tamarindus indica* Imli 18. *Trema orientalis* Tree 19. *Terminalia arjuna* Arjun 20. *Terminalia bellerica* Bahera 21. *Dalbergia sissoo* Shisham 22. *Syzizium cuminii* Jamun 23. *Azadirachta indica* Neem 24. *Holoptelea integrifolia* Indian elm 25. *Butea monosperma* Palash /dhak Scientist / Scientist Forest Ecology & Climate Change Division Forest Research Institute, Dehradun-248006
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	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

	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	taking up with OEM. 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. भारत कोकिंग कोल लिमिटेड Bharat Coking Coal Limited A MINI RATNA Co. Office of the General Manager, Eastern Jharia Area Ref. No.: BCCL/EJ/GM/ENV/EC/2019/ Date: 18/04/2019 OFFICE ORDER An Environment Management Cell (EMC) of Eastern Jharia Area is hereby constituted with following members: 1. General Manager, E.J. Area – Chairman 2. Addl. General Manager, E.J. Area – Vice Chairman 3. Area Manager (Environment), E.J. Area – Member 4. Area Safety Officer, E.J. Area – Member 5. Area Manager (Planning), E.J. Area – Member 6. Area Finance Manager, E.J. Area – Member 7. Area Personnel Manager, E.J. Area – Member 8. Area Manager (Survey), E.J. Area – Member 9. Area Manager (E&M), E.J. Area – Member 10. Area Manager (Excavation), E.J. Area – Member 11. Area Manager (Estate/CD/CSR), E.J. Area – Member 12. Project Officer – 8th N/8th S/ ASP Colliery – Member Environment Management Cell will monitor & co-ordinate with project officers to ensure the compliance of conditions imposed in Environment Clearance granted by Ministry of Environment, Forest & Climate Change. General Manger Eastern Jharia Area Copy to: 1. Dy GM / HOD (Env.), KB, BCCL 2. All Project Officers, E.J. Area 3. Executive concerned 4. Office copy
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.  BHARAT COKING COAL LIMITED REVIEW OF MINING PLAN AND MINE CLOSURE PLAN FOR AMALGAMATED SUDAMDIH-PATHERDIH COLLIERY (Capacity = 0.545 MTY) (EASTERN JHARIA AREA) February – 2025 CENTRAL MINE PLANNING & DESIGN INSTITUTE LTD. REGIONAL INSTITUTE NO.- II DHANBAD BHARAT COKING COAL LIMITED (A Subsidiary of Coal India Limited) EASTERN JHARIA AREA BHOWRA (N) U/G MINES SAFETY MANAGEMENT PLAN BY SMP TEAM BHOWRA (N) U/G MINES E. J. AREA, BHOWRA BCCL, DHANBAD Safety Officer Bhowra (N) U/G Mines Colliery Engineer Bhowra (N) U/G Mines ACM (In-charge) Bhowra (N) U/G Mines Project Officer Bhowra (N) U/G Mines Manager Bhowra (N) U/G Mines
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.	Proposal for work of third party audit for air and water quality of Cluster X is under process after receiving the quotations from NEERI/CIMFR/IITs. Work order will be issued and report will be submitted by the agency and recommendations will be implemented.
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	Grassing on OB dumps is being taken up regularly. Photographs of seed ball distribution on OB dumps is enclosed herewith.

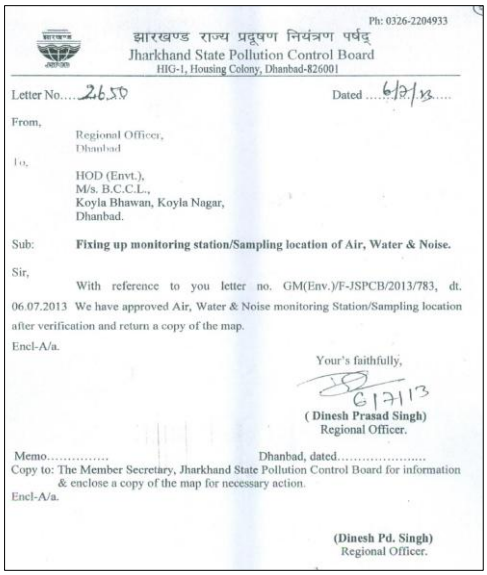
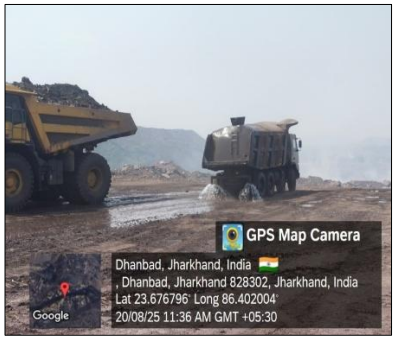
	holders shall, after ceasing mining operations, undertake re-gressing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. Compliance of this condition after the mining 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.	
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. 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 5thJune 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.	The Campaign 'Ek Ped Maa Ke Naam' which was launched on 5thJune 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.

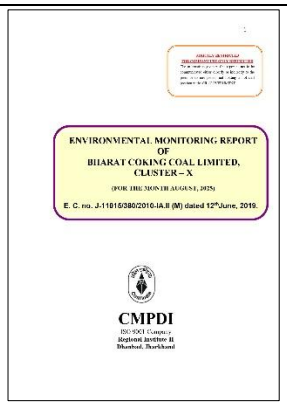
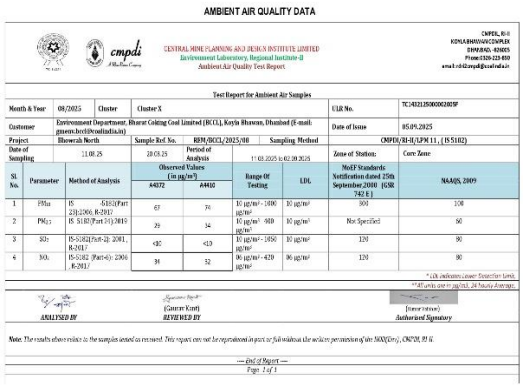
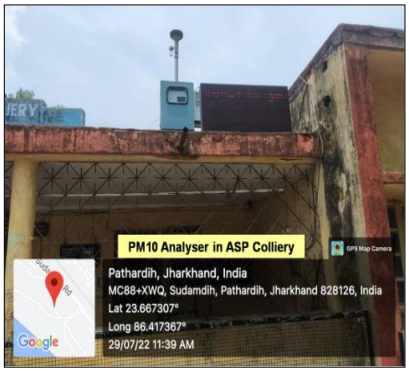
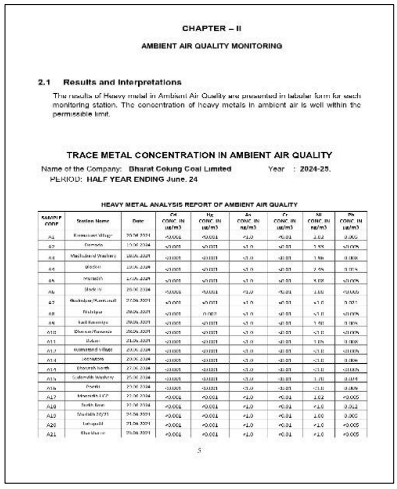
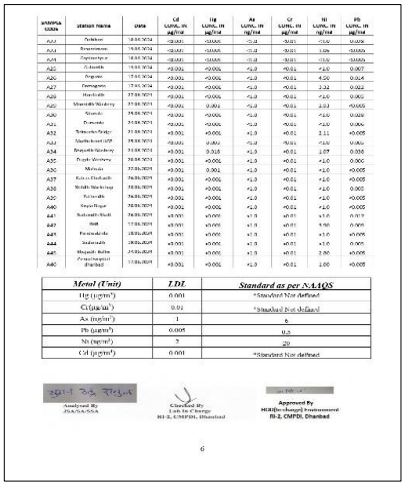
B. Standard EC Conditions for (Mining of minerals)

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:

Sl No	EC Peak Production Capacity (MTPA)	Actual Production (Million Te)		
		FY 23-24	FY 24-25	FY 25-26 (up to 30.09.2025)
1.	2.289	1.117	1.881	-
2.	2.746 (New EC)	-	-	1.164

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	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

	as in the buffer zone for monitoring of pollutants, namely particulates, SO2 and NOx. 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.	JSPCB is attached below.  Ph: 0326-2204933 झारखण्ड राज्य प्रदूषण नियंत्रण पर्षद् Jharkhand State Pollution Control Board HIG-1, Housing Colony, Dhanbad-826001 Letter No....2650 Dated ....6/7/13.... 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(Env.)/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, 6/7/13 **(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. Encl-A/a. **(Dinesh Pd. Singh)** Regional Officer. Ambient air quality is being regularly monitored by CMPDIL. Report is enclosed as Annexure XII – Environmental Monitoring Report for cluster X. Water Sprinkling in Mine Premises has been regularly done to reduce PM10 and PM2.5 level. Picture showing water sprinkling is attached. 
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	Ambient air quality data (PM10, PM2.5, SO2 and NOx) and heavy metals & other monitoring data have been regularly monitored and analyzed by CMPDIL and submitted the report, which is attached as Annexure XII. Also, Continuous monitoring of PM10 level is monitored through Online PM10 Analyser machines installed at Bhowra Gr. of Colliery and ASP Colliery of EJ area. The concentration of heavy metals in ambient air is well within the permissible limit.

	reported to the Ministry/Regional Office and to the CPCB/SPCB.	 ENVIRONMENTAL MONITORING REPORT OF BHARAT COKING COAL LIMITED, CLUSTER – X (FOR THE MONTH AUGUST, 2025) E. C. no. J-11015/380/2010-IA.II (M) dated 12th June, 2019. CMPDI ISO 9001 Company Regional Institute II Dhanbad, Jharkhand  AMBIENT AIR QUALITY DATA CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED Environment Laboratory, Regional Institute-II Ambient Air Quality Test Report Test Report for Ambient Air Samples PM10 Analyser in Bhowra Colliery  PM10 Analyser in ASP Colliery Pathardih, Jharkhand, India MC88+XWQ, Sudamdih, Pathardih, Jharkhand 828126, India Lat 23.667307° Long 86.417367° 29/07/22 11:39 AM  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 : 2024-25. PERIOD: HALF YEAR ENDING June. 24 HEAVY METAL ANALYSIS REPORT OF AMBIENT AIR QUALITY  Standard as per NAAQS Cd (µg/m³) 0.001 *Standard Not defined Approved By Chief In Charge RI-II, CMPDI, Dhanbad
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.	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 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.

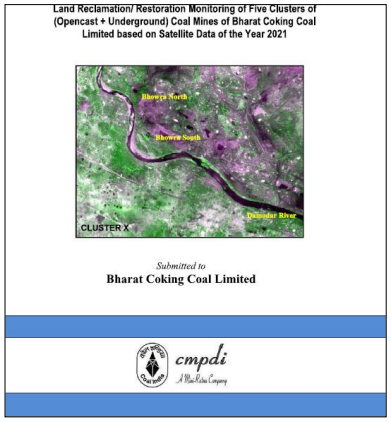
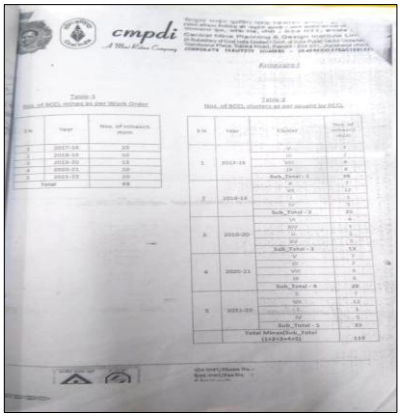
2.5	Major approach roads shall be black topped and properly maintained.	Work of Construction of PQC Coal transportation Road at various places under EJ Area has been awarded and work is under progress.
2.6	Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged 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- XIII.
2.7	PP should Install Wind breaker/shield arrangement along the railway siding for reducing the dust propagation in upwind direction.	Being complied.
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 which is valid till 16.02.2026. Copy attached as Annexure- XIV.
3.2	The effluent discharge (mine waste	Oil & Grease trap system at workshop under EJ Area is

<table>
<tr><td></td><td>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.</td><td>constructed with value of Rs 9,20,103/- and has been made operational. No any Effluents discharged into natural water course.

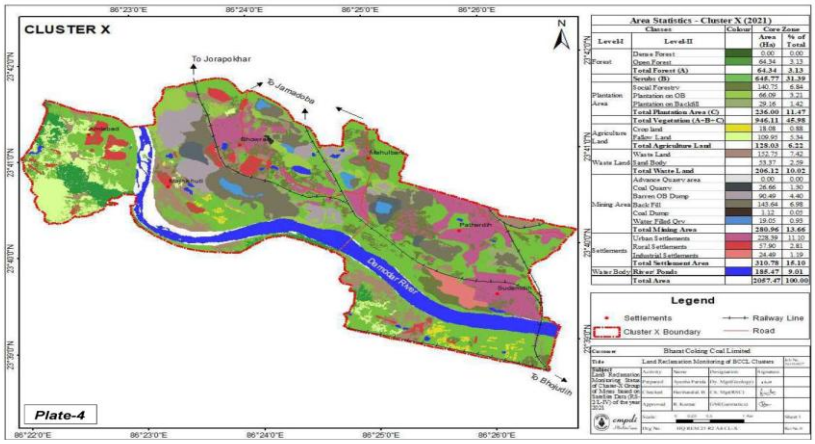
Oil & Grease System under Cluster X</td></tr>
<tr><td>3.3</td><td>The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No.J-20012/1/2006-IA.11 (M) dated 27th May 2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for its compliance.</td><td>The monitoring data along with compliance status of the stipulated environmental clearance conditions has been uploaded on BCCL website, link is given below:- <u>https://www.bcclweb.in/?page_id=4731&lang=en.</u></td></tr>
<tr><td>3.4</td><td>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.</td><td>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/waterbody and work is under progress. Work of Heightening of existing toe wall of 780 mtr and 700 m of pucca garland drains have already been constructed wrt above work order and remaining work i.e. construction of siltation pond will be completed soon. (copy of work order is attached as Annexure- VII)
Further OB dump is being stabilized through biological reclamation/ ecological restoration technique. No mine water is being discharged into Damodar river.
<table>
<tr><th>Toe wall</th><th>Colliery</th><th>Length (in m)</th></tr>
<tr><td>Toe wall around OB Dump</td><td>Bhowra (S) 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>Bhowra (S) colliery</td><td>Approx. 700 m</td></tr>
</table></td></tr>
</table>

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- VI. 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	Quotations for 'preparation of Surface drainage plan including surface water conservation plan for the area of influence affected by the mining operations' has been received from different institute like IITs/ NITs/ other reputed institute and proposal is under approval stage & work order will be awarded soon. 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.

	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.	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 received from different institute like NIH/ IITs / NITs/ WRD and proposal is under approval stage & work order will be awarded soon.
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 norms and guidelines in this regard. Adequate awareness programme for users to be conducted. Progress in usage of such accessories to be monitored.	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). CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED Environment Laboratory, Regional Institute-II Ambient Noise Level Test Report CMPDIL, RI-II KOYLA BHAWAN COMPLEX DHANBAD, JHARKHAND Phone-0326-2230401 email: rdi2cmpdi@coalindia.in Month & Year: 08/2025 · Cluster: Cluster X · UIL R No.: TC143212500002039F Customer: Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in) · Date of Issue: 05.09.2025 Project: · Sample Ref. No.: REM/BCCL/2025/08 · Sampling Method: CMPDI/RI-II/LPM 22 Sampling Stations: 1 · Bhowrah North · Date of Sampling: 11.08.25 · 20.08.25 · Zone Category of Station: · Core Zone Noise Level dB(A) Leq Day (Hour / Time of day): 06:00 - 07:00 (46.3 / 46.8); 07:00 - 08:00 (48.8 / 48.6); 08:00 - 09:00 (51.1 / 51.1); 09:00 – 10:00 (53.9 / 53); 10:00 - 11:00 (54.8 / 54.2); 11:00 - 12:00 (55.4 / 55.3); 12:00 - 13:00 (57.7 / 57); 13:00 - 14:00 (52 / 50.2); 14:00 - 15:00 (48.2 / 48.3); 15:00 - 16:00 (51.3 / 53.8); 16:00 - 17:00 (41.4 / 53.3); 17:00 - 18:00 (50 / 52.8); 18:00 - 19:00 (38.8 / 45.9); 19:00 - 20:00 (37 / 38.7); 20:00 - 21:00 (35.3 / 35.6); 21:00 - 22:00 (38.6 / 39.5); Leq DAY (51.1 / 52.0) Noise Level dB(A) Leq Night (Hour / Time of day): 22:00-23:00 (40 / 40.3); 23:00- 00:00 (39.9 / 39.7); 00:00- 01:00 (39.7 / 39.4); 01:00-02:00 (39.4 / 39.6); 02:00-03:00 (39.3 / 39.7); 03:00-04:00 (40.3 / 40.4); 04:00-05:00 (40.4 / 40.7); 05:00-06:00 (40.7 / 41); Leq NIGHT (40.0 / 40.1) Method of Analysis: CPCB, Protocol for Ambient Level Noise Monitoring - 2015 · Range Of Testing: 35 dB-135 dB · LDL: 35 dB(A) · Noise Pollution (Regulation and Control) Rules, 2000 Standards: Zones: Industrial Commercial Residential Silence · Limits in dB: 75, 65, 55, 50 (Day); 70, 55, 45, 50 (Night) *LDL indicates Lower Detection Limit **All noise measurements are integrated for a 01 hour period. All units in dB(A) (Gaurav Kant) · ANALYSED BY (Narsar Vaibhav) · Authorised Signatory REVIEWED BY 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), CMPDIL RI-II. --- End of Report --- Page 1 of 1
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). Monitoring reports are enclosed herewith as Annexure XII.

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 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.	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.  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 Bhowra North Bhowra South Damodar River CLUSTER X Submitted to Bharat Coking Coal Limited cmpdi  cmpdi Time series of land use maps based on satellite imagery of the core zone and buffer zone is attached as Annexure – XV. 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.
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 Mm^3) 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
Bhowra North	0.502538	1.17257	0.321554	0	0	0	0	0	0	0	0	17.98173
Bhowra South	0.58165	0.3184	6.222675	4.49183	3.488184	2.205725	3.854237	3.993684	3.454029	5.112672	9.915964	8.32416
ASP Colliery	0.260443	0.077444	1.364138	1.535176	1.12663	0.923629	0.585637	2.170162	2.056041	1.846847	1.441116	2.761864
Sudamdih Shaft	-	-	-	-	-	-	-	-	-	-	-	-
Amlabad UG	-	-	-	-	-	-	-	-	-	-	-	-
Total (Cluster X)	**1.344631**	**1.568414**	**7.908367**	**6.027006**	**4.614814**	**3.129354**	**4.439874**	**6.163846**	**5.51007**	**6.959519**	**11.35708**	**29.06775**

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
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*)						
ASP Colliery	0.96	0.60	0.58	0.51	0.52	18.90*				1.33		10.06
Sudamdih Shaft	-	-	-	-	-	-	-	-		-	-	-
Amlabad UG	-	-	-	-	-	-	-	-		-	-	-

* 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
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	2.00	2.50	0
ASP Colliery - OC	1.93	0.96	0.6	0.58	0.51	16.4		3.56		0.00	0.00	11.73
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 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.

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
Bhowra North	-	-	-	5.20	3.10	-	-	-	-	-	-	-
Bhowra South	-	4.78	-	-	-	4.50	-	-	2.60	-	-	-
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	-

Biologically stabilized OB dumps

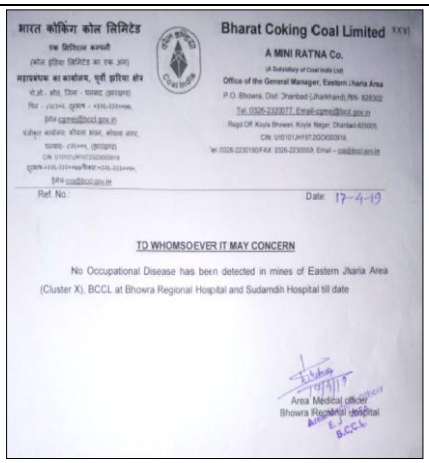
Grassing on OB dumps

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:

	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
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

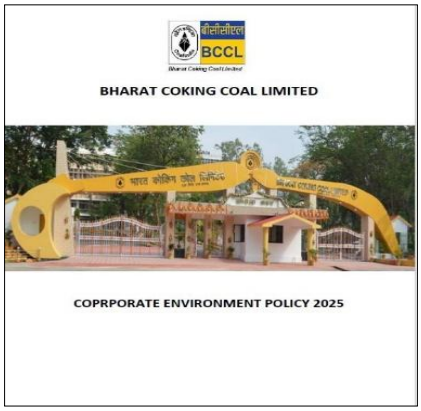
Contractual Workers:	Training	IME	
2014-15	15	2014-15	15
2015-16	78	2015-16	74
2016-17	78	2016-17	62
2017-18	163	2017-18	124
2018-19	111	2018-19	111
2019-20		2019-20	Nil
2020-21		2020-21	Nil
2021-22		2021-22	96
2022-23	196	2022-23	203
2023-24	32	2023-24	Nil
2024-25	Nil	2024-25	Nil

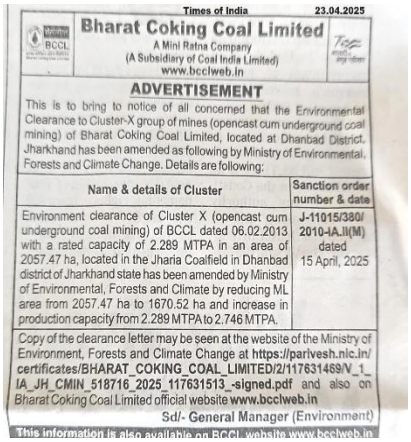
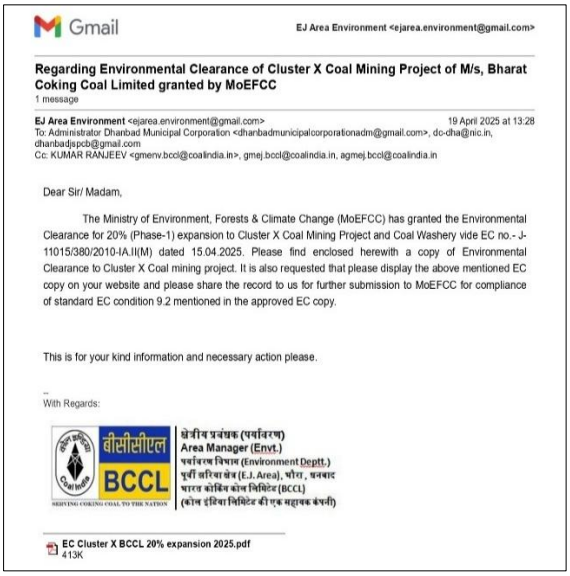
Certificate of the area medical officer showing no occupational disease has been detected in the Cluster X group of mines is attached.

<table>
<tr><td></td><td></td><td> 
भारत कोकिंग कोल लिमिटेड
Bharat Coking Coal Limited
A MINI RATNA Co.
Office of the General Manager, Eastern Jharia Area
Ref. No.:
Date: 17-4-19
TO WHOMSOEVER IT MAY CONCERN
No Occupational Disease has been detected in mines of Eastern Jharia Area (Cluster X), BCCL at Bhowra Regional Hospital and Sudamdih Hospital till date
Area Medical Officer
Bhowra Regional Hospital</td></tr>
<tr><td>7.3</td><td>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.</td><td>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:
<u>DETAILS OF PROTECTIVE RESPIRATORY DEVICES / DUST MASK ISSUED</u>
<table>
<tr><td>Mine Name</td><td>2016</td><td>2017</td><td>2018</td><td>2019</td><td>2020</td><td>2021</td><td>2022</td><td>2023</td><td>2024</td></tr>
<tr><td>Bhowra North</td><td>200</td><td>180</td><td>70</td><td>220</td><td>Nil</td><td>Nil</td><td>-</td><td>-</td><td>34</td></tr>
<tr><td>Bhowra South</td><td>38</td><td>119</td><td>80</td><td>110</td><td>320</td><td>280</td><td>-</td><td>-</td><td>116</td></tr>
<tr><td>ASP Colliery</td><td>65</td><td>68</td><td>72</td><td>50</td><td>220</td><td>190</td><td>-</td><td>-</td><td>Nil</td></tr>
</table>
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</td></tr>
<tr><td>7.4</td><td>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.</td><td>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.</td></tr>
<tr><td>7.5</td><td>Effective arrangement shall be made to provide and maintain at suitable points conveniently situated, a</td><td>Suitable arrangement has been made for drinking water for the persons employed in the mines.</td></tr>
</table>

	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'.	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 - XVI  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. प्रभात खबर 23.04.2025 भारत कोकिंग कोल लिमिटेड (एक मिनीरत्न कंपनी) (कोल इण्डिया लिमिटेड की एक अनुषंगी कंपनी) सूचना सभी सम्बंधित व्यक्तियों को सूचित किया जाता है कि भारत कोकिंग कोल लिमिटेड के क्लस्टर-10 को पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय के द्वारा पर्यावरणीय स्वीकृति में बदलाव की मंजूरी प्राप्त हुई है। विवरण निम्न है: खान का नाम: झारखंड राज्य के धनबाद जिले के झरिया कोयला क्षेत्र में स्थित क्लस्टर X (2057.47 हेक्टेयर क्षेत्र में 2.289 एमटीपीए की क्षमता) के पर्यावरण मंजूरी दिनांक 06.02.2013) को पर्यावरण, वन और जलवायु मंत्रालय द्वारा संशोधित किया गया है एवं पट्टा क्षेत्र को घटाकर 1670.52 हेक्टेयर एवं क्षमता को 2.289 एमटीपीए से बढाकर 2.746 एमटीपीए के साथ ओसी सह यूजी के साथ खनन उत्पादन करने की अनुमति प्राप्त हुई है। स्वीकृति आदेश संख्या एवं तिथि: J-11015/380/2010-IA.II(M) dated 15 April, 2025. प्रतिलिपि पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय की आधिकारिक वेबसाईड https://parivesh.nic.in/certificates/BHARAT_COKING_COAL_LIMITED/2/117631469/V_1_IA_JH_CMIN_518716_2025_117631513_-signed.pdf और भारत कोकिंग कोल लिमिटेड के आधिकारिक वेबसाईड www.bcclweb.in पर उपलब्ध है। ह0/-महाप्रबंधक, पर्यावरण विभाग यह सूचना बीसीसीएल की वेबसाइट www.bcclweb.in पर भी उपलब्ध है।  Times of India 23.04.2025 Bharat Coking Coal Limited A Mini Ratna Company (A Subsidiary of Coal India Limited) www.bcclweb.in ADVERTISEMENT This is to bring to notice of all concerned that the Environmental Clearance to Cluster-X group of mines (opencast cum underground coal mining) of Bharat Coking Coal Limited, located at Dhanbad District, Jharkhand has been amended as following by Ministry of Environmental, Forests and Climate Change. Details are following: Name & details of Cluster: Environment clearance of Cluster X (opencast cum underground coal mining) of BCCL dated 06.02.2013 with a rated capacity of 2.289 MTPA in an area of 2057.47 ha, located in the Jharia Coalfield in Dhanbad district of Jharkhand state has been amended by Ministry of Environmental, Forests and Climate by reducing ML area from 2057.47 ha to 1670.52 ha and increase in production capacity from 2.289 MTPA to 2.746 MTPA. Sanction order number & date: J-11015/380/2010-IA.II(M) dated 15 April, 2025 Copy of the clearance letter may be seen at the website of the Ministry of Environment, Forests and Climate Change at https://parivesh.nic.in/certificates/BHARAT_COKING_COAL_LIMITED/2/117631469/V_1_IA_JH_CMIN_518716_2025_117631513_-signed.pdf and also on Bharat Coking Coal Limited official website www.bcclweb.in Sd/- General Manager (Environment) This information is also available on BCCL website www.bcclweb.in
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.  Gmail EJ Area Environment <ejarea.environment@gmail.com> Regarding Environmental Clearance of Cluster X Coal Mining Project of M/s, Bharat Coking Coal Limited granted by MoEFCC 1 message EJ Area Environment <ejarea.environment@gmail.com> 19 April 2025 at 13:28 To: Administrator Dhanbad Municipal Corporation <dhanbadmunicipalcorporationadm@gmail.com>, do-dha@nic.in, dhanbadjspcb@gmail.com Cc: KUMAR RANJEEV <gmenv.bccl@coalindia.in>, gmej.bccl@coalindia.in, agmej.bccl@coalindia.in Dear Sir/ Madam, The Ministry of Environment, Forests & Climate Change (MoEFCC) has granted the Environmental Clearance for 20% (Phase-1) expansion to Cluster X Coal Mining Project and Coal Washery vide EC no.- J-11015/380/2010-IA.II(M) dated 15.04.2025. Please find enclosed herewith a copy of Environmental Clearance to Cluster X Coal mining project. It is also requested that please display the above mentioned EC copy on your website and please share the record to us for further submission to MoEFCC for compliance of standard EC condition 9.2 mentioned in the approved EC copy. This is for your kind information and necessary action please. With Regards: बीसीसीएल BCCL क्षेत्रीय प्रबंधक (पर्यावरण) Area Manager (Envt.) पर्यावरण विभाग (Environment Deptt.) पूर्वी झरिया क्षेत्र (E.J. Area), धनबाद भारत कोकिंग कोल लिमिटेड (BCCL) (कोल इंडिया लिमिटेड की एक महायक कंपनी) EC Cluster X BCCL 20% expansion 2025.pdf 413K
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.	Copy of EC letter of cluster X has been displayed on BCCL website and also attached as Annexure- XVII. Link- https://www.bcclweb.in/Environment%20Clearance/Cluster-X_EC.pdf 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- XVIII
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 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	Project authority is ready to extend its full cooperation for any 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)	It is being complied.

	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	

29/11/25
Area Manager (Envt.)
E.J. Area

29/11/25
Project Officer
Amlg. Sudamdih-Patherdih
(ASP) Colliery,
E.J. Area

29/11/25
Project Officer
Amlg. Bhowra North & South
(ABNS) Colliery,
E.J. Area

29/11/25
Addl. General Manager
E.J. Area, BCCL
Cluster X

29/11/25
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

सेंट्रल माइन प्लानिंग एण्ड डिज़ाइन इंस्टीट्यूट लिमिटेड
(कोल इंडिया लिमिटेड की अनुषंगी कम्पनी / भारत सरकार की एक लोक उपक्रम)
पंजीकृत कार्यालय : गोन्दवाना प्लेस, कांके रोड, राँची - 834031 (झारखण्ड) भारत
क्षेत्रीय संस्थान-2, पत्रा. बीसीसीएल टाउनशीप, 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, Koylanagar, Dhanbad 826005(Jharkhand) India
Corporate Identity No. U14292JH1975GOI001223

cmpdi
A Mini Ratna Company

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

दिनांक: 02.08.2016
03.

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, दिनंक: 14.07.2016,
2. BCCL/Dy.GM (Env)/F-EMP/16/1314-15 (M), Dated: 23.06.2016,
3. आर.आई.- 2/पर्यावरन / 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/पर्यावरन / 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.

भवदीय

(वि.कु. सिन्हा)
क्षेत्रीय निदेशक

Sri Amaitabha Act Mgr(Env), for record.
4.8.16.

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

फोन : (+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

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

खरीदार विवरण|Buyer Details

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

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

भुगतान प्राधिकरण विवरण|Paying Authority Details

Role:	PAO
भुगतान का तरीका| Payment Mode:	Offline
पद|Designation :	Senior Manager
ईमेल आईडी|Email ID :	pay8.bccl.dhn@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**

परेषिती विवरण|Consignee Detail

क्र.सं.|S.No	परेषिती|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

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_bccl_-without_pm10-__without_ct_2025-04-30-17-26-01_c1c3c69dbeed92598edecc31f35d2132.pdf

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

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_bccl_with_pm_10_2025-04-30-17-22-14_0874e5431b4d1ef37be881797f835b1f.pdf

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.bccl@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,

Sl	Name of IEM	Address	e-Mail ID
1	Shri Awind Kumar Kadyan, IDAS(Retd.),	Add: B-2l1, Paschim Vihar, New Delhi – 110063.	arvindkadyan17@gmail.com
2	Shri Amrit Lugun, IFS(Retd.),	A2/122, Ground floor, Safdarjung enclave, New Delhi-110029.	a.lugan@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 shallbe 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 WarrantySpares & 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 with out 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 fo r 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 giv en to them for submission of Security Deposit within next 15days. If the successful tenderer still fails to deposit the security deposit within the extended period but executes th e 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 cal culated 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 consi gnee 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 contr act 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 Depo sit 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 successf ul bidder shall be required to furnish a performance bank Guarantee as per following,

i. The successful tenderer shall be required to furnish a Performance Guarantee equivalent to 10% value of the contract to cover the warranty/guarantee period.

ii. 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 pa per.

iii. The Performance Bank Guarantee (PBG) shall be in the same currency (ies) in which contract has been si gned/created. In case of multi-currency contract, separate PBG in respective currency for required value s hall be submitted.

iv. 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 installat ion, commissioning etc. as per GeM contract terms in present case.

v. The PBG shall be submitted, sufficiently in advance (say 3-4 weeks) to enable its verification before sub mission of the invoice for payment of the supplied material(s).

vi. The PBG issued by Issuing bank on behalf of the bidder in favour of "Bharat Coking Coal Limited" shall b e in paper form (Stamp Paper) as well as issued under "Structured Financial Messaging System". The detai ls 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, Branc h & 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 warrant y 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 o btaining 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 pe nding 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 fr om 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 supplie r 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), websitewww.rxil.in**
- **ii. A-treds Ltd (Invoicemart) , website- www.invoicemart.com11 / 14**
- **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, GoI. (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.

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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)** was submitted online by you along with the tender vide PRN Ref no. **3067771012320**.

(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.

Contd……3

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. 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, E J 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.

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
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 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

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.

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.

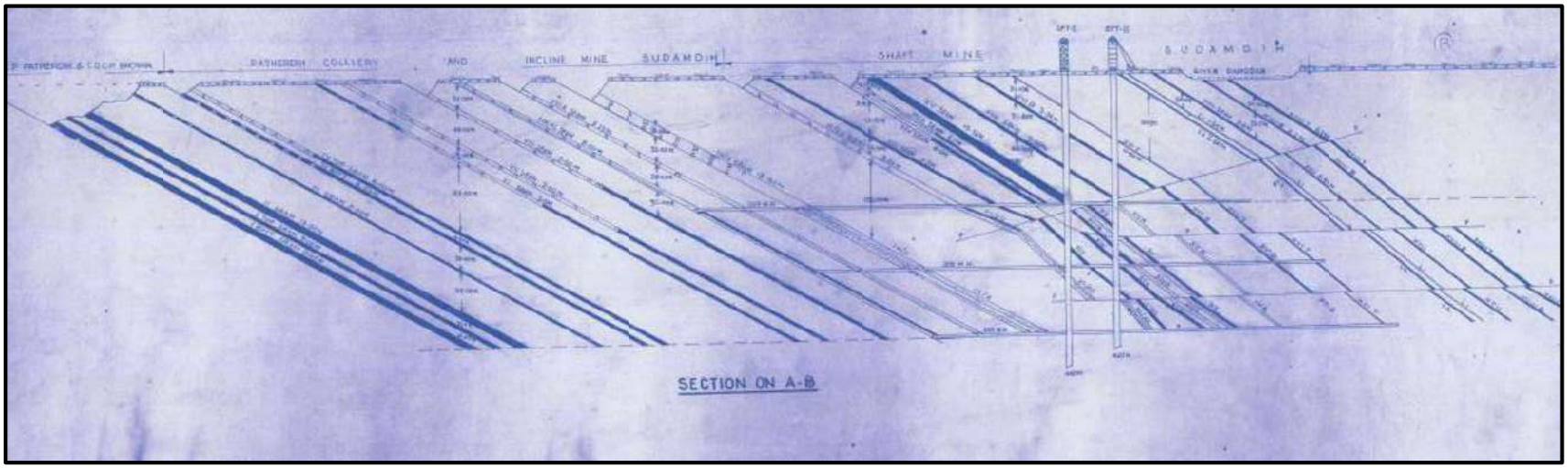
viii. **Aquifer Performance Test (APT)** results in Barakar Formation within the study area shows low permeability (K= 1.22 to 0.006 m/day and T= 8.06 to 0.133 m^2/day) of the semi-confined to confined aquifer in the study area.

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.


INCLINE MINE
SUDAMDIH
SHAFT MINE
SUDAMDIH
SECTION ON A-B

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 ($\delta^{18}O$ and $\delta^{2}H$) 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.

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.

WATER QUALITY REPORT OF BHARAT COKING COAL LIMITED, CLUSTER – X

(FOR THE Q.E. JUNE 2025)

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

CMPDI

ISO 9001 Company

Regional Institute-II

Dhanbad, Jharkhand

CLUSTER - X

(FOR THE Q.E. JUNE 2025)

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 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 $23^0$37' N to $23^0$52' N latitudes and $86^0$09' E to $86^0$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. Effluent samples were analyzed for 25 parameters on quarterly basis & for 27 parameters on half yearly basis. The Ground and Surface water samples were collected and analyzed for 25 and 17 parameters respectively, on 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 with in 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 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) 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.

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 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 12thJune, 2019.

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In compliance of 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)**

iv) Mine Water Quality at Bhowrah North **(MW10)**

2.2 Methodology of sampling and analysis

Water samples were collected as per standard practice. Effluent samples were analyzed for 25 parameters on quarterly basis & for 27 parameters on half yearly basis. The Ground and Surface water samples were collected and analyzed for 25 and 17 parameters respectively, on 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

CMPDIL, RI-II
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TC-14321

Month & Year	QUARTER ENDING JUNE 2025	Name of Cluster	CLUSTERX	ULR No.	TC1432125000002059P
Customer	Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)			Date of Issue	16.09.2025
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	20.05.25	Sample Collected in 5 Ltr Jerricane , Color as observed is transparent	
		Period of Analysis	20.05.2025	TO	20.07.2025

Sl. No.	Parameter	Method of Analysis	Observed Values			IS 10500: 2012	
			GW10 G0182	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	104	2.0-800.0	2	75	200
3	Chlorides, mg/l	IS-3025(Part 32):1988, R-2019 , Argentometric Method	124	2.0-1500.0	5	250	1000
4	Fluoride, mg/l	APHA, 24th Edition, SPADNS Method	0.56	0.2-2.00	0.2	1	1.5
5	Iron, mg/l	IS 3025 (Part 53) : 2003, R : 2019 , AAS-Flame Method	<2.0	0.2-10	0.2	1	No relaxation
6	Magnesium	APHA 24th edition, 3500-Mg B: Calculation Method	95	6.0-700	6	30	100
7	Nitrate , mg/l	APHA, 24th edition, UV-Spectrophotometric Method	21.02	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	7.69	1-14	0.1	6.5-8.5	No relaxation
10	Sulphate, mg/l	APHA –24th edition, 4500 S , Turbidity Method	134	10.0-400.0	10	200	400
11	Taste	APHA,24th edition, 2160-C	Acceptable	Qualitative	Qualitative	Acceptable	Agreeable
12	Total Alkalinity ($c_ac_o_3$), mg/l, Max	IS 3025, Part 23: 1986 R 2019 Titration Method	230	4.0-2000.0	4	200	600
13	Total Dissolved Solids, mg/l	IS 3025, Part 16: 1984 R 2023 Gravimetric method	780	25.0-5000.0	25	500	2000
14	Total Hardness, mg/l	IS 3025, (Part 21): 2019 EDTA Method	650	4.0-2000.0	4	200	600
15	Turbidity, NTU	IS 3025, (Part 10):1984, R-2023 Nephelometric/Turbiditimetric Method	3.2	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)	(Kumar Vaibhav)
ANALYSED BY	***REVIEWED BY***	***Authorised Signatory***

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CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED

Environment Laboratory, Regional Institute-II

GROUND WATER ANALYSIS TEST REPORT

Month & Year	**QUARTER ENDING JUNE 2025**	**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**	**16.09.2025**
Project	**Bhowrah North**	**Sample Ref. No.**	**REM/BCCL/24-25/GW**	**Sampling Method**	**CMPDI/RI-II/LPM 13,(IS 3025:Part -1)**
Sampling Stations	**Bhowrah North**	**Date of Sampling**	**20.05.25**	**Sample Collected in 5 Ltr Jerricane , Color as observed is transparent**	
		Period of Analysis	**20.05.25**	**TO**	**20.07.2025**

Sl. No.	**Parameter**	**Method of Analysis**	**Observed Values**			**IS 10500: 2012**	
			GW10	**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 ,Carmine	<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, 24th 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, 24TH 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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Environment Laboratory, Regional Institute-II
SURFACE WATER ANALYSIS TEST REPORT

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Month & Year	QUARTE ENDI NG JUNE 2025	**Name of Cluster**	X	ULR No.	TC1432125000002087P TC1432125000002088P
Customer	Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)			Date of Issue	16.09.2025

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	30.06.2025	Period of Analysis
	(ii)	Downstream of Damodar River(SW22)	Date of Sampling	30.06.2025	30.6.2025 TO 20.08.2025

			Observed Values		IS : 2296 INLAND SURFACE WATER [1982] Class 'C	Range of Testing	LDL
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	43	45	600	2.0-1500.0	5
4	Copper, mg/l	IS 3025 (Part 42) : 1992 R : 2019, AAS-Flame Method	<2.0	<2.0	1.5	0.2-10.0	0.2
5	Dissolved Oxygen, mg/L	IS 3025 (Part 38) : 1989, R:2003 Winkler Azide Method	6.8	7.1	4	1.0-10.0	0.1
6	Fluoride, mg/l	APHA, 24th edition, SPADNS Method	0.55	0.50	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	<2.0	<2.0	50	0.2-10	0.2
9	Nitrate , mg/l	APHA, 24th edition, UV-Spectrophotometric Method	10.79	11.73	50	0.5-45.0	0.5
10	pH value	IS 3025, (Part 11) : 1983 R-2023 Electrometric (Ph Meter) method	7.82	7.85	6.5-8.5	1.0-14.0	2
11	Sulphate, mg/l	APHA –24th edition,4500- S, Turbidity Method	47	51	400	10.0-400.0	10
12	Total Dissolved Solids, mg/l	IS 3025, (Part 16): 1984 R-2023 Gravimetric method	251	280	1500	25.0-10000.0	25
13	Zinc, mg/l	IS 3025(Part 49) : 1994, R : 2019, AAS-Flame Method	<1.0	<1.0	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*

	(Gaurav Kant)	(Kumar Vaibhav)
Analysed by	*REVIEWED BY*	*Authorised Signatory*

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Environment Laboratory, Regional Institute-II
SURFACE WATER ANALYSIS TEST REPORT

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Month & Year	QUARTE ENDI NG JUNE 2025	**Name of Cluster**	X		
Customer	Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)			Date of Issue	16.09.2025
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	30.06.2025	Period of Analysis	
	(ii) Downstream of Damodar River(SW22)	Date of Sampling	30.06.2025	30.6.2025 TO 20.08.2025	

Sl. No.	Parameter	Method of Analysis	Observed Values (i)	Observed Values (ii)	IS : 2296 INLAND SURFACE WATER [1982] Class 'C	Range of Testing	LDL
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, 24th 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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MINE EFFLUENT ANALYSIS TEST REPORT

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Month & Year	QUARTER ENDING JUNE 2025	Name of Cluster	CLUSTER X	ULR No.	TC1432125000002118P
Customer	Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)			Date of Issue	16.09.2025
Project	Bhowrah North	Sample Ref. No.	REM/BCCL/25-26/MW/	Sampling Method	CMPDI/RI-II/LPM 13,(IS 3025:Part -1)
Sampling Stations	MW10	Date of Sampling	23.06.2025	Sample Collected in 5 Ltr Jerricane , Color as observed is transparent	

Period of Analysis	23.06.2025	TO	20.08.2025

Sl. No.	Parameter	Method of Analysis	MW10 M1596	Range Of Testing	LDL	MOEF -SCH-VI STANDARDS Class 'A'
1	B.O.D (3 days 27°C), mg/l, Max	IS 3025 /44:1993,R:20033 day incubation at 27°C	<2.0	2-10000.0	2	30
2	Colour	APHA,24th edition ,2120-B-:2023	<1	1.0-500.0	1	-
3	COD, mg/l, Max	APHA 24th edition 5220 C Titrimetric Method	36	4.0-800.0	4	250
4	Copper (as Cu), mg/l, *Max*	IS 3025(Part42): 1992 R : 2019, AAS-Flame	<0.2	0.2-10.0	0.2	3
5	Dissolved Phosphate (as P), mg/l, Max	IS 3025/ 31, 1988 R 2019	0.0099	0.1-5.0	0.1	5
6	Fluoride (as F) mg/l, *Max*	APHA, 24th Edition, Page 4-90 to , 4500 – F- D (SPADNS Method)	0.88	0.2-2.0	0.2	2
7	Hexavalent Chromium, mg/l, Max	IS 3025 (Part 52) : 2003,Reaffirmed 2019	<0.01	0.01-1.40	0.01	0.1
8	Iron (as Fe), mg/l, *Max*	IS 3025 (Part 53) : 2003, R : 2019 , AAS-Flame	<0.2	0.2-10	0.2	3
9	Manganese(as Mn), mg/l, Max	APHA, 24th edition, AAS-Flame	<0.1	0.1-10	0.1	0.1
10	Nickel (as Ni), mg/l, *Max*	IS-3025(Part 54):2003, R:2019 AAS-Flame	<0.1	0.1-10.0	0.1	3
11	Nitrate Nitrogen, mg/l, *Max*	APHA, 24th Edition,UV-Spectrphotometric	2.03	0.5-45	0.5	10
12	Oil & Grease, mg/l, Max	IS 3025/39:1991, R : 2019, Partition Gravimetric	<4.0	2.0-1000	2	10
13	pH value	IS-3025/11:1983, R-2023, Electrometric	7.81	1 -14	0.1	5.5 to 9.0
14	Temperature (°C)	IS-3025/09:1984, Thermometeric	29.2	1-100	.	Shall not exceed 5° C above the receiving temp.
15	Total Chromium (as Cr), mg/l, *Max*	IS-3025(Part 52):2003, R:2019 AAS-Flame	<0.1	0.1-10.0	0.1	2
16	Total Suspended Solids, mg/l, Max	IS 3025/17:1984, R :2023, Gravimetric	40	10-5000	10	100
17	Zinc (as Zn), mg/l, *Max*	IS 3025 /49 : 1994, R : 2019, AAS-Flame	<0.1	0.1-10.0	0.1	5
18	Odour	APHA, 24th Edition, , 2150-C	Agreeable	Qualitative	Qualitative	Qualitative

****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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CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED

Environment Laboratory, Regional Institute-II

MINE EFFLUENT ANALYSIS TEST REPORT

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Month & Year	QUARTER ENDING JUNE 2025	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	16.09.2025
Project	Bhowrah North	Sample Ref. No.	REM/BCCL/25-26/MW/	Sampling Method	CMPDI/RI-II/LPM 13,(IS 3025:Part -1)
Sampling Stations	MW10	Date of Sampling	23.06.2025	Sample Collected in 5 Ltr Jerricane , Color as observed is transparent	

Period of Analysis	23.06.2025	TO	20.08.2025

Sl. No.	Parameter	Method of Analysis	MW10	Range Of Testing	LDL	MOEF -SCH-VI STANDARDS Class 'A'
1	Ammonical Nitrogen, mg/l, Max	IS 3025/34:1988,R : 2009, Nessler's	<0.02	0.02-100	0.02	50
2	Arsenic (as As), mg/l, Max	IS-3025,part 37:1988, R-2019/ APHA 24th edition AAS-VGA	<0.006	0.006-5	0.006	0.2
3	Free Ammonia, mg/l, Max	IS:3025/34:1988, Nesseler's	<0.01	0.01-10	0.01	5
4	Lead (as Pb), mg/l, *Max*	IS-3025(Part 59):2006, R 2023 AAS-GTA/APHA, 24th Edition, 3111B, AAS-GTA	<0.005	0.005-10	0.005	2
5	Phenolic compounds	APHA, 24th edition4-Amino Antipyrine	<0.002	0.002-5	0.002	1
6	Selenium, mg/l, Max	IS-3025,part 56:2003, R-2019/ APHA 24th edition, AAS-VGA	<0.007	0.007-5	0.007	0.05
7	Sulphide (as S^{2-}) mg/l Max.	APHA 24th edition Methylene Blue Method	<0.005	0.005-5	0.005	2
8	Total Kjeldahl Nitrogen, mg/l, Max	IS:3025/34:1988, Nesseler's	<1	1-200	1	100
9	Total Residual Chlorine, mg/l, Max	APHA, 24th Edition, , 4500-Cl B. (Iodometric Method-I)	<0.04	0.04-5.00	0.04	1

****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)

ANALYSED BY ***Authorised Signatory***

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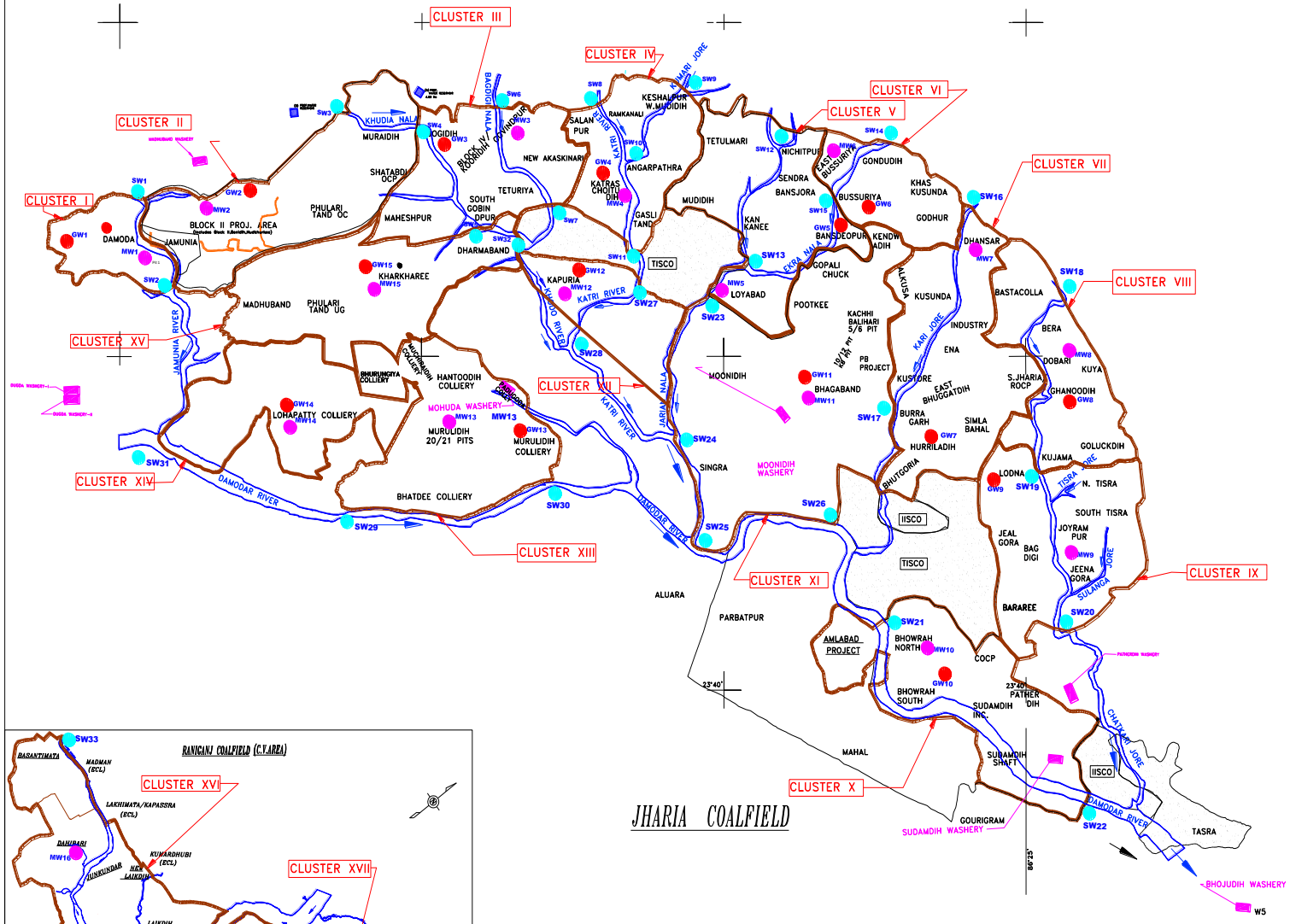
Water Sampling Locations in BCCL



INDEX

Cluster	Suface Water (U/S, D/S)	Name of River/ Nala / Jore	Mine/ Effluent Water	Sampling Location	Ground Water	Sampling Location
I	SW1, SW2	Jamunia River	MW1	Damoda Area	GW1	Ghutway Village
II	SW3, SW4	Khudia Nala	MW2	Block II OCP	GW2	Joyrampur Village
III	SW4, SW5, SW6, SW7	Khudia Nala, Bagdigi Nala	MW3	Govindpur Colliery	GW3	Jogidih Village
IV	SW8, SW11, SW9, SW10	Katri River, Kumari Jore	MW4	Chotudih	GW4	Kankanee Village
V	SW12, SW13, SW15	Jarian Nala, Ekra Nala	MW5	Mudidih	GW5	Nichitpur
VI	SW14, SW15	Ekra Nala	MW6	East Bassuria UGP	GW6	Bansjora Borewell
VII	SW16, SW17	Kari Jore	MW7	Dhansar UGP	GW7	Hurriladih
VIII	SW18, SW19	Kashi Jore	MW8	Dobari UGP	GW8	Ghanudih
IX	SW19, SW20	Kashi Jore	MW9	Jeenagora	GW9	Lodna
X	SW21, SW22	Damodar River	MW10	Bhowrah North	GW10	Bhowrah South
XI	SW23, SW24, SW25, SW26	Jarian Nala, Damodar River	MW11	Bhagabandh UGP	GW11	Bhagabandh
XII	SW27, SW28	Katri River	MW12	Kapuria	GW12	Kapuria
XIII	SW29, SW30	Damodar River	MW13	Murulidih (20/21)	GW13	Murilidih
XIV	SW31, SW29	Damodar River	MW14	Lohapatti	GW14	Lohapatti
XV	SW5, SW32	Khudia Nala	MW15	Kharkharee UGP	GW15	Kharkharee
XVI	SW33, SW34	Khudia River	MW16	Dahibari OCP	GW16	Patlabari Village
XVII	SW35, SW36	Barakar River	MW17	Damagoria Colliery	GW17	Chaptoria

HoD (Envt.)
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

Customer: BHARAT COKING COAL LIMITED
Title: WATER SAMPLING LOCATIONS
Subject: MONITORING STATIONS

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 : Email :
CIN : U10101JH1972GOI000918 GSTN : 20AAACB7934MFZB

SERVICE PURCHASE ORDER

PO No. : 5500010831 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 per 1 unit	113827.15	
	20	dressing of sides and ramming of bottoms	63.300	M3	5120.95 per 1 unit	324156.14	

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

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

BHARAT COKING COAL LIMITED

MASTER PLAN
FOR
DEALING WITH FIRE, SUBSIDENCE AND REHABILITATION IN THE LEASEHOLD OF BCCL

UPDATED
MARCH' 2008.

CENTRAL MINE PLANNING & DESIGN INSTITUTE LTD
REGIONAL INSTITUTE – 2
DHANBAD

I) As the manpower in BCCL is continuously reducing due to super -annuation, only 25000 BCCL houses shall be constructed against 42650 houses as proposed in the Master Plan. Therefore fund for construction of only 25000 houses shall be considered in the Master Plan.

II) The cost estimate of the fire projects should be reduced to the extent possible. Whenever fire is handled by direct removal of coal and OB, the cost shall be set off considering that 50% of coal will be available for selling.

III) A sample survey should be carried out for private (Pucca & Kutcha) for ascertaining suitable fund provision as compensation in the Master Plan.

IV) For the purpose of income generation scheme, it has been decided that head of every displaced house shall be paid wage of 250 days in a year for two years as per minimum wage rate of respective state Govts.

The Master plan, July'2006 has been prepared considering the above decision and was submitted to State Govt. of Jharkhand for their acceptance vide letter no.GM (ENV)/F-rhab/2007/138 dated 6.3.2007. Jharkhand state Govt. has not given acceptance as yet.

Cost up-dation of the Master Plan July'o6 has been done up to Feb'08 considering the increase in WPI and Civil Cost Index.. Increase in WPI was about 7% and Civil cost index was 14.28%

5.O SCOPE OF WORK OF MASTER PLAN '2008

Master Plan now covers only following two aspects:

i) **Dealing with fire**, which includes identification of fire areas, selection of technologies to deal with the fires, prioritization for implementation and assessment of tentative fund requirement.

ii) **Rehabilitation & Resettlement** of the affected people from the areas affected by fire & subsidence including identification of affected sites, identification of resettlement sites and assessment of tentative fund requirement.

Note: "BCCL vide letter no GM(Env)/F- /06 dated 22nd April, 2006 suggested that diversion of railway lines and NH 32 road passing through coal bearing areas of JCF should also be included in the Master Plan'2006.

Diversion of rails and roads passing over the coal bearing areas are affected by fire and subsidence at many places and may further be affected. As the diversion will affect the operation of other coal producing companies like TISCO & SAIL, other industries operating in the coalfield and State Govt. as well as Railway, a joint decision is to be taken involving all the above stakeholders.

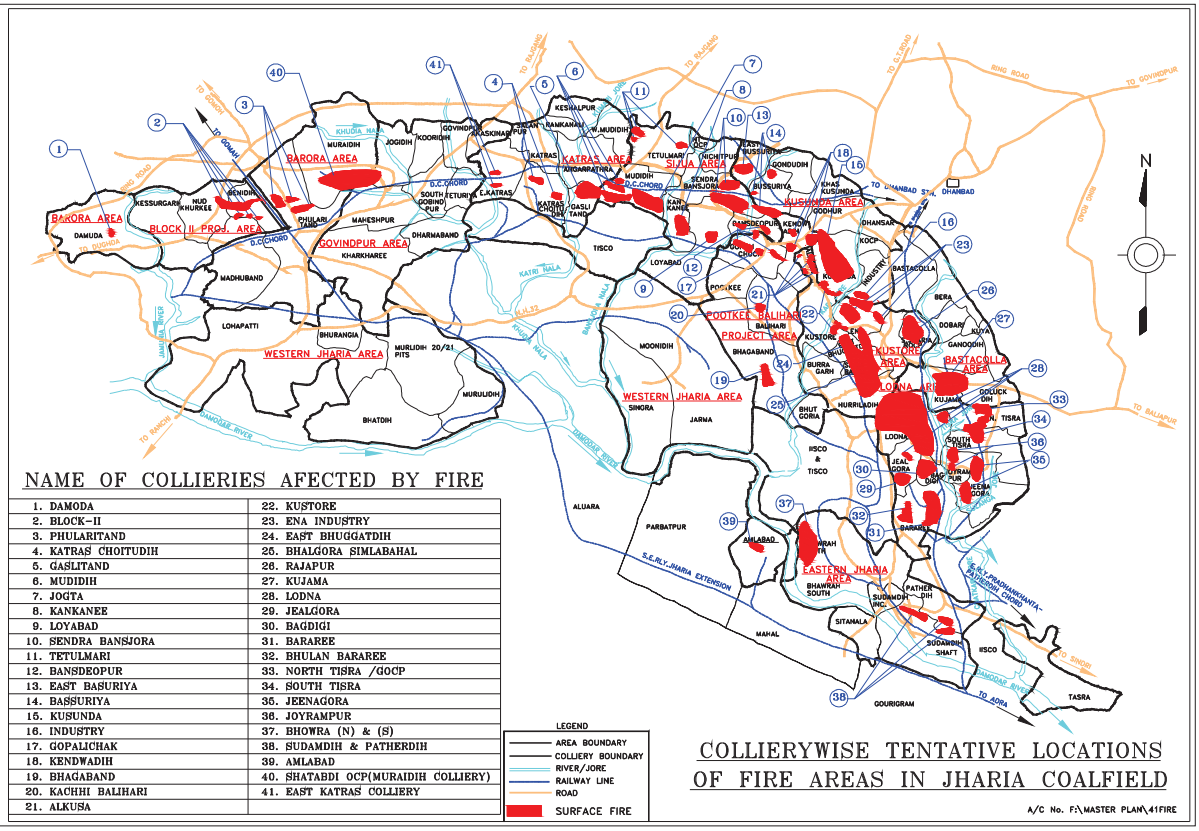
Moreover, the diversion of rail and road requires survey of the alternative routes, detail layout planning by expert agencies like RITES and likely to take about two years time.

Therefore, in this Master Plan, a lump sum provision of Rs.20 Crs has been kept for survey and planning only as an advance action. The detail proposal for diversion may be taken up as a separate Master Plan in future. "

As per the recommendation of the committee constituted by DGMS, all the sites proposed for stabilization in the Master Plan '99, have now been considered for rehabilitation. The time frame for implementation of Revised Master Plan has been considered as 10 years proposed to be implemented in two Phases (Phase – I & II each of 5 years duration), excluding 2 years of pre-implementation period.

Implementation of the Fire control measures and rehabilitation of BCCL houses from the endangered area will be the responsibility of BCCL, where as rehabilitation of Non-BCCL houses/structures from the endangered areas will be the responsibility of State Govt. of Jharkhand and West Bengal. Land acquisition for BCCL employees shall be done in association with State Govt. of Jharkhand.

Rehabilitation sites will be located on non-coal bearing area along the fringe / periphery of Jharia coalfield. The sites will have the basic infrastructural facilities like Water & Electricity, School, Banks, Hospitals, Market Complex, Play Ground, and Community Center etc.



NAME OF COLLIERIES AFECTED BY FIRE

1. DAMODA	22. KUSTORE
2. BLOCK-II	23. ENA INDUSTRY
3. PHULARITAND	24. EAST BHUGGATDIH
4. KATRAS CHOITUDIH	25. BHALGORA SIMLABAHAL
5. GASLITAND	26. RAJAPUR
6. MUDIDIH	27. KUJAMA
7. JOGTA	28. LODNA
8. KANKANEE	29. JEALGORA
9. LOYABAD	30. BAGDIGI
10. SENDRA BANSJORA	31. BARAREE
11. TETULMARI	32. BHULAN BARAREE
12. BANSDEOPUR	33. NORTH TISRA /GOCP
13. EAST BASURIYA	34. SOUTH TISRA
14. BASSURIYA	35. JEENAGORA
15. KUSUNDA	36. JOYRAMPUR
16. INDUSTRY	37. BHOWRA (N) & (S)
17. GOPALICHAK	38. SUDAMDIH & PATHERDIH
18. KENDWADIH	39. AMLABAD
19. BHAGABAND	40. SHATABDI OCP(MURAIDIH COLLIERY)
20. KACHHI BALIHARI	41. EAST KATRAS COLLIERY
21. ALKUSA	

COLLIERYWISE TENTATIVE LOCATIONS OF FIRE AREAS IN JHARIA COALFIELD

A/C No. F:\MASTER PLAN\41FIRE

TABLE -1

LIST OF FIRES IN THE LEASEHOLD OF BCCL

Sl. No.	Name of the fire	Fire Status
1	Ganeshpur X, XI , XII & XIII seam fire	Active
2	Burwabera X seam fire	Active
3	Phularitand X, XI, XII seam fire	Active
4	Angarpathra XII, XI, X, IX Spl. seam fire	Extinguished
5	Gaslitand XVT, XVB seam fire	Active
6	Jogta XV, XIV, XIII, XII, XI seam fire	Active
7	Kankanee XIII & XIV seam fire	Active
8	Ekra XI & XII seam fire	Active
9	Ekra XIII & XIV seam fire	Active
10	Loyabad XV, XIV, XIII seam fire	Active
11	Bassuriya XIV, XIII & XII, XI and X seam fire	Active
12	Sendra Bansjora XIV, XIII, XII, XI seam fire	Active
13	Bansdeopur XIV, XII seam fire	Active
14	Gopalichak XVI, XV, XIV, XIII, XII,XI seam fire	Active
15	Industry XII, XI seam fire	Active
16	Kusunda XII, XI seam fire	Active
17	Alkusa XII, XIV seam fire	Active
18	Kustore XIV, XIII, XII, XI seam fire	Active
19	Ena XII, XI seam fire	Active
20	Pure jharia X seam fire	Active
21	K.P. Dobari X, V/VI/VII/VIII/VIIA seam fire	Active
22	Rajapur X seam fire	Active
23	Kujama XII, XI seam fire	Active
24	Kujama IX, X seam fire	Active
25	Bhalgora XIV seam fire	Dormant
26	Bhalgora XV seam fire	Dormant
27	East Bhuggatdih XV, XIV seam fire	Active
28	Ena XIV seam fire	Active
29	Ena XV seam fire	Active
30	Simlabahal XIV seam fire	Dormant
31	N.S. Lodna XIII, XIIIA, XIV seam fire	Active
32	Bagdigi XIV, XIA, XV seam fire	Active
33	Baniahar XV, XIVA, XIV seam fire	Active
34	Bhaga XV seam fire	Active
35	South Tisra VII, VIII, IX, X seam fire	Active
36	Bhowra XIII, XIV seam fire	Active
37	Bararee XV, XIVA, XIV seam fire	Active
38	Bhulan Bararee XIII, XIV seam fire	Active
39	Bhulan Bararee XVI, XV seam fire	Active
40	Sudamdih IX to XIV seam fire	Active
41	Patherdih IX to XIII seam fire	Active

Sl. No.	Name of the fire	Fire Status
42	Bhowra IX , X seam fire	Active
43	Block –II XII, XI/XII, X Spl. seam fire	Active
44	Katras-Choitudih XIII seam fire	Active
45	Katras-Choitudih XIV, XV seam fire	Active
46	Tetulmari IV seam fire	Active
47	Tetulmari VI/VII seam fire	Active
48	Kendwadih XIII seam fire	Dormant
49	Kendwadih XIV, XIII seam fire	Dormant
50	Pootkee XV seam fire	Extinguished
51	East Bassuriya V/VI seam fire	Active
52	East Bassuriya VIII seam fire	Active
53	Kessurgarh V, VI, VII seam fire	Extinguished
54	Bhagaband XVI seam fire	Dormant
55	Amlabad XIV seam fire	Dormant
56	Sudamdih XV seam fire	Extinguished
57	Moonidih XVIIT seam fire	Extinguished
58	Damoda V, VI, VII seam fire	Dormant
59	Mudidih fire	Dormant
60	Jogidih X seam fire	Extinguished
61	Kooridih X seam fire	Extinguished
62	Nudkhurkee X seam fire	Extinguished
63	West Mudidih IX/X seam fire	Extinguished
64	East Katras XIV seam fire	Extinguished
65	North Tisra VII, VIII, IX seam fire	Active
66	North Tisra X seam fire	Active
67	Jeenagora IX, X, XI seam fire	Active
68	Jeenagora IX, X, XI,XII seam fire	Active
69	Joyrampur XI, XII, XIII seam fire	Active
70	Jealgora XV, XIV, XIIIB, XIIIA seam fire	Dormant
71	Bassuriya IX,I X Spl. seam	Active
72	Industry X seam	Active
73	Kachhi Balihari XV seam	Dormant
74	Kendwadih XI, XII seam	Active
75	Shatabdi V/VI/VII seam	Active
76	Sendra Bansjora X seam	Active
77	East Katras XI,XIII & XIV seam fire	Active

7.0 MASTER PLAN FOR REHABILITATION OF INHABITATED FIRE & SUBSIDENCE PRONE AREAS.

7.1 Introduction:

In the updated Master Plan of April'04, altogether 532 sites (271 in full & 261 in part) were considered for rehabilitation as the houses over these sites were declared unstable & uncontrollable (UU) as ground movement can not be controlled by stowing. Total no. of houses proposed to be evacuated from 532 sites were 65300 which includes

BCCL houses	:	36208
Non-BCCL : Private houses	:	15571
Non- BCCL : Un-authorised houses (Encroacher)	:	12719
Others : (Religious places, schools, Hospitals, Post offices, Police stations etc).	:	802

Apart from these 532 sites, 121 sites were considered unstable but controllable (UC) i.e where ground movement could be controlled by stowing.

In accordance with the directive of Supreme court of India, on 3rd May, 2005, Director General of Mines Safety (DGMS) constituted a Committee to go through the Action Plan and subsequent affidavit/ATR filed by UOI and to verify the same in connection with PIL case filed by Sri Haradhan Roy, Ex MP.

The Committee concluded that as there are no scientific methods available to check long term stability, it might not be possible to certify that the areas thus stabilized. The present stabilization work may restrict the effect of subsidence and allow some time. The final and permanent solution is evacuation of the affected area and rehabilitation.

In view of the above, 121 sites which were proposed for stabilization have now been considered for rehabilitation.

7.2 Total no. of houses in the endangered areas

Over the period of time from original Master Plan of March'1999 to date, 24 Nos. of sites have been demolished and shifted to other places by BCCL management. These sites have been deleted from this Master Plan.

Where fire dealing has been proposed by excavation method some stable parts are necessarily to be evacuated for digging out the fire. Such stable parts have now been

10 The community facilities like primary schools, community centre, small dispensary and shopping centre will also be included in the town planning. These common facilities will be constructed as per the plan under the proposed compensation package. However, the running cost of all the facilities, i.e. water supply, power supply, schools, dispensary etc. shall not be the part of compensation package and will have to be looked after by the Panchayat and other bodies of the State Government.

11 Common structures such as religious places etc. shall be built at resettlement site on mutual agreement basis from Rehabilitation fund of Master Plan.

12 The proposed location of resettlement site is guided by the following considerations:-

a) Preferably the proposed resettlement site should be either land owned by BCCL or vested to the state Government.

b) In case such land are not available, then the required land may be purchased from private owner by State Govt.

13. No employment shall be offered for any rehabilitation under the Master Plan

7.4.2 BCCL Houses:

BCCL houses from the endangered areas are proposed to be rehabilitated in four Satellite Township in non-coal bearing areas along the periphery of JCF. The houses over endangered houses will be rehabilitated with equivalent type of house in satellite township in triple storied building having all basic infrastructural facilities. As soon as an employee residing in the identified endangered area retires, the house shall be demolished.

It is proposed that Rehabilitation/resettlement work of BCCL houses shall be the responsibility of BCCL whereas the same for Non BCCL houses including encroachers shall be the responsibility of concerned state Govt. However acquisition of land for rehabilitation of BCCL employees shall be done in association with State Govts of Jharkhand/West Bengal.

7.5 Amenities & Infrastructures:

The resettlement sites of the affected population for BCCL & Non-BCCL has been identified exclusively on non coal bearing areas sufficiently away from the impact of future mining. For this purpose, it is proposed that satellite township should be constructed along the fringe of Jharia Coal Field. The size of township should be large enough to accommodate at least 12500 Non-BCCL families and 6000 BCCL families. In each locality, there will be separate town ship for BCCL houses and Non-BCCL (both private & encroachers) adjacent to each other. In each township the following amenities will be provided as per BPE norm.

40	E. Jharia	Sudamdih Inc.	Main Colony Miners house/05	19200
41	E. Jharia	Sudamdih Inc.	Main Colony/ O3	16000
42	E. Jharia	Sudamdih Inc.	Old Incline Colony/06	4800
43	E. Jharia	Sudamdih S.M.	New Miners colony/02	33600
44	E. Jharia	Sudamdih S.M.	River side colony/01	30400
45	**Gobindpur**	Akashkinaree	Akashkinare Colony/ O6	3837
46	Gobindpur	Akashkinaree	Labour Qtrs. Along PWD Road/ O2	19139
47	Gobindpur	Akashkinaree	Part of Bhatmurna Bastee/O3	6996
48	Gobindpur	Akashkinaree	Qtrs. Along office compound/O4	37973
49	Gobindpur	Akashkinaree	Qtrs.on South side of Akashkinaree/O5	32070
50	Gobindpur	Block-IV / Kooridih	Kooridih 3 seam Area Hutment/ O4	1870
51	Gobindpur	Block-IV / Kooridih	LCH Dhowrah Govindpur/18	720
52	Gobindpur	Block-IV / Kooridih	Near Block-IV Office/15	26846
53	Gobindpur	Block-IV / Kooridih	Near Gobindpur Hospital/14	24280
54	Gobindpur	Block-IV / Kooridih	NHS Qrts/12	1400
55	Gobindpur	Block-IV / Kooridih	South Gobindpur Bastee/16	7040
56	Gobindpur	Block-IV / Kooridih	South Gobindpur Dhowra/17	1562
57	Gobindpur	Gobindpur	Agardih Labour Qtrs/O7	17580
58	Gobindpur	Gobindpur	Darpan Bastee/O5	132
59	Gobindpur	Gobindpur	Imli Dhowrah/O3	31145
60	Gobindpur	Gobindpur	IV Seam Colony/O1	57408
61	Gobindpur	Gobindpur	Labour Qrts./O6	1174
62	Gobindpur	Gobindpur	Mehtadih Colony & Bunglow/O4	31145
63	Gobindpur	Jogidih	Baihardih Colony 'B'/ 1B	8365
64	Gobindpur	Jogidih	Baihardih Village/1A	5118
65	Gobindpur	Kharkharee	Nawagarh More & Phularitand Village/ O3	14400
66	Gobindpur	Kharkharee	Part of Phularitand Village/ 3A	24000
67	Gobindpur	Maheshpur	Maheshpur Bastee/O1	33309
68	Gobindpur	Maheshpur	NHS Qtrs. & House North of DB Road/11	43823
69	Gobindpur	Maheshpur	Premnagar Colony Bastee etc./ 14	13418
70	Gobindpur	Maheshpur	Staff Qtrs. & Hutment/O4	2806
71	Gobindpur	S.Gobindpur	Bilbera - C/13	8000
72	Gobindpur	S.Gobindpur	Bilbera 'A'/ O7	1600
73	Gobindpur	S.Gobindpur	Kali Nagar Bilbera/12	8000
74	Gobindpur	S.Gobindpur	South Govindpur 'B/O6	2400
75	Gobindpur	S.Gobindpur	Tandabari-A/O1	18400
76	Gobindpur	Teturia	Colliery Office Area/O3	22400
77	Gobindpur	Teturia	NHS Qtrs.& Hutment/O1	43600
78	Gobindpur	Teturia	No.2 Locality/O2	32800
79	**Katras**	Angarpathra	AP Section-2 /O2	16800
80	Katras	Angarpathra	JK Khas/O4	2200
81	Katras	Angarpathra	JK Section/O3	62400
82	Katras	Angarpathra	National Angarpathra-2/O6	6500
83	Katras	East Katras	Akashkinaree 04/06	2800
84	Katras	East Katras	Akashkinaree -2/O2	400
85	Katras	East Katras	Akashkinaree 3/O4	3840
86	Katras	East Katras	Akashkinaree 5/O7	1000
87	Katras	East Katras	Akashkinaree-6/O8	4350
88	Katras	East Katras	Bhandardih 2 /11	2500
89	Katras	East Katras	Koiludih 01/03	3900
90	Katras	East Katras	Koiludih 3/10	40180
91	Katras	East Katras	Koiludih 4/15	65752

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 is 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 km^2; in 2020 total fire affected extent is about 1.89 km^2 (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 km^2; in 2020 total fire affected extent is about 1.86 km^2.

Note: *The minimum mapable unit from satellite image it 30m by 30m or 0.0009 km^2.* ***.*** *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)

GEOHAZARDS AND MINERAL EXPLORATION DIVISION
GEOSCIENCES GROUP
REMOTE SENSING APPLICATIONS AREA
NATIONAL REMOTE SENSING CENTRE
INDIAN SPACE RESEARCH ORGANISATION
DEPT. OF SPACE, GOVT. OF INDIA
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).

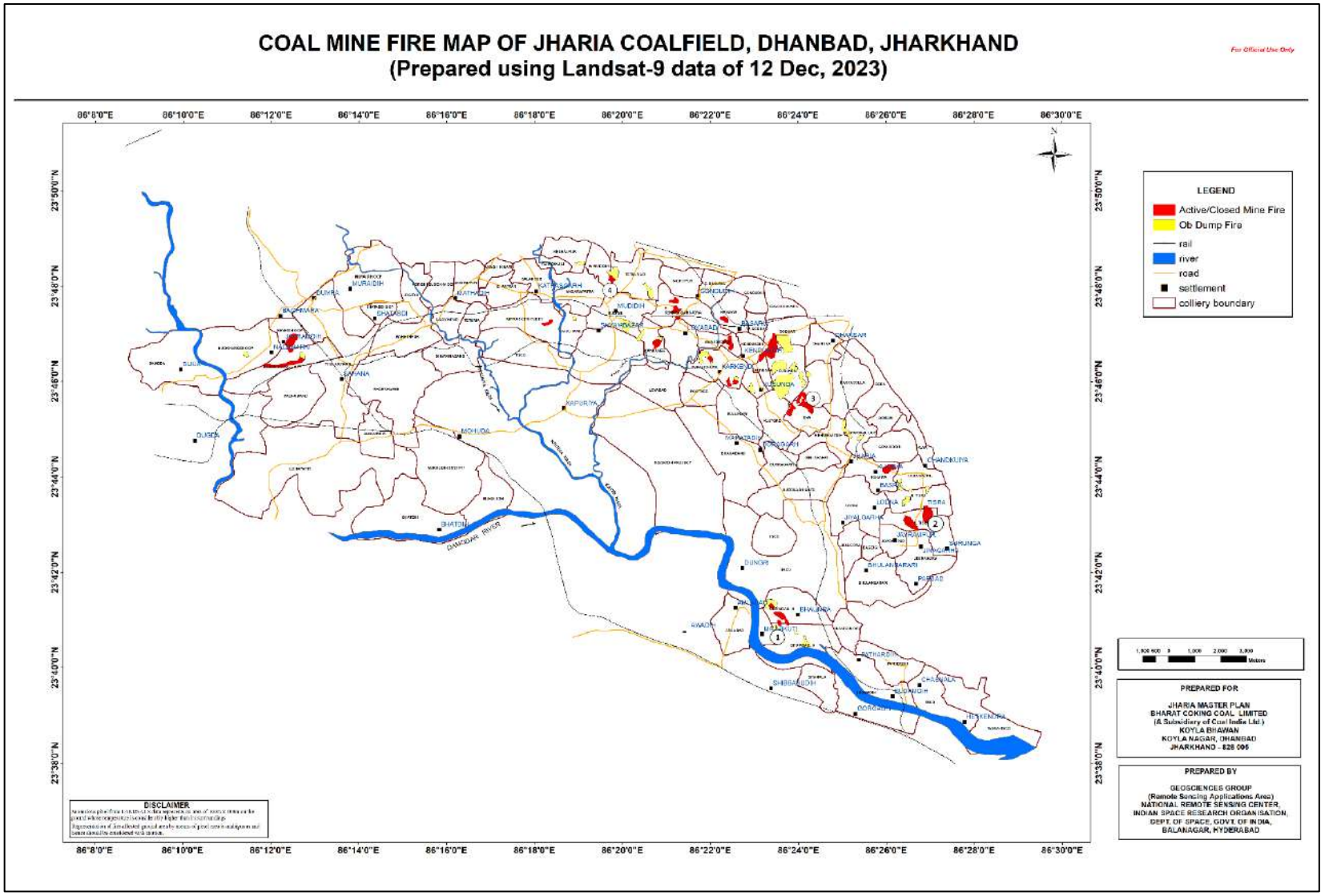


Figure 1. Coal fire map of the Jharia Coalfield (from Landsat-9 Data of Dec, 2023)

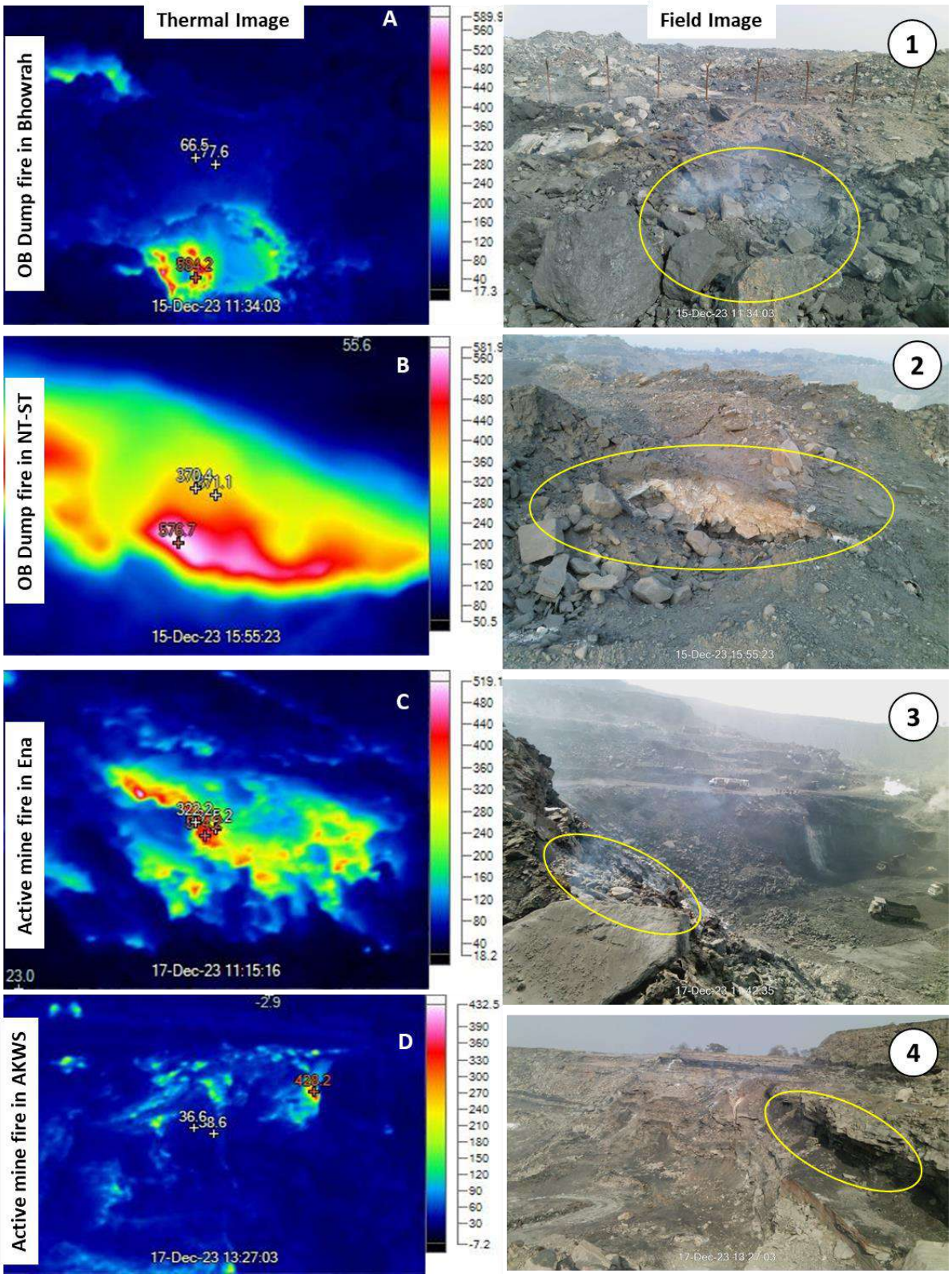


Figure 2. Thermal images and ground photographs from field survey (yellow polygon shows the location from where thermal measurements are taken). Refer figure 1 for the locations in the coal fire map.

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**

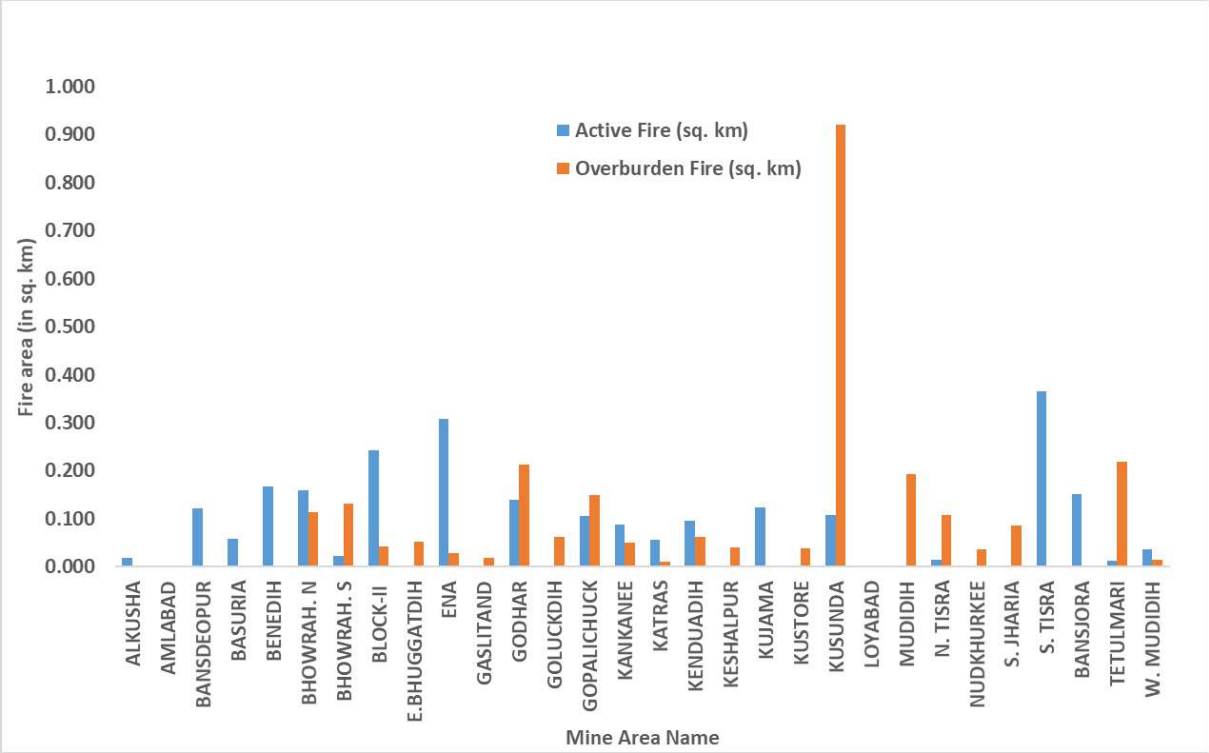


Figure 3. Comparison of active and overburden fire in each mine area

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 – 2023-24)

[CLUSTER – I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XIII, XIV, XV & XVI 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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Annexure – I

DETAILS OF THE REPORT

Sl 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: 1264.10 mm 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 140 nos. of monitoring stations 48 nos located within core mining area and rest comes within Buffers zone. 44 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 4 Nos. of Groundwater monitoring well (Dug Wells) in RCF (CV Area).
9	Groundwater Levels Below Ground Level (bgl)	JCF area: Pre-monsoon – 1.70 to 11.38 m (Avg. 6.33 m bgl) in '2023-24 Post-monsoon – 0.60 to 8.03 m (Avg. 3.77 m bgl) in '2023-24 RCF area (part): Pre-monsoon – 2.10 to 9.50 m (Avg. 5.22 m bgl) in '2023-24 Post-monsoon – 1.50 to 5.18 m (Avg. 3.06 m bgl) in '2023-24
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 (GWRA-2022)

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 15 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 May 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.

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.

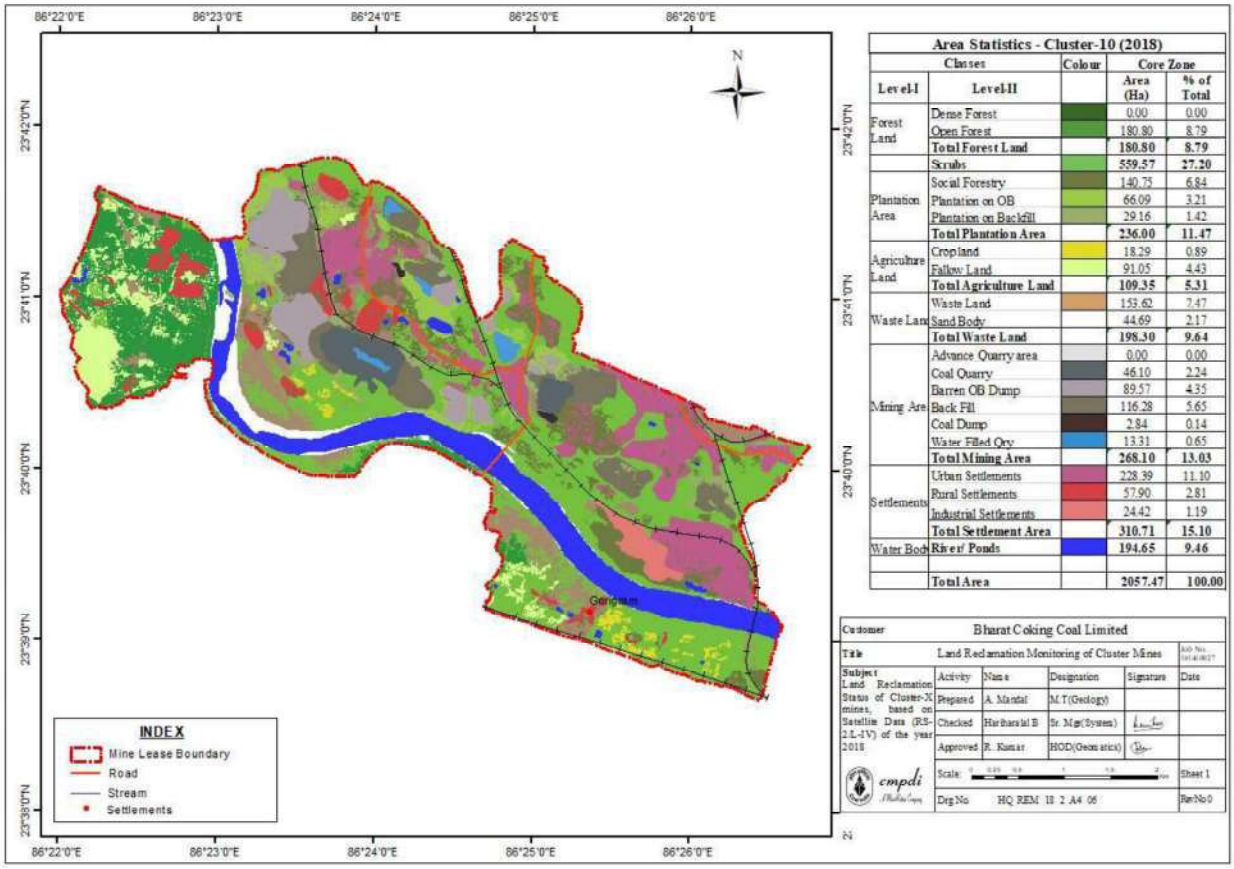
Monitoring stations (**A019, D035, D036 and D077**) are located in the core zone of the mine area. Water level monitoring in these monitoring stations has been done in the months of May'23, August'23, and Nov'23 and January'24, the Ground water level data is presented in the table below:

Sl No.	Well No.	Location	Water level (bgl in meters)											
			2023-24				2022-23				2021-22			
			May	Aug	Nov	Jan	May	Aug	Nov	Jan	May	Aug	Nov	Jan
1	A019	Bhowrah	2.90	2.10	2.60	2.73	4.10	1.82	2.54	1.79	3.30	1.95	1.90	2.20
2	D035	Patherdih	5.23	3.45	3.90	4.10	6.10	3.70	4.68	5.50	6.60	2.70	2.90	4.30
3	D036	Sudamdih	1.85	0.50	0.60	1.00	3.25	0.15	0.60	1.44	2.02	0.45	0.55	0.55
4	D077	Amlabad	5.98	3.90	3.93	5.07	6.50	3.40	4.70	6.00	5.98	2.60	4.69	5.60
Average WL (bgl)			3.99	2.49	2.76	3.23	4.99	2.27	3.13	3.68	4.48	1.93	2.51	3.16

LAST THREE-YEAR ASSESSMENT:

Pre-monsoon GW Level (m): Min – 1.85 m Max – 6.60 m
Post-monsoon GW Level (m): Min – 0.55 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

4.0 GROUND WATER LEVEL SCENARIO

The summarized water level data of all clusters given in **Table – 7**.

Table –7: Groundwater level data (Cluster-wise)

Sl. No.	Cluster of BCCL	No. of Monitoring Wells	Water level Below ground level (May, Aug, Nov'23 & Jan'24)	Avg. Fluctuation (in meters) during 2023	Geological Formation
1	I	3 nos.	0.80 to 5.20 m	1.48 m	Barakar
2	II	4 nos.	0.50 to 10.73 m	2.16 m	Barakar
3	III	4 nos.	1.09 to 10.73 m	2.06m	Barakar
4	IV	3 nos.	1.95 to 8.45 m	3.59 m	Barakar
5	V	2 nos.	0.55 to 5.55 m	1.07 m	Barakar
6	VI	3 nos.	1.80 to 4.40 m	1.39 m	Barakar
7	VII	4 nos.	1.22 to 4.75 m	1.48 m	Barakar
8	VIII	2 nos.	2.52 to 8.52 m	4.06 m	Barakar
9	IX	4 nos.	1.88 to 9.03 m	3.49 m	Barakar
10	X	4 nos.	0.50 to 5.98 m	1.23 m	Barakar
11	XI	3 nos.	0.95 to 8.02 m	2.09 m	Barakar & Barren Measure
12	XIII	3 nos.	2.98 to 9.00 m	2.30 m	Raniganj
13	XIV	2 nos.	3.13 to 8.05 m	2.06 m	Raniganj
14	XV	3 nos.	2.35 to 5.42 m	1.64 m	Barakar & Barren Measure
15	XVI	4 nos.	2.07 to 8.25 m	2.50 m	Barakar

Depth to water level (in bgl) values describe that water level goes down to maximum 10.73 m during summer season and minimum up to 0.50 m during monsoon season of 2023. Un-confined aquifer is affected around 20 m to 30 m of maximum radius close to active opencast mining areas, showing steep gradient towards mine void. Other than that, there is no mining effect in the water level within JCF area and RCF area (part). Historical water level data and hydrograph of permanent observation stations from CGWB is shown in **Annexure–VI**. Water Table contour map and Depth to water level map both during pre & post-monsoon season is shown in **Plate-IV (A, B) & V (A, B)**.

Monitoring of groundwater (quantity & quality) to assess the present condition and resource has been done regularly in the coalfield area. Well hydrographs (**Annexure–VI**) are prepared and studied to identify long-term trends. Hydrograph trend analysis of CGWB monitoring wells and observation wells reveals

increasing groundwater level trends in most of the Cluster of mines. However, declining trends in both Pre and Post-monsoon GW level in Cluster-I, Cluster-V, Cluster-VI, Cluster-VIII and Cluster-XIII are recorded but no significant declining trend (>1.0 m/year) of water level is noticed in any particular area for the last 10 years within the coalfield area. Regarding quality monitoring, the water sample location map (**Plate–II**) with collection points details (dug wells) are given in **Annexure–V** and Quality is given in **Annexure–VII**.

5.0 DETAILS OF PIEZOMETERS

A piezometer network is useful for monitoring the impact of mining activity on groundwater regime. Total 23 nos. of Piezometers were constructed during 2022-23 within JCF and RCF to monitor GW level (**Plate-III**). The depth of piezometers varies from 30m to 300m below ground level.

Water level in the piezometers from May23 to Jan24 are furnished below in **Table-8** and the hydrographs (May22 to Jan24) are given in the Annexure VIB.

Table –8: Groundwater level data in Piezometers (Cluster-wise)

PZ ID	Cluster	Lat.	Long.	Depth (m)	May 23	June23	July23	Aug23	Sept 23	Oct 23	Nov 23	Dec 23	Jan24
PZ1A	I	23.7692	86.1754	40	12.26	13.20	8.80	6.75	6.50	7.50	8.65	9.90	11.98
PZ1B	I	23.7692	86.1753	115	30.20	29.10	24.04	19.00	19.90	21.90	24.05	26.90	30.40
PZ2A	II	23.7672	86.1890	87	30.90	31.60	22.50	17.50	16.50	18.90	22.50	25.50	28.33
PZ2B	II	23.7908	86.2470	77	8.02	7.30	5.10	3.50	3.90	4.30	4.50	4.40	4.6
PZ3A	III	23.8015	86.2824	172	89.5	89.1	83.73	76.50	78.85	81.00	82.64	84.00	86.42
PZ3B	III	23.7798	86.2418	30	24.72	23.72	18.0	14.1	13.2	15.12	18.3	20.4	23.23
PZ3C	III	23.8016	86.2824	124	-	-	-	-	-	-	-	-	-
PZ4A	IV	23.7764	86.3123	70	38.1	37.5	32.2	26.5	27.39	29.5	31.3	33.5	34.9
PZ4B	IV	23.7765	86.3125	240	100.9	98.2	94.6	89.9	90.8	91.3	91.6	92.1	92.7
PZ5A	V	23.7817	86.3569	35	8.5	7.8	5.8	2.5	3.5	4.4	4.8	5	5.31
PZ5B	V	23.7999	86.3619	94	90.94	85.5	80.1	75.08	73.2	78.04	82.0	86.1	90.32
PZ7A	VII	23.7701	86.4110	159	109.9	110.1	105.02	98.5	92.9	96.8	98.1	101.8	104.86
PZ7B	VII	23.7400	86.3997	35	29.36	30.02	21.38	16.63	15.68	17.96	21.38	24.23	26.18
PZ7C	VII	23.7342	86.4433	105	92.27	90.88	85.40	78.03	80.43	82.62	84.29	85.68	85.2

PZ8A	VIII	23.7556	86.4271	140	49.23	49.01	46.05	40.08	38.37	42.55	43.45	44.20	46
PZ9A	IX	23.7305	86.4464	84	43.85	44.55	41.87	38.25	39.43	40.50	41.32	42.00	40.32
PZ9B	IX	23.6962	86.4159	100	72.6	71.05	67.5	57.2	58.9	59.8	61.3	63.35	63.7
PZ10A	X	23.6880	86.4051	134	6.9	6.2	4.01	3.1	3.6	4.05	4.6	5.1	6.35
PZ11A	XI	23.7264	86.3419	300	52.7	47.5	37.2	28.09	34.6	37.1	39.05	40.9	53.15
PZ13A	XII	23.7138	86.2516	80	39.9	36.3	32.1	23.6	25.8	26.5	28.1	30.1	31.81
PZ14A	XIV	23.7415	86.2139	30	12.8	10.1	7.9	4.6	5.5	6.1	7.3	7.9	8.39
PZ14B	XIV	23.7415	86.2139	162	14.6	13.5	9.8	5.05	6.3	7.5	9.1	10.5	12.56
PZ16A	XVI	23.7308	86.7605	90	35.58	35.64	32.49	29.60	28.54	30.40	31.06	32.0	32.24

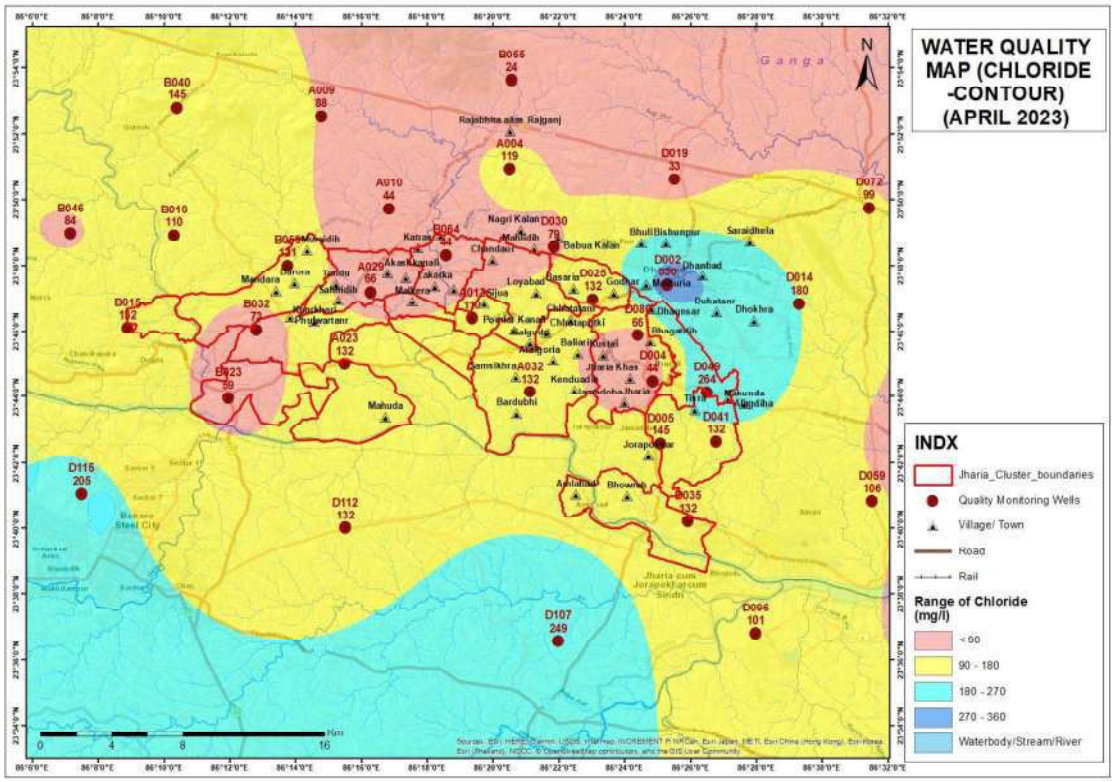
6.0 GROUND WATER QUALITY

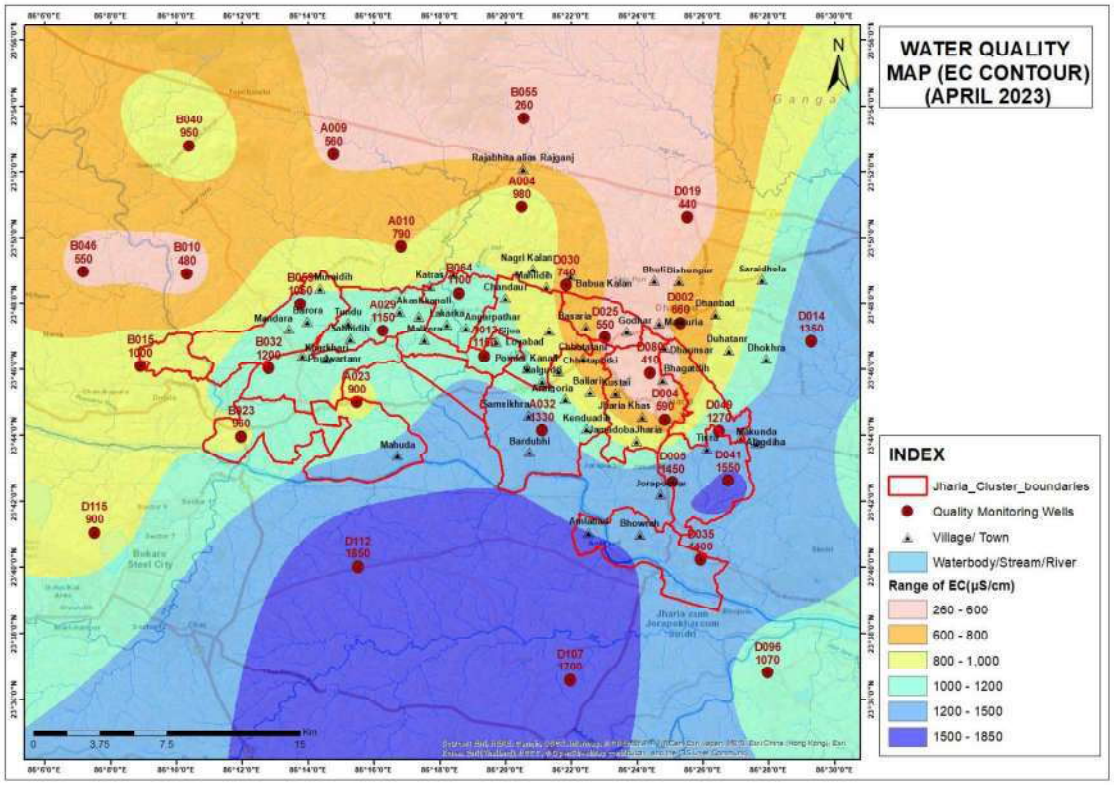
The ground water samples of the study area (15 nos. of Cluster of mines, BCCL) were collected from dug wells and analyzed. Thirty-five ground water samples were analyzed during the month of April and May'2023 at CMPDI, RI-II, Dhanbad. The water sampling details is given in **Annexure–V** and Water sample locations are shown in **Plate-II**. The water quality data is presented in **Annexure–VII.**

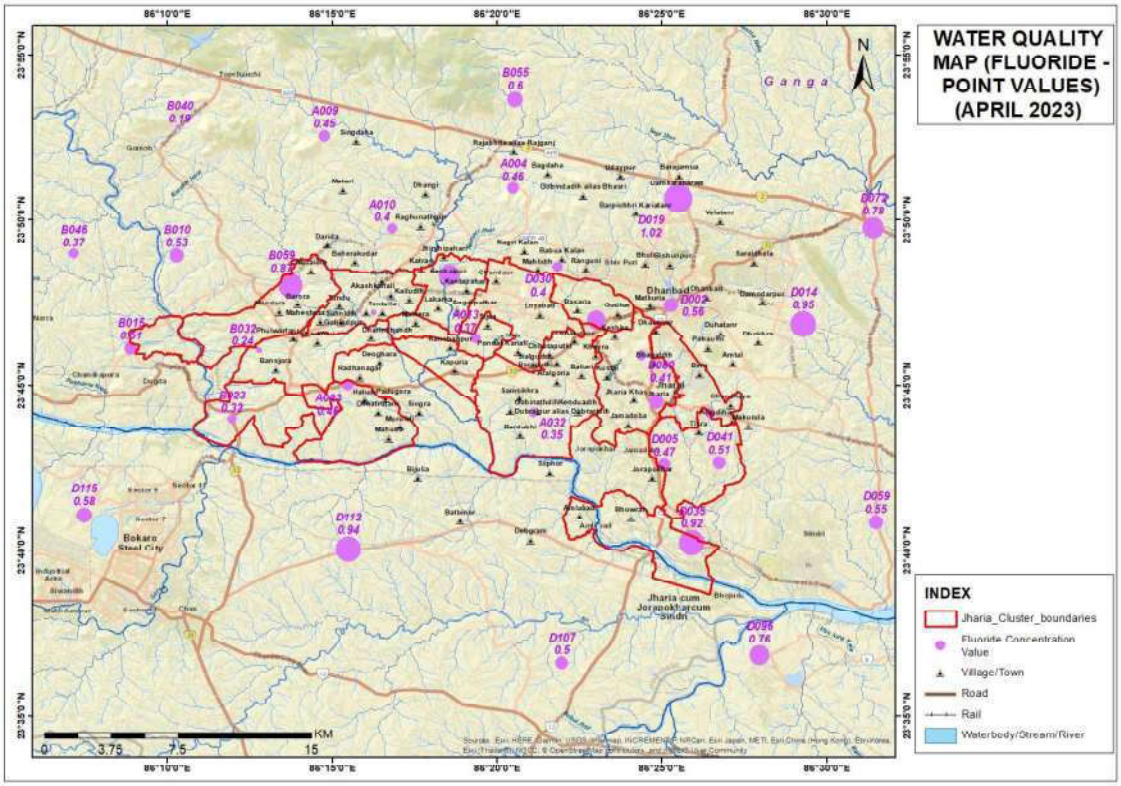
The study of the variations in water quality parameters is described below:

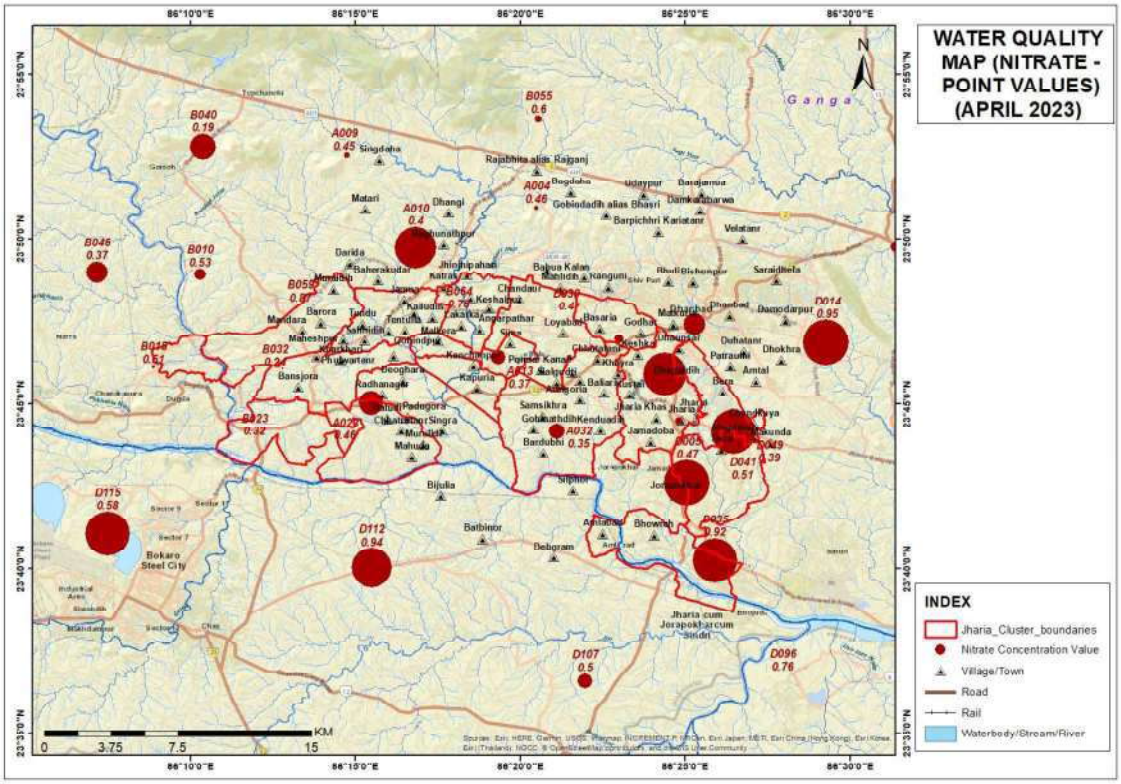
The pH of the groundwater samples varies between 7.63 (D-112) to 8.62 (B-64), the pH is within the IS 10500:2012 limit of drinking water standard.

The concentration of calcium in the water samples varies 21 (B-55) to 190 mg/l (D-107) and is above the permissible limit (75 mg/l) of drinking water standards. The sulphate ranges between 40 (B-55) to 659 mg/l (D-35) and the value of sulphate in water sample are above the permissible limit (200 mg/l). The Iron, Manganese, Zinc and Chromium concentration in the water samples found to be below the upper IS 10500:2012 limits for drinking water.


WATER QUALITY MAP (CHLORIDE -CONTOUR) (APRIL 2023)
INDX
Jharia_Cluster_boundaries
Quality Monitoring Wells
Village/ Town
Road
Rail
Range of Chloride (mg/l)
< 90
90 - 180
180 - 270
270 - 360
Waterbody/Stream/River
N
Ganga
Rajabhita alias Rajganj
Nagri Kalan
Bhuli
Bishunpur
Saraidhela
Dhanbad
Dhaunsar
Dhokhra
Duhatanr
Mahuda
Bardubhi
Jharia Khas
Kenduadih
Bhowrah
Steel City
Km
0
4
8
16


WATER QUALITY MAP (EC CONTOUR) (APRIL 2023)
INDEX
Jharia_Cluster_boundaries
Quality Monitoring Wells
Village/ Town
Waterbody/Stream/River
Range of EC(µS/cm)
260 - 600
600 - 800
800 - 1,000
1000 - 1200
1200 - 1500
1500 - 1850
N
Ganga
Rajabhita alias Rajganj
Nagri Kalan
Bhuli
Bishunpur
Saraidhela
Dhanbad
Dhaunsar
Dhokhra
Duhatanr
Mahuda
Bardubhi
Jharia Khas
Kenduadih
Bhowrah
Steel City
Km
0
3.75
7.5
15


WATER QUALITY MAP (FLUORIDE - POINT VALUES) (APRIL 2023)
INDEX
Jharia_Cluster_boundaries
Fluoride Concentration Value
Village/Town
Road
Rail
Waterbody/Stream/River
Ganga
Bokaro Steel City
Jharia cum Jorapokhar cum Sindri
KM
0 3.75 7.5 15


WATER QUALITY MAP (NITRATE - POINT VALUES) (APRIL 2023)
INDEX
Jharia_Cluster_boundaries
Nitrate Concentration Value
Village/Town
Road
Rail
Waterbody/Stream/River
Ganga
Bokaro Steel City
Jharia cum Jorapokhar cum Sindri
KM
0 3.75 7.5 15

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 76.30% (as per 2017 GWRA). The highest stage of development is in Jharia Block (127.0%) & Dhanbad Block (107.50%) and lowest stage of development is in Chirkunda Block (35.5%) as per GWRA-2013. 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. As per the assessment by Central Ground Water Board (CGWB), Patna in 2022, Block wise data of Dhanbad District given below:

Table–9A: Block wise Stage of Groundwater development

Sl No.	Administrative Unit		Category (GWRA-2013)	Category (GWRA-2017)	Category (GWRA-2022)
	District	**Block**			
1	Bokaro	Bermo	**Over- exploited**	**Over- exploited**	**Over- exploited**
2	Dhanbad	Baghmara	Critical	Critical	Safe
3	Dhanbad	Baliapur	Semi- Critical	Semi- Critical	**Over- exploited**
4	Dhanbad	Dhanbad	**Over- exploited**	**Over- exploited**	Semi-critical
5	Dhanbad	Jharia / Dhanbad Urban	**Over- exploited**	**Over- exploited**	Critical
6	Dhanbad	Topchachi	Critical	Critical	Critical
7	Dhanbad	Chirkunda	Safe	Safe	Safe

- **Dynamic Groundwater Resource Assessment, CGWB as per 2013, 2017 and 2022.**

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.

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

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 / ABANDONDED IN THE JCF MINE AREA

PHYSICO-CHEMICAL CHARACTERISTICS OF GROUND WATER SAMPLES

(Wherever not specified, characteristics are expressed in mg/l, maximum)

Ground Water Sampling at Monitoring Station Code : - D35 , PATHERDIH RAILWAY COLONY

1.

Date of Sampling at Station: 05.04.2023

Sl. No.	Parameter	Method of Analysis	Observed Values	LDL	IS 10500: 2012	
					Acceptable Limit (Max)*	Permissible Limit in the Absence of Alternate Source (Max)
1	pH value	IS 3025, Part 11 : 1983 R 2017 Electrometric(pH Meter) Method	7.86	0.1	6.5-8.5	No relaxation
2	Electric Conductivity	IS 3025 (Part 14) -1984 R 2002	1.4	-	-	-
3	Sodium as Na	IS : 3025, Part 45: 1993 R: 2003 Flame Photometer	47.9	0.5	-	-
4	Potassium as K	IS : 3025, Part 45: 1993 R: 2003 Flame Photometer	0.8	0.5	-	
5	Magnesium	APHA 24th Edition , 3500-Mg B: Calculation Method	46	6	30	100
6	Calcium, mg/l	IS 3025, (Part 40): 1991 R:2019,AAS-Flame Method & EDTA Method	147	2	75	200
7	Carbonate Alkalinity (c_aco_3), mg/l, Max	IS 3025, Part 23: 1986 R 2019 Titration Method	0	0	-	-
8	Bicarbonate Alkalinity (c_aco_3), mg/l, Max	IS 3025, Part 23: 1986 R 2019 Titration Method	360	0	-	-
9	Sulphate, mg/l	APHA –23rd Edition, 4500-S 2-E. , Turbidimetric Method	659	10	200	400
10	Chlorides, mg/l	IS-3025(Part 32):1988, R-2019 , Argentometric Method	132	5	250	1000
11	Nitrate , mg/l	APHA 24th Edition , UV-Spectrophotometric Method	41.8	0.5	45	No relaxation
12	Fluoride, mg/l	APHA, 23rd Edition, SPADNS Method	0.92	0.2	1	1.5
13	Iron, mg/l	IS 3025 (Part 53) : 2003, R : 2019 , AAS-Flame Method	<0.2	0.2	1	No relaxation
14	Manganese as Mn, mg/l, Max	IS 3025(Part 59) : 2006,R:2019, AAS-Flame Method	0.03	0.02	0.1	0.3
15	Total Arsenic (as As), mg/l, Max	IS-3025,part 37:1988, R-2019/ APHA 24th Edition AAS-VGA	<0.006	0.006	0.01	0.05
16	Total Chromium (as Cr), mg/l, Max	IS-3025 Part 52:2003, R:2019,AAS-Flame APHA 24th Edition , AAS-GTA	<0.1	0.01	0.05	No relaxation
17	Zinc, mg/l	IS 3025(Part 49) : 1994,R:2019, AAS-Flame Method	<0.1	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,*

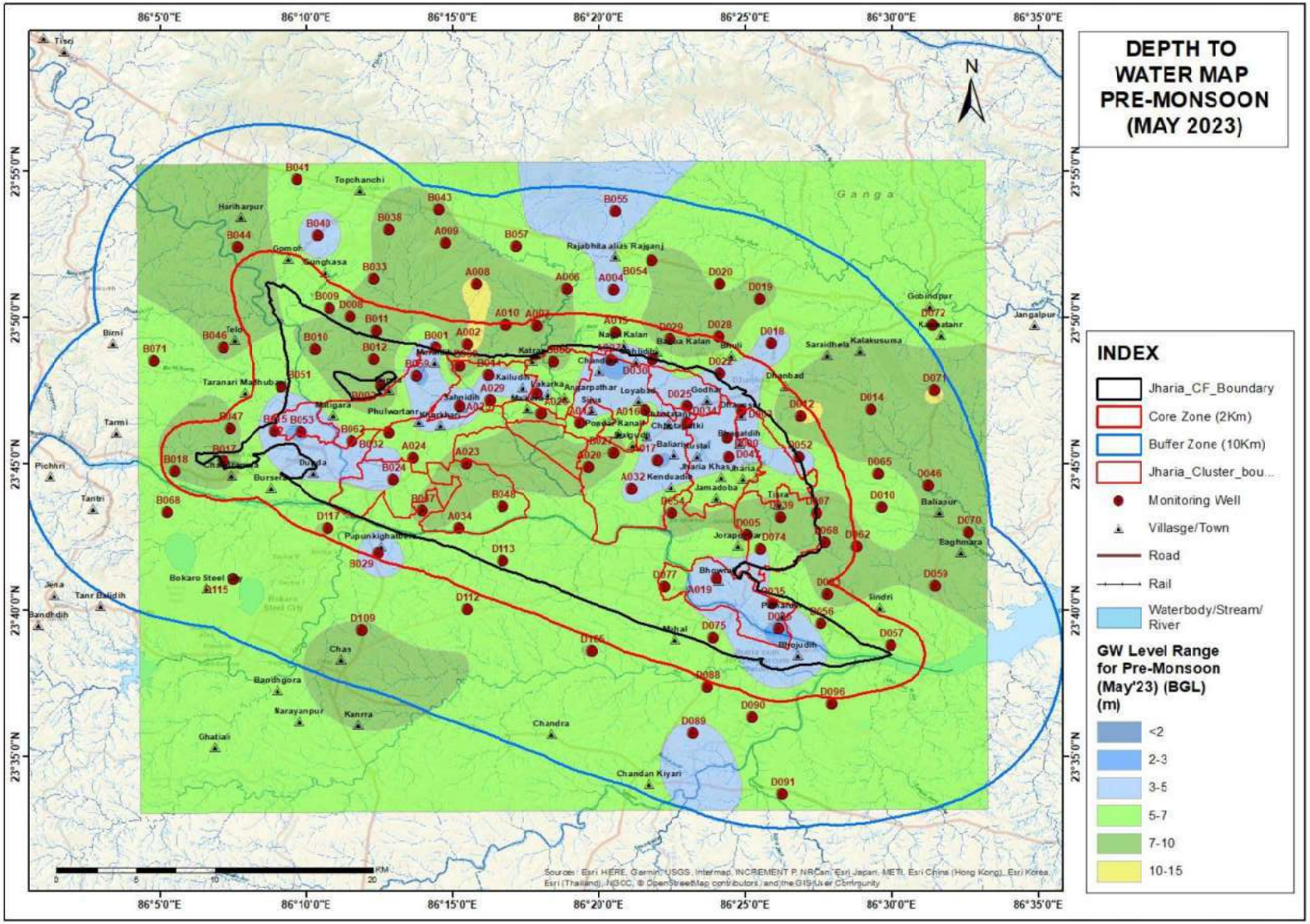


Plate- VA: Depth to Groundwater Level map of JCF, Pre Monsoon (May'23)

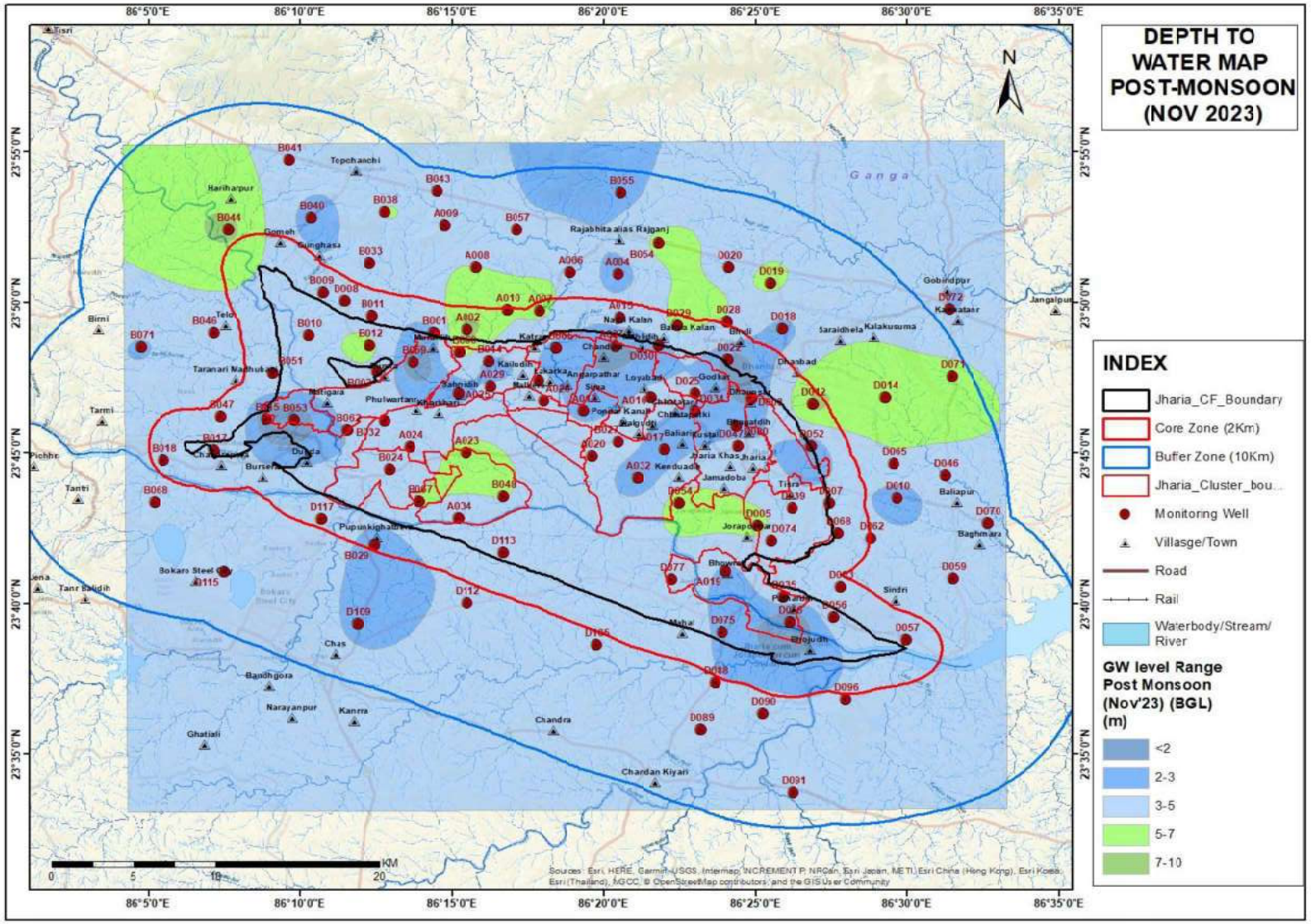


Plate- VB: Depth to Groundwater Level map of JCF, Post Monsoon (Nov'23)

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)/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.bccl@coalindia.in .

Format of ATR:

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

भवदीय,

Encl: As above

बी.के.पारूई
कंपनी सचिव

भा० को० कोल लि०
प्रेषण सं० 7197
दिनांक 06.11.24
7-11
महाप्रबंधक (यो० एवं परि०)

Sir 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)

Certified to be True Copy

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

भारत कोकिंग कोल लिमिटेड
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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.

भवदीय,

Encl: As above

बी.के. पारूई
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.

Certified to be True Copy

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)/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**

भवदीय,

Encl: As above

बी.के.पारूई
कंपनी सचिव

भा० को० को० लि०
प्रेषण सं० 162
दिनांक 29-3-25
महाप्रबंधक (यो० एवं परि०)

Certified to be True Copy

Sr. Pedpal

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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कंपनी सचिव
भारत कोकिंग कोल लिमिटेड
कोयला भवन
धनबाद– 826005

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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.

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

(FOR THE MONTH AUGUST, 2025)

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

CMPDI

ISO 9001 Company
Regional Institute-II
Dhanbad, Jharkhand

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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 $23^0$37' N to $23^0$52' N latitudes and $86^0$09' E to $86^0$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 (PM_{10}), Fine Particulate Matter ($PM_{2.5}$), Sulphur Di-oxide (SO_2) and Nitrogen Oxides (NO_X). Respirable Dust Samplers (RDS) and Fine Dust

Sampler ($PM_{2.5}$ sampler) were used for sampling of PM_{10}, SO_2, & 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 PM_{10}, $PM_{2.5}$, SO_2 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 PM_{10}& $PM_{2.5}$ 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 Mineswere 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 12thJune, 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 PM_{10}, $PM_{2.5}$, SO_2, NOx 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

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

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

Test Report for Ambient Air Samples

Month & Year	**08/2025**	**Cluster**	**Cluster X**	**ULR No.**	**TC1432125000002005F**
Customer	**Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)**			**Date of Issue**	**05.09.2025**
Project	**Bhowrah North**	**Sample Ref. No.**	**REM/BCCL/2025/08**	**Sampling Method**	**CMPDI/RI-II/LPM 11 , (IS 5182)**
Date of Sampling	11.08.25	20.08.25	**Period of Analysis**	11.08.2025 to 02.09.2025	**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**
			A4372	**A4410**				
1	PM_{10}	IS -5182(Part 23):2006, R-2017	67	74	10 µg/m³ - 1000 µg/m³	10 µg/m³	300	100
2	$PM_{2.5}$	IS -5182(Part 24):2019	29	34	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	34	32	06 µg/m³ - 420 µg/m³	06 µg/m³	120	80

** LDL indicates Lower Detection Limit,*
***All units are in µg/m3, 24 hourly Average,*

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.*

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Test Report for Ambient Air Samples

Month & Year	**08/2025**	**Cluster**	**Cluster X**	**ULR No.**	**TC1432125000002005F**
Customer	**Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)**			**Date of Issue**	**05.09.2025**
Project	**Sudamdih Washery**	**Sample Ref. No.**	**REM/BCCL/2025/08**	**Sampling Method**	**CMPDI/RI-II/LPM 11 , (IS 5182)**
Date of Sampling	11.08.25	20.08.25	**Period of Analysis**	11.08.2025 to 02.09.2025	**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**
			A4370	**A4408**				
1	PM_{10}	IS -5182(Part 23):2006, R-2017	82	82	10 µg/m³ - 1000 µg/m³	10 µg/m³	300	100
2	$PM_{2.5}$	IS -5182(Part 24):2019	39	35	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	35	33	06 µg/m³ - 420 µg/m³	06 µg/m³	120	80

** LDL indicates Lower Detection Limit,*

***All units are in µg/m3, 24 hourly Average,*

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

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TC-14321

Test Report for Ambient Air Samples

Month & Year	**08/2025**	**Cluster**	**CLUSTER X**	**ULR No.**	**TC1432125000002005F**
Customer	**Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)**			**Date of Issue**	**05.09.2025**
Project	**Sudamdih Mine Shaft**	**Sample Ref. No.**	**REM/BCCL/2025/08**	**Sampling Method**	**CMPDI/RI-II/LPM 11 , (IS 5182)**
Date of Sampling	11.08.25	20.08.25	**Period of Analysis**	11.08.2025 to 02.09.2025	**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**
			A4371	**A4409**				
1	PM_{10}	IS -5182(Part 23):2006, R-2017	74	75	10 µg/m³ - 1000 µg/m³	10 µg/m³	300	100
2	$PM_{2.5}$	IS -5182(Part 24):2019	30	33	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	29	31	06 µg/m³ - 420 µg/m³	06 µg/m³	120	80

***All units are in µg/m3, 24 hourly Average * LDL indicates Lower Detection Limit,*

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

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Test Report for Ambient Air Samples

Month & Year	**08/2025**	**Cluster**	**Cluster X**	**ULR No.**	**TC1432125000002005F**
Customer	**Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)**			**Date of Issue**	**05.09.2025**
Project	**Jeenagora**	**Sample Ref. No.**	**REM/BCCL/2025/08**	**Sampling Method**	**CMPDI/RI-II/LPM 11 , (IS 5182)**
Date of Sampling	11.08.25	29.08.25	**Period of Analysis**	11.08.2025 to 02.09.2025	**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**
			A4373	**A4470**				
1	PM_{10}	IS -5182(Part 23):2006, R-2017	72	74	10 µg/m³ - 1000 µg/m³	10 µg/m³	300	100
2	$PM_{2.5}$	IS -5182(Part 24):2019	34	31	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	28	31	06 µg/m³ - 420 µg/m³	06 µg/m³	120	80

** LDL indicates Lower Detection Limit,*
***All units are in µg/m3, 24 hourly Average,*

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

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Test Report for Ambient Air Samples

Month & Year	**08/2025**	**Cluster**	**CLUSTER X**	**ULR No.**	**TC1432125000002005F**
Customer	**Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)**			**Date of Issue**	**05.09.2025**
Project	**Sitanala**	**Sample Ref. No.**	**REM/BCCL/2025/08**	**Sampling Method**	**CMPDI/RI-II/LPM 11 , (IS 5182)**
Date of Sampling	01.08.25	19.08.25	**Period of Analysis**	01.08.2025 to 02.09.2025	**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
			A4323	A4401				
1	PM_{10}	IS -5182(Part 23):2006, R-2017	71	82	10 µg/m³ - 1000 µg/m³	10 µg/m³	300	100
2	$PM_{2.5}$	IS -5182(Part 24):2019	32	36	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	24	23	06 µg/m³ - 420 µg/m³	06 µg/m³	120	80

***All units are in µg/m3, 24 hourly Average, * LDL indicates Lower Detection Limit,*

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

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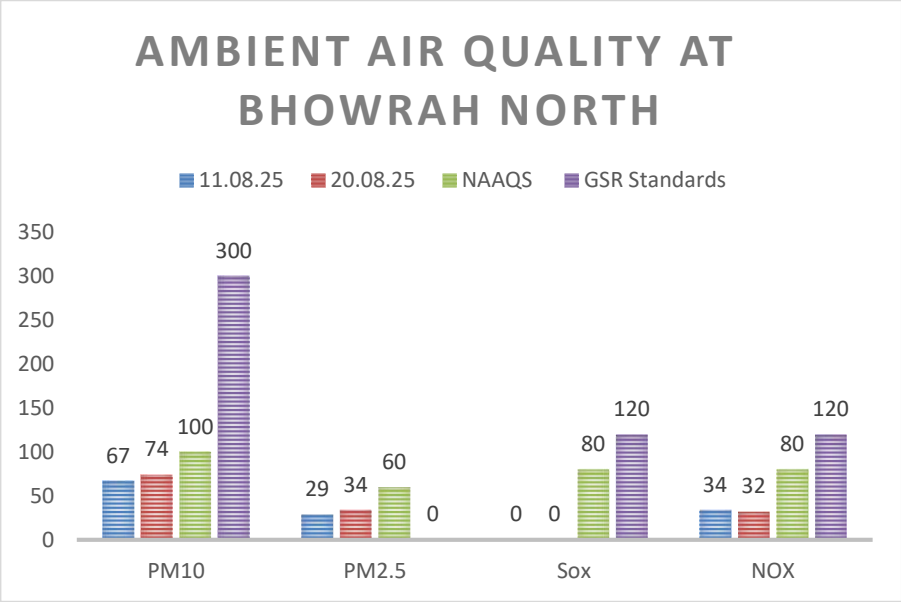
AMBIENT AIR QUALITY AT BHOWRAH NORTH
11.08.25
20.08.25
NAAQS
GSR Standards
350
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200
150
100
50
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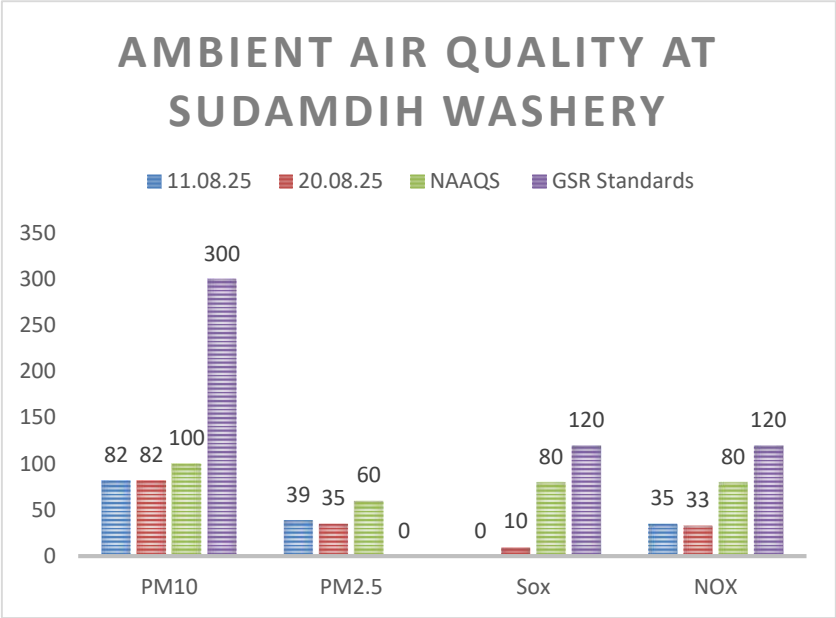
67 74 100 300
29 34 60 0
0 0 80 120
34 32 80 120
PM10
PM2.5
Sox
NOX


AMBIENT AIR QUALITY AT SUDAMDIH WASHERY
11.08.25
20.08.25
NAAQS
GSR Standards
350
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82 82 100 300
39 35 60 0
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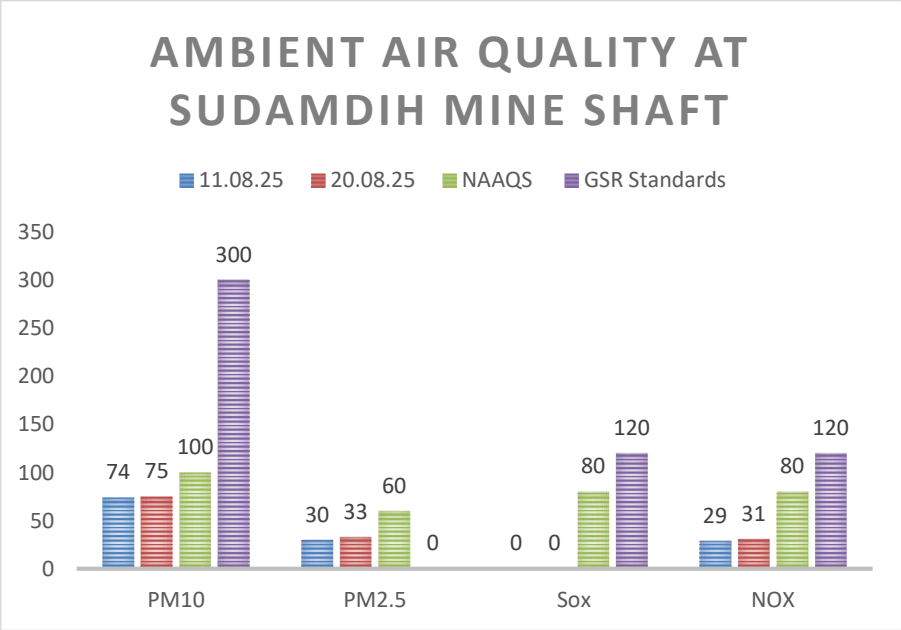
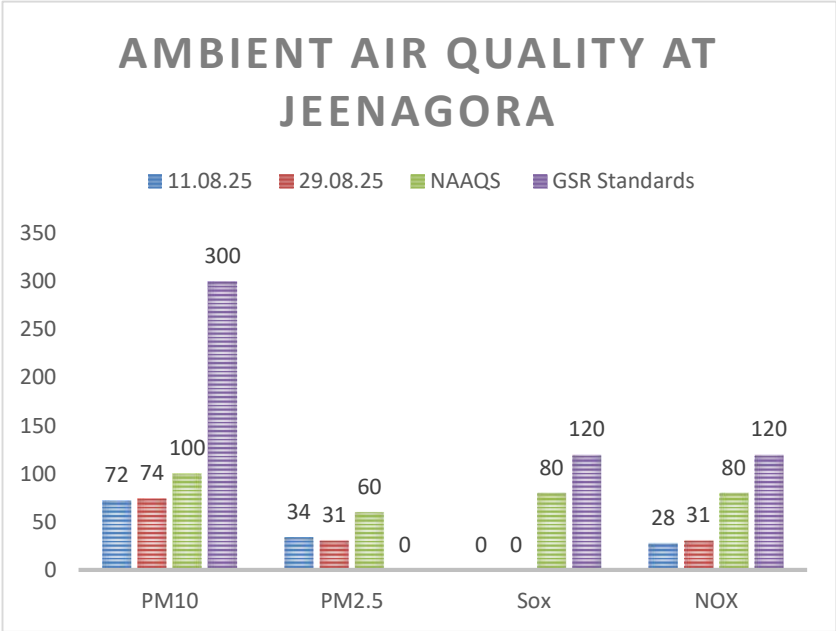
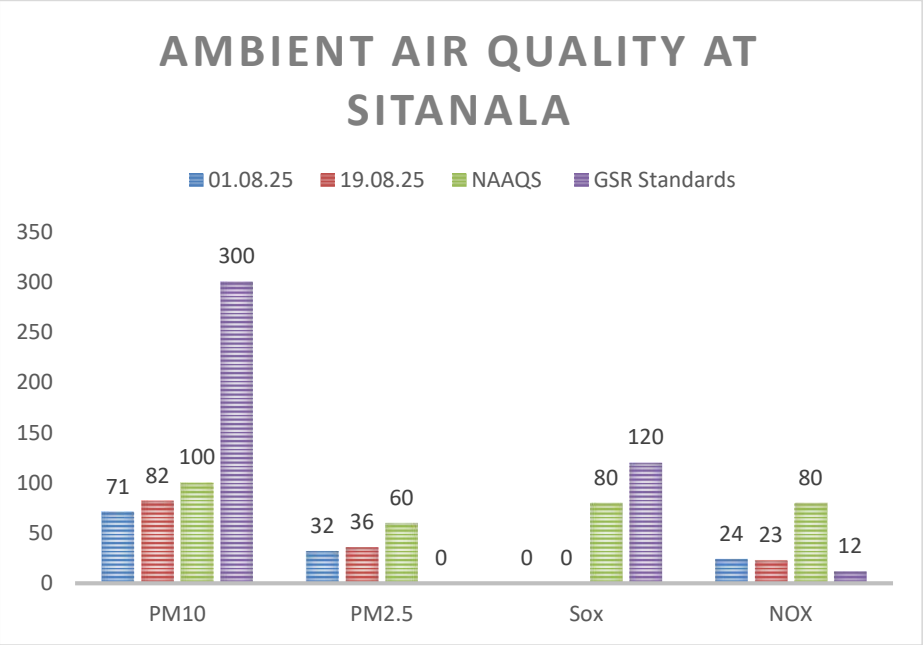
35 33 80 120
PM10
PM2.5
Sox
NOX


AMBIENT AIR QUALITY AT SUDAMDIH MINE SHAFT
11.08.25
20.08.25
NAAQS
GSR Standards
350
300
250
200
150
100
50
0
74 75 100 300
30 33 60 0
0 0 80 120
29 31 80 120
PM10
PM2.5
Sox
NOX


AMBIENT AIR QUALITY AT JEENAGORA
11.08.25
29.08.25
NAAQS
GSR Standards
350
300
250
200
150
100
50
0
72 74 100 300
34 31 60 0
0 0 80 120
28 31 80 120
PM10
PM2.5
Sox
NOX


AMBIENT AIR QUALITY AT SITANALA
01.08.25
19.08.25
NAAQS
GSR Standards
350
300
250
200
150
100
50
0
71
82
100
300
32
36
60
0
0
0
80
120
24
23
80
12
PM10
PM2.5
Sox
NOX

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

CMPDIL, RI-II
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Test Report for Mine Effluent samples

Month & Year	**08/2025**	**Cluster**	**Cluster X**	**ULR No.**		TC1432125000002023F	
Customer	**Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)**					**Date of Issue**	05.09.2025
Project		**Sampling Ref. No.**	**REM/BCCL/2025/08**	**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	04.08.2025	18.08.2025	**Period of analysis** 04.08.2025 TO 30.08.2025	

Sl. No.	**Parameter**	**Method of Analysis**	**Observed Values** M1663	**Observed Values** M1690	**STANDARDS FOR COAL MINES (Stipulated by Ministry of Environment and Forests (MoEF), Vide Notification No. GSR 742(E), Dt: 25.09.2000)**	**LDL**
1	Total Suspended Solids	IS 3025/17:1984, R :2017, Gravimetric	35	36	*100 (Max)*	10
2	pH	IS-3025/11:1983, R-2017, Electrometric	7.81	7.83	*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	44	*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	(Kumar Vaibhav) ***REVIEWED BY***	(Kumar Vaibhav) ***Authorised Signatory***

---- End of Report ----

NOISE LEVEL QUALITY MONITORING

4.1Location of sampling sites

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

4.2Methodology 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.

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

CMPDIL, RI-II
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Month & Year	**08/2025**	**Cluster**	**Cluster X**	**ULR No.**	TC1432125000002039F
Customer	**Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)**			**Date of Issue**	**05.09.2025**
Project		**Sample Ref. No.**	**REM/BCCL/2025/08**	**Sampling Method**	**CMPDI/RI-II/LPM 22**
Sampling Stations	**i**	**Bhowrah North**	**Date of Sampling**	11.08.25	20.08.25
Zone Category of Station:	**Core 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	46.3	45.6	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	48.8	48.6					
3		08:00 - 09:00	51.1	51.1					
4		09:00 – 10:00	53.9	55					
5		10:00 - 11:00	54.8	54.2					
6		11:00 - 12:00	55.4	55.3					
7		12:00 - 13:00	57.7	57					
8		13:00 - 14:00	52	50.2					
9		14:00 - 15:00	49.2	48.3					
10		15:00 - 16:00	41.3	53.8					
11		16:00 - 17:00	41.4	53.3					
12		17:00 - 18:00	40	52.8					
13		18:00 - 19:00	38.8	45.9					
14		19:00 - 20:00	39	38.2					
15		20:00 - 21:00	39.1	39.6					
16		21:00 - 22:00	38.6	39.5					
		Leq DAY	51.1	52.0					
1	Noise Level dB(A)Leq -Night	22:00-23:00	40	40.3	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	39.9	39.7					
3		00:00- 01:00	39.7	39.4					
4		01.00-02.00	39.4	39.6					
5		02.00-03.00	39.3	39.7					
6		03.00-04.00	40.3	40.4					
7		04.00-05.00	40.4	40.7					
8		05:00-06:00	40.7	41					
		Leq NIGHT	40.0	40.1					

**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***

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 ----

CMPDIL, RI-II
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TC-14321

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

Month & Year	**08/2025**	**Cluster**	**Cluster X**			**ULR No.**	**TC1432125000002039F**
Customer	**Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)**					**Date of Issue**	**05.09.2025**
Project			**Sample Ref. No.**	**REM/BCCL/2025/08**	**Sampling Method**	**CMPDI/RI-II/LPM 22**	
Sampling Stations	**i**	**Sudamdih Washery**		**Date of Sampling**	11.08.25	20.08.25	**Zone Category of Station:**	**Core 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	38.4	38.4	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	39.5	40.2					
3		08:00 - 09:00	42.4	41.9					
4		09:00 – 10:00	43.4	44					
5		10:00 - 11:00	42.7	42.1					
6		11:00 - 12:00	44.3	44.9					
7		12:00 - 13:00	43.4	43.1					
8		13:00 - 14:00	43.3	42.5					
9		14:00 - 15:00	47	46.5					
10		15:00 - 16:00	45.6	45.5					
11		16:00 - 17:00	46.8	44.9					
12		17:00 - 18:00	45.6	50					
13		18:00 - 19:00	45.9	47.7					
14		19:00 - 20:00	42.5	47.5					
15		20:00 - 21:00	41.9	40.7					
16		21:00 - 22:00	39.7	39.8					
		Leq DAY	43.9	44.9					
1	Noise Level dB(A)Leq -Night	22:00-23:00	37.9	38.2	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	36.9	38.2					
3		00:00- 01:00	39.7	39.4					
4		01.00-02.00	32.5	32.9					
5		02.00-03.00	32.1	32.8					
6		03.00-04.00	31.9	30.9					
7		04.00-05.00	32.9	30.3					
8		05:00-06:00	33.3	32.7					
		Leq NIGHT	35.7	35.7					

***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***

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CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED

Environment Laboratory, Regional Institute-II

Ambient Noise Level Test Report

Month & Year	**08/2025**	**Cluster**	**Cluster X**	**ULR No.**	**TC1432125000002039F**
Customer	**Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)**			**Date of Issue**	**05.09.2025**
Project		**Sample Ref. No.**	**REM/BCCL/2025/08**	**Sampling Method**	**CMPDI/RI-II/LPM 22**

Sampling Stations	**i**	**Jeenagora**	**Date of Sampling**	11.08.25	29.08.25	**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	50	47.1	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	57.4	52.8					
3		08:00 - 09:00	58.6	55.9					
4		09:00 – 10:00	59.9	53.8					
5		10:00 - 11:00	58.1	56.6					
6		11:00 - 12:00	56.8	55.5					
7		12:00 - 13:00	62.2	61.3					
8		13:00 - 14:00	55.8	54.5					
9		14:00 - 15:00	50.1	51.8					
10		15:00 - 16:00	42.6	42.3					
11		16:00 - 17:00	56.8	55.3					
12		17:00 - 18:00	49.4	48.4					
13		18:00 - 19:00	45.6	44.9					
14		19:00 - 20:00	42.8	43					
15		20:00 - 21:00	38.7	38.6					
16		21:00 - 22:00	39.2	39.7					
		Leq DAY	55.9	53.9					
1	Noise Level dB(A)Leq -Night	22:00-23:00	39.7	40.7	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	39.1	40.4					
3		00:00- 01:00	38.5	40.2					
4		01.00-02.00	38.4	39.3					
5		02.00-03.00	38.4	39					
6		03.00-04.00	40.1	38.4					
7		04.00-05.00	40.3	41.2					
8		05:00-06:00	42.1	41.9					
		Leq NIGHT	39.8	40.3					

**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***

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

CMPDIL, RI-II
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Month & Year	**08/2025**	**Cluster**	**Cluster X**	**ULR No.**	**TC1432125000002039F**
Customer	**Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)**			**Date of Issue**	**05.09.2025**
Project		**Sample Ref. No.**	**REM/BCCL/2025/08**	**Sampling Method**	**CMPDI/RI-II/LPM 22**
Sampling Stations	**i**	**Sitanala**	**Date of Sampling** 01.08.25	19.08.25	**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	40.8	40.7	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	45.1	44.8					
3		08:00 - 09:00	46.8	45.6					
4		09:00 – 10:00	47.4	47.7					
5		10:00 - 11:00	46.5	47.7					
6		11:00 - 12:00	53.2	54					
7		12:00 - 13:00	49.2	51.1					
8		13:00 - 14:00	50.2	52.3					
9		14:00 - 15:00	47.3	48.3					
10		15:00 - 16:00	45.6	46.8					
11		16:00 - 17:00	45.6	45.6					
12		17:00 - 18:00	41.6	42.2					
13		18:00 - 19:00	41.1	40.6					
14		19:00 - 20:00	40.6	40.4					
15		20:00 - 21:00	40.3	40.1					
16		21:00 - 22:00	40.1	39.7					
		Leq DAY	46.9	47.8					
1	Noise Level dB(A)Leq -Night	22:00-23:00	40.8	40.3	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	40.7	40.2					
3		00:00- 01:00	40.4	40.7					
4		01.00-02.00	40.1	39.7					
5		02.00-03.00	39.6	39.6					
6		03.00-04.00	38.8	39.3					
7		04.00-05.00	38.7	39.1					
8		05:00-06:00	40.1	39.4					
		Leq NIGHT	40.0	39.8					

**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***

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

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Month & Year	**08/2025**	**Cluster**	**Cluster X**			**ULR No.**	**TC1432125000002039F**
Customer	**Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)**					**Date of Issue**	**05.09.2025**
Project		**Sample Ref. No.**	**REM/BCCL/2025/08**		**Sampling Method**	**CMPDI/RI-II/LPM 22**	
Sampling Stations	**i**	**Sudamdih Mine Shaft**	**Date of Sampling**	11.08.25	20.08.25	**Zone Category of Station:**	**Core 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	40.8	41	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	40.7	41.1					
3		08:00 - 09:00	42.4	42.9					
4		09:00 – 10:00	40.5	40.1					
5		10:00 - 11:00	42.4	42.9					
6		11:00 - 12:00	44.9	45.3					
7		12:00 - 13:00	45.9	45.9					
8		13:00 - 14:00	46.3	45.7					
9		14:00 - 15:00	45.6	46.6					
10		15:00 - 16:00	45.3	44.8					
11		16:00 - 17:00	42.8	44.4					
12		17:00 - 18:00	42.2	44.2					
13		18:00 - 19:00	40.7	42.4					
14		19:00 - 20:00	40.5	41.7					
15		20:00 - 21:00	40.4	41.4					
16		21:00 - 22:00	40.6	40.5					
		Leq DAY	43.2	43.7					
1	Noise Level dB(A)Leq -Night	22:00-23:00	42.2	42	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	42.1	42					
3		00:00- 01:00	41.8	41.9					
4		01.00-02.00	41.7	41.7					
5		02.00-03.00	41.2	41.6					
6		03.00-04.00	41.6	41.4					
7		04.00-05.00	41.2	41.2					
8		05:00-06:00	41.6	41.3					
		LeqNIGHT	41.7	41.6					

**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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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
	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.

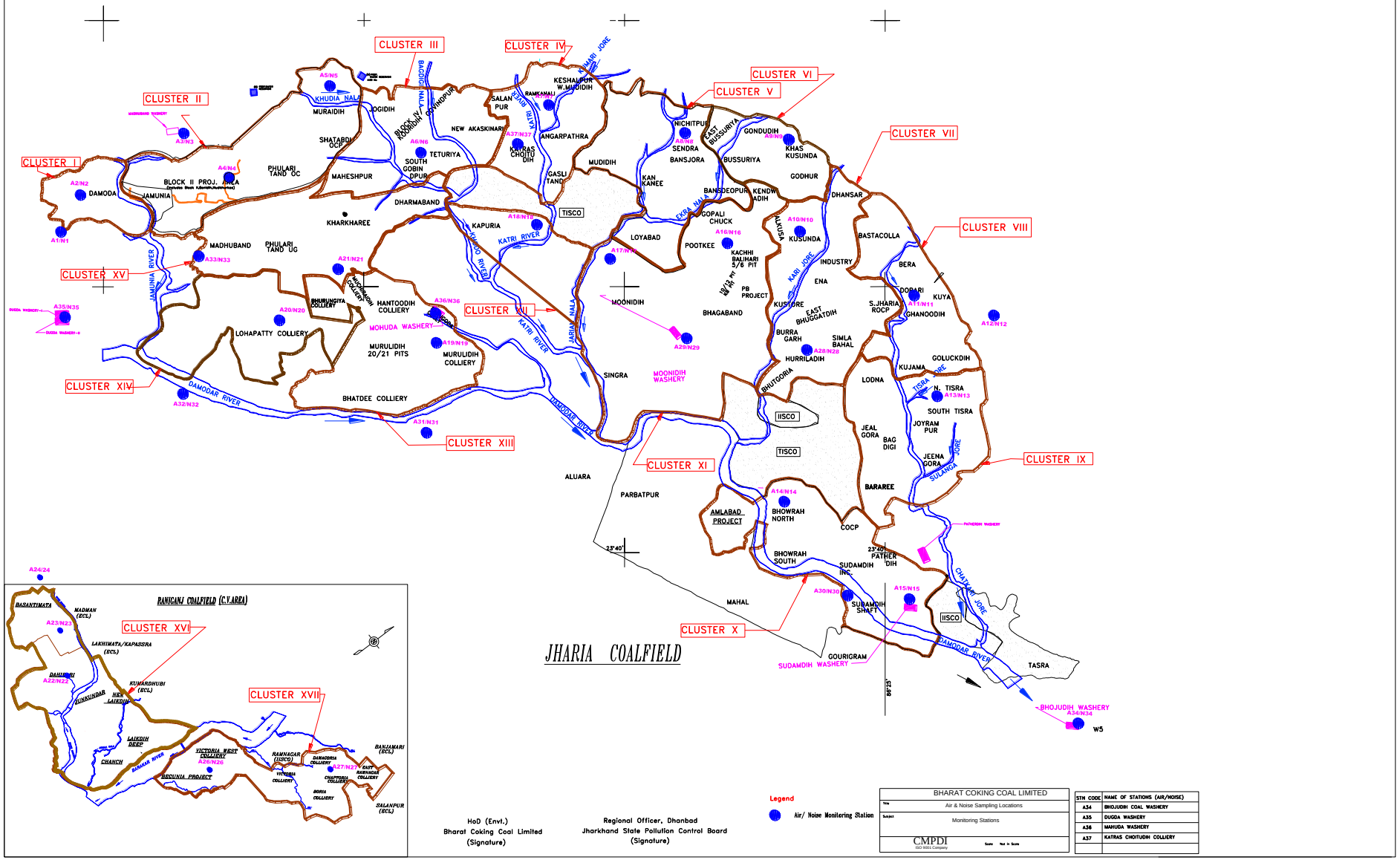
Pollutant	**Time Weighted Average**	**Concentration in Ambient Air**		**Methods of Measurement**
		Industrial, Residential, Rural and other Areas	**Ecologically Sensitive Area (Notified by Central Government)**	
Sulphur Dioxide (SO_2), µg/m^3	Annual * 24 Hours **	50 80	20 80	-Improved West and Gaeke Method -Ultraviolet Fluorescence
Nitrogendioxide (NO_2), µg/m^3	Annual * 24 Hours **	40 80	30 80	-Jacob &Hochheiser modified ($NaOH$-$NaAsO_2$) Method -Gas Phase Chemiluminescence
Particulate Matter (Size less than 10µm) or PM_{10}, µg/m^3	Annual * 24 Hours **	60 100	60 100	-Gravimetric -TEOM -Beta attenuation
Particulate Matter (Size less than 2.5µm) or $PM_{2.5}$, µg/m^3	Annual * 24 Hours **	40 60	40 60	-Gravimetric -TEOM -Beta attenuation
Ozone (O_3) , µg/m^3	8 Hours * 1 Hour **	100 180	100 180	-UV Photometric -Chemiluminescence -Chemical Method
Lead (Pb) , µg/m^3	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/m^3	8 Hours ** 1 Hour **	02 04	02 04	-Non dispersive Infrared (NDIR) Spectroscopy
Ammonia (NH_3), µg/m^3	Annual * 24 Hours **	100 400	100 400	-Chemiluminescence -Indophenol blue method
Benzene (C_6H_6), µg/m^3	Annual *	05	05	-Gas Chromatography (GC) based continuous analyzer -Adsorption and desorption followed by GC analysis
Benzo(a)Pyrene (BaP) Particulate phase only, ng/m^3	Annual *	01	01	-Solvent extraction followed byHPLC/GC analysis
Arsenic (As), ng/m^3	Annual *	06	06	-AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper
Nickel (Ni), ng/m^3	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.

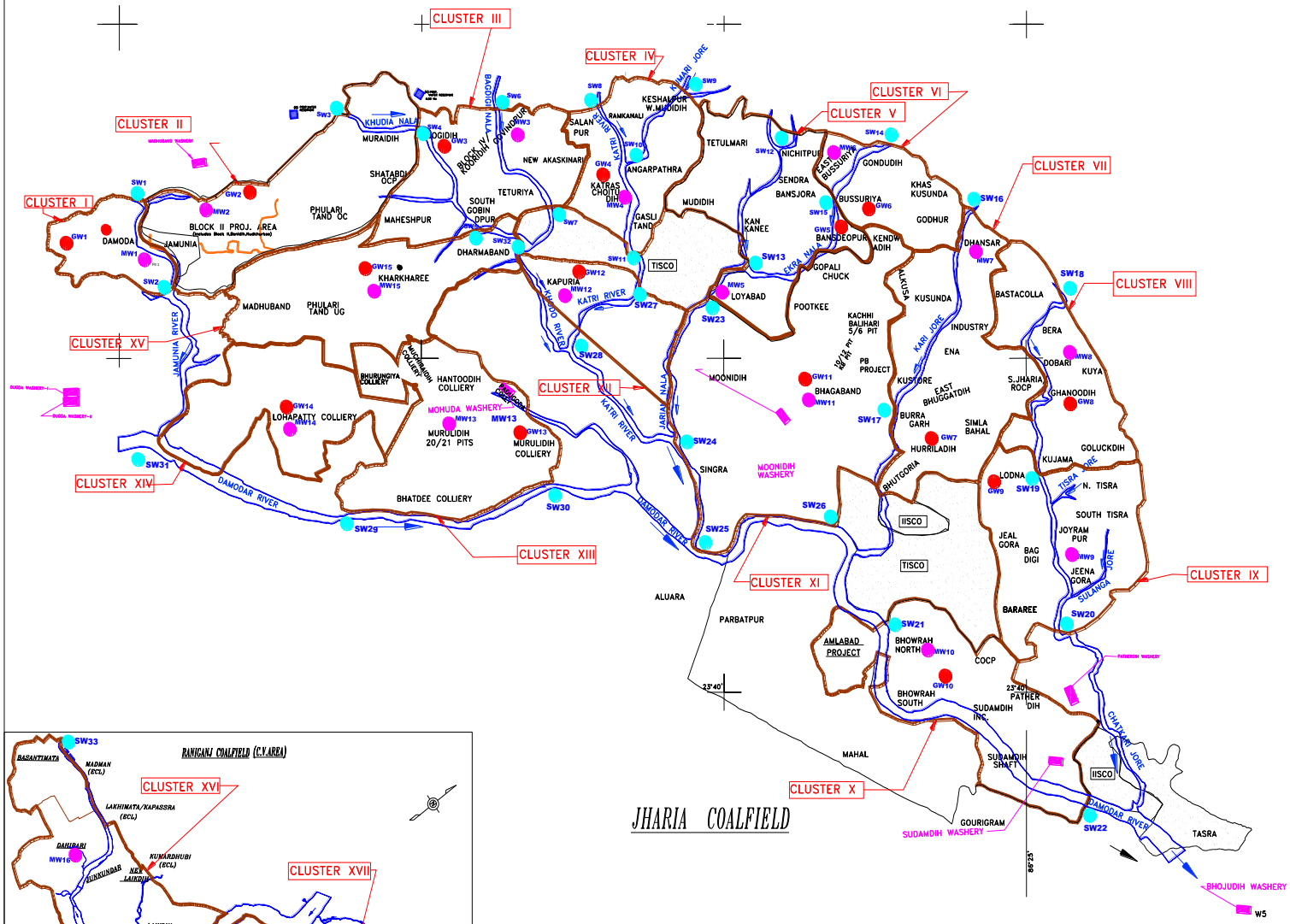
** 24 hourly or 8 hourly or 1 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

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	Suface Water (U/S, D/S)	Name of River/ Nala / Jore	Mine/ Effluent Water	Sampling Location	Ground Water	Sampling Location
I	SW1, SW2	Jamunia River	MW1	Damoda Area	GW1	Ghutway Village
II	SW3, SW4	Khudia Nala	MW2	Block II OCP	GW2	Joyrampur Village
III	SW4, SW5, SW6, SW7	Khudia Nala, Bagdigi Nala	MW3	Govindpur Colliery	GW3	Jogidih Village
IV	SW8, SW11, SW9, SW10	Katri River, Kumari Jore	MW4	Chotudih	GW4	Kankanee Village
V	SW12, SW13, SW15	Jarian Nala, Ekra Nala	MW5	Mudidih	GW5	Nichitpur
VI	SW14, SW15	Ekra Nala	MW6	East Bassuria UGP	GW6	Bansjora Borewell
VII	SW16, SW17	Kari Jore	MW7	Dhansar UGP	GW7	Hurriladih
VIII	SW18, SW19	Kashi Jore	MW8	Dobari UGP	GW8	Ghanudih
IX	SW19, SW20	Jeenagora	MW9	Jeenagora	GW9	Lodna
X	SW21, SW22	Damodar River	MW10	Bhowrah North	GW10	Bhowrah South
XI	SW23, SW24, SW25, SW26	Jarian Nala, Damodar River	MW11	Bhagabandh UGP	GW11	Bhagabandh
XII	SW27, SW28	Katri River	MW12	Kapuria	GW12	Kapuria
XIII	SW29, SW30	Damodar River	MW13	Murulidih (20/21)	GW13	Murilidih
XIV	SW31, SW29	Damodar River	MW14	Lohapatti	GW14	Lohapatti
XV	SW5, SW32	Khudia Nala	MW15	Kharkharee UGP	GW15	Kharkharee
XVI	SW33, SW34	Khudia River	MW16	Dahibari OCP	GW16	Patlabari Village
XVII	SW35, SW36	Barakar River	MW17	Damagoria Colliery	GW17	Chaptoria

HoD (Envt.)
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

Customer: BHARAT COKING COAL LIMITED
Title: WATER SAMPLING LOCATIONS
Subject: MONITORING STATIONS
CMPDI (ISO 9001 Company)
Scale: Not to Scale

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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, 2024)

CMPDI
ISO 9001 Company
Regional Institute-II
Dhanbad, Jharkhand

(FOR THE Q.E. DECEMBER, 2024)

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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 $23^0$37' N to $23^0$52' N latitudes and $86^0$09' E to $86^0$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 : **2024-25.**

PERIOD: **HALF YEAR ENDING DEC. 24**

HEAVY METAL ANALYSIS REPORT OF AMBIENT AIR QUALITY

SAMPLE CODE	DATE	Station Name	Cd CONC. IN µg/m3	Hg CONC. IN µg/m3	As CONC. IN ng/m3	Cr CONC. IN µg/m3	Ni CONC. IN ng/m3	Pb CONC. IN µg/m3
A1	16.11.2024	Karmatand Village	<0.001	<0.001	<1.0	<0.01	3.06	0.007
A2	17.11.2024	Damoda	<0.001	<0.001	<1.0	<0.01	2.34	<0.005
A3	26.11.2024	Madhuband Washery	<0.001	0.001	<1.0	<0.01	<2.0	<0.005
A4	17.11.2024	Block-II	<0.001	<0.001	<1.0	<0.01	2.01	0.011
A5	30.11.2024	Muraidih	<0.001	<0.001	<1.0	<0.01	4.16	<0.005
A6	23.11.2024	Block-IV	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A7	23.11.2024	Govindpur/Ramkanali	<0.001	<0.001	<1.0	<0.01	<2.0	0.035
A8	25.11.2024	Nichitpur	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A9	25.11.2024	East Basseriya	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A10	23.11.2024	Dhansar/Kusunda	<0.001	<0.001	<1.0	<0.01	<2.0	0.005
A11	23.11.2024	Dobari	<0.001	<0.001	<1.0	<0.01	<2.0	0.010
A12	29.11.2024	Kusmatand Village	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A13	28.11.2024	Jeenagora	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A14	16.11.2024	Bhowrah North	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A15	16.11.2024	Sudamdih Washery	<0.001	0.002	<1.0	<0.01	<2.0	0.045
A16	16.11.2024	Pootki	<0.001	<0.001	<1.0	<0.01	<2.0	0.013
A17	29.11.2024	Moonidih UGP	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A18	25.11.2024	Rudih Basti	<0.001	<0.001	<1.0	<0.01	<2.0	0.010
A19	26.11.2024	Murlidih 20/21	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A20	22.11.2024	Lohapatti	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A21	22.11.2024	Kharkharee	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005

SAMPLE CODE	DATE	Station Name	Cd CONC. IN µg/m3	Hg CONC. IN µg/m3	As CONC. IN ng/m3	Cr CONC. IN µg/m3	Ni CONC. IN ng/m3	Pb CONC. IN µg/m3
A22	27.11.2024	Dahibari	<0.001	<0.001	<1.0	<0.01	<2.0	0.016
A23	27.11.2024	Basantimata	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A24	28.11.2024	Gopinathpur	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A25	28.11.2024	Guliardih	<0.001	<0.001	<1.0	<0.01	<2.0	0.009
A26	25.11.2024	Begunia	<0.001	<0.001	<1.0	<0.01	3.26	0.010
A27	25.11.2024	Damagoria	<0.001	<0.001	<1.0	<0.01	2.22	0.036
A28	16.11.2024	Hurriladih	<0.001	<0.001	<1.0	<0.01	<2.0	0.006
A29	30.11.2024	Moonidih Washery	<0.001	0.003	<1.0	<0.01	<2.0	<0.005
A30	17.11.2024	Sitanala	<0.001	<0.001	<1.0	<0.01	<2.0	0.048
A31	27.11.2024	Dumarda	<0.001	<0.001	<1.0	<0.01	<2.0	0.005
A32	29.11.2024	Telmacho Bridge	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A33	30.11.2024	Madhuband UGP	<0.001	0.005	<1.0	<0.01	<2.0	<0.005
A34	30.11.2024	Bhojudih Washery	<0.001	0.02	<1.0	<0.01	<2.0	0.049
A35	16.11.2024	Dugda Washery	<0.001	0.003	<1.0	<0.01	<2.0	0.016
A36	30.11.2024	Mahuda	<0.001	0.001	<1.0	<0.01	<2.0	<0.005
A37	23.11.2024	Katras Choitudih	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A38	23.11.2024	Sinidih Workshop	<0.001	<0.001	<1.0	<0.01	<2.0	0.009
A39	17.11.2024	Patherdih	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A40	22.11.2024	Koyla Nagar	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A41	17.11.2024	Sudamdih Shaft	<0.001	<0.001	<1.0	<0.01	<2.0	0.024
A42	29.11.2024	RHB	<0.001	<0.001	<1.0	<0.01	2.56	0.017
A43	16.11.2024	Pandwabhita	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005
A44	17.11.2024	Sadariadih	<0.001	<0.001	<1.0	<0.01	<2.0	0.007
A45	30.11.2024	Bhojudih Buffer	<0.001	<0.001	<1.0	<0.01	2.15	<0.005
A46	16.11.2024	C.H.D	<0.001	<0.001	<1.0	<0.01	<2.0	<0.005

Metal (Unit)	***LDL***	***Standard as per NAAQS***
Hg (µg/m^3)	0.001	*Standard Not defined
Cr(µg/m^3)	0.01	*Standard Not defined
As (ng/m^3)	1	6
Pb (µg/m^3)	0.005	0.5
Ni (ng/m^3)	2	20
Cd (µg/m^3)	0.001	*Standard Not defined

सुमन रुद्र रानुल

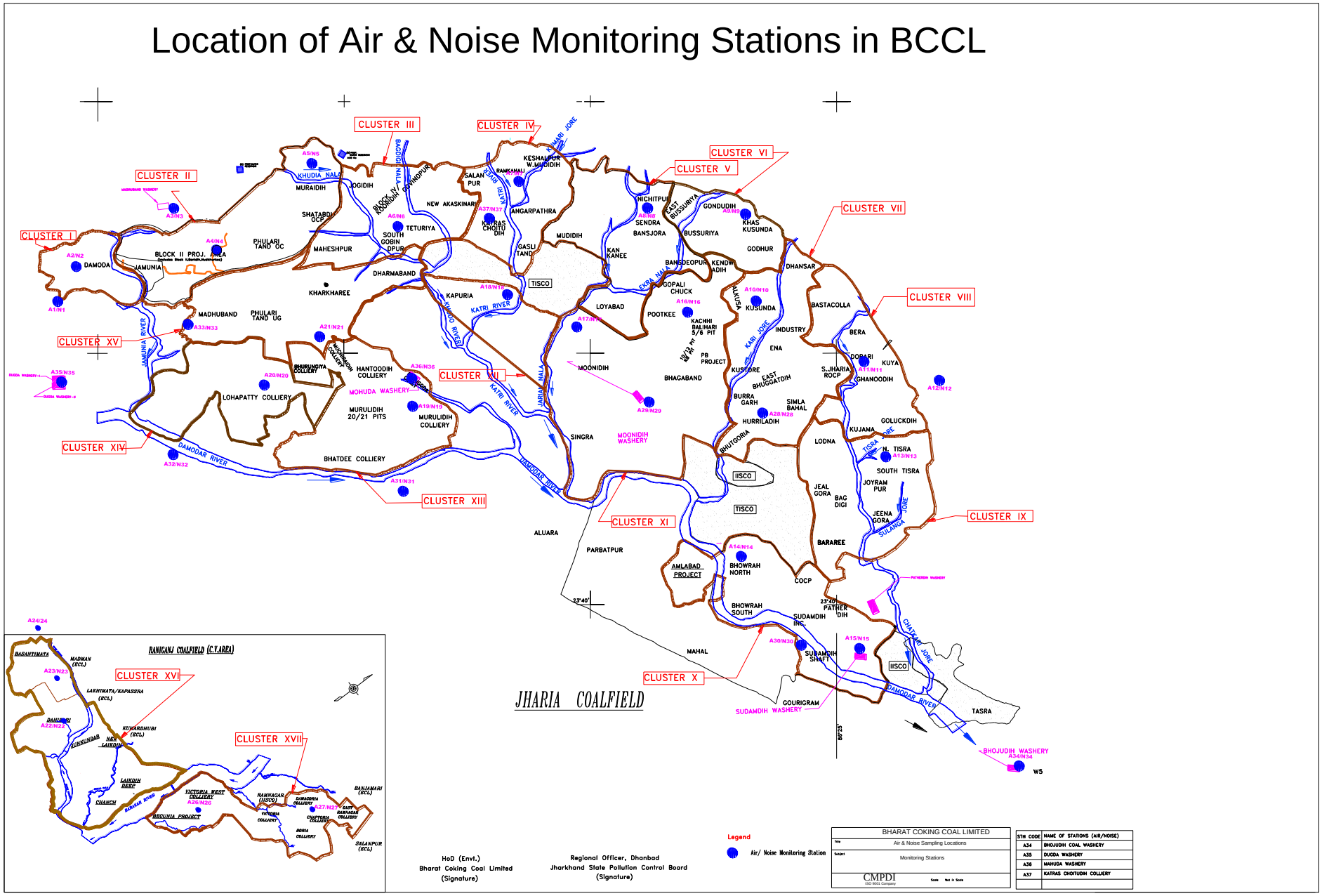
Analysed By
JSA/SA/SSA

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

अमित

Approved By
HOD(In-charge) Environment
RI-2, CMPDI, Dhanbad

Location of Air & Noise Monitoring Stations in BCCL



STN CODE	NAME OF STATIONS (AIR/NOISE)
A34	BHOJUDIH COAL WASHERY
A35	DUGDA WASHERY
A36	MAHUDA WASHERY
A37	KATRAS CHOITUDIH COLLIERY

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 3O 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 0perator
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**

JH10CM1522

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 3O 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 0perator
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 3O 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 0perator
60mm x 20 mm

Form 59

[See rules 115 (2)]

Pollution Under Control Certificate

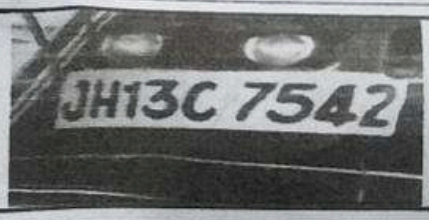
Authorised By :

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 ± 200	
	Lambda	-	1 ± 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 Ansari

[See rules 115 (2)]

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.	:	JH10CR4120
Date of Registration	:	14/Mar/2017
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
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	1.11

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://pucparivahan.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 ± 200	
	Lambda	-	1 ± 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 : 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

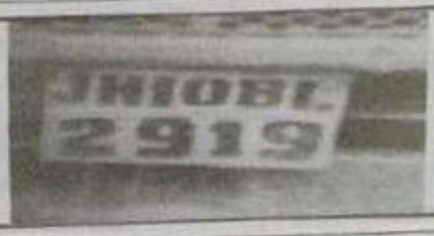
Authorised By :

Government of Jharkhand

Date	:	**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 Ashwini

Form 59

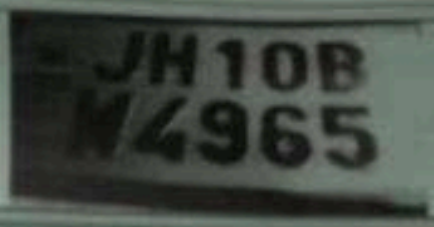
(See rules 115 (2))

Pollution Under Control Certificate
Authorised By
Government of Jharkhand

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

Certificate SL. No.	:	JH01001630004206
Registration No.	:	JH10B4965
Date of Registration	:	14/Sep/2019
Month & Year of Manufacturing	:	June-2019
Vehicle Mobile Number	:	******6703
Emission Norms	:	BHARAT STAGE IV
Fuel	:	DIESEL
PUC Code	:	JH01001K3
OSTN	:	
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	1.08

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

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	:	**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
SL 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
60mm x 20mm

Form 59

[See rules 115 (2)]

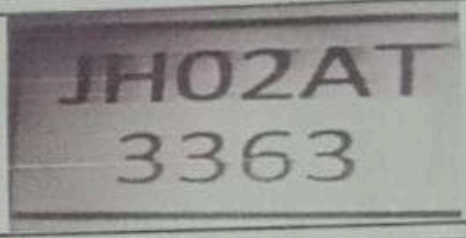
Pollution Under Control Certificate

Authorised 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 ± 200	
	Lambda	-	1 ± 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

Form 59

[See rules 115 (2)]

Pollution Under Control Certificate

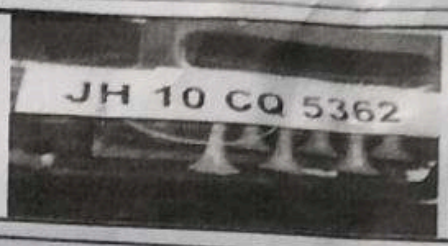
Authorised By :
Government of Jharkhand

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

JH10CQ5362

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

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	
m³/day	m³/year	m³/day	m³/year	m³/day	m³/year	m³/day	m³/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

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

पानी बचाये – जीवन बचाये
SAVE WATER - SAVE LIFE

CENTRAL GROUND WATER AUTHORITY

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

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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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 m 3 /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.)

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
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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 Issuence: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:		/	

SN	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
Phone: (011) 23383561 Fax: 23382051, 23386743
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पानी बचाये – जीवन बचाये
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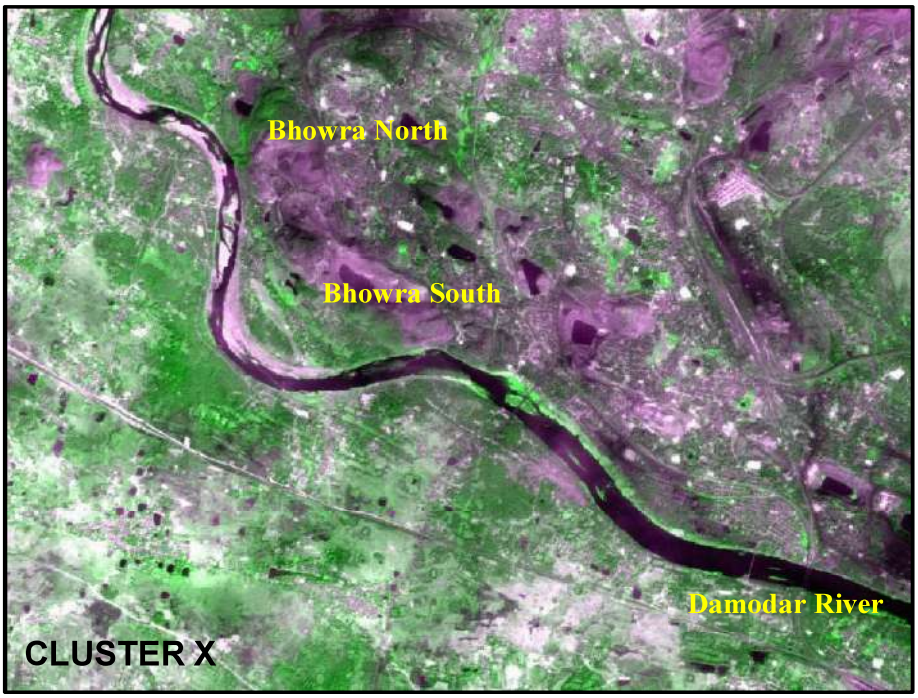
Term and conditions:

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

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

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3 Methodology 2
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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

(Area in Hectare)

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											
				Area under Backfilling		Plantation on Excavated / Backfilled Area		Plantation on External OB Dumps		Social Forestry, Avanue Plantation Etc.									
1	*2*	*3*		*4*		*5*		*6*		*7*		*8*		*9 (=4+5+8)*		*10 (=5+6+7)*		*11(=4+5)*	
		2018	2021	2018	2021	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	47.99	45.21	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	27.11	27.11	165.09	165.09	166.67	152.29	313.89	328.32	192.20	192.20	147.22	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	15.52	11.43	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	66.09	66.09	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	-	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**	**156.71**	**149.84**	**570.04**	**757.18**	**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)

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".

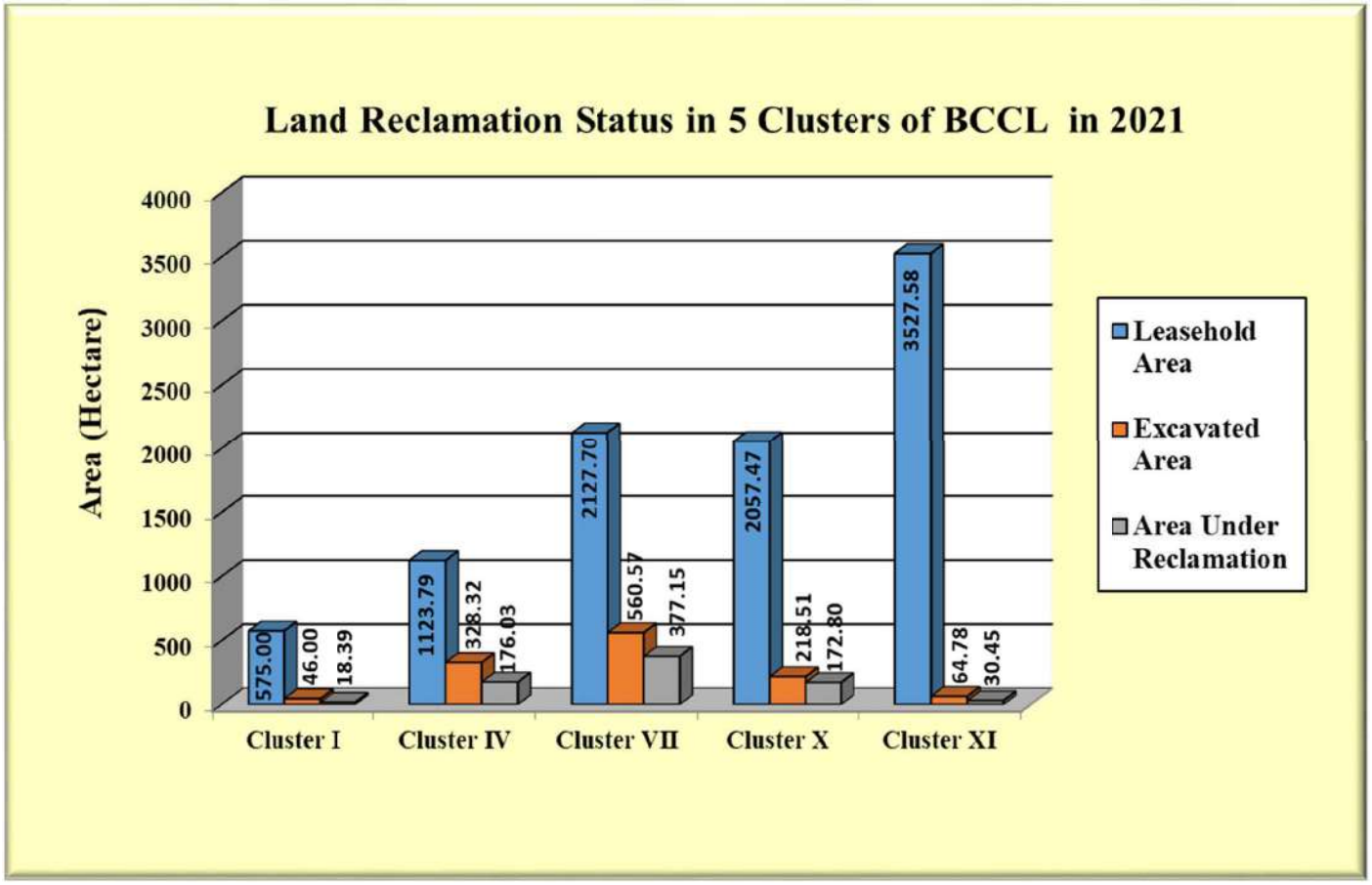

Fig. 1: Cluster wise Land Reclamation Status in five Clusters - 2021 (BCCL)

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**
	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
ACTIVE MINING	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**

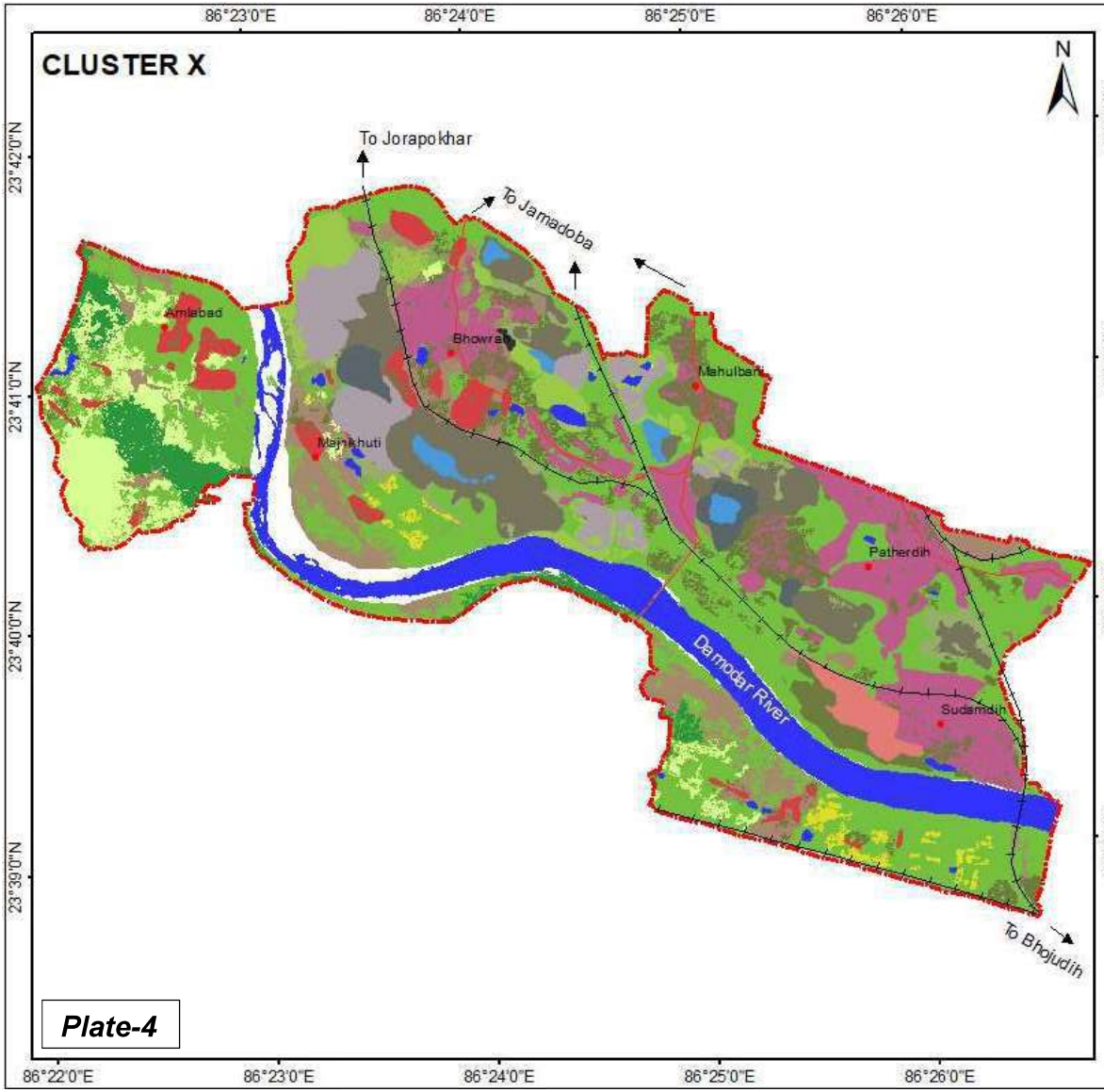

Plate-4

Area Statistics - Cluster X (2021)				
Classes		Colour	Core Zone	
Level-I	Level-II		Area (Ha)	% of Total
Forest	Dense Forest		0.00	0.00
	Open Forest		64.34	3.13
	Total Forest (A)		**64.34**	**3.13**
	Scrubs (B)		**645.77**	**31.39**
Plantation Area	Social Forestry		140.75	6.84
	Plantation on OB		66.09	3.21
	Plantation on Backfill		29.16	1.42
	Total Plantation Area (C)		**236.00**	**11.47**
	Total Vegetation (A+B+C)		**946.11**	**45.98**
Agriculture Land	Crop land		18.08	0.88
	Fallow Land		109.95	5.34
	Total Agriculture Land		**128.03**	**6.22**
Waste Land	Waste Land		152.75	7.42
	Sand Body		53.37	2.59
	Total Waste Land		**206.12**	**10.02**
Mining Area	Advance Quarry area		0.00	0.00
	Coal Quarry		26.66	1.30
	Barren OB Dump		90.49	4.40
	Back Fill		143.64	6.98
	Coal Dump		1.12	0.05
	Water Filled Qry		19.05	0.93
	Total Mining Area		**280.96**	**13.66**
Settlements	Urban Settlements		228.39	11.10
	Rural Settlements		57.90	2.81
	Industrial Settlements		24.49	1.19
	Total Settlement Area		**310.78**	**15.10**
Water Body	**River/ Ponds**		**185.47**	**9.01**
	Total Area		**2057.47**	**100.00**

Legend

- Settlements
- Cluster X Boundary
- Railway Line
- Road

Customer	Bharat Coking Coal Limited				
Title	Land Reclamation Monitoring of BCCL Clusters				Job No. 561410027
Subject: Land Reclamation Monitoring Status of Cluster-X Group of Mines based on Satellite Data (RS-2/L-IV) of the year 2021	Activity	Name	Designation	Signature	
	Prepared	Ayesha Parida	Dy. Mgr(Geology)		
	Checked	Harihara lal. B	Ch. Mgr(RSC)		
	Approved	R. Kumar	GM(Geomatics)		
cmpdi	Scale: 0 0.25 0.5 1 Km				Sheet 1
	Drg No. HQ/REM/21/R2/A4/CL-X				Rev No. 0

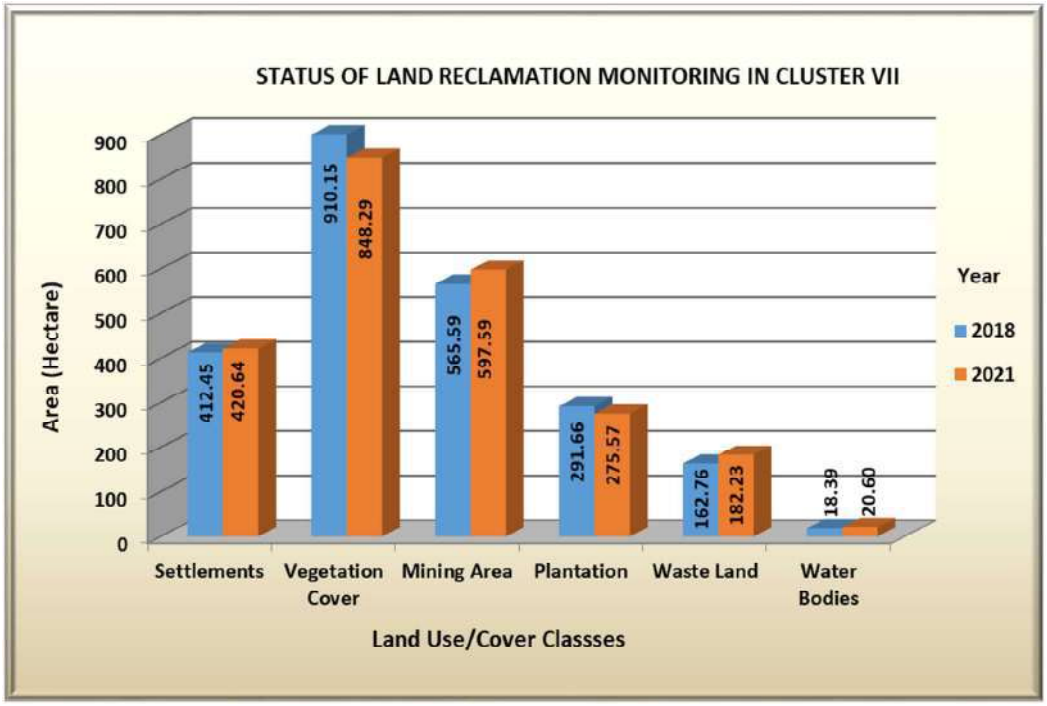

Fig. 5: Land Reclamation Status of Cluster VII

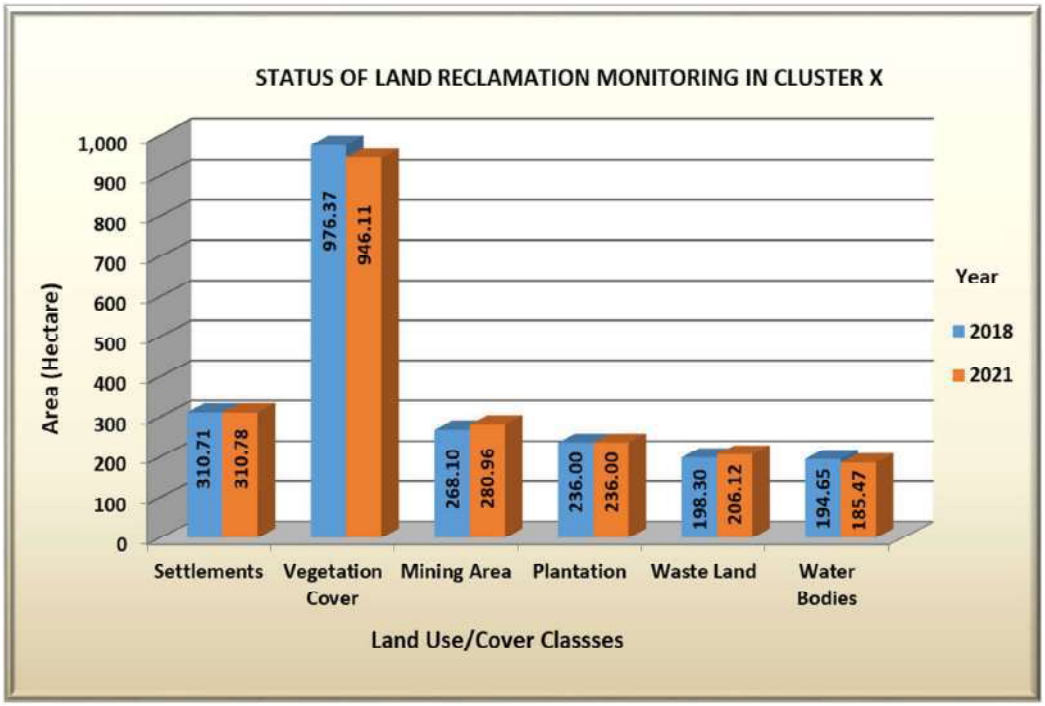

Fig. 6: Land Reclamation Status of Cluster X

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 bringing 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.

29/5/25

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 if 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	XVI I, 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 m^3 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 MTof 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 m^3/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 uptp 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 setting 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 Midlings. 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 is18 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 Clarence 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 Mm^3. 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 are 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 (PM_{10} 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 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.

(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 croup 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 companyfor 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 PM_{10}, $PM_{2.5}$, SO_2 and NOx 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 (PM_{10}, $PM_{2.5}$, SO_2 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 PM_{10}, $PM_{2.5}$, SO_2 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, Chandrashekarpur, 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 ParyavaranBhawan,
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 UG/OC	Production Capacity (MTPA)	Lease Area (ha)	Mine Life (Years)	
1	Bhowrah North	UG	0.143	208.83	>20	
	Bhowrah North	OC	0.546		6	
2	Bhowrah South	UG	0.377	571.58	30	
		OC	1.2		43	Fire dealing
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.

SKS
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	55th EAC 27th-28 th August 2012
2	J-11015/380/ 2010-IA.II (M)	Amendment in EC	12.06.2019	2.289	2057.47 ha	44th EAC 24th -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,

2021 G.S.R. 717(E)

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 414th Board	19.10.2024
Amalgamated Sudamdih Patherdih Colliery	Approved in 348th Board	29.01.2019
Sudamdih Shaft (UG)	Approved in 351st 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 m3)	Nos.	Quantity of Waste/OB stored (Mm3)	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**:
a. **In pit**: from face to surface coal dump 0- 3 km by dumpers
b. **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)
c. **Siding to loading**: pay loader loads the coal into the railway wagons for further transport.
d. **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:
a. Reclaimed external OB dump (in ha): 42.47
b. Internal dump (in ha): 245.24
c. Green belt (in ha): 137.27 (48.02 ha safety zone included)
d. Density of tree plantation (in no of plants): 2500/ha
e. A void of 7.23 Ha is proposed to be converted into water body at depth 30m.
f. 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 (01st March to 31st 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 PM_{10} GLC at Buffer zone = 1 μg/m^3 – 23 μg/m^3 Total PM_{10} range at Buffer zones =82 μg/m^3 – 128 μg/m^3 Min-Max Incremental $PM_{2.5}$ GLC at Buffer zones= 0.2 μg/m^3- 1.8 μg/m^3 Total $PM_{2.5}$ range at Buffer zones = 38 μg/m^3 – 64μg/m^3 Min-Max Incremental SO_2 GLC at Buffer zone = 1 μg/m^3 – 5 μg/m^3 Total SO_2 range at Buffer zones = 11 μg/m^3 -- 17 μg/m^3 Min-Max Incremental NO_x GLC at Buffer zone = 1 μg/m^3 – 4 μg/m^3 Total NO_x range at Buffer zones = 26 μg/m^3 -- 35 μg/m^3	
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).	

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 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.

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

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)**	ü Construction of PCC transportation road: 300 lakhs ü 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 Bast · 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:
a) Interim Order was passed on 18.01.2012, "Till then status quo as on today, shall be maintained by the parties"
b) In Order dated 14.04.2013, interim order was not modified and was maintained with the IA disposed off.
c) No further Interim order was passed.
d) 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:

a) Procurement action already initiated
b) Tender will be done by April 2025.
c) 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
	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.
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

<table>
<tr><th>S. No</th><th>EC Conditions</th></tr>
<tr><td></td><td>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.</td></tr>
<tr><td>1.11</td><td>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.</td></tr>
<tr><td>1.12</td><td>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.</td></tr>
<tr><td>1.13</td><td>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></td></tr>
<tr><td>1.14</td><td>Details of impact of mining on Damodar River should be assessed and provided along with the six-monthly compliance report.</td></tr>
</table>

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 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.
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/NlTs) 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 5thJune 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 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, SO2 and NOx. 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-lA.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 Recalmation

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 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 Secretory,
Jharkhand State Pollution Control Board,
TA. Division Building
HEC, Dhurwa.
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.

Encl. - As Above

Yours faithfully
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.

Scanned with OKEN Scanner

"FORM – V"
(See rule 14)

Environmental statement for the financial year ending 31st March'2022

PART – A

Name and address of the owner / Occupier of the industry operation or process	: Sri Sanjay Kumar Singh, D.T(OP), Koyla Bhawan 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.

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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 NOx - 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

Scanned with OKEN Scanner

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: Anil 24-9-24

Name : Anil Kumar
Designation : Project Officer
Address : A.S.P. Colliery
Post: Sudamdih
Dist: Dhanbad
Jharkhand - 828126

Scanned with OKEN Scanner

भारतीय डाक
India Po
255649731IN IVR:8274255649731
RL BHOWRA SO <828302>
Counter No:1,25/06/2024,11:38
To:MEMBER SECRERTRY,RANCHI
PIN:834004, Dhurwa SO
From:PROJECT OFFICWR,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>

Bharat cokin
(A Subsidiary of Coal India Ltd)
Office of the Project Officer, Bhowra (S), Eastern Jharia Area,
P.O. Bhowra, Dist: Dhanbad (Jharkhand),PIN- 828302

Ref. No:- BCCL/EJA/BH(S)//2024/ 810

Date:- 22/06/2024

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 From – 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

21/6/24

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 of the industry operation or process : Sanjay Kumar Singh, D.T. (P&P) BCCL, 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 Statement submitted : 06.12.2023, (Ref. No: BCCL/EJA/BH(N)/2023/1518)

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	8.70 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	--	*(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 - 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

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21/6/24

Project officer

Bhowra (S) 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 From – V

Dear Sir,

Environmental Statement is Form – V is being submitted to you for financial year 2023-24 in respect of Bhowra (N) U/G Mines.

Enclosures:- 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, Koyla Bhawan
3. The Area Manager (Env.), E. J. Area, Bhow
4. Office File.

भारतीय डा
India

EJ340541815IN IVR:6974340541815
SP BHOWRA SO (828302)
Counter No:1,19/06/2024,13:09
To:THE MEMBER SECRETARY,RANCHI
PIN:834004, Dhurwa 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 of the industry operation or process	: Sri Sanjay Kumar Singh , D.T. (P&P) BCCL, 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 period and vested in BCCL through Coal MineNationalisation Act 1972-73	: Colliery operating since pre nationalization
(v)	Date of last environmental Statement submitted	: 01.12.2023, (Ref.No: BCCL/EJA/BH(N)/2023/452)

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

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15/6/24

Project officer

Bhowra (N) U/G Mines

PROJECT OFFICER
BHOWRA (N) U/G MINES

cmpdi

CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED

MINE EFFLUENT TEST REPORT

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

Test Report for Mine Effluent samples

Month & Year	03/2024	Cluster	Cluster X	ULR No.	TC1012224000000658F
Customer	Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)				
Project		Sampling Ref. No.	REM/BCCL/2024/03	Date of Issue	14.05.2024
Sampling Stations	(I)	Bhowrah North	Sample Collected in 2.5 Ltr Jerricane , Color as observed is transparent	Sampling Method	IS 3025 (Part-1) CMPDI/RI-II/LPM 13

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)	Period of analysis 04.03.2024 to 30.03.2024
			Date of Sampling	04.03.2024	18.03.2024	
			First Fortnight	Second Fortnight		
1	Total Suspended Solids	IS 3025/17:1984, R :2017, Gravimetric	42	46	100 (Max)	LDL
2	pH	IS-3025/11:1983, R-2017, Electrometric	7.78	7.81	5.5 - 9.0	10
3	Oil & Grease	IS 3025/39:1991, R : 2019, Partition Gravimetric	<2.0	<2.0	10 (Max)	0.2
4	COD	APHA 23rd Edition 5220 C Titrimetric Method	32	36	250 (Max)	2

*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	REVIEWED BY	Authorised Signatory
	(Kumar Vaibhav)	(Amit Raj Mishra)

---- End of Report ----

AMBIENT AIR QUALITY DATA

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

cmpdi

CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED

Environment Laboratory, Regional Institute -II

Ambient Air Quality Test Report

Test Report for Ambient Air Samples

Month & Year	03/2024	**Cluster**	**Cluster X**	**ULR No.**	TC10122240000000640F			**ULR No.**	TC10122240000000640F
Customer	Environment Department, Bharat Coking Coal Limited (BCCL), Koyla Bhawan, Dhanbad (E-mail: gmenv.bccl@coalindia.in)							**Date of Issue**	14.05.2024
Project	Bhowrah North			**Sample Ref. No.**	REM/BCCL/2024/03/RI-II/			**Sampling Method**	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	**Zone of Station:**	Core Zone
Sl. No.	**Parameter**	**Method of Analysis**	**Observed Values (in µg/m³)** 1st FN	2nd FN	**Range Of Testing**			**MoEF Standards Notification dated 25th September,2000 (GSR 742 E)**	**NAAQS, 2009**
1	PM_{10}	IS 5182(Part 23):2006, R-2017	132	86	10 µg/m³ - 1000 µg/m³		10 µg/m³	300	100
2	$PM_{2.5}$	IS 5182(Part 24):2019	42	29	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	30	26	06 µg/m³ - 420 µg/m³		06 µg/m³	120	80

* LDL indicates Lower Detection Limit,

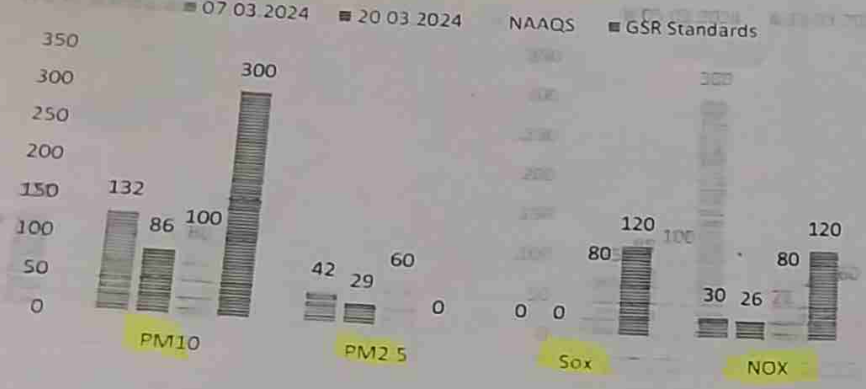
**All units are in µg/m3, 24 hourly Average,

(Gaurav Kant) **ANALYSED BY**	(Gaurav Kant) **REVIEWED BY**	(Amit Raj Mishra) Authorised Signatory	(Amit Raj Mishra) **Authorised Signatory**

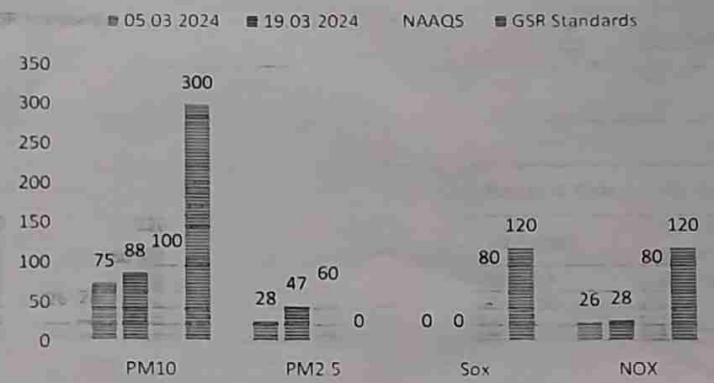
Note: The results above relate to the samples tested as received. This report can not be reproduced in part or full, without the written permission of the HOD(Env) , CMPDI, RI-II.

---- End of Report ----

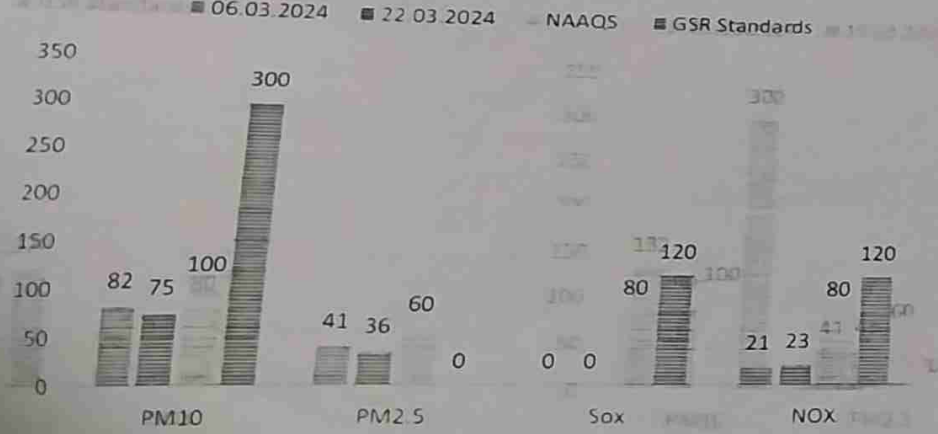
AMBIENT AIR QUALITY AT BHOWRAH NORTH



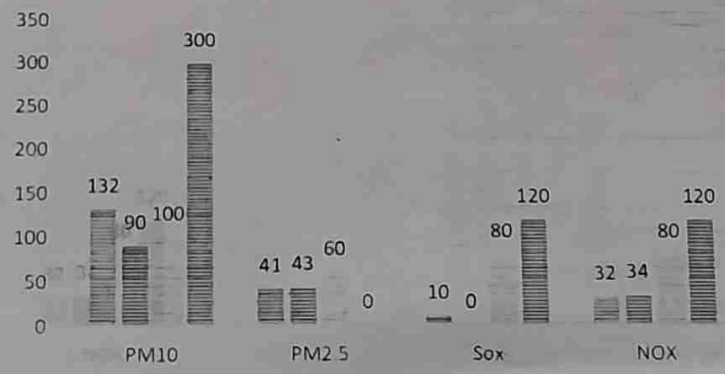
AMBIENT AIR QUALITY AT SUDAMDIH WASHERY



AMBIENT AIR QUALITY AT SUDAMDIH MINE SHAFT



AMBIENT AIR QUALITY AT JEENAGORA



ANNEXURE 38

CSR, R&R, TRANPORTATION PLAN AND ENVIRONMENTAL ACTION PLAN

OF

CLUSTER – X

AS PER

EC CONDITION (SPECIFIC CONDITION-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.

March, 2024

INTRODUCTION

Coal India has adopted CSR as a strategic tool for sustainable growth. For Coal India in the present context, CSR means not only investment of funds for Social Activity but also Integration of Business processes with Social processes. Even much before the issue of CSR became global concern; Coal India was aware of its Corporate Social Responsibility and was fulfilling the aspiration of the Society through well-defined "Community Development Policy" within the periphery of 8 Kms. of the Project sites. This has resulted into a harmonious relationship between Coal India and the peripheral Communities.

Coal India has identified land oustees, PAP and those staying within the radius of 25 Kms of the Project as primary beneficiaries. Poor and needy section of the society living in different parts of India are second beneficiaries. For carrying out CSR activities, 80% of the budgeted amount are be spent within the radius of 25 Km of the Project Site/Mines/Area HQ/Company HQ and 20% of the budget to be spent within the States in which operating.

SCOPE

As per Schedule VII Section 135 of New Companies Act 2013 the following should be the Scope of Activities under Corporate Social Activities:

i. Eradicating hunger, poverty and malnutrition, promoting healthcare including preventive health care and sanitation and making available safe drinking water.
ii. Promoting education, including special education and employment enhancing vocation skills especially among children, women, elderly, and differently able and livelihood enhancement projects;
iii. Promoting gender equality, empowering women, setting up homes and hostels for women and orphans, setting up old age homes, day care centers and such other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups;
iv. Ensuring environmental sustainability, ecological balance, protection of Flora and Fauna, animal welfare, agro-forestry, conservation of natural resources and maintaining quality of soil, air and water;
v. Protection of national heritage, art and culture including restoration of buildings and sites of historical importance and works of art; setting up public libraries, promotion and development of traditional arts and handicrafts;
vi. Measures for the benefit of armed forces veterans, war widows and their dependents
vii. Training to promote rural sports, nationally recognized sports, Paralympics sports and Olympic sports;
viii. Contribution to the Prime Minister's National Relief Fund or any other fund set up by the Central Government for socio-economic development and relief and welfare of the Scheduled Castes, the Scheduled Tribes, other backward classes, minorities and women;
ix. Contributions or funds provided to technology incubators located within academic institutions whichare approved by the Central Government;
x. Rural development projects

SOURCE OF FUND

The fund for the CSR should be allocated based on 2% of the average net profit of the Company for the three immediate preceding financial years or Rs. 2.00 per tone of Coal Production of previous year whichever is higher.

CURRENT STATUS

Healthcare: Regular Health checkup camp & Health awareness programme is organized by Bhowra Regional Hospital of E.J. Area/ Cluster X, BCCL. Details of Year wise health checkup programme / camp is given below:

I. Mobile Medical Van (MMV):

S. No.	Year (financial year)	No. of Mobile Medical VanCamp	Beneficiaries	Amount (inRs.)	Remarks
1.	2015-16	229	7012	215927.76	Till Dec. 2016

II. General Medical Camps:

S. No.	Year (financial year)	Name of Medical Camp	Beneficiaries	Date
1.	2015-16	Family Planning Camp	33	03.02.2016
2.		Family Planning Camp	40	16.02.2016

III. Health Camp organized by Bhowra Regional Hospital (BRH), E.J. Area/ Cluster X:

Year: 2019

Date	Programme Organized	No. of Beneficiaries
30.11.2019	Life Style Programme of Female Employees	80
30.12.2019	Awareness Programme of Female Employees	110

Year: 2020

Date	Programme Organized	No. of Beneficiaries
15.02.2020	Diagnostic Camp, BRH	72
20.02.2020	School Camp, Amlabad	140
29.02.2020	Diagnostic camp, Sudamdih Hospital	55
14.03.2020	Health Camp, Bhowra Area	65
21.09.2020	RAT Test (Covid 19), BRH	250
22.09.2020	RAT Test (Covid 19), BRH	122

Year: 2022

Date	Programme Organized	No. of Beneficiaries
12.05.2022	School Camp, Amlabad	72
19.07.2022	Diabetic Camp, Sudamdih Hospital	140
14.11.2022	Children Day Camp, BRH	56

Year: 2023

Date	Programme Organized	No. of Beneficiaries
04.01.2023	Mega Health Awareness Camp, BRH	141
24.11.2023	Health Awareness Camp, Amlabad	212

Highlights of CSR Work under taken during 2015-16 and 2016-17 at Cluster-X

S. No.	Details	No. of units		Total Amount (in Rs.)	Remarks
1.	Construction of toilets in various schools in Saraikela-Kharsawan district of Jharkhand under "Swachh Vidyalaya Abhiyaan"under CSR activities of BCCL.	Girls	Boys	29,548,000	Work was done by state government.
		89	89		
	Total	178		29,548,000	

PROPOSED STATUS:

CSR Work to be under taken during 2017-18 at Cluster-X

S. No.	Details	Remarks
1.	Construction of Marriage/Multipurpose Hall in Mayurdubhi (मयुरदुभी) village in Amai Nagar (आमाई नगर (Panchayat of Block Chandankyari	Proposed activity

BCCL

C.S.R. PERFORMANCE REPORT MONTHWISE
April 2015 to December 2016
BHowrah REGIONAL HOSPITAL. E.J. AREA.

MOBILE MEDICAL VAN.

Date: 29.04.2016

SL.NO.	MONTH	NO.OF.CAMP	NO.OF.BENEFICIARIES	TOTAL EXPENDITURE
1.	April 15	26	1122	₹ 39,171.33
2.	May	25	937	₹ 35,270.12
3.	June	25	941	₹ 32,950.08
4.	July	27	1028	₹ 38,685.08
5.	August	25	1003	₹ 31,288.24
6.	September	26	634	₹ 17,211.73
7.	October	24	443	₹ 7,963.19
8.	November	24	517	₹ 7870.23
9.	December	27	387	₹ 5,517.76
10.	January 16			
11.	February			
12.	March			
	Total —	229	7012	₹ 2,15,927.76

Dy.C.M.O. I/C
Sudamdih R/ Hospital
E.J.Area.

NAME OF VILLAGES COVERED UNDER CSR/MMV PROGRAMME

E.J. AREA - VILLAGES

1. Bhowrah 19 No. Basti.
2. Parghabad Basti
3. Supker Basti
4. Manjhi Basti.
5. Mohubani Basti.
6. Sheobabudih
7. Bhowrah 7No Basti.
8. Bhowrah 4 No Basti.
9. Bhowrah Jahaj Tand.
10. Thana Basti.
11. Manpur Basti.
12. Amlabad Basti.
13. New Riverside Basti.
14. Gourkhutti Basti.
15. Sawardih Basti
16. Hattala Basti.

Dy.C.M.O. I/C
Sudamdih R/Hospital

/5959

FAMILY PLANNING CAMP

E.J.AREA

1. Sudamdih R/ Hospital date - 0 3.02.2016. Beneficiaries- 33
2. Bhowrah R/ Hospital date - 16.02.2016 Beneficiaries –40

Dy.C.M.O

Sudamdih R /Hospital

Pictures showing the Health Checkup Camp & Awareness Programme organized by BRH

भारत कोकिंग कोल लिमिटेड

भारत कोकिंग कोल लिमिटेड

भारत कोकिंग कोल लिमिटेड

****

CSR BUDGET AND EXPENDITURE FOR FY 2019-20

Sl No	CSR Projects identified	Sector	Amt. Spent (₹ lakhs)
1	Deepening/renovation including construction of steps/ghats for ponds at Tundi, East Tundi & Baliapur	Ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, agroforestry, **conservation of natural resources** and maintaining quality of soil, air and water including contribution to the Clean Ganga Fund set-up by the Central Government for rejuvination of river Ganga	9.53
2	Installation of hand pumps at different locations in Dhanbad district through Dept. of drinking water and Sanitation, Dhanbad via depository mode	Eradicating hunger, poverty and malnutrition, promoting health care including preventive health care and sanitation including contribution to Swach Bharat Kosh set-up by the Central Government for the promotion of sanitation and **making available safe drinking water**	18.02
3	Medical camps under Block II Area	Eradicating hunger, poverty and malnutrition, **promoting health care including preventive health care** and sanitation including contribution to Swach Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water	0.42
4	Green Haat project at Barwa village, Govindpur block (under Swachhta Pakhwada)	Eradicating hunger, poverty and malnutrition, promoting health care including preventive health care and **sanitation** including contribution to Swach Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water	0.81
5	Sanction of the amount to Municipal Commissioner, Dhanbad for procurement of fogging machine and sprayer for Dhanbad Municipal Corporation towards tackling COVID-19, under CSR initiatives of BCCL	Eradicating hunger, poverty and malnutrition, promoting health care including preventive health care and **sanitation** including contribution to Swach Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water	10
6	Works in Pehla Kadam School- a School for the underprivilaged located at Jagjeevan Nagar	Promoting education, **including special education** & employment enhancing vocation skills especially among children, women, elderly,and the differently abled & livelihood enhancement projects	7.21

7	Works in RBB School, Rajganj	Promoting education,including **special education** & employment enhancing vocation skills especially among children,women,elderly,and the differently abled & livelihood enhancement projects	84.39
8	BCCL Ke LAAL/BCCL Ki Laadli	**Promoting education**, including special education & employment enhancing vocation skills especially among children, women, elderly, and the differently abled & livelihood enhancement projects	4.73
9	Development of smart classes in different high Schools, higher secondary Schools and other Schools in Dhanbad District for a total of 129 schools through District administration via depository mode	**Promoting education**, including special education & employment enhancing vocation skills especially among children, women, elderly, and the differently abled & livelihood enhancement projects	193.5
10	Mining Sirdars training to SC/ST candidates (preference to PAPs)	Promoting education,including special education & employment enhancing **vocation skills** especially among children,women,elderly,and the differently abled & **livelihood enhancement projects**	8.93
11	Construction of PCC road at Topchanchi Block	Rural development projects	2.12
12	Construction of Marriage Hall at Ratanpur Village, Ratanpur Panchayat, Govindpur Block	Rural development projects	33.63
13	Construction of Community Center at Jiramuri Village ,Ratanpur Panchayat, Govindpur Block	Rural development projects	1.25
14	Depository mode transfer to D.C. Dhanbad towards preparatory efforts to tackle COVID-19 situation in Dhanbad", under CSR initiatives of BCCL	Disaster Management	200
15	Depository mode transfer to Chief Minister's Relief Fund, Jharkhand	Contribution to the Prime Minister's National Relief Fund or any other fund set up by the Central Government for socio-economic development and relief and welfare of the Scheduled Castes, the Scheduled Tribes, other backward classes, minorities and women	50

16	Miscellaneous: Yoga Diwas, Handloom handing over expense, final bill settlement of constructed marriage mandap	Others	0.12
17	Liability reversed	Others	(23.4)
Total			**601.22**

CSR Works & Expenditure FY 2020-21*

(CSR Budget - ₹ 5.54 Crore)

Sl No	CSR Projects identified	District and State of Project		Amt. spent (₹ lakhs)		Direct or through agency
		District	State	Direct Exp	Overheads	
A	**Promoting education,including special education & employment enhancing vocation skills especially among children,women,elderly,and the differently abled & livelihood enhancement projects**					
1	Works in RBB School, Rajganj	Dhanbad	Jharkhand	27.57	--	Direct
B	**Rural Development Works**					
1	Construction of marriage hall at Ratanpur panchayat, Govindpur Block	Dhanbad	Jharkhand	3.73	--	Direct
2	Other Civil Works	Dhanbad	Jharkhand	1.69	--	Direct
C	**COVID-19 related initiatives**					
1	Procurement of bleaching powder	Dhanbad	Jharkhand	6.4	--	Direct
2	Procurement of face masks	Dhanbad	Jharkhand	0.16	--	Direct
3	Financial assistance to D.C. Dhanbad to combat COVID-19 situation in Dhanbad	Dhanbad	Jharkhand	200	--	Depository mode of work execution through Dhanbad district administration
	Total			**239.55**	--	

**** Figures unaudited for the FY 2020-21***

Modified CSR Annual Action Plan for FY 2021-22 - BCCL

Sl. No.	CSR Projects/Programmes	Item from the list of the activities in schedule VII of the act	Estimated Budget (₹ in Lakhs)*	Manner of execution	Implementation Schedule	Monitoring and reporting mechanism	Details of need and impact assessment **, if any
COVID related proposals							
1	Assistance to Dhanbad District Administration	Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation including contribution to the Swachh Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water. Disaster Management, including relief, rehabilitation and reconstruction activities.	100.00	BCCL	FY 2021-22	By BCCL	NA
2	Assistance to Jharkhand State Administration	Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation including contribution to the Swachh Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water. Disaster Management, including relief, rehabilitation and reconstruction activities.	25.00	BCCL	FY 2021-22	By BCCL	NA
3	Masks & hand sanitizers	Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation including contribution to the Swachh Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water. Disaster Management, including relief, rehabilitation and reconstruction activities.	0.72	BCCL	FY 2021-22	By BCCL	NA
4	Fooding & other miscellaneous heads	Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation including contribution to the Swachh Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water. Disaster Management, including relief, rehabilitation and reconstruction activities.	36.45	BCCL	FY 2021-22	By BCCL	NA
5	Boarding and lodging of frontline health workers	Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation including contribution to the Swachh Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water. Disaster Management, including relief, rehabilitation and reconstruction activities.	22.62	BCCL	FY 2021-22	By BCCL	NA

6	Sanitization of temporary quarantine centres	Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation including contribution to the Swachh Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water. Disaster Management, including relief, rehabilitation and reconstruction activities.	2.15	BCCL	FY 2021-22	By BCCL	NA
Non-COVID related proposals							
7	Training of PAPs at CIPET	Promoting education, including special education and employment enhancing vocation skills especially among children, women, elderly, and differently abled and livelihood enhancement projects.	28.00	BCCL	FY 2021-22 & FY 2022-23	By BCCL	NA
8	Development of Aanganwadis	Promoting education, including special education and employment enhancing vocation skills especially among children, women, elderly, and differently abled and livelihood enhancement projects.	263.50	BCCL	FY 2021-2022 to FY 2023-2024	By BCCL	NA
9	Swachh Vidyalaya Abhiyan Survey	Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation including contribution to the Swachh Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water.	6.96	BCCL	FY 2021-22	By BCCL	NA
10	Distribution of blankets	Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation including contribution to the Swachh Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water.	3.58	BCCL	FY 2021-22	By BCCL	NA
11	Mining sirdarship training for SC/ST candidates. Project closed in FY 2021-22 on submission of bills.	Promoting education, including special education and employment enhancing vocation skills especially among children, women, elderly, and differently abled and livelihood enhancement projects.	3.26	BCCL	FY 2021-22	By BCCL	NA
12	COVID quarantine centre. Project closed in FY 2021-22 on submission of bills.	Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation including contribution to the Swachh Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water.	3.80	BCCL	FY 2021-22	By BCCL	NA
13	Public toilet at Dhanbad	Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation including contribution to the Swachh Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water.	3.15	BCCL	FY 2021-22	By BCCL	NA

14	Gymnasium at Ambedkar Academy, Dhanbad. Project closed in FY 2021-22 on submission of bills.	Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation including contribution to the Swachh Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water.	2.35	BCCL	FY 2021-22	By BCCL	NA
15	Reversal of Financial Liability of FY 2020-21 for Medical Camps under CSR	Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation including contribution to the Swachh Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water.	-8.52	BCCL	FY 2021-22	By BCCL	NA
	Total		**493.02**				**-**

Note * - Modalities of utilisation of fund- Project wise funds shall be utilised as per project wise budget within the Delegation of Power as per rules of the Company

Note ** - As per the Companies (Corporate Social Responsibility Policy) Amendment Rules, 2021, (a) Every company having average CSR obligation of ten crore rupees or more in pursuance of subsection (5) of section 135 of the Act, in the three immediately preceding financial years, shall undertake impact assessment, through an independent agency, of their CSR projects having outlays of one crore rupees or more, and which have been completed not less than one year before undertaking the impact study.

ACTION PLAN FOR IMPLEMENTATION OF POLLUTION CONTROL MEASURES IN BCCL COMMAND AREA

SL No.	Type of Action	Activities and Executing Responsibilities	Timeline			Monitoring and Reporting	Budget
			Short term (3 to 6 Months)	Medium Term (12 Months)	Long term (24 Months)		
1	**Air Pollution Control measures**	***Covered Transportation*** A) Responsibility of CISF personnel appointed at weigh-bridge will be to maintain a Register for tarpaulin covering of coal loaded trucks. B) GMs of respective areas will insure the implementation of the above within 15 days of order/Action Plan released.	✓ ***3 Months*** *Ensuring proper mechanism of inspection and implementation of Covered truck is in Place* **Continuing**	-	-	• Area Environment Engineer • Area GM • HOD(Env), HQ BCCL	NA
2		***Permanent Pucca Transportation Road*** ***A)*** Roads under BCCL will be Paved/Black topped in Non-Coal Bearing Area ***B)*** *Cost Estimate*: Area Civil Engineer (**4 Months**) ***C)*** *Capital Indent*: Area Civil Engineer (3 Months) ***D)*** *Approvals/Tender/ Work start and completion*: Area Civil Deptt. & CED, HQ (**12 Months**)	-	-	✓	• Area Civil Engineer • Area GM BCCL	Capital Budget Respective Areas 3 crores
3		***Drilling with Dust extractor/wet drilling*** ***A)*** All Existing drills are equipped with dust containment or water injection system. All new procurements of drills shall be with dust containment system. ***B)*** *Cost Estimate*:Excavation Deptt. ***C)*** *Capital Indent*: Excavation Deptt.		✓ At present no drills procurement is in-line.		• GM Excavation • Area GM BCCL	- Capital Budget will be reapportioned as required

SL No.	Type of Action	Activities and Executing Responsibilities	Timeline			Monitoring and Reporting	Budget
			Short term (3 to 6 Months)	Medium Term (12 Months)	Long term (24 Months)		
		D) *Approvals/Tender/ Work start and completion*: E&M Deptt.					
4		***Fixed Sprinkling arrangements at Siding (preferably at height)*** ***A)*** Sprinklers shall be installed ***B)*** *Cost Estimate*: Siding in-charge & Area E&M Manager, E&M In-charge washery (3 **Months**) ***C)*** *Capital Indent*: Colliery Manager &Area E&M Manager, Area Env Engineer (**2Months**) ***D)*** *Approvals/Tender/ Work start and completion*: Area E&M Deptt. & MM deptt, HQ (7 **Months**)	-	✓	-	• Area GM • GM WCD, CCWO • HOD(Env) BCCL	Capital Budget Environment Head: 2.5 Crores. Othr Heads : 6.5 Lakhs
5		***Overhead sprinklers at Loading site*** ***A)*** At loading points overhead water showering arrangement shall be provided. ***B)*** *Cost Estimate*: Colliery Engineer& Area E&M Manager (**2 Months**) ***C)*** *Capital Indent*: Colliery Manager &Area E&M Manager (**2Months**) ***D)*** *Approvals/Tender/ Work start and completion*: Area E&M Deptt.& Project officer (**7 Months**)	-	✓	-	• Project Officer • Area GM • HOD(Env) BCCL	Capital Budget Environment Head: 2.5 Crores.
6		***Mobile sprinklers/ Mist Sprinkler*** ***A)*** Mobile sprinklers trips will be increased and Mist sprinklers procurement will be done	-	✓	-	• GM E&M • HOD (Env)	Capital Budget Environment Head: 2.5 Crores

SL No.	Type of Action	Activities and Executing Responsibilities	Timeline			Monitoring and Reporting	Budget
			Short term (3 to 6 Months)	Medium Term (12 Months)	Long term (24 Months)		
		B) *Cost Estimate*: E&M Deptt., HQ(**3 Months**) ***C)*** *Capital Indent*: Area E&M Manager (**2Months**) ***D)*** *Approvals/Tender/ Work start and completion*: MM deptt, HQ (**6 Months**)					
7		***Wheel washing ditches after weigh-bridge for tire cleansing*** ***A)*** Wheel washing arrangement shall be provided at Weigh- Bridge site ***B)*** *Cost Estimate*: Colliery Manager & Area Civil Engineer (**2 Months**) ***C)*** *Capital Indent*: Colliery Manager, Project officer&Area Civil Engineer (**2Months**) ***D)*** *Approvals/Tender/ Work start and completion*: Area E&M Deptt. & MM deptt, HQ (**6 Months**)	-	✓	-	• Project Officer, BCCL • Area GMBCCL • Project Officer, Washery, BCCL	Capital Budget New commitment
8		***Enclosure of CHP/covered crushing*** ***A)*** CHP/Crushers shall be covered ***B)*** *Cost Estimate*: Area Manager Transport & Area E&M Manager (**2 Months**) ***C)*** *Capital Indent*: Colliery Manager & Project officer (**2Months**) ***D)*** *Approvals/Tender/ Work start and completion*: Area E&M Deptt. & MM deptt, HQ (**6 Months**)	-	✓	-	• Area Manager transport • Area Manager Sales BCCL	Capital Budget New Commitment
9		***Grass covering over inactive OB dumps.*** ***A)*** Inactive OB dumps shall be identified and will be covered with	-	✓ Continuing	✓	• HOD (Env) • SRM (Min), Eco-Restoration Team	Revenue Budget Rs 5 crores

SL No.	Type of Action	Activities and Executing Responsibilities	Timeline			Monitoring and Reporting	Budget
			Short term (3 to 6 Months)	Medium Term (12 Months)	Long term (24 Months)		
		grass ***B)*** *Cost Estimate*: Area Environment Engineer (**2 Months**) ***C)*** *Proposal*: HQ Env Deptt. (**2Months**) ***D)*** *Approvals/Tender/ Work start and completion*: HQ, Env Deptt. (**6 Months**)				• Area Env Manager	
10		***Building boundaries around railway siding made of coconut choirs or GI sheets.*** ***A)*** Railway sidings will be surrounded with boundaries of GI Sheets/Coconut coir/Jute Cloths B) *Cost Estimate*: Siding in-charge & Area Civil Manager (**2 Months**) C) *Capital Indent*: Colliery Manager & Project officer (**2Months**) ***D)*** *Approvals/Tender/ Work start and completion*: Area E&M Deptt. & MM deptt, HQ (**6 Months**)	-	✓	-	• Area GM • HOD(Env) BCCL	Capital Budget New Commitment
11		***Introducing Bioswale as Pilot Project*** A) Cost Estimate: GM Civil, CED, HQ B) Capital Indent: GM Civil, CED,HQ C) Approval/Tender/Work start and completion: CED, HQ			✓	• Concerned Area GM • GM Civil • HOD(Env)	Capital Budget New Commitment

SL No.	Type of Action	Activities and Executing Responsibilities	Timeline			Monitoring and Reporting	Budget
			Short term (3 to 6 Months)	Medium Term (12 Months)	Long term (24 Months)		
12		***Fiery coal/OB should be dumped in-pit/ wetted completely before transporting*** ***A)*** Fiery coal shall not be transported on elevated OB dumps and shall be dumped in-pit/ transported after complete wetting B) Project officer & Area manager planning to site the location prior to excavating fiery coal/OB. ***C)*** Water Pools to be used for drenching of fire and wetting of fiery coal/OB ***D)*** Strict instructions to be issued from Functional Technical Directors.	✓	-	-	• Area GM • HOD (Env)	-
13		***Pollution under control Certificate to be ensured by Transporter/ BCCL transport in-charge*** A) *CMC Deptt: To be included in contracts of transporter* B) *Area Transport In-Charge shall ensure PUC is issued to all plying vehicles*	✓	-	-	Area Manager Transport HOD(Env)	-
14	**Inspection/ Monitoring measures/ Complaint Redressal**	***AAQ Monitoring*** A) 39 Air and Noise Monitoring Stations in JCF B) Stations established in consultation with JSPCB	✓ ***Ongoing***	-	-	• CMPDIL, RI-II, Dhanbad	Revenue Budget Rs 3.5 crores
15		***COAAQMS,*** A) COAAQMS shall be installed at Jagjeevan Nagar	-	✓	✓	• CMPDIL • HOD(Env) BCCL	Capital Budget Rs 3 crores

SL No.	Type of Action	Activities and Executing Responsibilities	Timeline			Monitoring and Reporting	Budget
			Short term (3 to 6 Months)	Medium Term (12 Months)	Long term (24 Months)		
		B) *Cost Estimate*: CMPDIL, RI-II, Dhanbad (**2 Months**) C) *Capital Indent*: CMPDIL, RI-II, Dhanbad (**2Months**) ***D)*** *Approvals/Tender/ Work start and completion*: CMPDIL, RI-II, Dhanbad (**6 Months**) ***Online PM10 Analyser*** Online PM10 Analyzer shall be installed at Mines and Railway sidings ***A)*** *Cost Estimate*: Area Environment Manager (**2 Months**) ***B)*** *Capital Indent*: Colliery Manager (**2Months**) ***C)*** *Approvals/Tender/ Work start and completion*: MM Deptt, HQ (**6 Months**)					
16		***Source Apportionment Study*** Work awarded to NEERI, Nagpur on 12.05.2018. Monitoring work started Final report shall be submitted in One year	-	✓	-	HOD(Env)	Revenue Budget Rs 1.41 Crores
17		***HQ Environment Deptt. review and report the status of compliances to FDs and Board*** • Structured meetings with all the areas/washeries • Inspection of Areas by HQ Compliance team	✓ ***Ongoing***	-	-	SRM (Min) HOD (Env)	-

SL No.	Type of Action	Activities and Executing Responsibilities	Timeline			Monitoring and Reporting	Budget
			Short term (3 to 6 Months)	Medium Term (12 Months)	Long term (24 Months)		
18		***All the areas to inspect each other's progress monitored under Environment Department, HQ*** ***A)*** Schedule and teams already formulated for inspections	✓	-	-	Area Inspection Team	-
18		***An Inspecting team to be formed consisting local activist/NGO for regular inspection of above practices*** ***A)*** Area Environment Committee to be formulated for monitoring of Environment Compliances (1 Month)	✓	-	-	Area Environment Committee	-
19	**Water Environment**	***Township wise STP/ETP*** ***A)*** STP will be installed in Koyla Nagar, Jagjeevan Nagar with 2 MLD capacity **DMC will collect septage for whole Jharia and Koyla Nagar, Bhuli Township** B) *Cost Estimate*: CED, HQ (3 **Months**) C) *Capital Indent*: CED, HQ (**2Months**) ***D)*** *Approvals/Tender/ Work start and completion*: CED,HQ (12 **Months**)			✓	GM (Civil)	Capital Budget: 3.85 crores
20		***Workshop effluents treatment*** ***A)*** Oil & Grease Trap B) *Cost Estimate*: Workshop In-charge (**2 Months**) C) *Capital Indent*: Workshop in-charge & Area Civil Engineer (**2Months**) ***D)*** *Approvals/Tender/ Work start and completion*: CED, HQ (8 **Months**)	-	✓	-	• Area Environment Manager • Workshop Incharge • HOD (Env) BCCL	Capital Budget: Rs 5 crores

SL No.	Type of Action	Activities and Executing Responsibilities	Timeline			Monitoring and Reporting	Budget
			Short term (3 to 6 Months)	Medium Term (12 Months)	Long term (24 Months)		
21		***Garland Drains/Retaining Walls around OB Dumps*** A) *Cost Estimate*: Area Civil Engineer & Area Survey officer (**2 Months**) B) *Capital Indent*: Area Civil Engineer, Area Environment Manager & Area Survey Officer (**2Months**) ***C)*** *Approvals/Tender/ Work start and completion*: CED, HQ (8 **Months**)	-	✓	-	• Area Civil Manager • Area GM BCCL	Capital Budget 2.00 crores
22	**Others**	***Biodiversity*** A) Plantation over OB dumps/Backfilled Areas/ Avenue & Boundary Plantation B) स्नेह स्मृति उपवन shall be developed in all areas.	✓ Eco-restoration with three tier plantation practiced. For 2019-20, plantation of area of 54 Ha will be done by State Forest Department.	✓	✓	• HOD(Env) • Area GM BCCL	Revenue Budget Plantation: 5 crores
23		***Mechanical Sweeper*** Proposal: CSR Deptt. Handed over to Dhanbad Municipal Corporation	-	✓	-	Dhanbad Municipal Corporation	CSR Budget

ACTION PLAN FOR FOREST CLEARANCE COMPLIANCE

SL No.	Type of Action	Activities and Executing Responsibilities	Timeline			Monitoring and Reporting	Budget
			Short term (3 to 6 Months)	Medium Term (12 Months)	Long term (24 Months)		
1	Soil Management	*Mitigative measures to minimize soil erosion* • Contour Trenching • Gully Plugging • Brushwood Checkdam *Cost Estimate: Area Civil Engineer* *Capital Indent: Area Civil Engineer* Rate Consultation: State Forest Department		✓		• Area Environment Engineer • Area GM • HOD(Env), HQ BCCL	**Revenue Budget** 30 Lakhs (Bastacolla Area) **Capital Budget** Bastacolla Area: 10 Lakhs Environment: 5 crores
2		*Plantation of drought hardy plant species* *Cost Estimate: Area Environment Manager* *Rate Consultation: State Forest Department*	✓ Continuing			• Area GM • HOD(Env), HQ BCCL	**Revenue Budget** Plantation: Rs 6 Crores
3		***Construction of check dams, retention/toe walls*** ***Cost Estimate: Area Civil Engineer*** ***Capital Indent: Area Civil Engineer***		✓		• Area GM • HOD(Env), HQ BCCL	**Capital Budget** Bastacolla Area: 10 Lakhs Environment Settling Pond: 5 crores
4	Demarcation	***Boundary of Safety Zone and Mining Lease*** Ensure demarcation exists for safety zone and Mining lease by erection of Concrete Pillars (4 feet high from ground)	✓ Demarcated (Safety Zone already demarcated)	✓ Mining lease will be demarcated.		• Area GM • Area Environment Manager	-

SL No.	Type of Action	Activities and Executing Responsibilities	Timeline			Monitoring and Reporting	Budget
			Short term (3 to 6 Months)	Medium Term (12 Months)	Long term (24 Months)		
5	**Others**	***Plantation in Blanks within Lease*** Area Identification: Project Officer, Concerned Colliery Cost Estimate: Area Environment Manager	-	✓	-	• Project Officer • Area GM • HOD(Env) BCCL	**Revenue Budget** Plantation Head: 6 Crores.
6		***De-silting of Village tanks and water bodies located within 5 Kms*** Identification of Site: Project Officer Cost Estimate: Area Civil Engineer	-	✓	-	• Area GMs • Area Environment Manager	**Revenue Budget** Environment Head: 2 Crores

EXISTING STATUS OF VARIOUS POLLUTION CONTROL MEASURES

ANNEXURE-1

Existing Mobile Sprinklers

Sl no.	Unit/area	Mobile Sprinklers (No.)	
		No. of Mobile Tankers	Capacity of Tankers (KL)
1	Barora Area	5	92
2	Block II	5	124
3	Govindpur Area	4	68
4	Katras Area	16	284
5	Sijua Area	11	204
6	Kusunda Area	16	170
7	PB	7	42
8	Bastacolla Area	19	240
9	Lodna Area	9	156
10	E J Area	8	112
11	W J Area	3	20
12	C V Area	6	118
13	WWZ Area	5	35.2
14	EWZ Area	2	20
TOTAL		**116**	**1685.2**

ANNEXURE-2

Existing Fixed Sprinklers:

Unit/area	No. of Fixed Sprinklers
Block II	Working (Nudkhrkhi)
Govindpur Area	Working
Katras	95
Sijua Area	10
Kusunda Area	Working (Godhur)
Lodan	10
W J Area	34
WWZ Area	143
EWZ Area	7
Total	**299**

ANNEXURE-3

Status Garland Drains

Sl. no.	Total OB dumps (Mine wise)	Dumps to be rehandled /used for backfilling and so do not require wall	Old dumps that require wall/ garland drain in Mtrs.	Work Completed as on date in Mtrs.
1	Jamunia		480	480
2	Gopalichak	Dump to be rehandled for backfilling	-	-
3	Muralidih		100	100
4	Bhowra(North)		150	150
	Bhowra(South)		150	150
5	Damoda		300	300
6	Block-IV		660	460
7	Muraidih	Dump to be rehandled for backfilling	400	400
8	Mudidih		250	250
9	Akashkinari		700	500
10	West Mudidih		-	-
11	Gaslitand		250	
12	Tetulmari	Dump to be rehandled for backfilling	-	-
13	Nichitpur		175	-
14	SendraBansjora		175	175

ANNEXURE-4

Plantation Status:

S. No.	Area/colonies	Total Plantation area (Ha)	Gabion/ Avenue / Road side Plantation	Total afforestation/ eco-restoration (Nos)
1.	Barora	320.86	1000	854908
2.	Block-II	27	570	67500
3.	Govindpur	74.5	250	184050
4.	Katras	36.78	2285	40695
5.	Sijua	97.1	1320	194230
6.	Kusunda	41.78	500	89457
7.	PB Area	28	1390	67350
8.	Bastacolla	87.2	1600	188000
9.	Lodna	85.8	1848	178655
10.	EJ Area	127.74	2500	185075
11.	WJ Area	269.4		366550
12.	CV Area	94.6	7300	238870
13.	Koyla Nagar	10.5	4450	12600
14.	Jagjivan Nagar	3.4		4080
15.	Washery division	35	125	110250
16.	CCWO Colony	2.6		3120
17.	Bhuli Township	8.9		10680
	Others			13297
Total		1350.66	25138	2809367
Total Plantation by BCCL (including Gabion/ Avenue / Road side & eco-restoration)				2834505

ANNEXURE-5

Oil & Grease Trap in Workshop

Sl no.	Area	Completed	Proposed
1	Barora	**Completed**	
2	PB	**Completed**	
3	Sinidih	**Completed**	
4	Block-II	**Completed**	
5	Sijua	**Completed**	
6	Lodna	**Completed**	
7	Govindpur		**Proposed**
8	Katras	**Completed**	
9	Bastacolla		**Proposed**
10	Kusunda		**Proposed**
11	EJ		**No Workshop**
12	CV		**Proposed**

DrillsDust suppression system status:

Sl. no.	Mine	Total No. of drills	No. of drills with dust containment system
1	Jamunia	2	2
2	Block-II	7	7
3	Damoda	3	3
4	Muraidih	5	5
5	Shatabdi	4	4
6	Akashkinari	1	1
7	Block-IV	4	4
8	AKWMC	6	6
9	Nichitpur	4	4
10	SendraBansjora	2	2
11	East Bassuria	2	2
12	Dhansar	3	3
13	ROCP	3	3
14	Ena	2	2
15	Ghanoodih	3	3
16	KOCP	3	3
17	NT/ST	4	4
18	Jeenagora	3	3
19	COCP-Bhowra	2	2
20	COCP-Patherdih	4	3
21	Dahibari-Basantimata	7	7