AN INDEPENDENT TECHNICAL REPORT ON THE COAL RESOURCES AND RESERVES OF BHARAT COKING COAL LIMITED, INDIA

Prepared under the guidelines of the Australasian Code of Reporting of Exploration Results, Mineral Resources and Ore Reserves ("the JORC Code")

Report Prepared for

Coal India Limited (CIL)

Report Prepared by

srk consulting®

December 2025

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Date	Effective December 2025
Client’s Legal Entity:	Coal India Limited
SRK Project Number:	IN1345
SRK Project Director:	Subrato K. Ghosh Corporate Consultant (Project Evaluation)
Competent Persons:	Shameek Chattopadhyay Principal Consultant (Resource Geology) Sudipta De Principal Mining Engineer Soumen Bhadra Senior Consultant (Resource Geology)

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List of Abbreviations

ABGKKC	Amalgamated Bassuriya Gondudih Khas Kusunda Colliery
ABOCP	Amalgamated Block-II Opencast Project
ADIC	Amalgamated Dhansar Industries Colliery
AEBS	Amalgamated East Bhuggatdih Simlabahal
ASGKCC	Amalgamated Salanpur Gaslitand Katras Choitudih Colliery
AGKCC	Amalgamated Gaslitand Katras Choitudih Colliery
Amal Joyrampur	Amalgamated Joyrampur Colliery
AMP Colliery	Amalgamated Muraidih Phularitand Colliery
ASP colliery	Amalgamated Sudamdih Patherdih Colliery
ASTM	American Society for Testing and Materials
BCS	Barred Carbonaceous Shale
BOM	Build-Operate-Maintain
BRLM	Book Running Key Manager
CAR	Committee on Assessment of Resources
CBM	Coal Bed Methane
CCI	Coal Council of India
CCL	Central Coalfields Limited
CHP	Coal Handling Plant
CIAL	Coal India Africana Limitada
CIL	Coal India Limited
CIMFR	Central Institute of Mining & Fuel Research
CIPET	Central Institute of Petrochemicals Engineering & Technology
CMPDI	Central Mine Planning and Design Institute
COD	Commercial Operational Date
CP	Competent Person
CPR	Competent Persons Report
CRIRSCO	Committee for Mineral Reserves International Reporting Standards
CSR	Corporate Social Responsibility
CV Area	Chanch Victoria area
DC Railway line	Dhanbad Chandrapura Railway line
DGMS	Directorate General of Mine Safety
DOC	Departmental Opencast
DPE	Department of Public Enterprises
E&M	Electrical and Mechanical
ECL	Eastern Coalfields Limited
EJ Area	Eastern Jharia Area

ESG	Environmental, Social, and Governance
EV	Electrical Vehicle
FCC	First-Class Manager's Certificate
GCV	Gross Calorific Value
GKKC	Gondudih Khas Kusunda Colliery
GoI	Government of India
GR	Geological Report
HEMM	Heavy Earth Moving Machinery
IPO	Initial Public Offering
IS	Indian Standard
ISP	Indian Standard Procedure
JCF	Jharia Coalfield
JMP	Jharia Master Plan
JORC	Joint Ore Reserve Committee
JRDA	Jharia Rehabilitation and Development Authority
KV	Kilo Volt
kWh/t	Kilowatt hour per tonne
LoM	Life of Mine
LTH	Likely to be Household
MCL	Mahanadi Coalfields Limited
Mcum	Million cubic meters
MDO	Mine Developer & Operator
MkWh	Million kilowatt-hours
MoC	Ministry of Coal
MoEF&CC	Ministry of Environment, Forest and Climate Change
MoU	Memorandum of Understanding
Mt	Million Tonnes
Mtpa	Million Tonnes per Annum
MVA	Mega Volt Ampere
MW	Megawatt
NACRI	National Committee for Reporting Mineral Resources and Reserves in India
NAKC	New Akashkinaree Colliery
NCL	Northern Coalfield Limited
NLW	Non-Linked Washery
NTST	North Tisra South Tisra
OB	Overburden
OCP	Opencast Project
PAF	Project Affected Families

PB Area	Pootki Balihari Area
PB Project	Pootki Balihari Project
PR	Project Report
PSU	Public Sector Undertaking
R&R	Resettlement and Rehabilitation
RBH drills	Reverse Rotary Borehole
RCC	Reinforced Cement Concrete
RO System	Reverse Osmosis System
ROCP	Rajapur OCP
ROM	Renovate-Operate - Maintain
RQD	Rock Quality Designation
S-I	Steel Grade-I
S-II	Steel Grade-II
TPH	Tonne Per Hour
TSL	Tata Steel Limited
W-I	Washery Grade-I
W-II	Washery Grade-II
W-III	Washery Grade-III
W-IV	Washery Grade-IV
W-V	Washery Grade-V
W-VI	Washery Grade-VI
WJ Area	Western Jharia Area

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The Board of Directors
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Dear Sirs:

1 INTRODUCTION

SRK Consulting is an independent, international consulting practice providing focused advice and solutions to clients, mainly in the mining and water resource industries. SRK Mining Services (India) Private Limited (“SRK”) is the Indian arm of the international group holding company, SRK Consulting (Global) Limited (the “SRK Group”), registered in Kolkata, India.

Coal India Limited. (“CIL”, or “the Client”, or “the Company”), an Indian public sector undertaking and the largest government-owned coal producer in the world is headquartered in Kolkata and is under the administrative control of the Ministry of Coal, Government of India. CIL has seven coal producing subsidiaries namely Eastern Coalfields Limited (ECL), Bharat Coking Coal Limited (BCCL), Central Coalfields Limited (CCL), Western Coalfields Limited (WCL), South-Eastern Coalfields Limited (SECL), Northern Coalfields Limited (NCL) and Mahanadi Coalfields Limited (MCL) and one mine planning and consultancy company called Central Mine Planning & Design Institute Limited (CMPDI). In addition, CIL has a foreign subsidiary in Mozambique namely Coal India Africana Limitada (CIAL).

BCCL, which is a wholly owned subsidiary of CIL, was established in 1972 to operate coking coal mines in the Jharia and Raniganj coalfields.

CIL is proposing to list the shares of BCCL, on the Indian stock exchanges and to raise fresh equity share capital for BCCL through prospectus based "Initial Public Offer" (IPO). A prospectus is a crucial document outlining the company's details and offering to potential investors, including the Draft Red Herring Prospectus (DRHP), the Red Herring Prospectus (RHP), and sometimes an Updated DRHP (UDRHP). The DRHP is a preliminary document filed with SEBI, while the RHP is the final version provided to investors for assessment. The UDRHP is an updated version of the DRHP incorporating SEBI's observations.

SRK has been appointed by Coal India Limited to conduct an audit of the coal resources and reserves of BCCL and to prepare a report based on this for inclusion in a prospectus to be used in connection with an initial public offering of shares to the public in India and to institutional investors outside of India. Specifically, SRK is requested to undertake sufficient work to enable it to report audited resources and reserves in line with the guidelines set out in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code).

The data reviewed by SRK included data and information of 59 coal mining projects, which included present operating mines, as well as mines in the process of being operationalised. The data shared also included a few mines which are discontinued from BCCL; those do not form part of this report.

1.1 Report Structure

This report: -

- provides a summary of BCCL's operations and the history of the Company;
- describes the coalfield geology being exploited by BCCL and their geological setting;
- summarises the mining and processing methods employed by BCCL to exploit coal;
- comments on the infrastructure and facilities BCCL generally have in place at its operations;
- includes the capacity and capacity utilization of mines and washery facilities over the past three years;
- discusses the Company's approach to environmental management;
- comments on how the Company determines the economic viability of its proposed operations;
- presents SRK audited resource and reserve statements according to the guidelines set out in the JORC Code, and finally
- comments on BCCL's Expansion plan.

1.2 Verification, Validation and Reliance

This report is dependent upon technical, financial and legal input. The technical information as provided to, and taken in good faith by SRK, has not been independently verified by means of re-calculation. SRK has however:

- conducted a review and assessment of all material technical issues likely to influence the resources and reserves as reported here;
- undertaken visits to BCCL Headquarter for discussion with BCCL and CMPDI officials;
- completed an examination of historical information and operating results made available by the Company;
- reviewed and, where considered appropriate by SRK, modified the Company's estimates and its classification of resources and reserves as of 31 March 2025;
- undertaken a review of the Company's Business Plan (the Business Plan).
- satisfied itself that such information is both appropriate and valid for use in the work undertaken; and
- undertaken all necessary investigations to ensure compliance with the JORC Code in terms of the level of disclosure.

- exercised due care in reviewing the information provided herein and believe it is both reasonable and representative.

SRK has placed reliance on the Company that the following information provided by the Company to SRK is both valid and accurate for the purpose of compiling this report:

- all technical information; and
- confirmation on the legal ownership of all mineral and surface rights

Given the extensive operating history of the Company, the thoroughness of its geological investigations and technical quality of its reporting, SRK has not found it necessary to independently verify the underlying source data for the resources and reserves presented here. SRK has no reason to believe that a more detailed analysis would reveal additional material information.

1.3 Qualifications of Consultants and Competent Persons

SRK is the Indian arm of the international group holding company SRK Consulting (Global) Limited (the “SRK Group”). The SRK Group comprises some 1,800 professional staff offering expertise in a wide range of resource and engineering disciplines with 40 offices located in 20 countries.

The SRK Group’s independence is ensured by the fact that it holds no equity in any project. This permits the SRK Group to provide its clients with conflict-free and objective recommendations on crucial judgment issues. The SRK Group has a demonstrated track record in undertaking independent assessments of resources and reserves, project evaluations and audits, Mineral Resource and Ore Reserve audits and independent feasibility studies on behalf of exploration and mining companies and financial institutions worldwide. The SRK Group has also worked with a large number of major international mining companies and their projects, providing mining industry consultancy service inputs.

This Competent Persons Report (CPR) has been prepared by SRK India and is based on the technical and economic review by a team of consultants over the last two months. These consultants and associates are specialists in the fields of geology, resource and reserve estimation and classification, open cast and underground mining, coal processing, infrastructure, environmental management and mineral economics.

The Competent Person (CP) who has supervised the production of this report is Shameek Chattopadhyay, who is a full, time employee of SRK and the Managing Director of SRK’s practice in India. Shameek Chattopadhyay, a graduate from IIT (ISM) Dhanbad, is a Resource Geologist with over 20 years’ experience in the mining industry and has been responsible for the reporting of resources on various properties internationally during the past 20 years. Shameek specializes in the authoring and auditing of resource estimates in accordance with International Reporting Codes. He is also one of the founding members of the National Committee for Reporting Mineral Resources and Reserves in India (NACRI), the committee that is overseeing the implementation of the CRIRSCO type public reporting code in India.

The Competent Persons who have responsibility for reporting of Coal Reserves is Sudipta De. Sudipta De is a Mining Engineer, a graduate from IIT Kharagpur with over 30 years of experience in the mining industry of which about 19 years is in the operation of coal mines. Sudipta De is also a First-Class Manager’s Certificate (FCC) Holder. Besides working extensively with coal projects, both opencast and underground in India, Sudipta De has worked globally across different mineral commodities.

The individuals listed below have provided input to this report and have extensive experience in the mining industry.

- Soumen Bhadra, M.Sc. (Geology), MAusIMM
- Sharmila Patra, M.Sc. (Geology)
- Subhankar Saha, M.Sc. (Geology)
- Somnath Gain, B.E. (Mining), MAusIMM
- Mrinal Sarkar, B.E. (Mining)
- Suraj Gupta, B.E. (Mining)
- Asif Ikbal, B.E. (Mining)
- Neha Saraf, MBA (Finance), CFA
- Subrato K. Ghosh, M.Tech (Mineral Exploration)
- Shameek Chattopadhyay, M.Sc (Geology), MAusIMM
- Sudipta De, B.Tech (Mining), FCC, MAusIMM

1.4 Limitations, Reliance on Information, Consent and Copyright

1.4.1 Limitations

The Company has confirmed to SRK that to its knowledge the information provided by the Company was complete and not incorrect, misleading or irrelevant in any material aspect. SRK has no reason to believe that any material facts have been withheld.

The achievability of the BCCL's Business Plan, and forecasts are neither warranted nor guaranteed by SRK. The production plan as presented and discussed herein have been proposed by the Company's management and cannot be assured being necessarily based on economic assumptions made in April 2025, many of which are beyond the control of the Company.

1.4.2 Reliance on Information

SRK's opinion regarding the Company's resources and reserves is effective 31 March 2025 and is based on information provided by the Company throughout the course of SRK's investigations, which in turn reflects various technical-economic conditions prevailing at the date of this report.

1.4.3 Declarations

SRK is not aware of anything that could reasonably be regarded as capable of affecting its ability to provide an unbiased opinion in relation to the Company's Coal Resources and Ore Reserves.

SRK does not have at the date of this report, and has not previously had any shareholding in, or other relationship with, the Company or the Mining Assets and consequently considers itself to be independent of the Company.

This report includes technical information, which requires subsequent calculations to derive subtotals, totals and weighted averages. Such calculations may involve a degree of rounding and consequently introduce an error. Where such errors occur, SRK does not consider these to be material.

1.4.4 Consent and Copyright

SRK consents to the issuing of this report in the form and content in which it is to be included in the Prospectus. A prospectus is a crucial document outlining the company's details and offering to potential investors, including the Draft Red Herring Prospectus (DRHP), the Red Herring Prospectus (RHP), and sometimes an Updated DRHP (UDRHP). The DRHP is a preliminary document filed with SEBI, while the RHP is the final version provided to investors for assessment. The UDRHP is an updated version of the DRHP incorporating SEBI's observations.

Neither the whole nor any part of this report nor any reference thereto may be included in any other document without the prior written consent of SRK regarding the form and context in which it appears.

2 COAL ASSETS

2.1 Introduction

The coal assets reviewed as part of this report preparation are 59 coal mining projects under the command area of BCCL.

The coal mines under consideration comprise:

- Jharia coalfield, Jharkhand – Coal Resources and Coal Reserves of BCCL mines in the coalfield including operating and closed mines
- Raniganj coalfield, West Bengal – Coal Resources and Coal Reserves of BCCL mines in the coalfield including operating and closed mines
- Mining, coal washing plant, equipment and infrastructure as detailed in sections, 8 and 9, respectively

2.2 Bharat Coking Coal Limited

Bharat Coking Coal Limited (BCCL) is a Public Sector Undertaking (PSU) and a subsidiary of Coal India Limited (CIL). Coal India Limited (CIL) is an Indian public sector undertaking and the largest government-owned coal producer in the world.

BCCL was incorporated in January 1972 to operate coking coal mines then operating in two coalfields in India, Jharia & Raniganj coalfields, by private companies, nationalised by the Government of India (GoI) on 16th October,1971. The mines are grouped into 13 areas (including Washery Division) for administrative convenience.

Given the historic nature of the Company's operation with numerous legacy mines and administrative areas, SRK's focus was:

- Confirming total numbers of blocks within BCCL command area;
- Confirming total number of operating mines; open cast and underground;
- Understanding mining projects which are now closed by BCCL;
- Understanding re-organisation and/or consolidation of areas undertaken by BCCL in between;
- BCCL's present plan for mine re-organisation and/or consolidation for developing bigger size opencast blocks, and
- Understanding BCCL's approach to defining Coal Resources and Coal Reserve and thereby reporting balance Coal Resources and Coal Reserves
- Historic production performance

SRK has also reviewed Geological Reports (GR) to understand BCCL approaches to exploration in working areas. SRK has also reviewed documents including Project Report for Coal Washeries and washery performance – these included documents and BCCL's business plan related to washery capacity expansion.

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2.2.1 Corporate Structure of BCCL

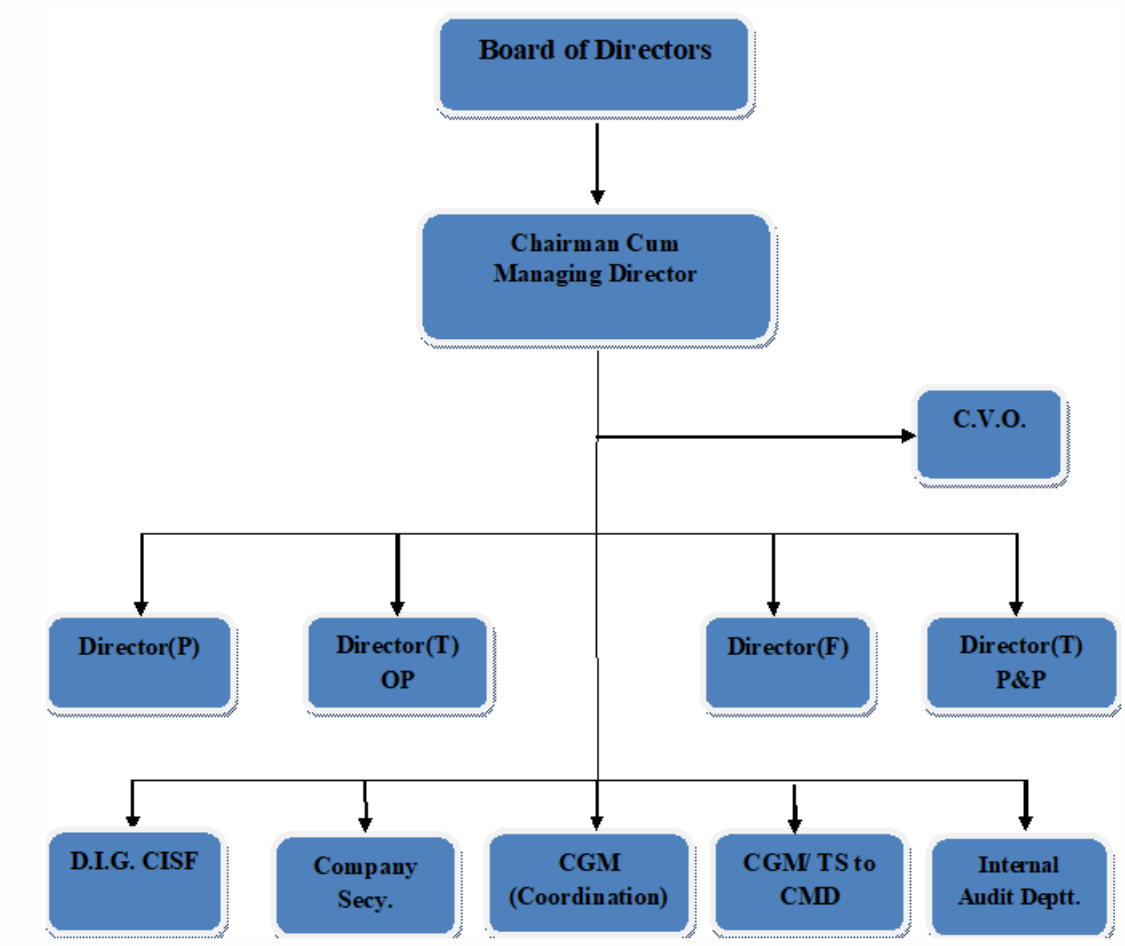


Figure 2-1: BCCL Corporate Structure *(Source: www.bcclweb.in)*

2.3 Overview of Coal Assets and Mining Operations of BCCL

At the time of its incorporation and subsequent coal mine nationalisation process in 1972, BCCL owned several underground coal mines, which were previously privately owned. Overtime, BCCL's approach to these old underground mines evolved, shaped by operational, economic, safety and environmental considerations. BCCL increasingly shifted its focus from underground to opencast mining in the Jharia coalfield, even in areas with historic underground workings.

As part of this report preparation, SRK has reviewed Data/reports of 59 coal mining projects, which included present operating mines, as well as mines in the process of being operationalised/re-started. The data shared also included a few mines which are discontinued from BCCL; those do not form part of this report.

Table 2-1: BCCL – Summary of Existing Operating Mine

Sl. No.	Mine Name	Capacity (Mtpa)# (As per Approved MP/MCP/PR)	Leasehold Area (Ha)	Type of Mine			Coal Field	District	State	Status	Grade	Coal Production in (tonnes)				
				UG	OC	Mixed						FY 2025- 26 (H1)	FY 2024-25 (H1)	FY 2024-25	FY 2023-24	FY 2022-23
1	Damoda Colliery	0.90	575.00		OC		Jharia	Bokaro	Jharkhand	Producing	W-IV	161208	55036	280612	555780	519565
2	Amalgamated Muraidih Phularitand (AMP) Colliery	9.90	1118.71			Mixed	Jharia	Dhanbad	Jharkhand	Producing	W-IV, W-V	1403966	2851283	5719904	4859839	1930899
3	Amalgamated Block-II Mine (ABOCP)	5.65	906.63			Mixed	Jharia	Dhanbad	Jharkhand	Producing	W-IV, W-V	2521378	2649467	5733903	5357445	4678155
4	Amalgamated Block-IV Govindpur Colliery (ABGC)	3.60	1420.61		OC		Jharia	Dhanbad	Jharkhand	Producing	W-V	43825	97350	362200	228070	182010
5	Jogidih			UG			Jharia	Dhanbad	Jharkhand	Producing	W-IV	2281.703	6179.426	12673.122	12251.07	12182
6	Maheshpur			UG			Jharia	Dhanbad	Jharkhand	Producing	W-IV	16248.1	13868.8	29734.1	29481	33529
7	New Akashkinaree Colliery (NAKC)					Mixed	Jharia	Dhanbad	Jharkhand	Producing	W-III, W-IV	210528	276288	837136	706494	615557
8	Amalgamated Keshalpur West Mudidih Colliery (AKWMC)	5.51	325.10		OC		Jharia	Dhanbad	Jharkhand	Producing	W-IV	897906	1298812	2716972	3100195	3809060
9	Amalgamated Salanpur Gaslitand Katras Choitudih Colliery (ASGKCC)	1.40	515.51			Mixed	Jharia	Dhanbad	Jharkhand	Producing	W-IV	722	969	9576	19496	144102
10	Kankanee Colliery	0.92	201.08		OC		Jharia	Dhanbad	Jharkhand	Producing	W-II	21630	274890	367860	334410	206910
11	Nichitpur Colliery	3.50	399.63		OC		Jharia	Dhanbad	Jharkhand	Producing	W-II	326683	598599	1140131	1793614	1733569
12	Sendra Bansjora				OC		Jharia	Dhanbad	Jharkhand	Producing	W-IV, W-V	1012053	177804	648582	600891	726928
13	Tetulmari	1.38	178.90		OC		Jharia	Dhanbad	Jharkhand	Producing	W-IV, W-V	0	14900	14900	317755.2	280250
14	Bansdeopur Colliery	0.67	104.72		OC		Jharia	Dhanbad	Jharkhand	Producing	W-V	34950	48150	88300	140250	142536
15	Mudidih Colliery	1.80	378.05		OC		Jharia	Dhanbad	Jharkhand	Producing	W-II	180004	622023	905251	823368	665400
16	Amalgamated-Dhansar-Industry-Colliery	1.60	276.62		OC		Jharia	Dhanbad	Jharkhand	Producing	W-II, W-IV	363718	306810	854299	790018	636348
17	New Godhur-Kusunda-Alkusa Colliery	1.50	320.09		OC		Jharia	Dhanbad	Jharkhand	Producing	W-IV	689510	680240	1439640	1208020	1028120
18	East Bassuriya Colliery	1.50	141.07		OC		Jharia	Dhanbad	Jharkhand	Producing	G-6, W-V	93366	134860	348304	142182	0
19	ENA Colliery	4.50	216.00		OC		Jharia	Dhanbad	Jharkhand	Producing	W-III, W-IV	404073	1169000	2930000	2997885	2548562

Sl. No.	Mine Name	Capacity (Mtpa)# (As per Approved MP/MCP/PR)	Leasehold Area (Ha)	Type of Mine			Coal Field	District	State	Status	Grade	Coal Production in (tonnes)				
				UG	OC	Mixed						FY 2025- 26 (H1)	FY 2024-25 (H1)	FY 2024-25	FY 2023-24	FY 2022-23
20	Gondudih-Khas Kusunda Colliery	2.00	410.00		OC		Jharia	Dhanbad	Jharkhand	Producing	W-IV, G-5, G-7, G-9	420080	441050	1111000	1451000	1916980
21	Gopalichuck Colliery	0.50	226.00		OC		Jharia	Dhanbad	Jharkhand	Producing	W-I, W-II	188096	179110	449110	357825	171540
22	Bastacolla Colliery	1.80	239.45		OC		Jharia	Dhanbad	Jharkhand	Producing	W-IV	1054440	1188180	2099740	2099500	1804700
23	Rajapur OCP	1.97	207.48		OC		Jharia	Dhanbad	Jharkhand	Producing	W-IV	21466	556088	556088	2157673	1641686
24	Amalgamated Bera-Dobari-Kuya Colliery	4.24	753.47		OC		Jharia	Dhanbad	Jharkhand	Producing	W-IV, W-V	254291	1167235	1910420	2799785	2721715
25	Amalgamated N.T.S.T. Jeenagora Colliery	8.50	1633.53		OC		Jharia	Dhanbad	Jharkhand	Producing	W-IV, W-V	3192785	1727770	5343635	4767115.6	6048770
26	Kujama Colliery				OC		Jharia	Dhanbad	Jharkhand	Producing	W-II, W-IV	457850	431475	766025	587510	0
27	Amalgamated Joyrampur Colliery	2.51	1186.97		OC		Jharia	Dhanbad	Jharkhand	Producing	W-II, W-III	208596.1	362160	807510	706025	0
28	Amalgamated Bhowrah North South Colliery	2.50	780.41		OC		Jharia	Dhanbad	Jharkhand	Producing	W-II	1134406	1182230	1745828	706832	362334
29	Amalgamated Sudamdih-Patherdih Colliery	0.55	498.61		OC		Jharia	Dhanbad	Jharkhand	Producing	W-II, W-IV	30030	76140	136200	410820	432012
30	Basantimata-Dahibari Colliery	1.30	385.68		OC		Raniganj	Dhanbad	Jharkhand	Producing	W-IV, G-8	220420	266436	516436	546012	625970
31	Kalyaneshwari Group of Mines (Damagoria Colliery)	4.00	1228.09		OC		Raniganj	Pashchim Burdwan	West Bengal	Producing	W-II	42192	0	129816	0	0
32	Moonidih Colliery	3.20	2063.45	UG			Jharia	Dhanbad	Jharkhand	Producing	W-II	131430	239641	489610	483600	552695
33	Kharkharee Colliery*	0.09	584.00	UG			Jharia	Dhanbad	Jharkhand	Discontinued	W-IV, G-8	0	768.38	768.38	5283.94	6827
34	PB Project Colliery Coal Mine	2.70	731.00	UG			Jharia	Dhanbad	Jharkhand	Producing	W-IV, G-7	6138	0	0	0	0
35	Kenduadih Colliery	0.20	217.54		OC		Jharia	Dhanbad	Jharkhand	Producing	W-I,W-II	0	0	0	0	0
	Total BCCL	80.29	18222.57	5	26	4						15746269	19094812	40502164	41096426	36178911

Note:

- Kharkharee Colliery was discontinued in April 2024. Accordingly, there are 34 operational mines as on 30.09.2025.

2.4 Mining Rights

The leases and rights which are held by BCCL and which entitle BCCL to carry out mining activities are granted to BCCL pursuant to either (i) the grant of deemed mining lease pursuant to Section 5(2) of the Coal Mines (Nationalisation) Act, 1973 and Section 7(2) of Coking Coal Mines (Nationalisation) Act, 1972; or (ii) grant of mining rights pursuant to the Coal Bearing Areas (Acquisition & Development) Act, 1957 (CBA Act).

The mining rights for certain mines granted pursuant to Section 5(2) of the Coal Mines (Nationalization) Act, 1973 and Section 7(2) of Coking Coal Mines (Nationalisation) Act, 1972, enjoy the status of a deemed lessee of the concerned State Government in relation to all the nationalised coal mines. Prior to nationalisation, the coal mines were vested in private lessees. Pursuant to the nationalisation of the coal industry under the Coal Mines (Nationalisation) Act, 1973 and Coking Coal Mines (Nationalisation) Act, 1972 and the vesting of the land, BCCL was granted mining rights replacing the erstwhile lessees under the Mineral Concession Rules, 1960, as amended (MC Rules).

BCCL has been granted rights to some of its mines pursuant to Section 11(1) of the Coal Bearing Area (Acquisition and Development) Act, 1957. Under the CBA Act, BCCL acquired Mining Rights. Because of the acquisition of Mining Rights under CBA Act, BCCL is not required to obtain separate leases under the Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act) from the relevant State Government with respect to these.

The leases acquired by BCCL through Coal Mines (Nationalization) Act, 1973 and Coking Coal Mines (Nationalisation) Act, 1972 are revalidated through The Coal India (Regulation of Transfers and Validation) Act, 2000 for further 30 years. Which was further revalidated to 2050 as per the rule no. 3 (2) of Mineral Concession (Amendment) Rules, 2021.

BCCL is required to acquire the land and associated surface rights overlying coal resources prior to commencing mining activities on such land. Surface rights are acquired under the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (RFCTLARR Act, 2013), CBA Act and Transfer of Property Act, 1882.

Surface land is acquired by BCCL under the RFCTLARR Act, 2013, which enables acquisition of land by public sector companies such as BCCL for a “public purpose”. Land acquired under the RFCTLARR Act, 2013 vests in BCCL as freehold land.

2.5 BCCL Reorganisation Plan

In a review meeting of BCCL held on 28.12.2020 by CIL, it was proposed to increase the coal production of BCCL by reorganization and consolidation of selected small mining areas within the Jharia Coalfields into larger blocks.

Considering important surface features like for river/jore, and surface infrastructures like rail, road etc., part of the Jharia Coalfield lying north of Dhanbad-Chandrapura (DC) railway line is proposed to be reorganized to seven larger size Opencast Block (OCP) blocks, viz. Block A to Block G. The objective is to maximise coal resource utilisation and production enhancement deploying mass production technology.

It was decided and agreed that the lower most coal seam for these re-organised OCPs will be Seam-I, with maximum depth up to 300 m or up to DC line on the south: Figure 2-2.

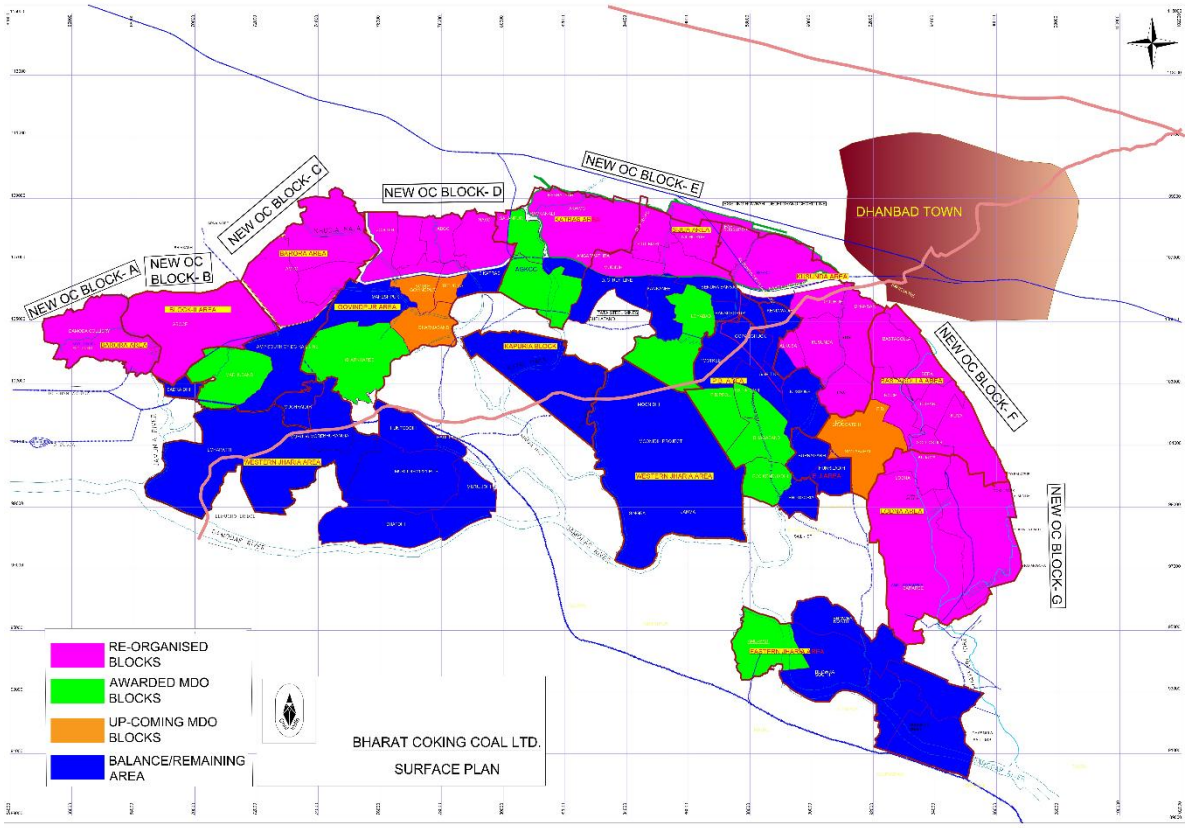


Figure 2-2: Map showing location of reorganised blocks (Magenta), Blocks Awarded to MDO (Green), Shortlisted blocks (Orange) and Remaining blocks (Blue)

(*Source: BCCL*)

Dedicated feasibility study to produce Project Reports are in progress for these reorganised blocks. As of this report, Project Reports were available for Block-D and Block-E.

Based on communication from BCCL, some of the Project Reports (example for Block-F), are expected to be finalized by the end of FY 2025-26.

SRK has received two primary datasets from BCCL, viz. Resource Data, comprising information on coal resources with quality classes. The resource figures are based on Geological Reports (GR) or Mining Plans. In few instances, multiple mines were reported as consolidated unit (resource unit) as per GR or Mining Plan, rather than as individual mines.

Reserve Data: this dataset provides reserve information for 59 coal mines with corresponding quality classifications.

Table 2-2 presents SRK's understanding of BCCL's reorganisation plan.

Table 2-2: BCCL Mines and their Reorganisation Plan

Coalfield	Mine Block	Re-organised Block/to be Consolidated	Mine Type	Existing Status
Jharia	Damoda Colliery	Block-A	OC	Producing
Jharia	Amalgamated Block II Opencast Project (ABOCP)	Block-B	OC	Producing
Jharia	Pure Benedih- Block-B UG Mine		UG	Not Producing

Coalfield	Mine Block	Re-organised Block/to be Consolidated	Mine Type	Existing Status
Jharia	Pure Benedih- Block-C UG Mine*	Block-C	UG	Producing
Jharia	Amalgamated Muraidih Phularitand (AMP) OCP		OC	Producing
Jharia	Block-D	Block-D	OC	Producing (includes 3 operational mines as on date namely Amalgamated Block-IV Govindpur Colliery (ABGC), Jogidih & New Akashkinaree Colliery (NAKC)
Jharia	Block-E	Block-E	OC	Producing (includes 7 operational mines as on date namely Amalgamated Keshalpur West Mudidih Colliery (AKWMC), East Bassuriya Colliery, Basseriya Gondudih-Khas Kusunda Colliery, Mudidih, Nichitpur, Sendra Bansjora & Tetulmari)
Jharia	Amalgamated NTST-Kujama OCP	Block-G	OC	Producing (includes 2 operational mines namely Amalgamated N.T.S.T. Jeenagora Colliery & Kujama Colliery)
Jharia	Amalgamated Joyrampur Colliery		OC	Producing
Jharia	Amalgamated Salanpur Gaslitand Katras Choitudih Colliery (ASGKCC)	Awarded to MDO	Mixed	Includes Salanpur and AGKCC; Only AGKCC-Producing
Jharia	Madhuband Colliery	Awarded to MDO	Mixed	Being Operationalised
Jharia	Kharkharee Colliery	Awarded to MDO	UG	
Jharia	Loyabad Colliery	Awarded to MDO	UG	
Jharia	Amlabad Colliery	Awarded to MDO	UG	
Jharia	PB Project Colliery	Awarded to MDO	Mixed	Producing
Jharia	Dharmabandh Colliery	Shortlisted for MDO	UG	Tender Cancelled
Jharia	Amalagamated East Bhuggatdih Simlabahal (AEBS) Colliery	Shortlisted for MDO	UG	
Jharia	New Godhur-Kusunda-Alkusa Colliery	Block F (PR yet to be formulated)	OC	Producing
Jharia	New Godhur Kusunda UG		UG	Not Producing
Jharia	Amalgamated-Dhansar-Industry_Colliery (ADIC)		OC	Producing
Jharia	Ena Colliery		OC	Producing
Jharia	Bastacolla OCP		OC	Producing
Jharia	Rajapur OCP (ROCP)		OC	Producing
Jharia	Amal Bera-Dobari-Kuya-Ghanudih		OC	Producing
Jharia	Kendwadih	Remaining Area	OC	Producing
Jharia	Gopalichuck	Remaining Area	OC	Producing
Jharia	NAKC (part) south of DC rail line	Remaining Area	OC	Not Producing

Coalfield	Mine Block	Re-organised Block/to be Consolidated	Mine Type	Existing Status
Jharia	Amal Burragarh-Hurriladih-Butgoria	Remaining Area	UG	Discontinued
Jharia	Lohapatti Colliery	Remaining Area	UG	Discontinued
Jharia	Chandrapura OCP	Remaining Area	OC	Not Producing
Jharia	Maheshpur	Remaining Area	Mixed	Producing
Jharia	Kankanee	Remaining Area	OC	Producing
Jharia	Bansdeopur	Remaining Area	OC	Producing
Jharia	Kujama west of Chatkari Jore	Remaining Area		Not Producing
Jharia	Bhowrah (North+South) UG	Remaining Area	UG	Not Producing
Jharia	Amalgamated Bhowrah North South OCP	Remaining Area	OC	Producing
Jharia	Amalgamated Sudamdih-Patherdih (ASP) Colliery	Remaining Area	OC	Producing
Jharia	Sudamdih Shaft	Remaining Area	UG	Discontinued
Jharia	Moonidih Colliery	Remaining Area	UG	Producing
Jharia	Kapuria	Remaining Area	UG	Not Producing
Jharia	Murulidih	Remaining Area	UG	Temporary Closed
Jharia	Murulidih 20 21	Remaining Area	UG	Discontinued
Jharia	Bhatdih	Remaining Area	UG	Temporary Closed
Jharia	Padugoda	Remaining Area	UG	Temporary Closed
Jharia	Hantoodih	Remaining Area	UG	Temporary Closed
Jharia	Muchraidih	Remaining Area	UG	Temporary Closed
Jharia	Bhurungia	Remaining Area	UG	Temporary Closed
Jharia	Pootkee & KB 56	Remaining Area	UG	Discontinued
Jharia	Mudidih South of DC rail line (Bhadruchuck)	Remaining Area		Not Producing
Jharia	Kustore	Remaining Area	UG	Discontinued
Jharia	West Mohuda	Remaining Area	UG	Discontinued
Raniganj	Begunia	Remaining Area	UG	Discontinued
Raniganj	Dahibari Basantimata	Remaining Area	OC	Producing
Raniganj	Ramakrishna	Remaining Area	OC	Discontinued
Raniganj	Jhunkundar New Laikdih	Remaining Area	UG	Temporary Closed
Raniganj	Chanch Laikhdih deep	Remaining Area	UG	Temporary Closed
Raniganj	Victoria West	Remaining Area	UG	Temporary Closed
Raniganj	Victoria	Remaining Area	OC	Discontinued
Raniganj	Kalyaneshwari OCP (Damagoria Colliery)	Remaining Area	OC	Producing

Note: Pure Benedih- Block-C UG Mine is the underground part of the Amalgamated Muraidih Phularitand (AMP) Mine.

	Reorganised OCP Blocks A-G; Except F
	Mines awarded for revenue share in MDO mode
	Mines shortlisted for revenue share in MDO mode
	Remaining mines in Block F
	Mines in Balance/Remaining Area of BCCL

As evident from discussion with BCCL, the reorganisation and operationalising the plan is still a work-in-progress. A case in point is Block-F. While a boundary has been drawn and GR produced, it is not yet firm which all mines (in full and in part), will finally form part of Block-F. Project Report work will follow thereafter.

2.6 BCCL Expansion Plan

2.6.1 BCCL Expansion Plan and Vision

Bharat Coking Coal Limited (BCCL) which produces bulk of the coking coal in the country, achieved significant milestones and joined the dividend paying subsidiary companies of Coal India Limited in the year FY 2023-24. This was the first time in history that BCCL could wipe out its accumulated losses from the books of accounts besides achieving an all-time high production of 41.10 million tonnes of raw coal.

Table 2-3: Historic Coal Production

Year	Planned Coal Production (Mt)	Actual Coal Production (Mt)
2015-16	35.85	35.86
2016-17	37.04	37.04
2017-18	40.50	32.61
2018-19	38	31.05
2019-20	36	27.73
2020-21	29	24.67
2021-22	30	30.51
2022-23	32	36.18
2023-24	41	41.10
2024-25	45	40.50
2025-26 (H1)	21.88	15.75

Table 2-4: Mine type wise Coal production in last 3 years

Particulars	Fiscal 2026 (H1)		Fiscal 2025 (H1)		Fiscal 2025		Fiscal 2024		Fiscal 2023	
	Production (in million tonnes)	Percentage of total coal production	Production (in million tonnes)	Percentage of total coal production	Production (in million tonnes)	Percentage of total coal production	Production (in million tonnes)	Percentage of total coal production	Production (in million tonnes)	Percentage of total coal production
Opencast mines	15.41	97.87%	18.54	97.08%	39.36	97.19%	40.33	98.13%	35.49	98.09%
Underground mines	0.33	2.13%	0.56	2.92%	1.14	2.81%	0.77	1.87%	0.69	1.91%
Total	**15.75**	**100.00%**	**19.09**	**100.00%**	**40.5**	**100.00%**	**41.1**	**100.00%**	**36.18**	**100.00%**

Note: The above production figures include coal produced from mixed mines which are appropriately covered under respective method of mining i.e. Underground and Opencast.

Table 2-5: Detail of the Coal Capacity Utilization in last 3 years

KPI		Opencast	Underground	Total
FY 2025-26 (H1)	**6-month Normative Production Capacity (Mt)**	35.25	4.90	**40.15**
	6-month Actual Production (Mt)	15.41	0.33	**15.75**
	Coal Capacity Utilization (%)	43.72%	6.83%	**39.22%**
FY 2024-25 (H1)	**6-month Normative Production Capacity (Mt)**	34.40	4.35	**38.75**
	6-month Actual Production (Mt)	18.54	0.56	**19.09**
	Coal Capacity Utilization (%)	53.89%	12.81%	**49.28%**
FY 2025	**Normative Production Capacity (Mtpa)**	68.80	8.69	**77.49**
	Actual Production (Mt)	39.36	1.14	**40.50**
	Coal Capacity Utilization (%)	57.21%	13.12%	**52.26%**
FY 2024	**Normative Production Capacity (Mtpa)**	58.43	6.51	**64.94**
	Actual Production (Mt)	40.33	0.77	**41.10**
	Coal Capacity Utilization (%)	69.02%	11.83%	**63.29%**
FY 2023	**Normative Production Capacity (Mtpa)**	58.43	6.06	**64.49**
	Actual Production (Mt)	35.49	0.69	**36.18**
	Coal Capacity Utilization (%)	60.74%	11.39%	**56.10%**

Notes:

- 6-month Normative Production Capacity (Mt) for the period FY 2025-26 (H1) and (FY 2024-25 (H1), refers to the standard quantity of coal planned to produce annually divided by 2, as per the approved Mining Plan/PR
- Normative Production capacity refers to the standard quantity of coal planned to produce annually, as per the approved Mining Plan/PR.
- Actual production/6-month Actual Production represent quantum of coal produced from the mine in the relevant Fiscal/6-month.
- Capacity utilization has been calculated on the basis of the actual production in the relevant fiscal divided by the Normative Production Capacity.
- The above production figures include coal produced from mixed mines which are appropriately covered under respective method of mining i.e. Underground and Opencast.

Table 2-6: Coal type wise Coal production in last 3 years

Fiscal	Raw Coal				
	Coking Coal		Non-Coking Coal		Total
	Production (in million tonnes)	Percentage of total coal production	Production (in million tonnes)	Percentage of total coal production	
Fiscal 2026 (H1)	15.05	96%	0.70	4%	**15.75**
Fiscal 2025 (H1)	18.39	96%	0.70	4%	**19.09**
Fiscal 2025	38.89	96%	1.61	4%	**40.50**
Fiscal 2024	39.11	95%	1.99	5%	**41.10**
Fiscal 2023	33.72	93%	2.46	7%	**36.18**

BCCL plans to augment its coal production in the next 5 to 6 years.

Besides planning to augment production, BCCL has chalked down a '**Vision Plan'** for the company going ahead. While it has initiated work on some of them, the key milestones it plans to achieve are:

A. Operationalization of all its discontinued underground mines through MDO mode on revenue sharing basis

B. Monetization of old washeries

C. Setting up new washeries under BOM (Build-Operate-Maintain) model

D. Renovation of existing washeries under ROM (Renovate-Operate-Maintain) model

E. BCCL-Tata Steel Limited (TSL) Washing Venture

F. Coal Bed Methane Projects

G. Solar Power Projects

H. Establishment of Eco-Parks over some degraded mined out areas and OB dump sites

I. Introduction of Highwall Mining Technology for the first time in BCCL

2.6.2 Strategy towards the Washery Business

As per its Vison 2047, BCCL aims to boost its washing capacity to more than 26Mtpa with production of washed coal being more than 8 Mtpa.

As of September 30, 2025, BCCL has an operable coking coal washery capacity of 13.65 million tonnes per annum across five facilities located at Moonidih, Madhuband, Dahibari, Patherdih NLW, and Madhuband NLW., and Madhuband NLW. Additionally, under a contractual arrangement with a Tata Steel, BCCL is utilizing 1.70 million tonnes per annum of idle washery capacity of Tata Steel washery at Dhanbad, Jharkhand.BCCL has undertaken the construction and modernization of several washeries with capital investments to strengthen its coal beneficiation infrastructure and promote self-reliance in coking coal. A 5.0 Mtpa Madhuband NLW Washery recently commenced commercial operations in November 2023. A 2.0 Mtpa Bhojudih Washery is nearing completion. A 2.5 Mtpa Patherdih-II NLW Washery is currently under construction. Additionally, tender for a new 2.5 Mtpa Moonidih coking coal washery is expected in 2025-26. Simultaneously, the existing Moonidih coal washery is undergoing renovation, which will double its operable capacity from 0.8 Mtpa to 1.6 Mtpa. Other than this, BCCL has also entered into agreement to utilize idle capacity of their Washeries to wash BCCL's coal. In addition to this, BCCL is undertaking monetization of its old and non-operational washeries under the Washery Development & Operations (WDO) model.

2.6.3 Vision Plan - Other initiatives

A. Operationalization of discontinued mines through MDO mode on revenue sharing basis

As part of its diversified business strategy, the company has initiated steps to restore operations in discontinued underground mines through the MDO model on a revenue-sharing basis. A total of 10 mines were shortlisted for the restoration and company aims towards a new source of earning through the same.

The status of the MDO projects under revenue share basis is summarised below:

Table 2-7: Summary of the BCCL MDO Projects

#	Name of the Mine	Location	PRC (Mtpa)	% Revenue Share of authority	Remarks
1	Amalgamated Salanpur Gaslitand Katras Choitudih Colliery (ASGKCC)	Dhanbad, Jharkhand	1.40	9.00	Mining Plan approved in 415th BCCL Board on 05.12.2024. Appointed date assigned 16.12.2024.
2	PB Project Colliery	Dhanbad, Jharkhand	2.70	6.00	Mining Plan approved in 418th BCCL Board on 21.02.2025 after scrutiny & vetting by CMPDI. Appointed date has been declared on 05.04.2025.
3	Loyabad Colliery	Dhanbad, Jharkhand	1.29	7.29	Mining Plan approved in 426th BCCL Board held on 18.07.2025. The Mine Operator has exercised his option for termination of the contract after preparation of the Detailed Project Report (DPR), on the grounds that the project is not economically viable for mine operator. Proposal is under scrutiny.
4	Kharkharee Colliery	Dhanbad, Jharkhand	1.20	12.02	Mining Plan approved on 25.06.2025. Appointed date has been declared on 05.09.2025.
5	Madhuband Colliery	Dhanbad, Jharkhand	1.50	5.40	Mining plan approved in 416th BCCL Board held on 30.12.24. DPR submitted on 05.02.2025. Notice of reopening to DGMS and procurement of all applicable permits is under process.
6	Amlabad Colliery	Dhanbad, Jharkhand	0.30	4.10	Compliance of Condition precedent is under process.
Project Under Tendering and Review					
7	Amalgamated Dharmabandh Colliery	Dhanbad, Jharkhand	Tender cancelled on 29.05.2025.		
8	Amalgamated East Bhuggatdih Simlabahal (AEBS) Colliery	Dhanbad, Jharkhand	Tender canceled on 06.03.2025 due to technical reasons.		
9	Begunia Colliery	Paschim Bardhaman district, West Bengal	Sent to CMPDIL for Revising Mine Profile. Exploration of Lower Seams is required.		

With strong participation from MDO operators in restoring discontinued underground mines of BCCL, an important shift towards exploring new revenue sources is anticipated.

B. Monetization of Old Washeries and performance of the Existing Washeries

BCCL's initiative to monetize old washeries is the first of its kind in India, aimed at boosting the production and utilization of indigenous washed coking coal for steelmaking, aligning with the Government of India's Atmanirbhar Bharat vision.

In this context, BCCL approved the Monetization of 4 of its old existing Washeries and work was awarded to SBI Cap as transaction advisor for preparation of transaction plan of monetization of these washeries. The status of the transaction plan of the 4 washeries is provided in the table below:

Table 2-8: Monetization of Old Washeries – Status

#	Washery	Capacity (Mtpa)	Status
1	Dugda	2	The Award for monetization of old existing 2.0 Mtpa Dugda Coal Washery was approved in 419th BCCL Board on 18.03.2025. Subsequently, Letter of Intent (LOI) was issued to "JSW Steel Ltd in consortium with JSW Energy (Utkal) Limited" on 28.03.2025. BCCL will provide land and linkage for coal for 25 years under the contract. Washery Developer Operator will construct / renovate washery.
2	Sudamdih	1.6	Tender for old existing 1.6 Mtpa Sudamdih Coal Washery is published on 28.03.2025.
3	Madhuband	2.5	Some forest land is involved and as per guidelines forest land cannot be subleased. Therefore, BCCL is exploring other options to effectively utilize this washery.
4	Mohuda	0.6	Valuation of old existing 0.63 Mtpa Mohuda Coal Washery is completed, and Transaction Plan are under process and proposal for the Monetization of Mohuda Coal Washery would be placed in the upcoming BCCL Board meeting.

Table 2-9: Summary on Operating Washeries (30.09.2025)

Sl. No.	Name of Washery	Location	Type of Washery	Production Capacity (Million Tonnes per Year)	Operated by
1.	Moonidih	Dhanbad, Jharkhand	Coking	0.80	Self
2.	Madhuband	Dhanbad, Jharkhand	Coking	1.25	Self
3.	Dahibari	Dhanbad, Jharkhand	Coking	1.60	BOM Operator
4.	Patherdih (NLW)	Dhanbad, Jharkhand	Coking	5.00	BOM Operator
5.	Madhuband (NLW)	Dhanbad, Jharkhand	Coking	5.00	BOM Operator
Total				**13.65**	

Table 2-10: Washery Performance in last 3 years

Washery Name	6-month Installed Capacity	6-month Operable Capacity	Raw Coal Feed	Capacity Utilization
	(Mt)	(Mt)	(Mt)	%
Fiscal 2026 (H1)				
Moonidih	0.80	0.40	0.21	**52.50%**
Madhuband	1.25	0.63	0.03	**4.10%**
Dahibari	0.80	0.80	0.16	**20.38%**
Patherdih NLW	2.50	2.50	0.72	**28.92%**
Madhuband NLW	2.50	2.50	0.82	**32.84%**
Total	7.85	6.83	1.94	**28.46%**
Fiscal 2025 (H1)				
Moonidih	0.80	0.40	0.38	**94.25%**
Madhuband	1.25	0.63	0.11	**17.76%**
Dahibari	0.80	0.80	0.23	**28.50%**
Patherdih NLW	2.50	2.50	0.79	**31.40%**
Madhuband NLW	2.50	2.50	0.43	**17.16%**
Total	7.85	6.83	1.93	**28.28%**
Washery Name	**Installed Capacity**	**Operable Capacity**	**Raw Coal Feed**	**Capacity Utilization**
	(Mtpa)	**(Mtpa)**	**(Mt)**	**%**
Fiscal 2025				
Moonidih	1.60	0.80	0.70	**87.50%**
Madhuband	2.50	1.25	0.17	**13.60%**
Dahibari	1.60	1.60	0.44	**27.50%**
Patherdih NLW	5.00	5.00	1.58	**31.60%**
Madhuband NLW	5.00	5.00	1.15	**23.00%**
Total	15.70	13.65	4.04	**29.60%**
Fiscal 2024				
Moonidih	1.60	0.80	0.65	**81.25%**
Madhuband	2.50	1.25	0.30	**24.00%**
Dahibari	1.60	1.60	0.47	**29.38%**
Patherdih NLW	5.00	5.00	1.56	**31.20%**
Madhuband NLW	5.00	1.67	0.26	**15.50%**
Total	15.70	10.32	3.24	**31.40%**
Fiscal 2023				
Moonidih	1.60	0.80	0.65	**81.25%**
Madhuband	2.50	1.25	0.26	**20.80%**
Dahibari	1.60	1.60	0.45	**28.13%**
Patherdih NLW	5.00	5.00	1.42	**28.40%**
Madhuband NLW	5.00	-	0.03	-
Total	15.70	8.65	2.81	**32.49%**

Notes:

- Madhuband NLW commenced commercial operations in December 2023. Accordingly, the operable capacity for fiscal year 2024 has been considered for a period of four months only.
- 6-month Installed capacity (Mt) represents the designed capacity at the time of the commissioning of the plant divided by 2 and 6-month Operable Capacity (Mt) is the maximum capacity at which the washery can operate at the start of relevant fiscal divided by 2. The 6-month Operable Capacity (Mt) is based on various assumptions and estimates, including ageing of the washeries and non-operation of any circuit in the washery. Assumptions and estimates taken into account for measuring installed capacities include effective 5000 working hours in a year.
- Installed capacity represents the designed capacity at the time of the commissioning of the plant and operable capacity is the maximum capacity at which the washery can operate at the start of relevant fiscal. The operable capacity is based on various assumptions and estimates, including ageing of the washeries and non-operation of any circuit in the washery. Assumptions and estimates taken into account for measuring installed capacities include effective 5000 working hours in a year.
- Raw Coal Feed represents quantum of raw coal fed to the washeries for washing in the relevant Fiscal.
- Capacity utilization has been calculated based on Raw Coal Feed in the relevant Fiscal divided by the operable capacity during such Fiscal.

Table 2-11: Washed Coal production in last 3 years

Fiscal	Washed Coal	
	Washed Coking Coal	Washed Power Coal
	(Million Tonnes)	
Fiscal 2026 (H1)	0.72	1.52
Fiscal 2025 (H1)	0.84	1.54
Fiscal 2025	1.65	3.16
Fiscal 2024	1.46	2.84
Fiscal 2023	1.43	2.48

Note: Washed Coal is the product derived after beneficiating Raw coal.

C. Setting up new washeries under BOM (Build-Operate-Maintain) model

Change of raw coal quality has necessitated adoption of newer washing technologies to produce the required grade of washed coal efficiently. As a result, BCCL decided to invite industry experts to introduce modern washing technologies and operate the washeries under a Build-Operate-Maintain (BOM) model.

Under this new approach, three new washeries - **Patherdih NLW (5 Mtpa), Madhuband NLW Washery (5 Mtpa)**, and **Dahibari Washery (1.6 Mtpa)** - were commissioned and are now running successfully.

At present, BCCL is involved in setting up 3 Washeries to enhance the washing capacity to the tune of 7.0 Mtpa. The Brief Status of the 3 Washeries are as under:

Table 2-12: Details of the BCCL planned washeries

#	Washery	Location	Capacity (Mtpa)	Type of Washery	BOM Operator	Status
1	Patherdih-II	Jharkhand	2.5	Coking	ACB (India) Limited	Under construction
2	Bhojudih (New)	West Bengal	2	Coking	ACB (India) Limited	Under construction
3	Moonidih (New)	Jharkhand	2.5	Coking	–	Tender to be floated
Total Capacity			**7 Mtpa**			

D. Renovation of existing washeries under ROM (Renovate-Operate-Maintain) model

As a part of BCCL's changing coal washing strategy, the old Moonidih Washery of 0.8 Mtpa, which is linked to the Moonidih Underground Shaft Mines, is also being renovated to increase its operational capacity to 1.6 Mtpa. The Work Order was issued to M/s MECO Technologies Pvt. Limited (JV) on 25.01.2024 and contract was signed on 30.03.2024.

E. BCCL-TSL Washing Venture

In 2019-20, BCCL decided to collaborate with TATA Steel Limited (TSL) to utilize the unused washing capacity of TSL. This collaboration is about using TSL's Jamadoba and Bhelatand washeries to wash coking coal from BCCL, an initiative reported to be running smoothly for the past four years.

Table 2-13: BCCL-TSL Washing Venture Performance

BCCL-TSL Washery Venture performance		
Year	**Raw coal Feed (Mt)**	**Washed coal Produced (Mt)**
2025-26 (H1)	0.67	0.29
2024-25	1.57	0.76
2023-24	1.61	0.84
2022-23	1.60	0.85

BCCL has also proposed to allow steel sector to set up washeries on Coal Bearing Area (CBA) land, based on demand, and provide them with long term coal linkage.

F. Coal Bed Methane (CBM) Projects

Besides, BCCL has identified two blocks for the exploration and development of coal bed methane (CBM**). Jharia CBM Block I** is presently in the exploration stage, while **Jharia CBM Block II** is expected to commence soon.

G. Solar Power Projects

In an effort to reduce reliance on conventional energy sources, BCCL has successfully implemented both rooftop and ground-mounted solar projects across various locations within its command area. BCCL aims to achieve 285 MW of energy from solar panels, both Roof Top and Ground Mounted, for net zero emission. While the company successfully installed both Roof Top Solar Projects as well as Ground Mounted Solar Projects in different locations of BCCL command area during 2022-23, the status and plan for its "Mission Solar" is provided in the table below:

Table 2-14: Status of the Mission Solar project

Type	Commissioned				Under Installation
	FY 22-23	FY 23-24	FY 24-25	FY 25-26 (H1)	FY 2025-26
ROOFTOP	1.66 MW	0	2.428	2.882	1 MW
GROUND MOUNTED	0	0	20MW	0	25 MW#
TOTAL	**1.66 MW**	**0**	**22.428 MW***	**2.882 MW**	**26 MW**
CUMULATIVE	**1.66 MW**	**1.66 MW**	**24.088 MW**	**26.97MW**	

(Source: BCCL)

Notes:

* In FY 24-25, 22.428 MW Solar Projects Commissioned successfully till 31.03.2025.

25 MW Ground Mounted Solar Project at Bhojudih

H. Establishment of Eco-Parks

Along with establishment of the natural forests over the degraded mined out areas and OB dumps, BCCL has also been developing eco-parks over some degraded mined out areas and OB dumps sites, with an aim to connect with the local communities residing nearby the mining areas of BCCL; transform the image of the company among the stakeholders, and provide a suitable place to the people for recreation and rejuvenation. The development of eco-parks will lead to the promotion eco-mining tourism in the mining areas.

BCCL has developed seven Eco Parks namely:

a) Gokul Eco-cultural Park, Lodna Area

b) Vrindavan Eco Park, Kusunda

c) Parasnath Udyaan, Katras Area

d) Tetulmari Bio-diversity Park, Sijua Area

e) Netaji Subhash Chandra Bose Eco-Park and Govardhan Eco- Park, Bastcolla Area

f) Panchvati Eco- Park Koyla Nagar

Images are provided in Appendix C.

I. Highwall Mining Technology

In an effort to use modern technology in operation of mine, BCCL has started production from ABOCP mine in the Block-II area of BCCL by introducing Highwall Mining Technology for the first time. Further, agreement for High Wall mining at Rajapur OCP has been signed on 21.11.23, too. Introduction of Highwall mining at Block-II mine was a remarkable achievement in the financial year 2023-24.

2.7 Justification for Reorganization and Expansion Plan

While increasing operational efficiency, cost rationalisation and safety are key drivers, the other driver for mine area reorganisation and production expansion plan is the market demand for BCCL coal from different sectors of the industry in India.

The estimated coal demand from BCCL is as summarised in Table 2-15.

Table 2-15: Raw Coal Offtake

Sector	Actual Raw Coal Offtake (Mt)						Current AAP Target (Mt)	Target (Mt)	
	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2024-25 (H1)	FY 2025-26 (H1)	FY 2025-26	FY 2026-27	FY 2027-28
Power (Including CPPs)	25.46	27.51	30.81	29.69	14.31	13.14	31.50	32.00	32.50
Steel	0.73	1.16	1.00	0.85	0.47	0.49	1.90	1.90	1.90
Fertilizer	0.64	0.39	0.49	0.39	0.17	0.25	0.62	0.60	0.60
Own Washery	3.56	4.42	4.93	5.72	2.79	2.65	9.76	10.00	11.00
Others	1.86	2.05	2.04	1.61	0.84	0.53	3.22	**3.50**	**4.00**
Total Offtake	**32.25**	**35.53**	**39.27**	**38.26**	**18.60**	**17.06**	**47.00**	**48.00**	**50.00**

Note: Others include coal sold through e-auctions and other non-regulated sector.

It is to be noted that the National Steel policy 2017 has projected increase in crude steel production from 101 million tonnes (Mt) in FY17 to 300 Mt by FY2030. Presently 148 Mt crude steel is produced in FY24. Growth in steel production is expected to push up demand for metallurgical coking coal of India.

To substitute import of Coking Coal, the current domestic blending of coking coal by steel sector to be increased from present 10-12% to 30-35%. Accordingly, Ministry of Coal has launched Mission Coking Coal in FY22 to meet the domestic coking coal demand projected in National Steel Policy 2017.

In this regard BCCL has taken multiple efforts towards booking of coking coal for long-term linkage through its e-auction process.

2.8 Summary of BCCL Mining Projects and respective Coal Linkages

BCCL's mining assets are positioned to supply coal to different sectors, including power generation, steel manufacturing, fertilizer production, and cement industries.

BCCL’s coal supply chain includes transportation networks of rail, road, and conveyor belt systems.

The following table details BCCL’s mining projects with their respective specifications, coal grade classifications, established linkages, production capacities, transportation methods, and operational highlights.

Table 2-16: Summary of BCCL Mining Projects and respective Coal Linkages

Area under mining (Ha)	Mines	Grade of Coal (Coking / Non-Coking)	Linkage	Production Capacity (in Mtpa)	Transportation	Key Highlights
250.10	Damoda	W-IV	Power, Washery, E-auction	0.90	Rail, Road	
560.00	ABOCP	W-IV, V	Power, Washery, E-auction, linkage E-auction (others)	5.20	Rail, Road/ Belt	
920.00	Pure Benedih-Block-B UG Pure Benedih-Block-C	W-IV	Power	1.92	Rail	
887.75	AMP Colliery OCP	W-IV, V	Power, Washery, Cement, E-auction, Linkage E-auction (others)	9.90	Rail, Road	
916.41	Block-D	W-IV		8.00		
1931.00	Block-E	W-IV, G-7		15.00		
1633.54	Amalgamated NTST-Kujama OCP	W-IV, V	Power, Fertilizer, Washery, E-auction, cpp	8.50	Rail, Road	
393.77	Madhuband Colliery	W-III		1.50		MDO on Revenue Sharing basis
526.00	Kharkharee Colliery	W-IV		1.20		
515.51	Amalgamated Salanpur Gaslitand Katras Choitudih Colliery (ASGKCC)	W-IV		1.40		
499.56	Loyabad Colliery	W-III		1.29		
730.17	PB Project Colliery	ST-II, W-II, III, IV		2.70		
386.95	Amlabad Colliery	W-II		0.30		
320.09	New Godhur-Kusunda-Alkusa Colliery	W-IV	Power, Fertilizer, Washery, E-auction, linkage e-	1.50	Rail, Road	

Area under mining (Ha)	Mines	Grade of Coal (Coking / Non-Coking)	Linkage	Production Capacity (in Mtpa)	Transportation	Key Highlights
			auction (others)			
438.45	New Godhur Kusunda UG	W-IV		1.20		
236.00	ADIC	W-IV, G-7	Power, Fertilizer, E-auction, linkage e-auction (others)	1.60	Rail, Road	
216.00	Ena Colliery	W-III, IV	Steel, Power, Fertilizer, Washery, E-auction, linkage e-auction (others)	4.50	Rail, Road	
283.33	Bastacolla Colliery	W-IV, V, VI	Power, Fertilizer, Washery	1.80	Rail, Road	
134.48	Rajapur/South Jharia OCP (ROCP)	W-II, IV	Power, E-auction, Linkage E-auction (others)	1.97	Rail, Road	
681.31	Amal Bera-Dobari-Kuya-Ghanudih	W-IV, V	Power, Fertilizer, Washery, E-auction, Linkage e-auction (others)	4.24	Rail, Road	
209.00	Gopalichuck	W-I, II	Washery, E-auction	0.50	Road	
292.68	Maheshpur	W-IV	Power, Washery, E-auction	0.06	Rail/Road	
152.19	Kankanee	W-II	Steel, Washery. E-auction	0.92	Road	
131.64	Bansdeopur	W-II	Washery, E-auction	0.67	Road	
426.45	Bhowrah (North+South) UG	W-II, IV		0.36		
281.21	Amalgamated Bhowrah North+South OCP	W-II	Steel, Washery, E-auction	2.50	Rail, Road	
498.61	ASP colliery	W-II, IV	Steel, Washery	0.55	Road	

Area under mining (Ha)	Mines	Grade of Coal (Coking / Non-Coking)	Linkage	Production Capacity (in Mtpa)	Transportation	Key Highlights
190.00	Dahibari Basantimata	W-IV, G-7,8	Washery, Power	1.30	Road	
808.90	Kalyaneshwari	W-IV		4.00		
1807.73	Moonidih Colliery	W-II	Washery	3.20	Belt/Road	
1986.89	Amal-Joyrampur Colliery	W-II, III	Steel, Washery, Power, E-auction	2.51	Rail/Road	
155.71	Kendwadih	W-II	Washery, E-auction	0.20	Road	

Notes:

- Linkage Details based on off-take records of FY 2024-25.
- Area under Mining has been taken as Project area. The Production capacity has been taken as Normative/targeted/rated production capacity.

3 GEOLOGY

3.1 Introduction

BCCL (Bharat Coking Coal Limited) primarily operates in the Jharia and Raniganj coalfields. These coalfields are known for their coking coal, which is crucial for steel production.

3.2 Coalfield Description

3.2.1 Jharia Coalfield

The Jharia Coalfield (Figure 3-1), a roughly sickle shaped syncline, covering an area of about 453 km^2, represents one of the outliers of Gondwana sediments (Gondwana Super Group) within the Archaeans in the Damodar Valley region.

The rocks of the Jharia area can be broadly grouped into two prominent units: Basement Archaeans Complex; and the Permo-Carboniferous sediments, comprising of the lower members of the Gondwana Super Group.

The lower Gondwana sediments unconformably overlying the Archaeans are represented by the rocks of the Talcher Formation and the Damuda Group, the later comprising the Barakar, Barren Measures and Raniganj Formations. The coal bearing Barakar Formation occupies an area of about 219 km^2. Besides this, Raniganj formation occupies 54 km^2, Barren Measure occupies 136 km^2, and the Talchir Formation occupies the remaining 45 km^2.

The Barakar Formation is the most important rock unit in the area, since it includes the major coal seams. There are numerous coal seams in the Barakar, of which 18 seams (number I to XVIII in ascending order) are significant. The coal, from most of the seams, is of coking quality. However, most of the prime coking coal is confined to the seam X and above.

The Raniganj Formation has limited development in this coalfield, in Mohuda area and in the Southeastern part. It contains 14 coal seams, of which three are considered important. These seams comprise of high volatile medium coking coal.

The igneous intrusives in the form of mica peridotite and dolerite are the two known Post Gondwana intrusives. Of these, the mica peridotite (a peridotite rock that contains mica minerals, specifically phlogopite, as an accessory mineral) sills and dykes are primarily responsible for destruction of valuable coking coal due to pyrolitisation. With one exception, dolerite dykes are found only in the Western part of the coalfield. These have very limited burning effect on the coal seams.

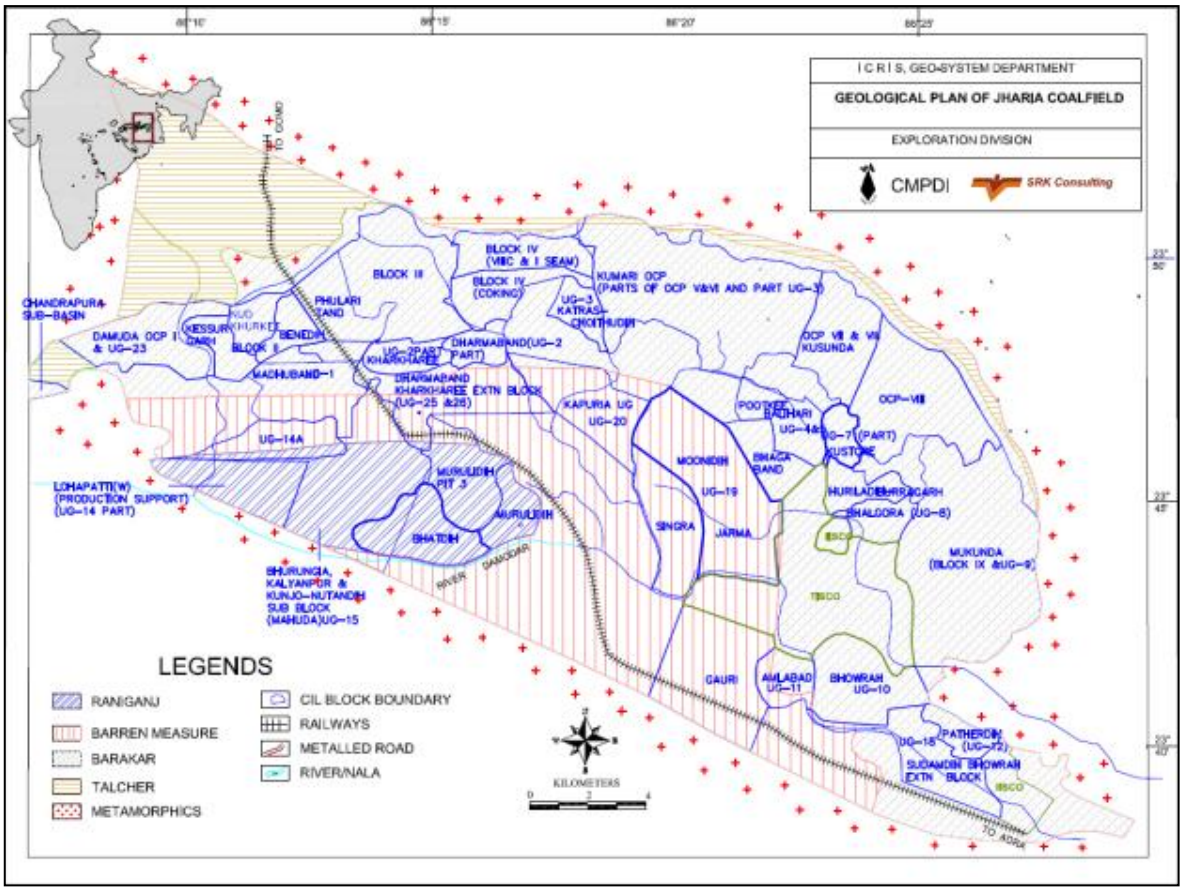


Figure 3-1: Geological Map of the Jharia Coalfield and Distribution of the CIL Blocks

3.2.2 Raniganj Coalfield

The Raniganj coalfield (Figure 3-2) is one of the oldest coalfields of the country and remains one of the premier coalfields of India even after continuous coal exploitation for nearly two centuries. It extends over an area of 1550 km^2 covering the Burdwan, Birbhum, Bankura and Purulia districts of West Bengal and the Dhanbad and Dumka districts of Jharkhand states and is situated between latitudes 23º 30’ and 23º52’ N and longitudes 86º38’ and 87º23’ E.

The Raniganj Coalfield is the easternmost member of the Damodar Valley coalfields. The rock formations developed in the Raniganj Coalfield belong to the Lower Gondwanas. The Barakar and the younger Raniganj Formations are coal bearing and contain the premier quality coal.

The lower coal bearing Barakar Formation is exposed in a narrow stretch from west to east lying parallel to the northern boundary of the coalfield. The formation covers an area of 200 km^2. It attains a maximum thickness (700 m) along western and west central parts, showing maximum coalification (14 to 15 seams) while showing a gradual thinning towards the east. The seams are affected by the intrusion of mica-peridotite sills. The upper coal bearing Raniganj Formation contains about 12 coal

seams and ranges in thickness from about 400 m in the east to around 1150 m in the west and is exposed over an area of about 700 km^2. The proportion of coal to the total thickness of strata is comparatively less in case of Raniganj than the Barakar. The Raniganj coal seams are less affected by intrusions.

The Raniganj basin is considered to be a half graben structure formed due to a major east-west trending southern boundary fault which has brought the older metamorphic basement rocks in juxtaposition to the Gondwana sediments. The strata show a general gentle southerly to south-westerly dip. The coalfield is traversed by a network of faults and the northwest-southeast trending transverse fault system represents the major lineaments.

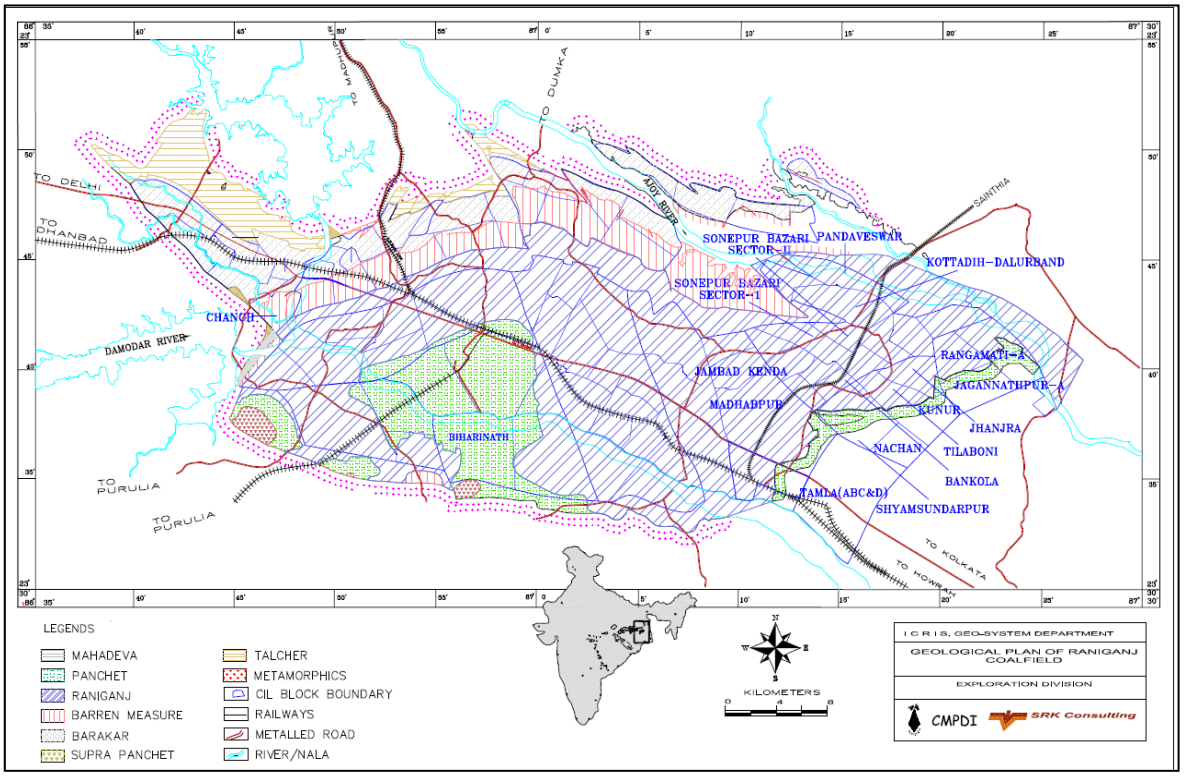


Figure 3-2: Geological Map of the Raniganj Coalfield and Distribution of the Important CIL Blocks.

4 MINING

BCCL's mining operations involve extracting coking coal and non-coking coal from various mines, primarily located in the Jharia and Raniganj coalfields in Jharkhand and a small area in West Bengal. These operations include both opencast and underground mining. Most of the BCCL mines now are opencast mines (25), with 3 underground and 4 mixed mines. Currently, over 95% of BCCL's coal production is concentrated in the Jharia Coalfield (JCF), which is primarily coking grade coal. BCCL produced 36.2 Mt, 41.1 Mt and about 40.5 Mt of coal in FY2022-23, FY2023-24, and FY2024-25, respectively.

Table 4-1: BCCL Coal Production Statistics

YEARS	UG (Mt)	OC (Mt)	TOTAL (Mt)
2025-26 (H1)	0.33	15.41	15.75
2024-2025	1.14	39.36	40.50
2023-2024	0.77	40.33	41.1
2022-2023	0.69	35.49	36.18
2021-2022	0.81	29.71	30.51
2020-2021	0.61	24.05	24.66
2019-2020	1.04	26.69	27.73
2018-2019	0.9	30.14	31.04
2017-2018	1.08	31.53	32.61
2016-2017	1.68	35.36	37.04
2015-2016	1.81	34.05	35.86
2014-2015	2.03	32.48	34.51
2013-2014	2.7	29.91	32.61
2012-2013	3.15	28.06	31.21
2011-2012	3.48	26.72	30.2
2010-2011	3.7	25.31	29
2009-2010	3.9	23.61	27.51
2008-2009	4.13	21.38	25.51
2007-2008	4.46	20.75	25.21
2006-2007	4.9	19.3	24.21
2005-2006	5.47	17.84	23.31
2004-2005	6.38	15.94	22.32
2003-2004	6.74	15.94	22.68
2002-2003	7.29	16.86	24.15
2001-2002	7.59	17.66	25.25
1994-1995	11.49	17.26	28.75
1984-1985	13.34	8.5	21.84

BCCL took over multiple small coking coal mines nationalised under the Coking Coal Mines (Nationalisation) Act, 1972. Many of these mines included old, historic underground coal mines, particularly in the Jharia Coalfield. These mines, some of which dated back to the 19th and early 20th centuries from the pre-nationalization era of private ownership, presented a mix of opportunities and challenges. BCCL's approach to these old underground mines evolved over time, shaped by operational, economic, safety, and environmental considerations.

- Historic mines which were productive, BCCL continued with their operation; example, Moonidih
- Likewise, for Moonidih, BCCL introduced modern mining technologies, such as longwall mining and powered support systems
- Mines with exhausted resource or were too deep and unsafe to operate were closed
- For underground mines with fire, BCCL undertook efforts to manage such fires, including Isolation and Sealing of fire-affected areas, surface excavation in some cases shifting to opencast mining and undertook a rehabilitation project in collaboration with the Government to relocate populations living above fire-affected underground mines.

Over time, BCCL increasingly shifted its focus from underground to opencast mining in the Jharia Coalfield, even in areas with historic underground workings. Opencast methods allowed faster extraction, higher output, and the ability to address underground fires by exposing and removing burning coal seams. Many old underground mines were either abandoned or integrated into opencast projects where feasible

CIL has developed a significant investment plan to scale up production from the coalfield which comprises the introduction of new advanced technologies and also increased coal beneficiation facilities.

One of BCCL focus is re-organising block boundaries amalgamating multiple smaller mines, most of which are in operation. More details on BCCL's plan for re-organisation is provided in the next section. A summary on selected re-organised open cast blocks is provided in Section 4.1. Following all the process of re-organisation (technical, economic evaluation, permitting, etc.), these projects are expected to produce bulk of the coal production for BCCL.

The other initiatives of BCCL includes partnering with MDO (Mine Developers and Operators) to enhance operational and cost efficiency, optimizing coal production and incorporate specialized expertise.

It should be noted that the coalfield suffers from fires and land subsidence due to historical mining carried out prior to nationalisation of the coal industry. Most of the fires are contained in the uppermost or coking coal seams in the eastern half of the coalfield. A plan to deal with these fires and the associated subsidence and rehabilitation and diversion of surface infrastructure has been approved by the Ministry of Coal (MoC), work on which is in progress.

4.1 Overview of Selected Mining Projects

This section provides a summary of key projects of BCCL, some of which are re-organised opencast blocks and selected mines which are planned to be included within reorganised larger block boundaries. These projects are expected to produce bulk of the coal production for BCCL.

4.1.1 Block-E OCP

The proposed Block-E Opencast Project (OCP) lies is in the Northern-Central part of Jharia Coalfield in Jharkhand. The re-organised Block-E has a total surface area of about 1931 Ha. The Project formulated for 15Mtpa, has been approved by the BCCL (Bharat Coking Coal Limited) board and is under implementation in outsourcing mode, with a total capital outlay of around 6000 Crores.

Reorganized Block-E is formulated combining 7 smaller existing mines which are in operation, vz. (Amalgamated Keshalpur-West Mudidih Colliery), part of Sendra Bansjora, Tetulmari, Nichitpur, part of Mudidih, East Bassuriya and part of ABGKKC (Amalgamated Bassuriya Gondudih Khas Kusunda Colliery); these mines combined produced 9.13 Mt of coal (mostly coking grade coal), in 2022-2023.

A Project Report (PR) detailing the mine development plan of the integrated Block-E has been prepared by CMPDI in 2023, with operation planned from 2 larger open pits and peak production capacity of 15Mtpa.

In all 28 “correlatable seams”, have been identified in the block, containing both coking coal and non-coking thermal coal.

Mining

Coal reserves and OB quantity within the Proposed Ultimate Quarry limit, as estimated as on 01.04.2023 within the Block-E is after amalgamation of multiple existing mines, viz. part of AKWM Colliery, Tetulmari Colliery, part of Mudidih Colliery, Nichitpur Colliery, part of Sendra Bansjora Colliery, East Basuriya Colliery & part of ABGKK Colliery in the Northern part of Dhanbad Chandrapura Railway Line.

Block-E OCP will be worked with two (2) quarries i.e. Quarry-1 in the west and Quarry-2 in the East, using conventional Shovel-Dumper combination. Quarry-1 will be opened first from 3rd year (proposed 2025-26 from the incrop of Seam-I-Bottom), and it will operate upto 17th year of mine operation. Quarry-2 will start from 14th year of mine operation. The depth of the Ultimate Pit will vary from 10-280 m; the last coal seam would be Seam-I-Bottom

Initial mining for two years from the existing 7 mines, would be using the existing combination of departmental and outsourcing resources. Subsequently, UG mining will be closed and necessary changes in the Outsourcing Contract will be undertaken to allocate the operation of the Block fully through outsourcing mode. From 3rd year all the existing Departmental HEMM will be transferred to other mines of BCCL.

The peak production capacity of 15Mtpa is scheduled for the 6th year from the zero date; Zero date is defined as the date of land acquisition (physical possession), PR and EMP approval and other necessary clearances whichever is later.

For Coal, 5-6.5cum Hydraulic Shovel/Backhoe with 60T Rear Dumpers have been proposed. Belt conveyors are also proposed which will finally discharge coal to over-ground bunker. Coal from the coal faces up to the receiving pits of the proposed belt conveyors, will be transported through dumpers.

Washery

Presently around 4.0 Mtpa of coking coal from the existing collieries (within the proposed Block-E), are linked with existing washeries of BCCL. Given the production expansion plan from the proposed Block-E, a new coking coal washery of 3.5Mtpa capacity is proposed such that washed coal at about 18+0.5% Ash could be supplied to steel plants for metallurgical purposes.

Infrastructure

Block E is planned to produce 15Mtpa of coal. A Coal Handling Plant is planned to handle the same. The proposed CHP will include a crushing station, storage bunker, and rail-based dispatch system. The Coal Handling Plant (CHP) will include several key features to ensure efficient coal processing and dispatch. It will have four relocatable crushing plants to crush coal to (-) 200 mm size, with secondary sizers further reducing non-coking coal to (-) 100 mm before it is fed into Overground RCC Bunker 1. Coal will be transported via belt conveyors to Overground RCC Bunkers, each with a 15,000-ton capacity, and further reclaimed and transported to RCC Silos with a 4,000-ton capacity. Additionally, coal will be conveyed to the proposed washery through belt conveyors. The CHP will also feature a dust suppression and fire extinguisher system, along with power supply, illumination, and control systems coking and coal will be weighed using a road weighbridge before dispatch. There will be separate system for coking and non-coking coal.

Coal from Block E will be dispatched to various consumers via railway rakes, which will be loaded from the silo using rapid loading systems. To facilitate this, five new railway lines, totalling approximately 12.5 km, will be constructed to connect the silo sidings to the proposed siding from Tetulmari Railway Station.

The railway infrastructure will consist of five tracks (10 lines); the first track for non-coking coal, the second for unwashed coking coal linked to BCCL's existing washeries, the third as an escape line, the fourth for clean coking coal, and the fifth for washed coal (power use). Proposed Railway Siding will be suitable for loading 59 box wagons rake from the silo.

The project is planned to have both E&M and Excavation workshops to cater to 100T

The project will receive power from the DVC Pootki substation via two 33 kV overhead transmission lines. Three operational models—Departmental, Outsourcing, and MDO—have been evaluated, with power demands of 19.5 MVA, 17 MVA, and 19.2 MVA, respectively.

For power distribution, two 33/6.6 kV substations are planned: 2×12.5 MVA & 2×10 MVA for Departmental/MDO, and 2×10 MVA for Outsourcing. These substations will supply power to key installations, including CHP, pumps, workshops, and lighting. Major substation components include vacuum circuit breakers, transformers, isolators, capacitor banks, and lightning arrestors.

Safety measures include lightning protection, interlocking systems, earthing, and a nitrogen-injection fire suppression system. A fire hydrant network, smoke detectors, and portable extinguishers will also be installed.

Energy consumption is projected at 7.0 kWh/t (Departmental), 6.91 kWh/t (MDO), and 6.01 kWh/t (Outsourcing). The substations will be equipped with automation and signalling for fault detection and protection.

Facility planning has been done for providing maintenance and repair facilities to all the major equipment deployed in the project, which include, heavy earth moving machineries, (such as dumper, dozer, shovel, drill, etc.), coal handling plant machineries, mine pumps and power supply equipment. The proposed project workshop and project store will facilitate the maintenance and repair requirement of mining, mechanical, electrical, transport and other auxiliary equipment and storage of spare-parts, sub- assemblies and consumables.

Land Acquisition and R&R

Process of Land acquisition shall be initiated immediately after obtaining all the approvals. The land acquisition and R & R shall be done as per the guidelines of RFCTLARR Act 2013. Since mining requires phase wise land, the land acquisition will be done in phases and will continue from Year 2 to Year 5 of the project. Accordingly, Capital has been provided in a phased manner. R & R will also be carried out in phased manner as and when the land is acquired and PAFs are being rehabilitated.

A Mine Closure Plan has been prepared in accordance with the Guidelines issued by Ministry of Coal; New Delhi vide letter no. 34011/28/2019-CPAM dated 29th May 2020

4.1.2 Block-D OCP

Block-D is one of the seven blocks BCCL decided to develop through re-organisation. Block-D is in Northwestern part of Jharia coalfield, District Dhanbad, Jharkhand. A Draft Project Report (PR) has been submitted and is under evaluation of BCCL.

Proposed Block D OCP is being planned over Opencast Block-IV area. Area of mines, in full or in part included in leasehold boundary of proposed Block D OCP are Jogidih Colliery (East side of Khudia Jore), Amalgamated Block IV Govindpur Colliery (ABG Colliery), New Akashkinaree Colliery (NAKC) (North side of DC Railway line), Teturia Colliery (North side of DC Railway line) and South Govindpur Colliery (North side of DC Railway line). Of these 5 mines, Jogidih Colliery is in operation through underground, opencast mining in Amalgamated Block IV Govindpur Colliery (ABG Colliery) is in operation and for New Akashkinaree Collery (NAKC) is a mixed mine, in operation through both underground and opencast mining. Total project area of Block D is 916.41 ha.

The coal production between 2019-20 and 2024-25 for different mines within the surface limit of proposed Block D OCP is as below.

Table 4-2: Coal Production from different mines within Block D, between 2019-20 to 2024-25 in million tonnes

Sl. No.	Name of colliery	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
1	Jogidih Colliery	0.03852	0.03045	0.01627	0.01218	0.012	0.012
2	Amalgamated Block IV Govindpur Colliery	0.57604	0.53607	0.2393	0.18201	0.228	0.362
3	New Akashkinaree Colliery	1.20397	0.58555	0.50327	0.61556	0.706	0.837
	Total	**1.81853**	**1.15207**	**0.75884**	**0.80975**	**0.946**	**1.211**

The draft PR (2025) has conceived an opencast mine with peak coal production of 8Mtpa, with total mine life of 32 years. 3 years construction period has been envisaged for the project, mainly for acquisition of land, rehabilitation of private houses / structures, shifting of BCCL quarters, other surface re-organization like diversion of part of road, etc. and procurement of required infrastructural facilities.

In all 18 “correlatable seams”, have been identified in the block, containing both coking coal and non-coking thermal coal. Jhama (heat-affected coking coal), is also reported in this block.

Mining

The Block D OCP will be worked as two quarry concepts i.e. Eastern Section and Western Section. The bottom most coal seam will be the floor of Seam II/I, with maximum depth of the final quarry planned 260 m.

Considering geo-mining conditions, multi-seam mining and that there are developed workings in different seams with fire, conventional Shovel-Dumper combination is proposed for mining.

Three variants for operation have been evaluated and provided in the Project Report (2025); viz., Departmental Variant whereby all activities would be carried out by BCCL deploying own equipment; Outsourcing Variant in which major activities related to mining including excavation of coal and OB, Work shop for contractor's HEMM will be outsourced with land acquisition, R&R, blasting supervision, check survey, CHP, coal dispatch and overall supervision will be under the purview BCCL and an MDO Variant under which All major operations will be outsourced to select Mine Developer and Operator (MDO), which Investment on land acquisition, R&R, development work and some scientific studies, check survey and overall supervision will be under the purview of the BCCL.

While the ultimate pit configuration and mining scheme will be same for all variants, the equipment suggested, their productivities and production programme are based on CMPDI norms applicable for Departmental variants. MDO Variant has been prepared as per an existing CMPDI HQ guideline.

The parting between the seams varies from 4.0 m to 25.0 m. The OB from the advance benches above the coal seam is proposed to be removed by 17 nos. 10 m^3 Hydraulic shovel working in conjunction with 147 Nos. of 100 T dumpers (for Departmental Variant) & 15 nos. 10 m^3 Hydraulic shovel working in conjunction with 122 Nos. of 100 T dumpers (for MDO Variant)

For Coal Extraction, 3 Nos. of 5 m^3 Hydraulic shovel (Diesel) working in conjunction with 20 Nos. of 60 T dumpers is proposed for the Departmental Variant, while & 3 Nos. of 5 m^3 Hydraulic shovel (D) working in conjunction with 16 Nos. of 60 T dumpers (for MDO Variant) has been proposed, after drilling and blasting.

For transportation of OB, 147 Nos. of 100 T dumpers for working with 10 m^3 Hydraulic shovel (for Departmental Variant) & 122 Nos. of 100 T dumpers for working with 10 m^3 Hydraulic shovel (for MDO Variant) are proposed.

For transportation of coal 20 Nos. of 60 T dumpers for working with 5 m^3 Hydraulic shovel (for Departmental Variant) & 16 Nos. of 60 T dumpers for working with 5 m^3 Hydraulic shovel (for MDO Variant) are proposed).

For drilling in OB 17 Nos. of RBH drill of 250 mm diameter (for Departmental Variant) & 15 Nos. of RBH drill of 250 mm diameter (for MDO Variant) have been provided. Similarly, for drilling in coal 3 No. of RBH drill with 160 mm diameter (for Departmental Variant) & 3 No. of RBH drill with 160 mm diameter (for MDO Variant) has been provided.

Considering the dip (5^o to 10^o) of the seams in majority part, it is proposed to excavate the OB from advance benches by horizontal slicing.

The width of the cuts for Shovel benches for OB is 20 m. The maximum height of the shovel bench is 15 m. With two-way traffic along the bench, the width of working bench of OB is 55 m & non-working is 35 m.

The width of the cut for coal Shovel varies from 10 – 15 m. The maximum height of the shovel bench in coal is 10 m. The width of working benches and non-working benches of coal shovels are 40 m and 25 m respectively.

The final pit slope considered for quarry depth of 260 m is 37^{o} (as per slope stability study of Mukunda Block). However, a scientific study should be carried out before starting a mechanised opencast working, including its method of working, ultimate pit slope, dump slope and monitoring of slope stability with reference to DGMS (Tech.) circular No. 03 of 2020 dated 16.01.2020.

4.1.3 Ramnagore Kalyaneshwari OCP

The Ramnagore Kalyaneshwari Opencast Project is situated in the northwest Raniganj Coalfield, overlapping areas of Victoria West Colliery (BCCL) and Sitarampur Coal Block. It includes several pre-nationalization mines such as Damagoria, East Ramnagar, Chaptoria, Victoria(R4), Salanpur A seam, Sabanpur, and the entire Ramnagar Colliery (SAIL). The BCCL section falls under Chanch Victoria Area (Area 12), while SAIL manages its portion through its local office

The geological formation in the area strikes NE-SW with a dip of 4° to 7° south. Structural interpretation based on borehole and colliery data reveals 19 faults with throws ranging from 5m to 250m. Five N-S trending dykes are exposed, and sills of varying extents have been encountered in several boreholes, significantly affecting five coal seams. A total of 170 boreholes have been drilled, covering 35,796.82 meters, resulting in a borehole density of approximately 12 BHs per square kilometre when considering adjacent boreholes.

The Project Report has been prepared for a nominal capacity of about 4.0 Mtpa of steel (including Jhama) grade coal. The report envisaged for formulation of the project i.e., OB & coal both winning by MDO Mode of operation. The report also recommends for EMP clearance for a peak capacity production of 5.20 Mtpa (4 Mtpa +30%) considering LoM of 26 years. Following variants are considered for executing mining activities such as-

Variant – I: Coal & OB Extracted through Departmental mode of operation – Base Option

Variant – II: Coal & OB Extracted through Contractual mode of operation (Hired HEMM)

Variant – III: Coal & OB Extracted through MDO (Mine developer cum operator) mode of operation.

Net geological reserve including Jhama is reported to be 88 Mt

Mineable reserve coal 70.28 Mt & Jhama 8.93 Mt; total 79.209 Mt. OB 302.12Mm^3

Summarized data

Table 4-3: Ramnagore Kalyaneshwari OCP project Summary

A.	GENERAL															
Sl. No.	**Particulars**						**Unit**									**Value**
1	**Name of Project**															**Ramnagore Kalyaneshwari Opencast Project**
2	Name of Area / Company															Chanch - Victoria Area
3	Nearest Railway Station from project						Name									Kulti (E. Railway)
							km									1
4	Nearest National / State Highway / Approach Road						Name									NH-2
							km									1 (Approx.)
B.	GEOLOGICAL															
Sl. No.	**Particulars**						**Unit**									**Value**
1	Name of geological blocks considered						Name									1. East of Damagoria (Kalyaneshwari) Block 2. Victoria Block 3. Indikatta Ramnagore Block of SAIL
2	Area of the geological blocks (**Combined**)						Sq. km.									12.77
3	Borehole Density within blocks						BHs / sq.km.									12
C.	TECHNICAL															
Sl. No.	**Particulars**						**Unit**									**Value**
1	Area of the proposed mine block (including dumping area)						sq. km.									6.53
2	Borehole density within mining area						BHs/sq.km									12
3	Mine parameters Extend along strike (on surface) Extent along dip (on surface)						km									1.85 1.55
4	Av. Stripping Ratio						m^3/t									**3.81**
5	Method of Mining															Opencast (Shovel - Dumper System)
6	**Target Output / Production Capacity:**															
	Nominal production capacity (at 100%)						mt									4.00
	Peak production capacity (at 130%)						mt									4.00 + 30%
	Production capacity (at 85%)						mt									3.40
7	Year of achieving Target Production (from zero date)						8th Year									
8	Year of start of Internal Dumping						12th year									
9	**Production Phasing (from zero date up to 16th year)**															
Year	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**	**6th year**	**7th year**	**8th year**	**9th year**	**10th year**	**11th year**	**12th year**	**13th year**	**14th year**	**15th year**	**16th year**
	C1	**P - 1**	**P - 2**	**P - 3**	**P - 4**	**P - 5**	**P - 6**	**P - 7**	**P - 8**	**P - 9**	**P - 10**	**P - 11**	**P - 12**	**P - 13**	**P - 14**	**P - 15**
Coal (mt)	-	-	-	0.50	1.00	2.00	3.50	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
OB (Mm^3)		13.12	13.12	13.67	13.89	14.40	19.54	19.55	19.55	19.11	18.81	18.81	12.51	9.00	9.00	9.00

Transportation

The total Mineable Reserve considered for the project is of Coking Coal and some Jhama. The major production from the project will be dispatched to Steel & Power plants after washing. The coal will be dispatched to steel plants and thermal power plants. The Jhama produced (about 10%) from the mine may be marketed as power grade coal of G7 to G8 depending on its calorific value.

Mining

Mining parameters for the proposed project is given in the following table:

Table 4-4: Key Parameters for Ramnagore Kalyaneshwari OCP

Sl. No.	Particulars	Unit	QUANTITY
1.	Quarriable Area	Sq. Km	2.9
2.	Strike length (on Floor)	m.	1500 (max) 175 (min)
3.	Dip Rise width (on floor)	m.	1020 420
4.	Maximum depth	m	270
5.	Total Mineable Reserve	Mt	79.209
6.	Total O.B.	Mm^3	302.121
7.	Average. Stripping Ratio	m^3/te	3.814
8.	Annual Coal Production Capacity	Mtpa	4.0
9.	Production life	Yr.	26

There is currently no existing HEMM at the site. A shovel-dumper system is planned, with overburden (OB) removal handled by 6 x 10 m³ and 3 x 5 m³ electric hydraulic shovels, supported by 83 x 100T and 50 x 60T dumpers. Parting thickness ranges from 3m to 46m. Coal extraction will involve 1 x 5 m³ shovel and 18 x 60T dumpers, with shared use of OB and coal shovels where applicable. Virgin seams will be worked using surface miners.

Drilling will use 15 x 160mm RBH drills for OB and 1 for coal. For dozing, 6 x 410 HP dozers are allocated to OB benches with 10 m³ shovels, 3 dozers with 5 m³ shovels for coal/OB face cleaning, and 2 additional dozers for dump site and reclamation work.

Due to the 4°–7° dip, OB will be removed by inclined slicing from advance benches. OB shovel cuts will be 20m wide with 15m bench height. Working/non-working bench widths are 55m and 35m, respectively. Coal shovel cuts will be 10–15m wide, with a maximum bench height of 10–12m, and bench widths of 40m (working) and 25m (non-working).

Land Acquisition and R&R

Total Land to be acquired for the project (Actual Requirement about 808.9 Ha). Land to be acquired within mine take area (excavation area) (Actual Requirement about 290.71 Ha). Land to be acquired outside mine take area (Beyond Excavation Area, such as Approach Road, Infrastructure, CHP, Washery etc.) (Actual Requirement about 155.56 Ha. Land to be acquired for External OB Dumping (Actual Requirement about 362.63 Ha)

The proposed Kalyaneshwari OCP project spans approximately 838.23 hectares. Of the total area, 64.58% (541.36 Ha) is owned by BCCL/SAIL, 30.01% (251.61 Ha) is privately owned, and 5.41% (45.27 Ha) is government land.

All infrastructure is planned within the designated surface leasehold area. A 132KV DVC transmission line must be relocated before mining begins (specifically before developing the box cut). Additionally, two substations—Kalimandir and BOCP—fall within the quarry zone and must be dismantled to proceed with mining operations.

Infrastructure

Washery

A two-product (viz. clean coal and washed power coal) coking coal washery for coal produced from this OCP has been conceptualized with raw coal throughput capacity of 3.60 Mtpa (excluding Jhama coal), 11000t/Day & 720t/hr. Clean coal is to be linked to steel plants and secondary product will be sent to thermal power plants. The life of the washery has been considered as 25 years. The tentative land requirement for setting up of the washery is broadly estimated to be about 15 Ha.

CHP & Railway Siding

The Kalyaneshwari Opencast Mine is designed to produce 4.0 million tonnes per year (Mtpa) of coal, supported by a new Coal Handling Plant (CHP) and a 3.6 Mtpa washery. All coal, excluding Jhama, will be processed through the proposed pithead washery starting from the 6th year. Until then, existing crushing and dispatch facilities—including two feeder breakers located ~1.5 km from Damagoria OCP—will be used. The CHP, with a system capacity of 1200 TPH, along with the railway siding, will fall under the scope of the Mine Developer and Operator (MDO).

Crushing arrangement: Crushing is to be done by 1 no. primary and 1 no. secondary sizer of skid mounted of 1200 TPH.

Conveyor Belts: After crushing and washing the coal will be transported by conveyor belts.

Loading & Transport arrangements: Coal after beneficiation in the washery shall be transported to customers through railway wagons to be loaded by a fast-loading hopper of 750 te.

Main Sub-substation: This sub-station shall receive power at 33 kV from the DVC 220/132/33 kV Kalyaneshwari sub-station of DVC by two Nos. 33 kV single circuit overhead line feeders on separate poles. The metering arrangement for Ramnagore Kalyaneshwari OCP shall be done at this proposed sub-station. This sub-station shall cater the total power required for all the quarry power consuming units like HEMMs, pumps and also all its infrastructural facilities including Office building, Excavation workshop, E&M workshop, Feeder Breaker, OB dump illumination, coal dump illumination, etc. In the main sub-station, 3 Nos. 10 MVA 33 / 6.6 kV transformer shall be installed for feeding power to all the power consuming units as mentioned above.

Other Facilities:

Workshop and stores**,** Dust suppression System, Noise Control system, Plant Maintenance system and Communication system etc.

Mine Closure Plan

A Mine Closure Plan has been prepared as per the Guidelines approved by the Ministry of coal, Government of India and notified vide communication No. 55011-01-2009- CPAM on dated 27th August 2009, 8th September,2009, 11th January 2012, 25th April 2012 ,7th January 2013, 16th December 2019 & 29th May 2020.

Progressive Mine Closure Plan would include various land use activities to be done continuously and sequentially during the entire period of the mining operations, whereas the Final Mine Closure activities would start towards the end of mine life, even after the reserves are exhausted and/or mining is discontinued till the mining area is restored to an acceptable level.

4.1.4 Amalgamated NTST Kujama OCP

The quarry is located in the eastern part of the Mukunda exploration block, covering parts of the Amalgamated North-Tisra & South-Tisra (NT-ST)-Jeenagora, Joyrampur, and Kujama Collieries within BCCL's Lodna Area.

The amalgamation was conceived and a Revised Project Report prepared in 2022, around an opencast project of 8.5 Mtpa run-of-mine coal production.

Amalgamated NTST Kujama OCP will finally form part of the reorganised Block-G; the feasibility study for Block-G is proposed to be undertaken in 2026.

Amalgamated NTST Jeenagora mine is an existing opencast running mine. The operation of the existing opencast mines will continue and will be expanded for full strike length.

Mining Parameters

The Amalgamated NTST Kujama OCP, as conceived in 2022, will be worked as single quarry. Mine parameters for the Amalgamated NTST Kujama OCP are given in Table below

Table 4-5: Mining Parameters as conceived in Revised PR (2022)

Sl. No.	Particulars	Value
1.	Strike length of the quarry (on floor) (KM)	3.6 (Max.) 3.2 (Min.)
2.	Min and max Depth of the quarry	120-250 m
3.	Dip-rise length (on floor)	950 m (Max.) 650 m (Min.)
4.	Final quarry Surface Area including internal dump area in Ha Excavation area considered in PR (Ha)	794.90 573.84
5.	Mineable reserve (Mt)	152.62
6.	Total OB (M.cum.)	496.89 (Insitu) 89.05 (Loose)
7.	Av. S.R (Cum/tonne)	3.70

Coking coal was proposed to be transported to the Patherdih washery (5 Mtpa), which is also linked to mines in Katras, Govindpur, and Block II areas. Non-coking coal for dispatch to power plants across the country via proposed railway links (RLs).

Equipment

The project proposed deployment of 75 dumpers (190T) paired with 20 m³ hydraulic shovels and 26 dumpers (60T) with 5 m³ shovels for OB handling. Coal will be transported using 26 dumpers (60T) with 5 m³ shovels. Drilling requirements include 12 RBH drills (250 mm) and 2 RBH drills (160 mm) for OB, and 4 RBH drills (160 mm) for coal. For bench cleaning and dump management, 14 dozers (410 HP) are allocated for OB, 2 for coal, and 2 additional units for reclamation purposes.

The proposed mining system involves horizontal slicing of overburden (OB) from advanced benches, considering seam dips of 4° to 15°. Due to variable OB thickness, uniform bench height is difficult to maintain. OB bench height will be capped for safety and should not exceed the shovel's boom height, though slight exceedance may occur in some cases, requiring DGMS approval.

CHP

The Coal Handling Plant (CHP) for Amalgamated NTST Kujama OCP is designed for a peak capacity of 8.5 Mtpa. It features two independent conveyor circuits: one for **coking coal (3 Mtpa)** and another for **non-coking coal (6 Mtpa)**. A provision was proposed to reroute non-coking coal to the coking coal circuit after the bunkers in case of a failure, ensuring no mixing occurs.

4.1.5 Amalgamated Joyrampur OCP

Amalgamated Joyrampur OCP will finally form part of the larger reorganised Block-G as conceived by BCCL.

Amalgamated Joyrampur Colliery was formed in 2015 by merging five underground mines—Lodna, Bagdigi, Bararee, Jealgora, and Joyrampur—previously run by private owners before nationalization.

The leasehold area spans 1186.97 hectares and falls partly within the Mukunda Geological Block. Coal seams I to XVI are present, but all upper seams up to XI/XII are affected by underground fires. To access and stabilize deeper seams, it is proposed to extract the fire-affected seams via opencast mining down to seam IX/X. All underground units of Amalgamated Joyrampur Colliery are currently closed. BCCL has decided to adopt opencast mining up to the IX/X seam to extract fire-affected seams and make the deeper seams workable.

Presently, opencast operations are limited to an area (Patch-D), using hired HEMM within the colliery’s leasehold area.

Otherwise, as an amalgamated opencast project, Amalgamated Joyrampur OCP, is planned for 2.5 Mt per annum of coal production.

5 COAL RESOURCES AND COAL RESERVES

5.1 Introduction

This section summarises the methods used by BCCL to derive and classify its estimates for the properties and the basis for their classification by BCCL under the Indian Standard Procedure (ISP). SRK has not conducted a detailed audit of BCCL's estimates but has relied upon BCCL's reports, has reviewed the basis of this estimation, adjusted the classifications, where it was deemed necessary, and considered the relevant Modifying Factors in order to derive an appropriate classification to the JORC 2012 Code.

5.2 SRK Audit Procedures

In producing audited Coal Resources and Coal Reserves for BCCL, SRK has:

- Reviewed the exploration data generation methodologies, including the quality and distribution of the drilling data;
- Reviewed the resource estimation and reporting methodologies used by BCCL to confirm that these are in line with Indian Standard Procedure (ISP);
- Through extensive discussions with BCCL and CMPDI technical team convinced itself of the BCCL approach to estimating and reporting balance estimates for coal under its command area, its practice for depletion accounting, and reporting;
- Reviewed several of the Life of Mine plans and Project Reports prepared by CMPDI and reviewed its reserve estimation methodologies in general;
- Discussed and understood BCCL's Resettlement and Rehabilitation plans and ESG related practices and plans; and
- Reviewed the historic production and economic performance of all BCCL's operating mines.

5.3 BCCL's Coal Resource and Coal Reserve Estimation Practices

This section summarises the methodology and practices followed by BCCL for assessing Geological Reserves (alternatively termed as Geological Resource, or Coal Resource) and Mineable and/or Extractable Reserve.

Specifically, it comments on BCCL's exploration processes, the techniques it uses and the quality and quantity of data it collects for use in the Coal Resource determination process and finally the methods and techniques it uses to convert Coal Resources to Mineable and/or Extractable reserves and in particular the depth of any associated technical and economic studies carried out as part of such.

BCCL is a mining company. CMPDI (Central Mine Planning and Design Institute), the planning subsidiary of Coal India Limited, manages and oversees all planning work on behalf of BCCL, including exploration, the preparation of Geological Report (GR), the estimation of Coal Resources and Reserves, as and when required.

5.3.1 Exploration and Data Acquisition Procedure

Exploration for coal in India is carried out in two stages. In the first stage, the Geological Survey of India (GSI) undertakes Regional Exploration aimed at locating the potential coal bearing areas. This work is undertaken on a continuous basis. In the second stage, Detailed Exploration is carried out in potential blocks identified through Regional/Promotional Exploration in consultation with CIL's operating subsidiaries (example, BCCL). Detailed Exploration is carried out by CMPDI. When Detailed Exploration is undertaken by any third-party agency, activities are monitored and reviewed by CMPDI.

The aim of the Detailed Exploration is to establish the continuity, orientation and geometry of the coal seams within the defined areas, prepare detailed seam profiles, make a confident assessment of the coal tonnage and quality potentially amenable to exploitation, determine the likely mining method and calculate the volume of the overburden.

The pattern and density of drilling is dictated by the sub-surface geology and geological complexity. No strict norms are set out, but a broad guideline is made available to all exploration camps.

Detailed Exploration is planned based on data available from Regional Exploration and knowledge of sub-surface geology available from adjacent coal blocks or operating mines, opencast or underground. The most common pattern used for drilling is a square grid pattern in which boreholes are drilled on a 400m grid. This is not, however, the optimum pattern in all situations and the specific pattern and density of drilling used is ultimately decided based on the understanding of the terrain and sub-surface geology and requirement to prove structural discontinuities, incrop zones and seam subcrops.

As required by the Indian Standard Procedure (ISP) for resource ("Geological Reserve") estimation, the area of influence of a positive point of information (Point of Observation) is 200m for the Proved category. It is therefore recommended that the distance between two boreholes, whether in a grid pattern or otherwise, showing high degree of variability with respect to seam thickness, should be maximum 400 m. Notwithstanding this, in structurally complex areas and areas where there is a high degree of variability with respect to seam thickness or quality of seams, or in highly faulted areas, boreholes are drilled at a closer spacing than this.

In summary, the guideline document for exploration provides recommendations on drilling density based on the type of area to be detailed explored.

Core drilling is the principal method that CMPDI uses to delineate the coal resource. With time, CMPDI has upgraded the technology and capacity of the drilling rigs. CMPDI now typically uses wireline drilling technique and core sizes of PQ, HQ, NQ and BQ. PQ, HQ, NQ and BQ are size designation within a standardised system of core drilling sizes.

The entire length of core recovered is megascopically examined and logged. The recovered cores are logged immediately at the drill sites for geological and geotechnical information. The geological logs include lithology, grain size, compaction and structural data such as fractures, bedding etc. and the geotechnical logs cover core recovery, RQD and core loss. The cores are logged by geologists for run-wise recording of the thickness of the individual litho-units. The minimum length logged for each individual litho-unit is 5 cm. In cases, where recovery of cores is less than the drilled length, the core losses are adjusted among the different litho-units of the same run according to their physical characters and taking the specific information, if any, from the drilling crews for that particular run. The observations and measurements are then recorded on a pre-defined format and graphical log sheets.

All individual coal horizons of more than 50 cm thickness are marked for sampling during the geological logging. After completion of the borehole, each marked coal band is sampled and packed separately in durable polythene sheets/tubes with unique sample numbers. The packed sample intervals are then placed in hard core boxes and dispatched to either to CMPDI's headquarters in Ranchi or to different regional institutes of Central Institute of Mining & Fuel Research (CIMFR), for carrying out band-by-band analysis.

After the receipt of the band-by-band analysis, seam sections are delineated and laboratories are then requested to run an entire range of analyses, which includes proximate, ultimate and other special tests. Selected samples are also taken for petrographic study, mineral phase analysis through XRD and scanning electron microscopy.

Table 5-1 summarises the relevant standards of BIS for chemical tests followed:

Table 5-1: BIS standard for Chemical tests

Analysis Type	BIS	Preferable Samples
Sub-sampling of borehole Coal cores	IS:436 Part-1/1976, Reaffirmed 2001	
Field sample (ROM, Channel) collection	IS:436 Part-1 Reaffirmed - 2001	
Proximate analysis	IS:1350 Part-1/1984, Reaffirmed 2002	Band by Band/Seam Overall, BCS, "I30" or "I100"
Moisture at 60% RH & 40°C	IS:1350 Part-1/1984, Reaffirmed 2001	BCS, "I30" or "I100"
Gross Calorific Value	IS:1350 Part-2/1970, Reaffirmed 2000	BCS, "I30" or "I100"
Carbon and Hydrogen	IS:1350 Part-4/1974, Reaffirmed 2000	BCS
Carbonate Carbon Dioxide	IS:1350 Part-5/1979, Reaffirmed 2000	BCS
Sulphur	IS:1351/1969, Reaffirmed - 2000	BCS
Form of Sulphur	IS:15438	BCS, "I30" or "I100"
Total Sulphur and Form of Sulphur	IS:1350 (Part III)-1969	BCS, "I30" or "I100"
Nitrogen	IS:1350 Part-4/1974, Reaffirmed 2000	BCS
Phosphorous	IS:1355 - 1984, Reaffirmed 2000	BCS
Ash composition	IS:1355 - 1984	"I100"
Ash Fusion Temperature Range	IS:12891: 1990 (or IS:1355 - 1984)	"I100"
Hard Grove Grindability Index	IS:4433-1979, Reaffirmed - 2000	"I100"
Giesler Plastometric Test	ASTM-D -1990	BCS, "I30" or "I100"
Coal Carbonization	IS:1353 - 1993, Reaffirmed 2013	BCS, "I30" or "I100"
Coke Tests	IS:1354, Reaffirmed - 1992	BCS, "I30" or "I100"
Petrographic Analysis	IS:9127, Reaffirmed - 2004	BCS
Brown Coal & Lignite tests	IS:5062 - 1989, Reaffirmed 2004	
Trace Elements		BCS, "I30" or "I100"

5.3.2 Data Synthesis & Geological Interpretation

The geological data generated from each exploration campaign along with any useable historic exploration data from the block and adjacent blocks/mines is used to interpret the geology and structure. All borehole data is processed through in-house software package developed by CMPDI, Ranchi. The software enables validation of basic lithology and provides output of analytical data, graphic lithologs, seam correlation, seam structures, descriptive lithologs, and descriptive band by band statements. The extracted data is finally fed into Minex software (Minex). Geological models created through Minex are also used to generate different plans of, for example, floor contours, roof contours, seam folios, total depth lines, Coal:OB ratio and total OB. All the contours and seam folios generated through Minex are then exported into AutoCAD for preparation of appropriate plans.

5.3.3 Geological Interpretation in Mined or Disturbed areas

For areas already mined and/or disturbed, or areas affected by fire, as in many areas of BCCL, CMPDI follows a thorough process in updating the surface topography, data compilation and geological interpretation to estimate remaining in-situ coal tonnages. SRK has reviewed CMPDI estimation and/or reconciliation approaches to such and is satisfied that CMPDI follows the industry best practices.

5.3.4 SRK Comments

In SRK's opinion, extensive and appropriate guidelines are in place that govern exploration practices and reporting. These appear to be followed in a consistent manner across all projects. SRK is confident that sufficient data of sufficient quality is collected to support reliable estimates of tonnes and grade and resource estimates as defined by international reporting codes.

For historically mined areas, as some areas under BCCL, there could be some approximation. SRK understand that due to nature of the data such approximation was unavoidable. With the procedures in place, SRK also recognise that such uncertainties were delt with appropriate deductions from the reported quantities and qualities.

5.3.5 Coal Resource Estimation Procedure

This section of the report comments upon the processes BCCL uses to derive estimates of Coal Resources as the term "Coal Resource" is defined internationally, which includes the estimation of the quantities and qualities of the in-situ coal present in the ground.

The term coal resource has been used for such material in this report although BCCL (and CMPDI), itself generally refers to this material variously as "Geological Reserve" (sometimes Geological Resource or Coal Resources).

The term "Extractable Reserve" is used only for that part of coal which is projected to be produced by a mine (opencast or underground), and either sold as product or is subsequently upgraded within a washing plant.

CIL follows ISP (Indian Standard Procedure) for coal resource estimation.

ISP is a guideline defining a procedure for coal resource estimation in existing and closed mines. The guideline was first promulgated in 1957 by the Committee on Assessment of Resources (CAR), a unit within Coal Council of India (CCI) with the intention to provide uniform rules and definitions for geologists. The ISP, however, with changing and developing industrial economy, had been reviewed and modified from time to time and the last such modification attended during 2022.

5.3.6 General Consideration for Coal Resource Estimation

Net Geological Resource (In-Situ Coal in Ground)

This section provides a summary account of CMPDI practice of defining in-situ coal tonnage and its quality; termed as Gross Reserve and Net Geological Reserve, respectively.

Assuming the existence of coal in an area has been proven at several data points (drillholes), the tonnage of coal present in that area is determined by estimating the effective seam thickness and areal extent and bulk density of the coal seam from the available data points. The coal type (coking & non-coking) influences the criteria used to limit resources, for example the minimum thickness criteria. Similarly, the likely extraction technique also influences the definition of critical resource parameters for example the minimum seam thickness, maximum allowable dirt band thickness etc.

After the coal type and probable method of mining have been established, the two key criteria used to classify the resulting estimates are data spacing and distance.

Figure 5-1 illustrate schematically the approach to Net Geological Reserve estimation.

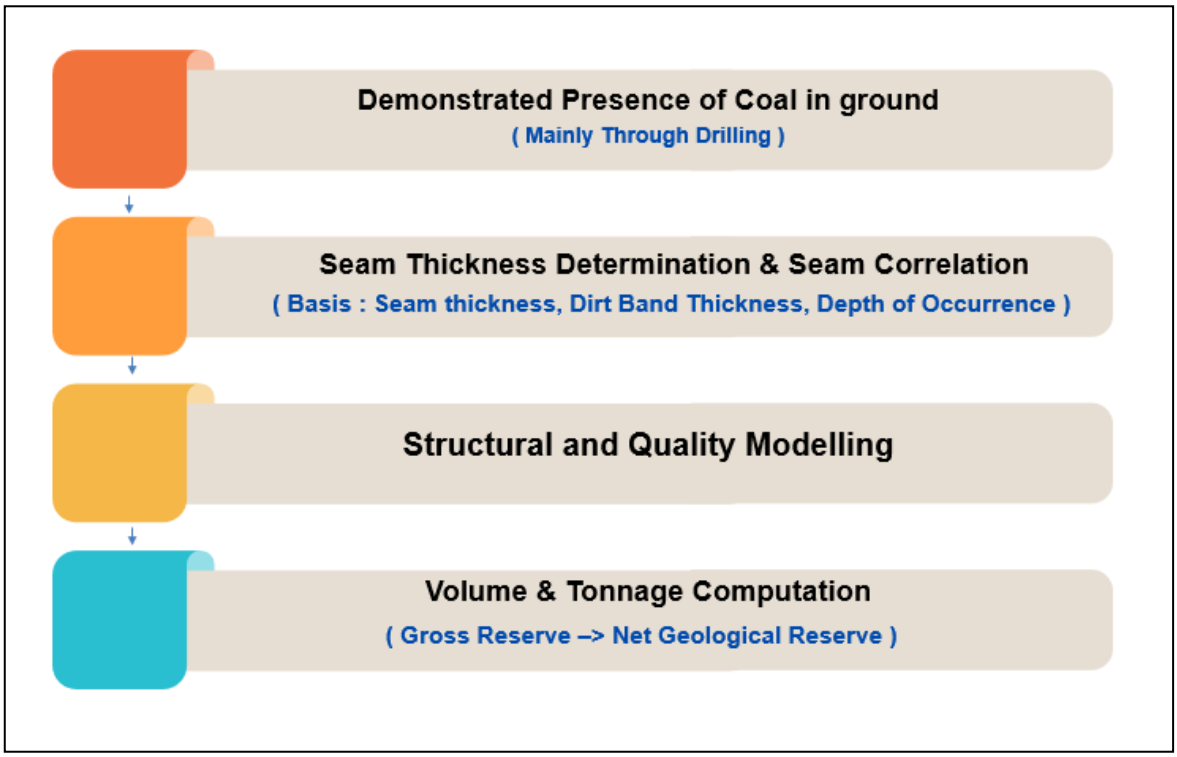


Figure 5-1: Process flow for in-ground Coal tonnage (Net Geological Reserve) Estimation and Categorisation as followed by CMPDI

Seam folio plans with thickness and grade variation contours are used for tonnage and quality estimation. Since 2000, CMPDI has used a computerised coal resource model to estimate its coal resource. The procedure followed comprises the steps as set out below:

The effective thicknesses of the coal seams are determined after the chemical analyses have been plotted to draw isochores of seams to be considered for reserve estimation. Isochore maps in respect of all workable coal seams are prepared, based on I100 or I30 depending on whether the prospect is amenable to opencast or underground mining; I100 meaning coal including combustible dirt band <1.00m; I30 meaning coal thickness including combustible dirt band <0.30m.

There is no definitive guideline on deciding the likely opencast and future underground mining depth limit during seam thickness definition and modelling. However, as a practice, which CMPDI has been following for a long time, a depth of 300 m is considered a depth cut-off, whereby coal thickness modelling is decided, viz. I100 or I30.

Depth cut-off – for opencast up to 300 m depth for seams with vertical stripping ratio generally applied 1:10; underground mining depth ranging 300 – 600 m with a maximum depth consideration of 1200 m.

For high-grade coal such depth cut-off might be extended by 15-20%. Likewise, for highly faulted areas, depth may be reduced.

Post 2018, CMPDI (CIL) has introduced more flexible approaches, including integration of geotechnical parameters in determining maximum depth, consideration of washability characteristics for borderline cases, introduction of incremental stripping ratio concepts for deeper open cast operations, as examples.

Table 5-2: Seam thickness criteria used for determining workable coal seam thickness and geology modelling

Criteria	Opencast (in metre)	Underground (in metre)
Minimum Seam Thickness for resource estimation	1	0.9
Thickness of combustible dirt bands to be included in Seam	Below 1.00	Below 0.30
Maximum thickness of non-combustible band included	0.05	0.05
Coal: Rock thickness for inclusion in seam	>1:1	>1:1
Coal: Overburden ratio (in General otherwise clearly mentioned)	<1:10	>1:10

Isograde s are drawn to delineate the areas of various grades of coals, taking into consideration the ash% level and allowing for all combustible and non-combustible dirt bands. commercial classification according to ash content in coking coals and GCV (Gross Calorific Value) range in non-coking coals.

Table 5-3 through Table 5-5, provides the grade classification for both coking coal and non-coking coal.

Table 5-3: Coking Coal Grades

Grade	Ash %		Sp. Gravity / Density (g/cc)
	(Lower)	(Higher)	
Steel Grade-I	Up to 15.0%		1.42
Steel Grade-II	15.1%	18.0%	1.44
Washery Grade-I	18.1%	21.0%	1.46
Washery Grade-II	21.1%	24.0%	1.50
Washery Grade-III	24.1%	28.0%	1.53
Washery Grade-IV	28.1%	35.0%	1.58
Washery Grade-V	35.1%	42.0%	Yet to be determined
Washery Grade-VI	42.1%	49.0%	Yet to be determined
Non-coking Coal	49.1%	65.0%	As applicable

Note:

(1) Two new grades in the range of >35% to 42% and >42% to 49% ash are included in low moisture coking coal category as Washery Grade-V and Washery Grade-VI respectively, subject to showing coking propensity on Carbonization alone or in blends. Otherwise, it is non-coking coal.

(2) Balance low moisture coal beyond 49.1% ash is non-coking coal and is to be classified according to GCV.

Table 5-4: Semi-Caking to Weakly Caking Coal grades

Grade	Ash + Moisture %		Sp. Gravity / Density (g/cc)
	Lower	Higher	
Semi-caking-I	Up to 19.0%		1.44
Semi-caking-II	19.1%	24.0%	1.46

Table 5-5: Non-coking Coal Grades and average density

Grade	GCV (kcal/kg)	Density (gm/cc)
G1	> 7000	1.36
G2	6701 – 7000	1.40
G3	6401 – 6700	1.43
G4	6101 – 6400	1.44
G5	5801 – 6100	1.47
G6	5501 – 5800	1.50
G7	5201 – 5500	1.53
G8	4901 – 5200	1.56
G9	4601 – 4900	1.58
G10	4301 – 4600	1.61
G11	4001 – 4300	1.65
G12	3701 – 4000	1.69
G13	3401 – 3700	1.73
G14	3101 – 3400	1.78

Grade	GCV (kcal/kg)	Density (gm/cc)
G15	2801 – 3100	1.81
G16	2501 – 2800	1.84
G17	2201 – 2500	1.87

The area so delineated for each seam is multiplied by the average of thickness of enclosing isochors so as to arrive at the volume of coal.

In case of in crop zones, half of the total thickness of the seam is considered for determination of volume of the coal. In case of thick seams isochores within the incrop zones are also drawn and reserves are estimated accordingly.

Following this, the volume of coal is calculated grade-wise, depth-wise and coal: overburden cut off ratio-wise by measuring the area between the two successive isochores (i.e. iso-thickness lines) and by then multiplying this by the average thickness value of corresponding isochores.

Overburden ratio lines of seam folio plans are drawn by subtracting borehole-wise total effective thickness of coal seams from respective depth values of the floor of the Seam and then dividing by total effective thickness contours are produced. The topography is also considered for drawing overburden ratio lines.

Areas arising out the interplay of isogrades and isochores within each sub-sector are measured with the help of planimeters, within the barriers and also outside the barriers.

The **Gross Geological Reserve** is then calculated by multiplying the volume thus obtained by the specific gravity for the particular grade of coal.

A deduction of 10% of the gross reserve is made in order to obtain the **Net Geological Reserve** of coal.

The areas falling within heave zones of faults are not considered for the reserve estimation. If exploration blocks are affected by faults or other geological structure, CMPDI divides the area into different sectors and estimates the resource for each sector.

Resources which fall under river, highways, power lines and railway tracks are estimated separately.

In summary, Net Geological Reserve, is the Inventory Coal, is any occurrence of coal in the ground that can be estimated and reported without being constrained by technical and economic potential.

The balance Net Geological Reserve (the Inventory Coal) for BCCL as on 31.03.2025 is as given in Table 5-6.

Table 5-6: BCCL's Net Geological Reserve Effective 31 March 2025

Unit	Proved		Indicated	Inferred	Depletion	Balance Net Geological Reserve (Inventory Coal)
	Coking	Non-Coking				
Million Tonnes	6856.7	4925.4	1726.9	58.1	300.0	13267.1

Note: The terminologies for Geological Reserve used in this table are according to ISP norms and should not be read as the similar terminologies used in the JORC Code.

Net Geological Resources within Pit Limit or Mineable through Underground

Once "correlatable seams" are identified and in-situ coal in ground is defined thereby Net Geological Reserve (or, Net Geological Resources) within a block is defined, initial mining parameters are applied to determine which part of the Net Geological Reserve is potential to be mined, either through open cast or underground mining methods.

Study of reports shared by BCCL (Project Reports and Mine Plans), shows that coal that are likely to be lost or sterilised due to surface and geotechnical constraints (example, coal in the Open Pit Batter), are subtracted from the Net Geological Reserve.

Since most of the BCCL area are worked areas, either through opencast or through underground, SRK has identified projects (example, Pure Benedih-Block-II UG mine), where some seams (and so the coal tonnages) are not proposed for UG mining due to low parting thickness with floor of overlying opencast workings and areas with large overburden dumps and hence removed from Net Geological Reserve estimates to arrive at Coal Resources.

Noteworthy to mention that CMPDIL/BCCL uses the term "Mineable Reserve" for such balance tonnages for Underground mines. For opencast mines, CMPDI/BCCL uses the term "Net Geological Reserve within Ultimate Pit". Both qualifies to be Coal Resource as per definition of the JORC 2012 code.

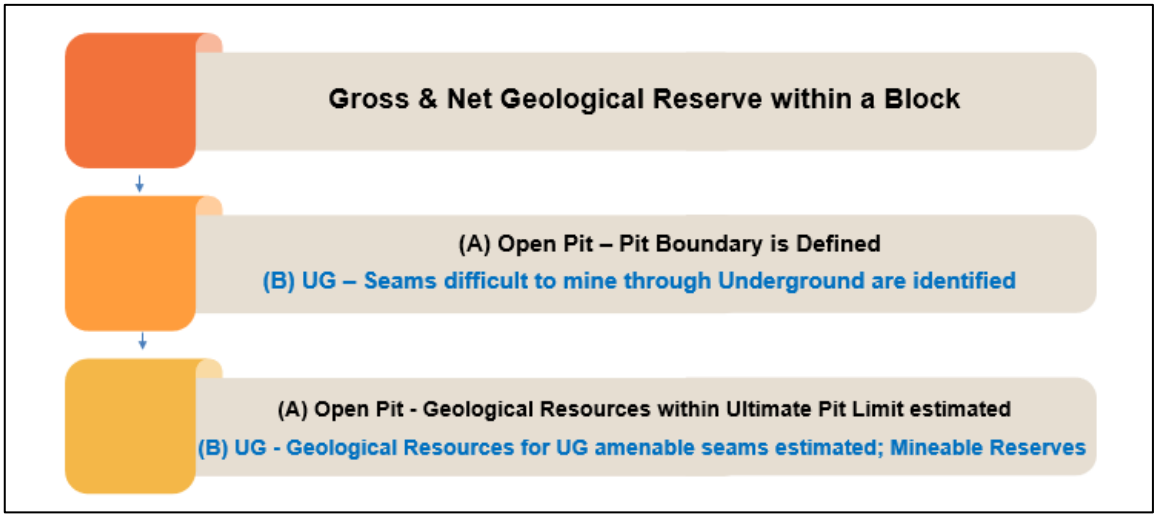


Figure 5-2: Process flow for Coal Resource definition that is potentially mineable

SRK considers the above approach of assessing the mineable potential, either through opencast or through underground, meets the test of **reasonable prospects for eventual economic extraction,** ensuring the process compatibility with international practices for Coal Resource reporting; and therefore the quantities and quality of coal, which has been subjected to such process, can be qualified as the Coal Resources, as the term is defined in the JORC Code.

SRK Comments

BCCL estimates the Geological Reserves, as the term is defined in the Indian Standard Practice (ISP), broadly in two stages:

- In the first stage, drillhole data, data from colliery are used to model and estimate volume and tonnage of coal available in ground. BCCL/CMPDI terms these as Gross and Net Geological Reserve, sometimes also termed as Gross and Net Geological Resource.
- Geological Reserves are classified into Proved, Indicated and Inferred categories based on the drillhole spacings and the degree at which exploration has been done.
- Where balance Geological Reserves are to be reported, as for all coal blocks and mines of BCCL, coal already extracted are excluded while reporting.

Notably, for the purpose of the reporting of the Gross Geological Reserves or Net Geological Reserves, the likely mining methods, the coal which can be potentially sterilised due to any environmental or social constrains are reported separately.

5.3.7 Mineable and Extractable Reserve Estimation Procedure

BCCL uses the terms Mineable Reserve for opencast projects. For underground projects it uses the term Extractable Reserve.

Technical Studies

The process is initiated by exploration and data collection followed by geological interpretation as part of the resource ("geological reserve") estimation. Other non-resource inputs or modifying factors are then considered to first produce a Mineable Reserve estimate and then an Extractable Reserve estimate. The modifying factors include the economy of mining the coal, the reserve available, the quality of coal to be mined, geo-mining conditions, surface constraints, the demand for coal and environment & social factors.

Typically, CMPDIL considers "Proved Geological Reserve" in undertaking a Mining Study. In some cases, Indicated category of Coal Resources is also considered in which case capital provisions are made for further exploration for updating the category to the "Proved Geological Reserves" one as part of the mine development.

Opencast Projects

For opencast projects, **Mineable Reserves** are estimated after accounting for mine design issues, mining recovery and after excluding coal production numbers. For opencast, 90% mining recovery is usually considered. Figure 5-3 provides for a schematic illustration of the process using Block-E as an example.

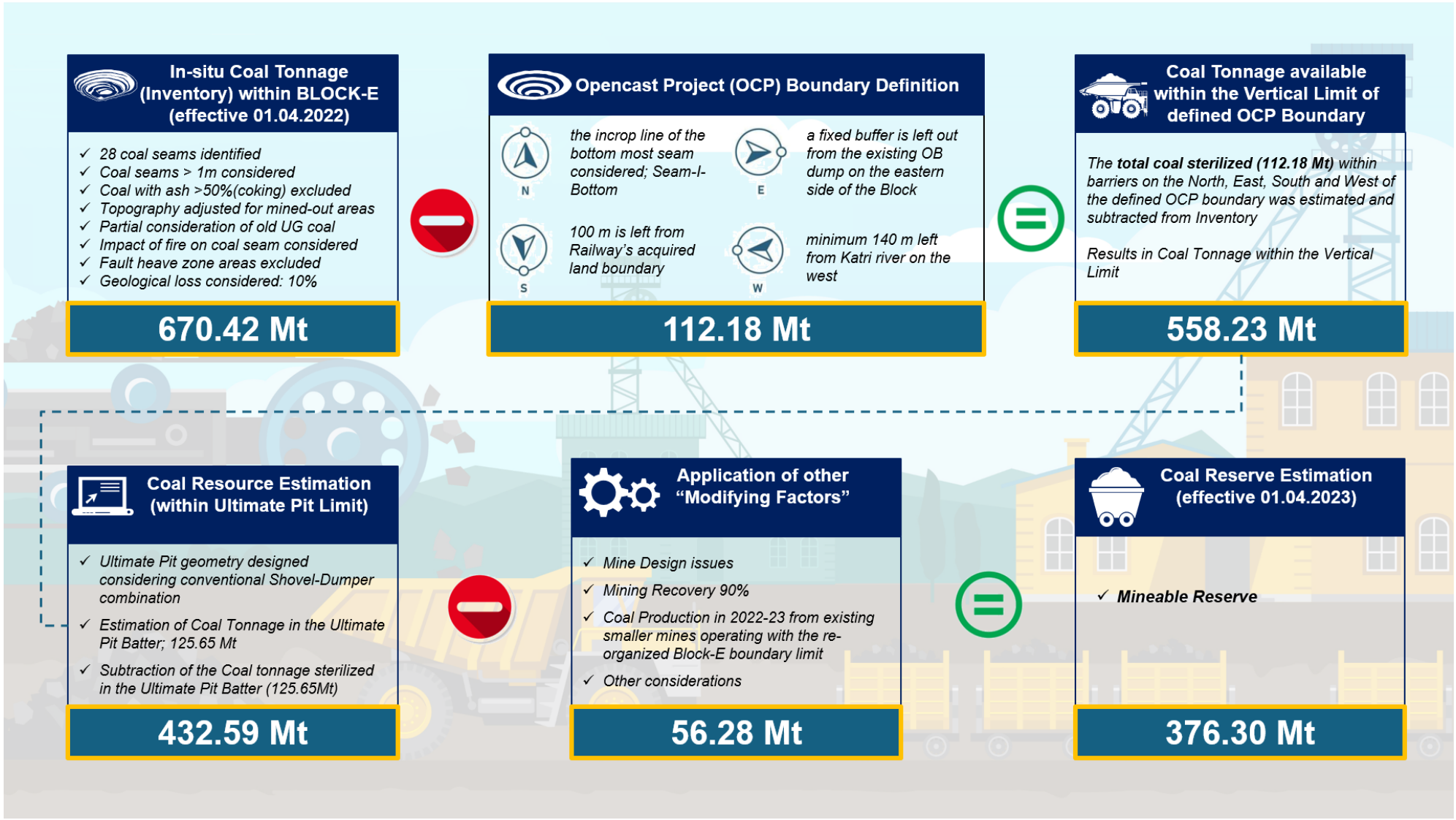


Figure 5-3: BCCL approach to converting In-situ coal tonnage (Net Geological Reserve) to Coal Resource and Coal Reserve – example reorganised Block-E OCP

Underground Projects

For underground projects, **Extractable Reserves Estimation** is generally a two-stage process:

- In the first stage, seams which have achieved appropriate workable thickness and have considerable spatial extent within the defined mine boundary are chosen. Depending on the property geology Parting thickness are also important considerations. Accordingly **Mineable Reserve** is estimated.
- The Mineable Reserve is then converted to **Extractable Reserve** after accounting for design loses. The loss of reserve due to the mining technology adopted and coal loss due to geo-mining conditions like panel barriers, safety pillars, barriers along fault lines, as well as coal below important surface features like Roads, streams/nala. For some BCCL mines coal lying below overburden dumps (on the surface due to old opencast mining) are sometimes also left out from the estimate of Reserve.

Figure 5-4 provides for a schematic illustration of the process using Pure Benedih UG as an example.

The highest recovery of reserves is obtained in underground mines employing long wall technology (60-70%) and the lowest in mines adopting a bord and pillar method of mining. Similarly, recoveries of 40-50% in mechanised bord and pillar mines at depths less than 300 m reduces sharply at depths of more than 300 m because of necessity of leaving larger sized ribs and pillars for support. The recovery may be less than 15-20% if coal is extracted in the development stage of mining only leaving large amount of reserves standing on pillars (which are not depillared due to prevailing geo-mining and socio-technical reasons) as has happened in the underground mines operating mostly during pre-nationalisation period and in some mines even after nationalisation.

Balance Extractable/Mineable Reserves

The method of estimating the balance extractable coal reserve for underground mines is in principle almost same as that practiced in the opencast coal mines. Every coal seam is tagged with a particular grade of coal. Coal production from each seam is subtracted from the reserve of that corresponding coal seam and the balance extractable coal reserve arrived at in respect of that grade

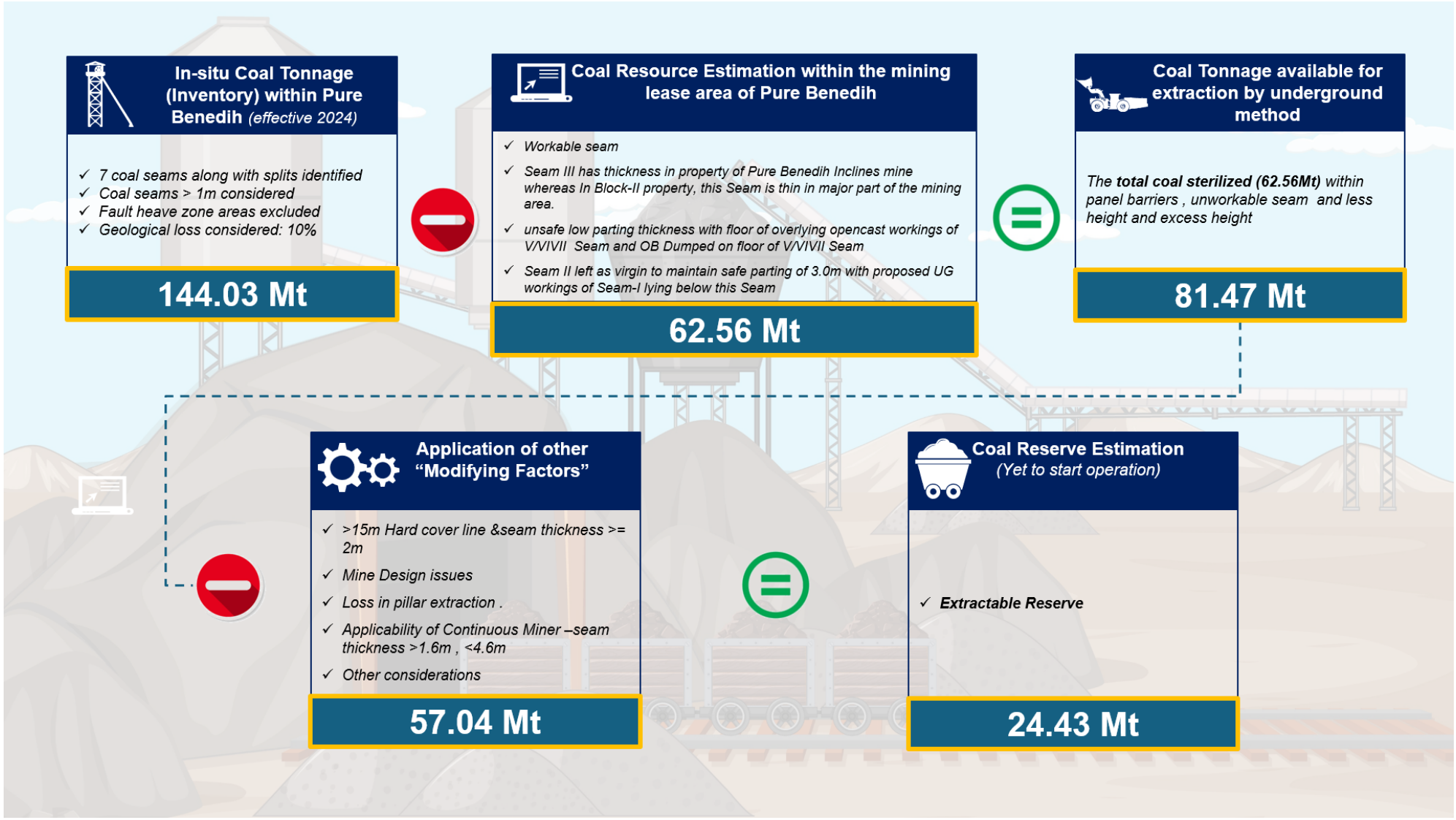


Figure 5-4: BCCL approach to converting In-situ coal tonnage (Net Geological Reserve) to Coal Resource (Mineable Reserve) and Coal Reserve (Extractable Reserve) – example Pure Benedih Underground

SRK Comments

In SRK's opinion the process followed by BCCL/CMPDI in defining the Geological Reserves and to derive the Mineable Reserves and/or Extractable Reserves are thorough and appropriate.

Notably, SRK considers the Project Reports (PRs) to be analogous to feasibility studies that are typically produced for international projects, and which form the basis of Coal Reserve reporting internationally.

When a mine commences operation, the balance of Coal Reserve at the beginning of a financial term is calculated by deducting the coal produced by the mine in the last financial term from the Mineable/Extractable Reserve estimate given in the PR. This process is repeated at the end of every financial year to arrive at the balance Coal Reserve numbers at the start of a new financial term. The coal produced by the mine represents the sum of coal dispatched and the coal left in RoM and in crushed coal stockpiles.

Grade wise balance extractable reserve estimation as practiced by the mine management is based on the declared grade of individual coal seams. The tonnage of coal mined out of individual coal seams in opencast mines is calculated by survey measurements and subtracted from the extractable reserve of the corresponding coal seams reported in PRs. This process does introduce some approximation in grade reporting as iso-grade and seam folio maps are not referred to or used for estimating the grade mined and the balance remaining. Given that the selling price for projects is determined based on the declared grade of a project, such estimates of balance reserve should not have important impact.

5.4 Mapping of the ISP Reporting Terminologies with the JORC Code

5.4.1 Core Principles of JORC Code

The JORC Code sets the minimum standard for Public Reporting, which is defined as the reports prepared for the purpose of informing investors or potential investors and their advisers on Exploration Results, Coal Resources or Coal Reserves.

The principles of the JORC Code are threefold, which includes the materiality, transparency and competency. A public report should be presented clearly and unambiguously, it should include all the information reasonably required and expected and it should be based on work undertaken by a Competent Person, as the term defined in the JORC Code.

Clauses 42 to 44 of the JORC Code address matters that relate specifically to the Public Reporting of Coal Resources and Coal Reserves. These clauses, however, do not override the Clauses 1 to 41 and Clause 51; Figure 1 and Table 1, as these are defined in the JORC Code.

5.4.2 Definition of the Key Terminologies in the JORC Code

Coal Resources

Notably, one of the critical qualifiers for the reporting of the "**Coal Resource**" include the material to have "reasonable prospects for eventual economic extraction". There are three categories of Coal Resources, and with the increasing order of geological confidence these can be classified into Inferred, Indicated and Measured Coal Resources.

Portions of a coal deposit that do not have reasonable prospects for eventual economic extraction (at the time of evaluation), must not be included in the Coal Resource. If the judgment as to 'eventual economic extraction' relies on untested practices or assumptions, this is a material matter which must be disclosed in a public report.

The term **'reasonable prospects for eventual economic extraction'** implies a judgment (albeit preliminary) in respect of the technical and economic factors likely to influence the prospect of economic extraction, including the approximate mining parameters. In other words, a Coal Resource is not an inventory of all coal drilled or sampled, regardless of cut-off grade, likely mining dimension, location or continuity. Coal Resource is a realistic inventory of mineralization which, under assumed and justifiable technical and economic conditions, might, in whole or in part, become economically extractable.

In essence, the phrase **"reasonable prospect for eventual extraction"** is a key term used in the mining industry to indicate a project's potential for future profitability, considering various technical, economic, and regulatory factors. It's a crucial consideration for investors as it helps them assess the risk and reward associated with investing in a mining project.

Inferred Coal Resources

An **Inferred Coal Resource** is that part of the total Coal Resource estimate for which quantity and quality can only be estimated with low levels of confidence. It should be expected that estimates reported in this confidence category are likely to change significantly with further exploration.

Confidence in the estimate of Inferred Coal Resources is usually not sufficient to allow the results of the application of technical and economic parameters to be used for detailed planning. For this reason, there is no direct link from an Inferred Resource to any category of Coal Reserves.

Indicated Coal Resources

An **Indicated Coal Resource** is that part of the total Coal Resource for which quantity and quality can be estimated with reasonable levels of confidence and based on points of observation are sufficient for continuity to be assumed; but are too widely or inappropriately spaced to confirm geological and/or quality continuity.

The Inferred category is intended to cover situations where a mineral concentration or occurrence has been identified and limited measurements and sampling completed, but where the data are insufficient to allow the geological and/or grade continuity to be confidently interpreted. Commonly, it would be reasonable to expect that the majority of Inferred Coal Resources would upgrade to Indicated Coal Resources with continued exploration. However, due to the uncertainty of Inferred Coal Resources, it should not be assumed that such upgrading will always occur.

Measured Coal Resources

A **Measured Coal Resource** is that part of the total Coal Resource for which quantity and quality can be estimated with a high level of confidence based on points of observation spaced closely enough to confirm geological and/or quality continuity.

Coal Reserves

A **Coal Reserve** is the economically mineable part of a Measured or Indicated Coal Resource. Coal Reserve estimates include diluting materials and are adjusted for losses that may occur when the coal is mined. Appropriate assessments, which may include feasibility studies, have been carried out. These assessments should include proper consideration of all relevant ‘modifying factors’ such as mining methods, beneficiation, and economic, marketing, legal, environmental, social and governmental factors. These assessments should demonstrate that at the time of reporting, economic extraction could reasonably be justified. Coal Reserves are subdivided in order of increasing confidence into Probable Coal Reserves and Proved Coal Reserves.

Probable Coal Reserves

A **Probable Coal Reserve** is the economically mineable part of an Indicated Coal Resource. It can also be the economically mineable part of a Measured Coal Resource if the modifying factors need to be further resolved before the Estimator can confidently place the Coal Reserve in the Proved category.

Proved Coal Reserves

A **Proved Coal Reserve** is the economically mineable part of a Measured Coal Resource for which the modifying factors have been determined based on technical and economic assessment.

5.4.3 Mapping of the ISP and JORC Terminologies

The reviewed Geological Reserve and Mineable/Extractable Reserves of BCCL, as presented in Section 5-5, have been classified using the definitions and reporting guidelines of the JORC 2012 code and the Australian guidelines for estimation and classification of Coal Resources (2014 edition).

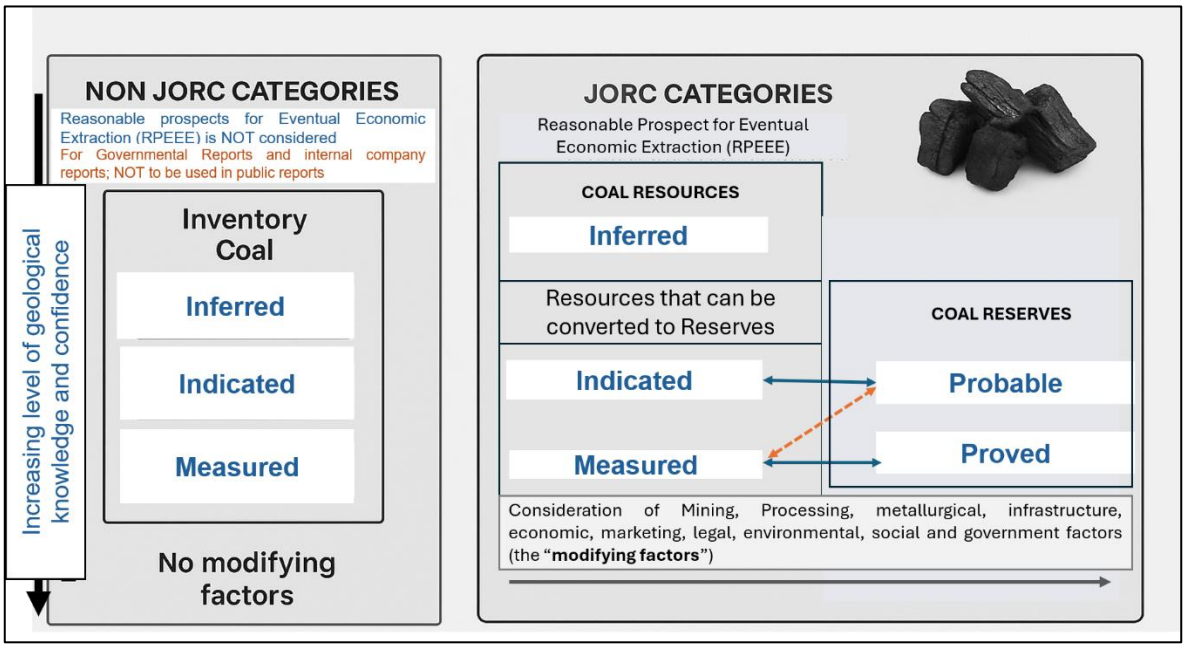


Figure 5-5: Relationship between Inventory Coal, Resource and Reserve Classifications

Figure 5-3 sets out the framework for classifying estimates of tonnage and quality so as to reflect different levels of geological confidence and different degrees of technical and economic evaluation. Coal Resources are reported on the basis of geoscientific information and reasonable assumptions of technical and economic factors likely to influence the prospect of economic extraction.

SRK's Reserve and Resource categories with their definitions, and interpretations relevant to this study, are given in the Table below.

Table 5-7: Definitions of the ISP Reserves and Resources

Category	Definitions Used	SRK Interpretation
Proved Reserve	Feasibility study has been completed to show that extraction is justified at the time of determination and under specified economic conditions. Satisfies definition of "Measured Resource" as given below	A prospective re-organised block or operating opencast mine where technical studies are complete and/or projects which are operating at profits, land for operating areas acquired, or there are plans for land acquisition with schedule for acquisition prepared An underground reserve zone which has been substantially blocked out by development or is operating at profit Mines outsourced to Contract Miner's on revenue sharing with fresh Mine Plan approved

Category	Definitions Used	SRK Interpretation
Probable Reserve	Technical studies show that extraction is justified at the time of determination and under specified economic conditions, but all disciplines are not to the fullest feasibility study level and to be completed. Satisfies definition of either “Measured Resource” or “Indicated Resource” as given below.	A prospective block or operating mine where technical studies are not complete to a full feasibility level, where more scientific studies are desired for confirmation on mine design and/or recommended by CMPDI for undertaking such Mines operating at a loss for last 2 to 3 years Mine Plan not yet approved and/or Mine Plan post allocation to MDO not available to SRK Planned mining areas which SRK evaluated would likely have challenge with R&R
Measured Resource	Geological character, continuity, coal quality and deposit nature are so well defined that the physical character, size, shape are established with a high degree of certainty	Coal that falls within a radius of 200m around boreholes or closer Based on only Detailed Exploration Data are sufficient to undertake technical and economic appraisal and to enable an evaluation of economic viability with a high level of confidence High level of confidence in, and understanding of the geology and the controls of the mineral deposit
Indicated Resource	Sites used for inspection, sampling and measurement are too widely spaced to enable the material or its continuity to be defined or its coal quality throughout to be established.	Coal that falls within a radius of 200-1000m around boreholes Based on Detailed Exploration and Regional Exploration and considered to be reasonably prospective Only a portion of the data are considered to undertake the technical and economic appraisal Lower level of confidence than that applying to a Proved Geological Reserve, but has a higher level of confidence than that applying to an Inferred Geological Reserve

5.5 SRK Audited Coal Resource and Coal Reserve Estimates

5.5.1 Introduction

This section of the report presents SRK's audited resource and reserve statements according to the guidelines and definitions set out in the JORC Code (2012). As already commented, SRK has not recalculated these resource or reserve estimates but has undertaken sufficient check calculations and where appropriate, made necessary adjustments to the estimates prepared by the Company to derive the audited estimates presented herein.

5.5.2 SRK Audited Coal Resources and Coal Reserves Estimates

Table 5-8 and Table 5-9, presents SRK's audited Coal Resource and Coal Reserve estimates for BCCL, as of 31 March 2025. These estimates reflect resource and reserve depletion due to production from operating mines and exclude material that cannot be realised either due to overwhelming geological and mining conditions or other surface constraints and those reserves that are lost and left out in mine boundaries, batter, locked due to surface structures, reserves left in panel boundaries, shaft pillars, and mining losses.

Coal Resources and Coal Reserves statement prepared in accordance with the JORC Code (2012) is presented separately under the following headings:

- Against mining methods
- For Major Mines
- Quality-wise Coal Resources and Reserves, separately for Coking Coal and Non-coking Coal
- Total Resources and Reserves for Producing Mines; and
- Coal Resources and Reserves for reorganized opencast blocks, viz. Block-A to Block-G

Mine wise Coal Resources and Coal Reserves along with respective coal quality is provided in Annexure-B

Table 5-8: SRK Audited Coal Resource Statement of BCCL Effective 31 March 2025

Mines	Measured Resource (Mt)			Indicated Resource (Mt)			Inferred Resource (Mt)			Total Resource (Mt)
	Non-Coking	Coking	Total	Non-Coking	Coking	Total	Non-Coking	Coking	Total	
Damoda Patch	0.0	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	1.6
ABOCP	0.0	58.8	58.8	0.0	0.0	0.0	0.0	0.0	0.0	58.8
Pure Benedih-Block-B	0.0	42.9	42.9	0.0	0.0	0.0	0.0	0.0	0.0	42.9
Pure Benedih-Block-C	0.0	33.2	33.2	0.0	5.5	5.5	0.0	0.0	0.0	38.7
AMP colliery OCP	0.0	50.3	50.3	0.0	0.0	0.0	0.0	0.0	0.0	50.3
Block-D	0.0	168.1	168.1	0.0	0.0	0.0	0.0	0.0	0.0	168.1
Block-E	220	181.2	401.2	0.0	0.0	0.0	0.0	0.0	0.0	401.2
Amalgamated NTST-Kujama OCP	22.9	144.9	167.8	0.0	0.0	0.0	0.0	0.0	0.0	167.8
Madhuband Colliery	5.3	98.7	104.0	0.0	0.0	0.0	0.0	0.0	0.0	104.0
Kharkharee Colliery	35.4	64.8	100.2	0.0	0.0	0.0	0.0	0.0	0.0	100.2
Amalgamated Salanpur Gaslitand Katras Choitudih Colliery (ASGKCC)	123.7	262.6	386.3	0.0	0.0	0.0	0.0	0.0	0.0	386.3
Loyabad Colliery	22.1	19.3	41.4	0.0	0.0	0.0	0.0	0.0	0.0	41.4
PB Project Colliery	16.7	98.8	115.5	0.0	0.0	0.0	0.0	0.0	0.0	115.5
Amlabad Colliery	0.0	22.1	22.1	0.0	0.0	0.0	0.0	0.0	0.0	22.1
New Godhur-Kusunda-Alkusa Colliery	0.0	11.6	11.6	0.0	0.0	0.0	0.0	0.0	0.0	11.6
New Godhur Kusunda UG	0.0	157.1	157.1	0.0	0.0	0.0	0.0	0.0	0.0	157.1
ADIC	34.5	9.8	44.3	0.0	0.0	0.0	0.0	0.0	0.0	44.3
Ena Colliery	5.9	39.3	45.2	0.0	0.0	0.0	0.0	0.0	0.0	45.2
Bastacolla Colliery	0.5	15.3	15.8	0.0	0.0	0.0	0.0	0.0	0.0	15.8
ROCP	1.7	14.6	16.3	0.0	0.0	0.0	0.0	0.0	0.0	16.3
Amal Bera-Dobari-Kuya-Ghanudih	7.1	46.1	53.2	0.0	0.0	0.0	0.0	0.0	0.0	53.2
Gopalichuck	0.0	4.6	4.6	0.0	0.0	0.0	0.0	0.0	0.0	4.6
Maheshpur	4.4	4.5	8.9	0.0	0.0	0.0	0.0	0.0	0.0	8.9
Kankanee	0.0	4.8	4.8	0.0	0.0	0.0	0.0	0.0	0.0	4.8
Bansdeopur	0.0	4.6	4.6	0.0	0.0	0.0	0.0	0.0	0.0	4.6
Bhowrah (North+South) UG	0.0	66.3	66.3	0.0	0.0	0.0	0.0	0.0	0.0	66.3
Amalgamated Bhowrah North South OCP	0.0	12.3	12.3	0.0	0.0	0.0	0.0	0.0	0.0	12.3
ASP colliery	0.0	16.5	16.5	0.0	0.0	0.0	0.0	0.0	0.0	16.5
Dahibari Basantimata	1.7	0.1	1.7	0.0	0.0	0.0	0.0	0.0	0.0	1.7
Kalyaneshwari OCP	0.0	79.0	79.0	0.0	0.0	0.0	0.0	0.0	0.0	79.0

Mines	Measured Resource (Mt)			Indicated Resource (Mt)			Inferred Resource (Mt)			Total Resource (Mt)
	Non-Coking	Coking	Total	Non-Coking	Coking	Total	Non-Coking	Coking	Total	
Moonidih-Seam XV	0.0	26.0	26.0	0.0	0.0	0.0	0.0	0.0	0.0	26.0
Amal Joyrampur-Mega Patch D	0.0	16.2	16.2	0.0	0.0	0.0	0.0	0.0	0.0	16.2
Kendwadih Patch	0.4	1.8	2.2	0.0	0.0	0.0	0.0	0.0	0.0	2.2
Total	**502.3**	**1777.6**	**2279.9**	**0.0**	**5.5**	**5.5**	**0.0**	**0.0**	**0.0**	**2285.4**

Notes:

- For Loyabad - only the south pit is working and other two pits are full of water and abandoned.
- For Kankanee- Values are revised according to documents available.
- For ASP Colliery depletion is added.
- For Dahibari figures are updated according to documents.
- Moonidih - Seam XV, Amal- Joyrampur, Damoda Patch and Kendwadih Patch are added to the database.
- All figures are rounded to the nearest 100,000 tonnes.
- Coal Resources reported herein includes only the material that has reasonable prospect for eventual economic extraction, which have been evaluated by a conceptual open pit for the coal that has open pit potential and an underground mining envelope for the coal that has underground potential. The Measured and Indicated Coal Resources, which are reported herein, includes the materials which have been converted to Coal Reserves, where appropriate.
- Coal Resources are not Coal Reserves and the part of the Coal Resources which have not been converted into Coal Reserves, do not have demonstrated economic viability.

Table 5-9: SRK Audited Coal Reserve Statement of BCCL Effective 31 March 2025

Mines	Proved Reserve (Mt)			Probable Reserve (Mt)			Total Reserve (Mt)
	Non-Coking	Coking	Total	Non-Coking	Coking	Total	
Damoda Patch	0.0	1.5	1.5	0.0	0.0	0.0	1.5
ABOCP	0.0	53.2	53.2	0.0	0.0	0.0	53.2
Pure Benedih- Block-B	0.0	0.0	0.0	0.0	9.3	9.3	9.3
Pure Benedih- Block-C	0.0	7.5	7.5	0.0	7.6	7.6	15.1
AMP colliery OCP	0.0	45.2	45.2	0.0	0.0	0.0	45.2
Block-D	0.0	151.0	151.0	0.0	0.0	0.0	151.0
Block-E	198.1	162.8	360.9	0.0	0.0	0.0	360.9
Amalgamated NTST-Kujama OCP	20.6	130.4	151.0	0.0	0.0	0.0	151.0
Madhuband Colliery	3.1	56.3	59.4	0.0	0.0	0.0	59.4
Kharkharee Colliery	0.0	0.0	0.0	29.5	54.0	83.5	83.5
Amalgamated Salanpur Gaslitand Katras Choitudih Colliery (ASGKCC)	30.3	64.5	94.8	0.0	0.0	0.0	94.8
Loyabad Colliery	0.0	0.0	0.0	13.2	11.6	24.8	24.8
PB Project Colliery	0.0	62.6	62.6	10.5	0.0	10.5	73.1
Amlabad Colliery	0.0	0.0	0.0	0.0	16.6	16.6	16.6
New Godhur-Kusunda-Alkusa Colliery	0.0	10.7	10.7	0.0	0.0	0.0	10.7
New Godhur Kusunda UG	0.0	17.3	17.3	0.0	0.0	0.0	17.3
ADIC	30.9	8.7	39.6	0.0	0.0	0.0	39.6
Ena Colliery	5.4	35.3	40.7	0.0	0.0	0.0	40.7
Bastacolla Colliery	0.5	13.6	14.1	0.0	0.0	0.0	14.1
ROCP	1.5	13.2	14.7	0.0	0.0	0.0	14.7
Amal Bera-Dobari-Kuya-Ghanudih	6.4	41.5	47.9	0.0	0.0	0.0	47.9
Gopalichuck	0.0	0.0	0.0	0.0	3.3	3.3	3.3
Maheshpur	2.7	2.7	5.4	0.4	0.4	0.8	6.2
Kankanee	0.0	4.2	4.2	0.0	0.0	0.0	4.2
Bansdeopur	0.0	0.0	0.0	0.0	4.5	4.5	4.5
Bhowrah (North+South) UG	0.0	0.0	0.0	0.0	16.1	16.1	16.1
Amalgamated Bhowrah North South OCP	0.0	10.9	10.9	0.0	0.0	0.0	10.9
ASP colliery	0.0	14.9	14.9	0.0	0.0	0.0	14.9
Dahibari Basantimata	1.2	0.0	1.2	0.0	0.0	0.0	1.2
Kalyaneshwari OCP	0.0	70.0	70.0	0.0	0.0	0.0	70.0
Moonidih- Seam XV	0.0	23.4	23.4	0.0	0.0	0.0	23.4
Amal Joyrampur- Mega Patch D	0.0	14.5	14.5	0.0	0.0	0.0	14.5
Kendwadih Patch	0.4	1.6	2.0	0.0	0.0	0.0	2.0
Total	**301.1**	**1017.4**	**1318.5**	**53.6**	**123.3**	**176.9**	**1495.4**

Notes:

- For Loyabad MDO, Mine plan post MDO allocation not seen/ located.
- For PB Project, lower seam considered for longwall has not been studied (scientific study).

- For Amlabad mine plan, documents post MDO allocation not seen / located.
- All figures are rounded to the nearest 100,000 tonnes.
- The economic viability of the reported Coal Reserves is evaluated by applying Modifying Factors to the Measured and Indicated Coal Resources. This also considers assumptions based on at least a Prefeasibility Study to determine the mining recovery and dilution factors and evaluation of basic infrastructure requirements, and a confirmation on extraction of coal can be economically justified under such technical and economic assumptions.

Table 5-10: SRK Audited Quality-wise Coal Resources and Reserves of BCCL Effective 31 March 2025

Quality	Proved Reserve (Mt)	Probable Reserve (Mt)	Total Reserve (Mt)	Measured Resources (Mt)	Indicated Resources (Mt)	Inferred Resources (Mt)	Total Resources (Mt)
Coking Coal							
S-I	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-II	7.6	1.6	9.2	13.6	0.0	0.0	13.6
W-I	15.2	2.7	17.9	22.8	0.0	0.0	22.8
W-II	75.7	23.6	99.3	140.5	0.0	0.0	140.5
W-III	130.6	27.8	158.4	269.2	0.0	0.0	269.2
W-IV	503.8	67.5	571.3	879.3	5.5	0.0	884.8
W-V	278.1	0.2	278.3	445.2	0.0	0.0	445.2
W-VI	6.3	0.0	6.3	7.0	0.0	0.0	7.0
Total	**1017.4**	**123.3**	**1140.7**	**1777.6**	**5.5**	**0.0**	**1783.1**

Thermal Coal							
Quality	**Proved Reserve (Mt)**	**Probable Reserve (Mt)**	**Total Reserve (Mt)**	**Measured Resources (Mt)**	**Indicated Resources (Mt)**	**Inferred Resources (Mt)**	**Total Resources (Mt)**
G1	0.0	0.0	0.0	0.1	0.0	0.0	0.1
G2	0.1	0.0	0.1	0.2	0.0	0.0	0.2
G3	3.1	0.0	3.1	3.5	0.0	0.0	3.5
G4	11.9	0.0	11.9	13.1	0.0	0.0	13.1
G5	53.9	13.8	67.7	85.1	0.0	0.0	85.1
G6	83.1	8.2	91.3	106.1	0.0	0.0	106.1
G7	61.8	6.4	68.2	130.9	0.0	0.0	130.9
G8	30.2	20.5	50.7	92.1	0.0	0.0	92.1
G9	51.9	4.7	56.6	65.5	0.0	0.0	65.5
G10	4.6	0.0	4.6	5.1	0.0	0.0	5.1
G11	0.4	0.0	0.4	0.5	0.0	0.0	0.5
G12	0.1	0.0	0.1	0.1	0.0	0.0	0.1
G13	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G14	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G15	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G16	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G17	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	**301.1**	**53.6**	**354.7**	**502.3**	**0.0**	**0.0**	**502.3**

Coking + Thermal	**1318.5**	**176.9**	**1495.4**	**2279.9**	**5.5**	**0.0**	**2285.4**

Notes:

- All figures are rounded top the nearest 100,000 tonnes.
- Coal Resources reported herein includes only the material that has reasonable prospect for eventual economic extraction, which have been evaluated by a conceptual open pit for the coal that has open pit potential and an underground mining envelope for the coal that has underground potential. The Measured and Indicated Coal Resources, which are reported herein, includes the materials which have been converted to Coal Reserves, where appropriate.

- The economic viability of the reported Coal Reserves is evaluated by applying Modifying Factors to the Measured and Indicated Coal Resources. This also considers assumptions based on at least a Prefeasibility Study to determine the mining recovery and dilution factors and evaluation of basic infrastructure requirements, and a confirmation on extraction of coal can be economically justified under such technical and economic assumptions.

In addition to the SRK Audited Coal Resource and Coal Reserve statement as presented in Table 5-8, Table 5-9 and Table 5-10; SRK was specifically requested by BCCL to present the audited Coal Resource and Coal Reserve statements as listed below:

- Classified by mining methods;
- Major Mines;
- BCCL's Producing Mines; and
- Planned Reorganised Projects

These are presented in Table 5-11, Table 5-12, Table 5-13 and Table 5-14, respectively. Notably, the figures presented in these tables are already included in Table 5-8, Table 5-9 and Table 5-10.

Table 5-11: SRK Audited Coal Resources and Reserves classified by mining methods Effective 31 March 2025

Technology	Proved Reserve (Mt)	Probable Reserve (Mt)	Total Reserve (Mt)	Measured Resource (Mt)	Indicated Resource (Mt)	Inferred Resource (Mt)	Total Resource (Mt)
OC	1048.1	7.8	1055.8	1441.8	0.0	0.0	1441.8
UG	48.2	157.9	206.1	669.6	5.5	0.0	675.1
Mixed	222.2	11.3	233.5	168.5	0.0	0.0	168.5
Total	**1318.5**	**176.9**	**1495.4**	**2279.9**	**5.5**	**0.0**	**2285.4**

Note:

- All figures are rounded to the nearest 100,000 tonnes.
- Coal Resources reported herein includes only the material that has reasonable prospect for eventual economic extraction, which have been evaluated by a conceptual open pit for the coal that has open pit potential and an underground mining envelope for the coal that has underground potential. The Measured and Indicated Coal Resources, which are reported herein, includes the materials which have been converted to Coal Reserves, where appropriate.
- The economic viability of the reported Coal Reserves is evaluated by applying Modifying Factors to the Measured and Indicated Coal Resources. This also considers assumptions based on at least a Prefeasibility Study to determine the mining recovery and dilution factors and evaluation of basic infrastructure requirements, and a confirmation on extraction of coal can be economically justified under such technical and economic assumptions.

Table 5-12: SRK Audited Coal Resources and Reserves for Major Mines Effective 31 March 2025

Major Mine	Proved Reserve (Mt)	Probable Reserve (Mt)	Total Reserve (Mt)	Measured Resource (Mt)	Indicated Resource (Mt)	Inferred Resource (Mt)	Total Resource (Mt)
ABOCP	53.2	0.0	53.2	58.8	0.0	0.0	58.8
AMP colliery OCP	45.2	0.0	45.2	50.3	0.0	0.0	50.3
Block-D	151.0	0.0	151.0	168.1	0.0	0.0	168.1
Block-E	360.9	0.0	360.9	401.2	0.0	0.0	401.2
Amalgamated NTST-Kujama OCP	151.0	0.0	151.0	167.8	0.0	0.0	167.8
Madhuband Colliery	59.4	0.0	59.4	104.0	0.0	0.0	104.0
Kharkharee Colliery	0.0	83.5	83.5	100.2	0.0	0.0	100.2
Amalgamated Salanpur Gaslitand Katras Choitudih Colliery (ASGKCC)	94.8	0.0	94.8	386.3	0.0	0.0	386.3
Loyabad Colliery	0.0	24.8	24.8	41.4	0.0	0.0	41.4
PB Project Colliery	62.6	10.5	73.1	115.5	0.0	0.0	115.5
ADIC	39.6	0.0	39.6	44.3	0.0	0.0	44.3
Ena Colliery	40.7	0.0	40.7	45.2	0.0	0.0	45.2
Amal Bera-Dobari-Kuya-Ghanudih	47.9	0.0	47.9	53.2	0.0	0.0	53.2
Kalyaneshwari OCP	70.0	0.0	70.0	79.0	0.0	0.0	79.0
Moonidih- Seam XV	23.4	0.0	23.4	26.0	0.0	0.0	26.0
Total	**1199.6**	**118.8**	**1318.4**	**1841.3**	**0.0**	**0.0**	**1841.3**

Note:

- The definition of the Major Mines includes the Coal Reserve in excess of 20 million tonnes.
- All figures are rounded to the nearest 100,000 tonnes.
- Coal Resources reported herein includes only the material that has reasonable prospect for eventual economic extraction, which have been evaluated by a conceptual open pit for the coal that has open pit potential and an underground mining envelope for the coal that has underground potential. The Measured and Indicated Coal Resources, which are reported herein, includes the materials which have been converted to Coal Reserves, where appropriate.
- The economic viability of the reported Coal Reserves is evaluated by applying Modifying Factors to the Measured and Indicated Coal Resources. This also considers assumptions based on at least a Prefeasibility Study to determine the mining recovery and dilution factors and evaluation of basic infrastructure requirements, and a confirmation on extraction of coal can be economically justified under such technical and economic assumptions.

Table 5-13: SRK Audited Coal Resources and Reserves of BCCL's Producing Mines Effective 31 March 2025

Mine	Proved Reserve (Mt)	Probable Reserve (Mt)	Total Reserve (Mt)	Measured Resource (Mt)	Indicated Resource (Mt)	Inferred Resource (Mt)	Total Resource (Mt)
ABOCP	53.2	0.0	53.2	58.8	0.0	0.0	58.8
ADIC	39.6	0.0	39.6	44.3	0.0	0.0	44.3
Amal Bera-Dobari-Kuya-Ghanudih	47.9	0.0	47.9	53.2	0.0	0.0	53.2
Amalgamated Joyrampur Colliery-Patch D	14.5	0.0	14.5	16.2	0.0	0.0	16.2
Amalgamated NTST-Kujama OCP	151.0	0.0	151.0	167.8	0.0	0.0	167.8
AMP colliery OCP	45.2	0.0	45.2	50.3	0.0	0.0	50.3
ASP colliery	14.9	0.0	14.9	16.5	0.0	0.0	16.5
Bansdeopur	0.0	4.5	4.5	4.6	0.0	0.0	4.6
Bastacolla Colliery	14.1	0.0	14.1	15.8	0.0	0.0	15.8
Amalgamated Bhowrah North South OCP	10.9	0.0	10.9	12.3	0.0	0.0	12.3
Block-D	151.0	0.0	151.0	168.1	0.0	0.0	168.1
Block-E	360.9	0.0	360.9	401.2	0.0	0.0	401.2
Dahibari Basantimata	1.2	0.0	1.2	1.7	0.0	0.0	1.7
Damoda Patch	1.5	0.0	1.5	1.6	0.0	0.0	1.6
Ena Colliery	40.7	0.0	40.7	45.2	0.0	0.0	45.2
Gopalichuck	0.0	3.3	3.3	4.6	0.0	0.0	4.6
Kalyaneshwari OCP	70.0	0.0	70.0	79.0	0.0	0.0	79.0
Kankanee	4.2	0.0	4.2	4.8	0.0	0.0	4.8
Maheshpur	5.4	0.8	6.2	8.9	0.0	0.0	8.9
Moonidih- Seam XV	23.4	0.0	23.4	26.0	0.0	0.0	26.0
New Godhur-Kusunda-Alkusa Colliery	10.7	0.0	10.7	11.6	0.0	0.0	11.6
Pure Benedih-Block-C UG Mine	7.5	7.6	15.1	33.2	5.5	0.0	38.7
Grand Total	**1067.6**	**16.1**	**1083.8**	**1225.6**	**5.5**	**0.0**	**1231.1**

Note:

- All figures are rounded to the nearest 100,000 tonnes.
- Coal Resources reported herein includes only the material that has reasonable prospect for eventual economic extraction, which have been evaluated by a conceptual open pit for the coal that has open pit potential and an underground mining envelope for the coal that has underground potential. The Measured and Indicated Coal Resources, which are reported herein, includes the materials which have been converted to Coal Reserves, where appropriate.

- The economic viability of the reported Coal Reserves is evaluated by applying Modifying Factors to the Measured and Indicated Coal Resources. This also considers assumptions based on at least a Prefeasibility Study to determine the mining recovery and dilution factors and evaluation of basic infrastructure requirements, and a confirmation on extraction of coal can be economically justified under such technical and economic assumptions.

Table 5-14: SRK Audited BCCL's Coal Resources and Reserves for the Planned Reorganised Projects Effective 31 March 2025

Planned Project	Proved Reserve (Mt)	Probable Reserve (Mt)	Total Reserve (Mt)	Measured Resource (Mt)	Indicated Resource (Mt)	Inferred Resource (Mt)	Total Resource (Mt)
BLOCK A	1.5	0.0	1.5	1.6	0.0	0.0	1.6
BLOCK B	53.2	9.3	62.5	101.7	0.0	0.0	101.7
BLOCK C	52.7	7.6	60.3	83.5	5.5	0.0	89.0
BLOCK D	151.0	0.0	151.0	168.1	0.0	0.0	168.1
BLOCK E	360.9	0.0	360.9	401.2	0.0	0.0	401.2
BLOCK F	185.0	0.0	185.0	343.4	0.0	0.0	343.4
BLOCK G	165.5	0.0	165.5	184.0	0.0	0.0	184.0
Total	**969.7**	**16.9**	**986.6**	**1283.6**	**5.5**	**0.0**	**1289.1**

Note:

The reorganized blocks are planned with feasibility studies for a few completed. SRK has reviewed PRs for Block-D and Block-E. No Project Report has been prepared for Block F and Block G, as of this report. The resource/reserve tonnage values for these planned reorganised blocks are sum of the coal tonnages within the mining limits of the smaller mines proposed to be part of the bigger reorganised block boundaries.

- Block A will comprise only Damoda Colliery.
- Block B is planned as amalgamation of Amalgamated Block-II Opencast Project (ABOCP) and Pure Benedih underground within the area of Block B.
- Block C is planned as amalgamation of Amalgamated Muraidih Phularitand Colliery and Pure Benedih underground within the area of Block C.
- Block F is conceptualized as an amalgamated block comprising Ena, Bastacolla, ROCP, Amal Bera-Dobari-Kuya-Ghanudih, New Godhur-Kusunda-Alkusa Colliery, New Godhur Kusunda UG and ADIC.
- Block G is planned as an amalgamated block consisting of two coal mines (Amal Joyrampur and Amalgamated NTST-Kujama OCP).
- All figures are rounded to the nearest 100,000 tonnes.
- Coal Resources reported herein includes only the material that has reasonable prospect for eventual economic extraction, which have been evaluated by a conceptual open pit for the coal that has open pit potential and an underground mining envelope for the coal that has underground potential. The Measured and Indicated Coal Resources, which are reported herein, includes the materials which have been converted to Coal Reserves, where appropriate.

- The economic viability of the reported Coal Reserves is evaluated by applying Modifying Factors to the Measured and Indicated Coal Resources. This also considers assumptions based on at least a Prefeasibility Study to determine the mining recovery and dilution factors and evaluation of basic infrastructure requirements, and a confirmation on extraction of coal can be economically justified under such technical and economic assumptions.

6 COAL WASHING AND PREPARATION

BCCL has taken multiple initiatives to increase its capacity for coal washing to over 26Mtpa, thereby suppling cleaner coal to the Steel sector, thereby support the steel industry with reducing the import of Coking Coal. Detail of the existing washeries of BCCL have already been mentioned in Table 2-9.

Notable initiatives include:

- Commercial operations of 3 new coal washeries, initiated, viz. 1.6 Mtpa Dahibari Washery, 5.0 Mtpa Patherdih Washery and 5.0 Mtpa Madhuband Washery.
- Monetization of 2.0 Mtpa Dugda Coal Washery.
- Award of work for Renovation of 1.6 Mtpa Moonidih Coal Washery.
- Setting up three more washeries of combined capacity of 7Mtpa in Patherdih-II, Bhojudih and Moonidih.
- Development of Railway Siding for New Coal Washeries, viz., Bhojudih, and Patherdih washery
- Implementation of Import Parity Mechanism for Indian Washed Coking Coal Pricing with Steel Authority of India Limited (SAIL).

The Import Parity Mechanism for Indian Washed Coking Coal Pricing, as used by BCCL, sets the price of washed medium coking coal (WMCC) sold to SAIL based on a comparison with the price of imported coking coal. This mechanism ensures that the domestic price of WMCC is competitive with the price of imported coal, considering factors like import duties and transportation costs. The price is determined on a quarterly basis, with a formula that considers the international coking coal price, import duties, transportation costs, and other relevant factors.

7 MINE INFRASTUCTURE AND FACILITIES

7.1 General

Engineering infrastructure, mine facilities and transport systems at the operating properties comprises a wide range of operating technologies. The level of supporting infrastructure and services is dependent on the location of the operation in relation to industrial centres and major access routes and the planned production capacity of projects. Surface and underground infrastructure requirements, material handling, ventilation for underground mines, pumping, transportation and dispatch of coal and power supply are all addressed by BCCL in the Project Reports it prepares for each of its mining projects.

The existing common infrastructure available across all mines—such as HEMM, support machinery, IT systems, and loading facilities—as summarised below:

HEMM

As of September 30, 2025, we maintain a robust fleet of 507 vehicles, which includes HEMMs such as 1 dragline, 65 shovels, 278 dumpers, 89 dozers, and 74 drills for opencast mining. Additionally, we also own 38 side discharge loaders, 1 longwall package, 2 road headers, 3 miner bolter for underground mining.

Information Technology

BCCL employs a range of information technology systems to enhance operational efficiency and data management. BCCL's IT infrastructure includes Systems Applications and Products ("SAP") and Enterprise Resource Planning ("ERP") systems, which integrate various business processes for seamless data flow and improved decision-making. Comprehensive measures are in place to ensure security against IT risks on the SAP and ERP systems, including the implementation of firewalls and other protective mechanisms. The continuity of SAP and ERP operations is ensured through centralized management by CIL, which includes robust provisions for disaster recovery. These measures guarantee seamless operations in the event of any disruptions.

Silo

BCCL has one Silo of 5 Mtpa capacity at Maheshpur, Govindpur Area, BCCL.

Evacuation Infrastructure

BCCL, as a company continuously develop and maintains evacuation infrastructure to ensure the efficient and timely dispatch of our coal to end users. It includes 18 number of railway sidings as on 30th September 2025 integrated with the main rail network for bulk transportation, coal handling and crushing plants (CHPs) equipped with modern sizing capabilities, and high-capacity loading equipment to optimize logistics efficiency. In addition to it, supporting ancillary facilities comprising automated weighbridges, dust suppression systems to mitigate environmental impact and adhere to regulatory standards. This integrated infrastructure is designed to minimize bottlenecks, enhance throughput, and ensure reliable coal delivery while upholding operational safety and sustainability commitments.

Further, BCCL has also developed infrastructure to evacuate the coal through road mode to serve the large as well as small customers. It comprises of separate entry exist connections with the main roads along with support infrastructure of weighbridges and dust suppression mechanisms.

Hospital

BCCL has 11 Hospitals including One Central Hospital at Dhanbad. In addition to it, BCCL has 68 Dispensary across their mines and areas.

7.2 Background

BCCL operates its mines by opencast and underground methods and hence the infrastructures of different projects are set accordingly. Further BCCL operates these mines through different administrative Areas as listed below.

Barora Area	Block II Area
Govindpur Area	Katras Area
Sijua Area	Kusunda Area
Bastacolla Area	PB Area
Lodna Area	EJ Area
WJ Area	CV Area

As mentioned before, BCCL is reorganising and consolidating smaller mines and patches into larger blocks, namely, Block A to G. Out of the total number of Reorganised Blocks and mines of BCCL the main contributors in terms of Resource are Block D, Block E, Block G and Ramnagore Kalyaneshwari OCP. These projects are primary under the administrative control of the Areas- Govindpur, Katras, Lodna and CV Area.

Engineering infrastructure, mine facilities and transport systems at BCCL's operating properties reflect a wide range of operating technologies. The level of supporting infrastructure and services is dependent on the location of the operation in relation to industrial centres and major access routes and the planned production capacity of projects.

7.3 Existing and Planned Infrastructure for Selected Reorganised Blocks

Some of the planned open cast projects (re-organised blocks), would contribute bulk of the BCCL's coal production. Below section provides a summary of the planned infrastructure from a few such re-organised blocks.

7.3.1 Block D

Existing Infrastructure

The proposed Opencast Project area currently contains operating opencast mines and patches with existing infrastructure, but these are only suitable for small-scale production. Since the new opencast mine will be larger and highly mechanized, additional infrastructure must be developed to support the project.

Planned Infrastructure

Reorganized Block D which is under the administrative control of Govindpur Area The project is planned to produce 8Mtpa of coal. A 4 Mtpa Coal Handling Plant is planned to handle the coking coal. Non-Coking Coal produced from the mine will Dispatched through Dumpers to the nearest siding of BCCL for further transport to customers. The CHP handling capacity is designed to match the mine's peak production, with an overall rated capacity of 1200 tph based on 330 working days per year and 5-hour shifts. To accommodate fluctuations in coal output, the system includes:

- Semi-Mobile Crushing Plant: 1200 tph (1 set)
- Belt Conveyors: 1200 tph capacity (6 units)
- Coal Storage: 6000-ton overhead bunker
- Loading System: 4000-ton RCC silo with 2 pre-weigh hoppers (100 tons each)

A railway siding with full rake capacity will be constructed for loading crushed coking coal into wagons using a rapid loading system. The siding will accommodate both empty and loaded wagons, ensuring smooth loading operations from the hopper. In-motion wagon loading will be implemented, with wagons hauled at a fixed creep speed during the loading process.

The project also has an elaborate plan for workshops both for E&M and Excavation.

The project's peak power requirement is estimated at 16.094 MVA. To meet this, a 33/6.6 kV main substation with a 2 × 16 MVA capacity will be installed. It will receive 33 kV power from the Madhuban DG substation via two single-circuit overhead transmission lines over an 8 km distance. This arrangement is temporary and may change if a more suitable power source is identified by BCCL, potentially altering the capital provision for the overhead line. The substation will supply power to all project installations, including the opencast quarry, CHP, workshop, and colony. Necessary provisions for its construction and power transmission have been included in the report.

7.3.2 Block E

Block E is planned to produce 15Mtpa of coal. A Coal Handling Plant is planned to handle the same. The proposed CHP will include a crushing station, storage bunker, and rail-based dispatch system. The Coal Handling Plant (CHP) will include several key features to ensure efficient coal processing and dispatch. It will have four relocatable crushing plants to crush coal to (-) 200 mm size, with secondary sizers further reducing non-coking coal to (-) 100 mm before it is fed into Overground RCC Bunker 1. Coal will be transported via belt conveyors to Overground RCC Bunkers, each with a 15,000-ton capacity, and further reclaimed and transported to RCC Silos with a 4,000-ton capacity. Additionally, coal will be conveyed to the proposed washery through belt conveyors. The CHP will also feature a dust suppression and fire extinguisher system, along with power supply, illumination, and control systems coking and coal will be weighed using a road weighbridge before dispatch. There will be separate system for coking and non-coking coal.

Coal from Block E will be dispatched to various consumers via railway rakes, which will be loaded from the silo using rapid loading systems. To facilitate this, five new railway lines, totaling approximately 12.5 km, will be constructed to connect the silo sidings to the proposed siding from Tetulmari Railway Station. The railway infrastructure will consist of five tracks (10 lines), designated as follows: the first track for non-coking coal, the second for unwashed coking coal linked to BCCL's existing washeries, the third as an escape line, the fourth for clean coking coal, and the fifth for washed coal (power use). Proposed Railway Siding will be suitable for loading 59 box wagons rake from the silo.

The project is planned to have both E&M and Excavation workshops to cater to 100T capacity Dumper, Dozer and Ancillary equipment.

Block-E Opencast Project integrates seven mines across three BCCL areas—Katras, Sijua, and Kusunda. The project, targeting an annual coal production of 15 Mtpa, will receive power from the DVC Pootki substation via two 33 kV overhead transmission lines. Three operational models—Departmental, Outsourcing, and MDO—have been evaluated, with power demands of 19.5 MVA, 17 MVA, and 19.2 MVA, respectively.

For power distribution, two 33/6.6 kV substations are planned: 2×12.5 MVA & 2×10 MVA for Departmental/MDO, and 2×10 MVA for Outsourcing. These substations will supply power to key installations, including CHP, pumps, workshops, and lighting. Major substation components include vacuum circuit breakers, transformers, isolators, capacitor banks, and lightning arrestors.

Safety measures include lightning protection, interlocking systems, earthing, and a nitrogen-injection fire suppression system. A fire hydrant network, smoke detectors, and portable extinguishers will also be installed.

Energy consumption is projected at 7.0 kWh/t (Departmental), 6.91 kWh/t (MDO), and 6.01 kWh/t (Outsourcing). The substations will be equipped with automation and signalling for fault detection and protection.

7.3.3 Block G

Block G, as it is planned, comes under the administrative control of Lodna area and within the geological block Mukunda. While a Project Report for the re-organised Block-G is not available as of this report, Project report of Amalgamated NTST Kujama OCP, which will finally come under Block-G, gives us the understanding of the planning of infrastructure of the block. Currently, mining operations are underway in three opencast patches: two hired HEMM patches (Patch F and Patch B) and one departmental opencast patch. The proposed production from this Block is 8.5Mtpa.

The coal handling plant features two separate conveyor circuits for transporting coking and non-coking coal. The coking coal conveyor is designed to handle 3 million tonnes per year (Mtpa), while the non-coking coal conveyor has a capacity of 6 Mtpa. These circuits function independently; however, a connection exists after the storage bunkers, allowing non-coking coal to be loaded through the coking coal circuit in case of a failure. This system ensures no mixing of coking and non-coking coal.

The mine is planned to meet future thermal power station demands, and the coal handling plant (CHP) is designed to manage the entire coal production. The CHP includes:

- Crushing Facilities – Non-coking coal is crushed to (-)100 mm, while coking coal is crushed to (-)200 mm using a semi-mobile crushing plant and secondary roll sizer.
- Conveying System – Crushed coal is transported via belt conveyors.
- Storage Bunkers – Overhead storage includes a 15,000-tonne capacity bunker for non-coking coal and a 6,000-tonne bunker for coking coal, facilitated by traveling tripper conveyors.
- Rapid Loading System (RLS) – Coal is loaded into railway wagons efficiently using RLS.

To provide routine maintenance, scheduled maintenance, and minor repairs for the equipment at Amalgamated NT-ST, Amalgamated Joyrampur, and Kujama Colliery OCP, the establishment of an Excavation Workshop and an E&M Workshop has been planned.

The proposed Amalgamated NTST OCP will receive power at 33 kV through two overhead lines: one from DVC Patherdih and the other from 33 kV Sudamdih, both supplying power to the Jealgora DG Sub-Station. Power will be tapped from these overhead lines near Jealgora DG Substation and delivered through two single-circuit 33 kV overhead lines.

Considering the high-power demand for the project, a 33/6.6 kV substation is planned near the proposed workshop. Two 33 kV single-circuit overhead line feeders will be tapped from the Jealgora DG Sub-Station and extended to the 33/6.6 kV main OCP substation of Amalgamated NTST.

A central substation will be built near the proposed workshop to supply power to all infrastructures. It will receive 33 kV power via two 33 kV single-circuit overhead lines, with metering arrangements at the substation. The substation will supply power to HEMMs, pumps, excavation workshop, E&M workshop, coal handling plant, OB dump, coal dump illumination, office buildings, and other facilities. Two 10 MVA 33/6.6 kV transformers will be installed to distribute power efficiently.

The 10 MVA transformers will be installed outdoors to supply power to quarry equipment, HEMM workshop, E&M workshop, OB & coal dump illumination, the coal handling plant, and other surface

facilities. Outdoor installations will also include 33 kV and 6.6 kV switchgear, overhead lines, AB switches, and lightning arrestors.

- 415 V switchgear and power transformers for the workshop, coal handling plant, and office buildings will be installed indoors.
- Indoor switchboards will be used for workshops, the coal handling plant, and office buildings.
- LT switchboards for substations, CHP, and service buildings will also be housed indoors.
- 230 V switchgear for lighting loads will be part of the indoor installation.

The maximum demand for the project is based on the connected load of all quarry power-consuming units, including HEMMs, pumps, workshops, coal handling plants, OB and coal dump illumination, quarry lighting, and office buildings. The project Report envisage an annual consumption of 42MkWh of energy.

7.3.4 Amalgamated Kalyaneshwari OCP and Ramnagore Block of SAIL

The Amalgamated Kalyaneshwari OC and Ramnagore Block of SAIL is planned to produce 4.0 Mtpa of coal. To support this, a new coal handling plant (CHP) with a Rapid Loading System and a 3.6 Mtpa washery has been proposed. The coal from this OCP will be linked to the pit-head washery for beneficiation.

At present there are two feeder breakers, located 1.5 km from the project site, to crush coal to (-)100 mm size.

It is proposed that from the 3rd year of production, a 1200 TPH CHP will transport (-)100 mm coal to the washery. Washed coal and washed coal power will be loaded into railway wagons via a 750-tonne hopper and Fast Loading System. Between years 3 to 5, ROM coal will be crushed using existing feeder breakers. From the 5th year onward, coal sizing will be done using a Surface Miner.

The Coal Handling Plant (CHP) is designed to transport 4.0 Mtpa of (-)100 mm sized coal to the proposed pit-head washery for beneficiation. The washed coal and washed coal power will be stored in the washery bunker and fed into a fast-loading hopper built over the railway line for direct loading into wagons for dispatch to customers.

The CHP will include key facilities such as:

- Receiving hopper for (-)100 mm sized coal, delivered by 60-tonne rear discharge dumpers.
- Conveyor system to transport coal to the washery.
- 750-tonne wagon loading hopper with a fast-loading system, constructed over railway lines for seamless dispatch of washed coal and washed coal power.

Additionally, the plant will feature pollution control systems, firefighting equipment, water supply, roads, and drainage infrastructure to ensure smooth and sustainable operations.

7.4 SRK Comments

The current coal production across most areas is carried out through small patches and quarries, resulting in limited-scale infrastructure. However, BCCL has developed detailed project reports for most blocks, outlining the necessary infrastructure for coal production, handling, and dispatch.

A key challenge is that some planned infrastructure is in habited areas requiring relocation. To address this, BCCL has established rehabilitation plans for affected residents. The timely execution of these plans, along with the efficient deployment of resources, will be crucial in securing land and ensuring the seamless advancement of these projects.

8 ENVIRONMENTAL, SOCIAL, AND GOVERNANCE

BCCL is a subsidiary of Coal India Limited (CIL) which in turn is a listed entity and, thereby, has outlined a comprehensive **sustainability roadmap**, and BCCL aligns its ESG initiatives with these broader goals besides its own internal sustainability commitments. BCCL'S integration of **Environmental, Social, and Governance (ESG) principles** into its operations, aligning with India's sustainable development goals and global best practices are discussed below:

8.1 Environment (E)

a) **Net Zero Roadmap:** BCCL advanced its Net Zero goals with 4.088 MWp of rooftop solar power and 20 MWp ground mounted projects at different locations commissioned, work orders for 25 MW at Bhojudih and a tender for 2 MW more in Central Township. Energy efficiency measures included 100% LED lighting, energy-efficient ACs, 762 super fans, 45 efficient motors, and autotimer switches across its areas. The company strategically moved towards electric vehicles in its official transportation fleet, supported by an EV charging station at Koyla Bhawan, resulting in fuel saving of approximately 2.50 lacs per month as the running cost is less than ₹ 1/Km. In Coal Bed Methane (CBM), Jharia Block-I is under exploration with 5 core holes drilled, while Jharia Block-II's feasibility report was approved.

b) **Green Mining:** Along with the development of natural forests over degraded mined-out areas and overburden (OB) dumps, BCCL has also been actively establishing eco-parks on these reclaimed lands. As a pioneer in the mining industry, BCCL has taken the lead in creating 6 such eco-parks, transforming former mining sites into green, sustainable spaces, fostering biodiversity, environmental restoration, and community engagement. Till 2024-25, BCCL has done biological reclamation over 1637.79 Ha consisting of 34,95,599 no. of plants including 35,694 gabion plantations. In addition to this, BCCL has taken up plantation on 77.85 ha outside the leasehold of BCCL on degraded forest land and along old NH-2 (Delhi – Kolkata Highway). BCCL has also actively participated in Green Credit Programme of Govt. of India under which 50 ha plantation has already been taken up in 2024-25.

8.2 Social (S)

8.2.1 Corporate Social Responsibility

In compliance with the requirements of Section 135 of the Act read with the Companies (Corporate Social Responsibility) Rules, 2014, BCCL Board of Directors have constituted a Corporate Social Responsibility ("CSR") Committee pursuant to carry out various CSR activities. BCCL has undertaken various education, skill development, environment and sanitation, infrastructure initiatives for the development and upliftment of the communities. BCCL's engagement with local communities through education, environmental awareness, and health initiatives underscores our philosophy of contributing to society and fulfilling our CSR obligations. The table below sets forth details of BCCL' CSR spending for the periods indicated:

Table 8-1: Detail of the BCCL's CSR spending in last 3 years

Particulars	Fiscal 2025	Fiscal 2024	Fiscal 2023
Corporate social responsibility requirement as per companies act (*₹ million*)	187.50	NIL	NIL
Corporate social responsibility expenditure (*₹ million*)	286.70	100.90	133.60

8.2.2 Stakeholder Engagement:

i. **Eco-mining Tourism:** Since 2016-17, Bharat Coking Coal Limited (BCCL) has been actively promoting Eco-Mining Tourism by showcasing its mining operations and ecological restoration efforts. Various schools, colleges, and professional institutes visit these eco-restoration sites and eco-parks each year to learn about mining activities and effective land reclamation techniques that restore degraded land to its natural vegetation.

ii. **Environmental Newsletter**: Launched in 2015, "***Paryavaran Darpan***" is an environmental newsletter aimed at raising awareness about sustainability initiatives. It serves as a platform for sharing best practices, innovative technologies adopted by BCCL, and valuable environmental insights. By disseminating information and promoting awareness, the newsletter contributes to achieving the goal of environmental protection.

iii. **Stakeholder Consultation:** BCCL engages with employees through dialogues and a grievance system, using structured forums to address their concerns. A formal committee focuses on health, education, sanitation, and community well-being. Regular stakeholder engagement drives their commitment to inclusive growth.

Table 8-2: Stakeholder Engagement

Stakeholders	Engagement	Frequency	Topics Discussed / Stakeholder Concerns
Employees (including contractual employees)	Meetings, Surveys, Regular Consultation	Quarterly/Semi-annually/Yearly	Grievances handled at three levels through committees
			Executive performance reviews every six months
			Annual performance appraisal for staff
			Regular training programs
			Occupational health, safety, and quality of life concerns
			Annual Employee Welfare Board Meeting
Customers	Customer meets, Sales visits, Satisfaction surveys	Yearly	Product quality
			Delivery compliance
			Customer satisfaction
			Health and safety training provided as required
Contract Workers	Consultation, Grievance handling system	Quarterly	3-tier grievance handling system at Corporate, Area, and Unit levels
			Participation of six Trade Unions (RCMS, AITUC, BMS, HMS, BCKU, KIMP)
			Discussion on policy matters, Industrial Relations, and wages
Community	Community meetings, Interaction with doctors, Committee meetings, CSR programs	Regularly	Based on Need Assessment Study
			CSR projects for community welfare
			Regular meetings with the community
Government/ Regulators	Meetings, Industry events, Emails, Phone calls	Monthly	Health, safety, and welfare issues of local people
			Initiatives for community welfare under the Dhanbad Action Plan
Project Affected People (PAP)	Meetings, Training programs	As required	Identification and training of PAPs in coordination with CIDC
			20% coal transport jobs reserved for PAPs
			Training programs for livelihood and self-employment
Media	Press conferences, Telephonic and email communication, Interviews	Regularly	Announcements and achievements published in media and on BCCL website
Academics	Meetings, Visits, Study tours	As required	Campus recruitments
			Knowledge management
			R&D activities in coordination with academic institutions (IIM, FRI, DU, etc.)

8.2.3 Jharia Master Plan

The Jharia Master Plan (JMP), initially approved by the Government of India in August 2009 to address issues of coal fires, land subsidence, and the rehabilitation of affected communities in Jharkhand's Dhanbad district, was designed with a pre-implementation period of two years and an implementation period of ten years, concluding in August 2021. Though JMP made some progress in mitigating coal fires (from the original 17.32 sq. km to 1.8 sq. km during the 2021-22 period) and rehabilitating affected populations, some of the key issues still awaiting mitigations are:

- Rehabilitating non-LTH encroachers - only a fraction (around 2800) of the 100,000 families have been moved due to resistance, poor resettlement infrastructure and livelihood concerns. The key challenge arises from non-LTH or encroachers. BCCL has now proposed a revised scheme for non-LTH encroachers which is approved by the CIL Board. Approval from Government of India is awaited. It is expected that that the new scheme when implemented will help navigate its R&R challenges.
- Underground fires persist, posing risks to lives and the environment.
- Delays in fund disbursement and rising costs hinder progress.
- Many displaced families return due to lack of alternatives, worsening safety hazards.
- Severe air pollution, respiratory diseases and groundwater contamination continue.
- Multiple agencies (BCCL, JRDA, CIL, state government) need better synchronization for effective execution.

The revised Jharia Master Plan has been approved by the Government of India on 25.06.2025 for an implementation period of 3 years for 81 most vulnerable sites & 27 NRSC fire sites of Jharia Coalfield with a budget of INR 5940 Crores and an additional budget of INR 500 Crores annually, if needed.

649 BCCL families, 1130 LTH families and 13301 Non-LTH families (Total 15080 families) will be directly benefited.

8.3 Governance (G)

A) CSR activities of BCCL are governed by the rules framed in this regard under Companies Act, 2013, DPE guidelines on CSR and CSR policy of CIL.

a) **Environmental Clearances**: BCCL has formulated a Cluster Concept (approved by MoEF & CC in Dec 2009) grouping all its operative/inoperative/proposed mines (including Pit head washeries) into 17 Clusters for obtaining environmental clearances and management thereof.

b) **Pollution Control Measures**:

i. **Air Pollution Control Measures:** BCCL has deployed **109 mobile water sprinklers**, **18 mist-equipped water sprinklers**, **13 truck-mounted fog cannons**, and **8 trolley-mounted fog cannons** for **dust suppression** on haul roads. **Wheel washing facilities** are installed at key locations to reduce dust from vehicle movement. **Coal Handling Plants (CHPs) are enclosed** to prevent dust emissions, and drilling operations use **dust extractors/wet drilling mechanisms**. Non-active **overburden (OB) dumps are covered with grass** to minimize dust dispersal. **Regular ambient air quality monitoring** is conducted, ensuring timely corrective actions when necessary.

ii. **Water Pollution Control Measures:** BCCL implements various **water pollution control measures** to ensure sustainable water management. **Oil and grease traps** treat effluents

from mine workshops, while **toe walls and garland drains** prevent siltation and surface runoff from overburden (OB) dumps. **Recovered oil** is safely stored, and used oil is disposed of via **e-auction to authorized recyclers**. **Treated mine water** is utilized for **dust suppression, firefighting, irrigation, and drinking**, using **filtration and RO systems**. An **MoU with the State Government** facilitates the gainful use of mine water. Additionally, **rainwater harvesting structures** are installed in offices, camps, and quarters to **recharge groundwater**, and **23 piezometers with DWLR** monitor groundwater levels regularly.

iii. **Noise Pollution Control Measures**: BCCL controls noise pollution through regular equipment maintenance, restricted blasting (14:00–15:00 hrs) during shift changes, and providing earmuffs/ earplugs to employees as needed.

Furthermore, a **Sustainable development Cell** is also working under the aegis of SDC, Ministry of Coal for environment, social and sustainable activities in BCCL to ensure benefit to all stakeholders.

9 ECONOMIC ASSESSMENT PROCESS AND GROWTH POTENTIAL

SRK has reviewed a few Project Reports to evaluate the process BCCL follows for determining project costs and undertaking financial analyses to determine the financial viability of its projects. The cost of production includes capital cost, operating cost and replacement cost components. The discounted cash flow for each year during the economic life of a project is calculated at the rate of discount specified by the Government. The cost of production is typically estimated at both 100% and 85% production capacity.

- Project profitability is estimated at different levels of production to test the robustness of a project and projects are viable if the Internal Rate of Return (IRR) is estimated to be more than 12% at 85% of the targeted capacity. When such analysis does not yield a minimum IRR of 12% during reporting, projects are evaluated on Contract Mining, MDO, Equipment Hiring basis, to check that a minimum IRR of 12% is achieved. In a few cases and depending on the project, cost-plus margin basis is evaluated to determine the coal selling prices that would yield a minimum IRR of 12.0%.
- SRK has reviewed historical production and cost figures for all of BCCL’s operating opencast and underground mines and statements of Profit & Loss for each mine. As evident, selected projects are operated in patches through Contract Miners to ensure profitability.
- Opencast coal mining recovers a greater proportion of the coal than underground mining. Large opencast mines use large capacity equipment and provide economies of scale. Reorganising multiple mines and areas under freshly defined larger areas (example, for Blocks-A to Block-G), is an important initiative to ensure profitable yet sustainable mine operations.

BCCL is leveraging e-auctions to boost domestic coking coal consumption and reduce reliance on imports, particularly for the steel industry. E-auctions of coking coal, help to maximize the value of coal sales and facilitate transparency in the market. By offering coal through an online platform, BCCL ensures a more competitive and efficient purchasing process for buyers, potentially leading to better prices and increased revenue for BCCL. Key strategies include:

- Consortium Bidding: BCCL has introduced consortium bidding, allowing smaller steel consumers to collaborate and bid together, increasing participation and making the process more accessible.
- Clear Communication and Streamlined Processes: BCCL has focused on improving clarity regarding the auction process, ensuring higher participation and benefiting both consumers and the country's goal of import substitution.
- Amendments to Eligibility Norms: BCCL has sought amendments to the eligibility norms for linkage auction bidders, aiming to attract more participants.
- Special Spot e-Auctions: BCCL also conducts special spot e-auctions, including those for import substitution, further expanding the availability of domestic coking coal.
- Focus on Long-Term Linkages: BCCL has been actively engaged in long-term linkage e-auctions for the steel sub-sector, with Tranche VII achieving record-breaking success in terms of bookings.

In essence, BCCL's e-auction strategy is designed to increase the utilization of domestic coking coal, reduce reliance on imports, and support the steel industry by making the auction process more inclusive, transparent, and accessible to a wider range of bidders, thereby contributing to its revenue.

BCCL has a target of achieving a revenue of ₹40,000 crore by FY30, and increasing coal washing capacity is part of its strategy to achieve this goal. BCCL has already initiated expanding its coal washing capacity through private sector participation. By boosting coal washing capacity, BCCL can produce more washed coal, leading to a larger quantity of this higher-value product available for sale. Washed coking coal is in high demand from the steel industry, and increasing the supply to meet this demand can lead to increased revenue.

BCCL is also actively working on monetizing existing coal washeries by inviting private sector participation, further increasing the potential for revenue generation from washed coal.

9.1 SRK Comment

BCCL has demonstrated significant financial improvements, including clearing accumulated losses and paying its maiden dividend in FY 2023-24. In FY 2024-25, BCCL recorded a net profit of Rs 1,240.19 crores and a net sale of Rs 13,083.26 crores.

BCCL has improved its financial performance through a combination of strategies, including increasing coal sales, diversifying revenue streams, and improving operational efficiency. These efforts have led to clearing accumulated losses, declaring its first-ever dividend, and significantly boosting net worth.

BCCL primarily focuses on the production of coking coal, crucial for the steel industry. Recognising the evolving market dynamics and aiming to enhance its revenue realisation, BCCL has undertaken several strategic initiatives.

BCCL’s key initiatives include consolidating smaller mining areas and existing operating mines into larger size opencast mines. While feasibility studies being undertaken are evaluating both Departmental and Outsource (Contract Miner and MDO) arrangements, the latter option is more profitable for BCCL. While Contract Mining can lead to cost savings by leveraging specialized expertise and potentially lower labour costs, MDO option reduce the capital investment and operational burden for BCCL, allowing them to focus on other core activities.

Likewise, BCCL has made significant progress in increasing its coking coal washing capacity, again in partnership with private operators. Increase in Clean Coal production will directly lead to part import substitution also better price realisation by BCCL given its implementation of Import Parity Mechanism for Indian Washed Coking Coal Pricing. Such initiative underscore BCCL's commitment to enhancing the quality of its coking coal supply, catering to the specific needs of the steel industry, and improving its overall revenue realization through value addition. The increased washing capacity will enable BCCL to tap into higher-priced markets and reduce its reliance on selling unwashed coal to the power sector.

For instance, clean coal from the Moonidih colliery has fetched BCCL prices in the range of INR 10,500 – INR 11,000 per tonne. Middling’s, now marketed as "Washed Power Coal," are sold at around INR 3,150 per tonne, while rejects are sold between INR 2,600 and INR 3,500 per tonne. The mass yield post-washing varies, with clean coal yield ranging from 20-40% and "washed power coal" yield between 40-50%, with the remainder being rejects.

BCCL has also progressed with reopening its closed and unprofitable mines allocating such projects to private mine operators on Revenue Sharing basis. This approach aims to enhance domestic coal availability, optimize resource utilization, and boost revenue for BCCL.

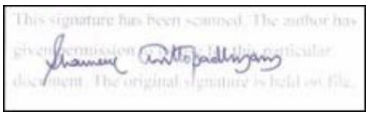
10 CONCLUDING REMARKS

SRK considers the audited Coal Resource and Coal Reserve statements given in this report to be a reasonable reflection of those currently demonstrated by BCCL for its assets as of 31st March 2025. SRK considers that there is good potential for these estimates to be increased following the ongoing reorganisation of mines under bigger blocks, namely, Block-A through to Block-G and BCCL initiatives of revitalizing Abandoned Mines.

BCCL's primary role is to mine and supply coking coal, a crucial ingredient in the production of coke, which is then used in blast furnaces for steel manufacturing. BCCL's importance lies in its ability to meet a large portion of the domestic demand for coking coal, particularly from the integrated steel industry. BCCL has already undertaken multiple initiatives to improve upon its operational, production and financial performance. If pursued well, should enable the Company to increase its annual mining output significantly from that achieved to date.

For and on behalf of SRK Mining Services (India) Private Limited

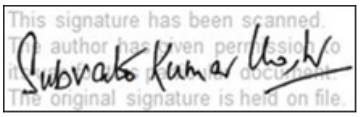
Competent Person - Coal Resources



Shameek Chattopadhyay, M.Sc., MAusIMM, MMEAI

Director & Principal Consultant (Resource Geology),

Reviewer



Subrato Kumar Ghosh, M.Tech, MAusIMM

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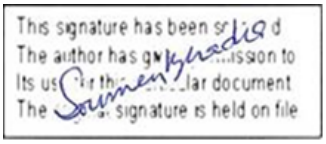

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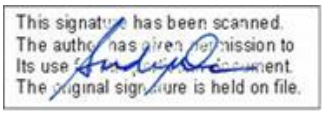

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Director and Principal Consultant - Mining

APPENDIX A: SITE VISIT NOTE

Site Visit Note

1. BLOCK C

1.1 AMP colliery OCP (Amalgamated Muraidih Phularitand Colliery)

The mine is currently under the jurisdiction of the Barora Area and has been reorganized within Block C. Mining operations are being carried out in three distinct patches: Patch 7, the Development Patch, and the Left-Out Patch.

To facilitate the advancement of activities in the Development Patch, immediate relocation of approximately 12 to 14 households is required. The primary seam under extraction is the combined V/VI/VII seam, which exhibits a thickness ranging between 22 to 25 meters. At present, there are no occurrences of active fire within the working zones. The pit slope of the mine workings is approximately 55º.

Key Issues Identified

1. Diversion of existing roads
2. Land acquisition and associated rehabilitation
3. Diversion of electrical power lines

Figure 1: Mine working of AMP OCP

2. BLOCK B

2.1 Pure Benedih Colliery

This site forms a part of the Amalgamated Block II Open Cast Project (ABOCP). The primary seam under operation is the combined Seam V/VI/VII, which has attained a thickness exceeding 20 meters due to the merging of individual seams.

No active fire has been observed within the combined seam; however, signs of fire was observed in the upper seams. Bench formation in the working area is not well-defined. In the combined seam, the coal bench appears to have advanced up to the overburden (OB) benches, effectively creating a near-continuous highwall.

In the upper benches, waste debris was observed. It remains unclear whether this material is the result of bench failure or irregular dumping of waste from higher levels.

Figure 2: Operational area of Pure Benedih colliery

3. BLOCK D

Proposed Block D OCP, the leasehold area of five collieries (full/part) viz. 1) Jogidih Colliery (East side of Khudia jore) 2) Amalgamated Block IV Govindpur Colliery (ABG Colliery) (full) 3) New Akashkinaree Collery (NAKC) (North side of DC Railway line) 4) Teturia Colliery (North side of DC Railway line) 5) South Govindpur Colliery (North side of DC Railway line) are involved.

Out of these five mines the following mines are under operation 1) Jogidih Colliery – underground mining is in operation 2) Amalgamated Block IV Govindpur Colliery (ABG Colliery) – Opencast mining is in operation 3) New Akashkinaree Collery (NAKC) – Both Underground and Opencast mining is in operation.

3.1 Amalgamated Block IV-Govindpur (ABG) Colliery

The south extent of the mine is up to the DC railway line, however, the further progress of the departmental mine area would depend on actual land acquisition after rehabilitating the people staying near the periphery of the present pit.

The pit is worked departmentally by BCCL. The benches developed along the pit slopes; however, the definition and uniformity of some benches seem to be compromised. In certain sections, the benches are either merged or inadequately maintained, indicating a need for better bench management to ensure safety and operational efficiency.

The haul roads are moderately wide and appear to accommodate the movement of large mining equipment and dumpers. However, road maintenance appears minimal, as indicated by the uneven surfaces and loose material spread along the paths, which may affect vehicle stability and dust control.

Figure 3: Mine workings of ABG colliery worked departmentally

On the western periphery a road passing through divides the mine into two parts. The adjacent western part is to be operated contractually and yet to be started. Before starting the mine needs to be dewatered.

Figure 4: Working area of proposed contractual work

3.2 New Akashkinaree Collery (NAKC) Hired Patch

The geometry of the pit indicates mining operations with considerable vertical and lateral expansion.

The benches are clearly formed but appear narrow and steep in some sections, particularly toward the central and right portions of the pit.

Some benches are cluttered with overburden and fragmented rock, indicating either incomplete removal or slope wash from upper levels.

The slope angles appear steep in various locations, which may pose stability risks, especially near water-influenced zones. The steepness of certain highwalls warrants continuous monitoring and potential stabilization efforts.

A substantial amount of water is collected at the base of the pit, forming a pool that spans a large portion of the floor area. This accumulation may restrict ongoing mining operations and equipment movement.

A haul road runs along the right side of the image, leading from the pit bottom to upper levels. It appears to be in functional condition and wide enough to accommodate heavy machinery.

Although no active fire is observed the whole area has a thin crust of smoke and haze.

Figure 5: Mine working area of New Akashkinaree Collery (NAKC) Hired Patch

4. BLOCK E

4.1 Katapahadi

The mine has been developed with multiple distinct horizontal benches which can be observed along the highwalls, indicating systematic overburden and coal extraction. The haul roads appear to be well defined and graded.

A substantial water body formed at the floor of the pit, occupying a significant portion of the mine's bottom area. This is primarily due to high seepage of water likely influenced from the adjacent river. The installed dewatering capacity is 21000 GPM but the level of water remains same, one reason could be a continuous inflow of water at the same rate as dewatering. As a result, the lower seams, i.e., III and below are submerged.

Figure 6: Working area of Katapahadi Patch

4.2 Tetulmari Patch

Tetulmari is a part of Block E which shows open-cast mining pit affected by subsurface coal seam fire. The visible smoke and discoloration across multiple bench levels indicate ongoing combustion within the exposed seams, posing operational, environmental, and safety concerns. The terrain is rocky with extensive overburden and loose debris scattered around the area.

Multiple smoke vents can be observed along exposed coal seams and overburden layers, confirming the existence of active fire zones. The fire appears to be widespread across several bench levels, possibly fueled by residual coal left in situ or exposed seams during excavation.

Benches are irregular and appear partially affected by heat and subsidence. Some layers show collapse or degradation, indicating possible bench weakening due to fire-induced thermal stress.

The highwall displays signs of weathering and surface cracking, likely exacerbated by fire activity.

Loose overburden and fragmented rock were observed indicating collapse. The layering of coal and shale is prominently visible, which may influence fire spread due to the differential combustion properties.

The patch is not presently being worked.

Figure 7: Working area of Tetulmari Patch

APPENDIX B: GRADE-WISE RESOURCE AND RESERVE TABLES

Grade-wise Measured Resource (Mt)

Mines	Measured Resource (Mt)																												Total Measured Resource (Mt)
	S-I	S-II	W-I	W-II	W-III	W-IV	W-V	W-VI	Total Coking Coal	UG	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	G15	G16	G17	Total Thermal Coal	
Damoda Patch						1.6			1.6																			0.0	1.6
ABOCP						24.4	34.4		58.8																			0.0	58.8
Pure Benedih- Block-B						42.9			42.9																			0.0	42.9
Pure Benedih- Block-C						33.2			33.2																			0.0	33.2
AMP colliery OCP					0.6	8.1	41.7		50.3																			0.0	50.3
Block-D					2.2	115.6	50.2		168.1																			0.0	168.1
Block-E		0.5		0.4	19.2	148.6	12.2	0.2	181.2					3.2	12.3	26.1	89.7	38.8	1.9	47.9	0.1							220.0	401.2
Amalgamated NTST-Kujama OCP				6.1	0.2	55.2	83.4		144.9							22.9												22.9	167.8
Madhuband Colliery		3.0	3.3	7.6	56.1	28.7			98.7									3.6	1.7									5.3	104.0
Kharkharee Colliery					28.5	36.3			64.8							11.3			20.7	3.4								35.4	100.2
Amalgamated Salanpur Gaslitand Katras Choitudih Colliery (ASGKCC)				18.9	31.6	154.8	57.3		262.6							9.1		7	44.6									123.7	386.3
Loyabad Colliery			3.1	5.8	3.7	6.7			19.3							5.2	13.7			3.2								22.1	41.4
PB Project Colliery		6.2	0.9	25.5	59.4	6.8			98.8							2.1		10.2	4.4									16.7	115.5
Amlabad Colliery				22.1					22.1																			0.0	22.1
New Godhur-Kusunda-Alkusa Colliery		0.1	0.5	0.1	0.3	8.6	1.3	0.7	11.6																			0.0	11.6
New Godhur Kusunda UG					32.8	17.8	106.5		157.1																			0.0	157.1
ADIC					1.8	6.2	0.9	0.9	9.8			0.1	0.2	0.3	0.8	1.3	2.7	7.2	13.6	5.4	2.5	0.4						34.5	44.3
Ena Colliery		0.1	0.1	3.0	8.8	2	5.9	1.4	39.3										2.4	1.4	2.1							5.9	45.2
Bastacolla Colliery				0.8		10.9	2.4	1.2	15.3									0.5										0.5	15.8
ROCP			0.9	0.4	3.9	7.7	1.7		14.6									0.6	1.1									1.7	16.3
Amal Bera-Dobari-Kuya-Ghanudih				15.5	0.8	1.2	28.1	0.5	46.1							7.1												7.1	53.2
Gopalichuck		2.2	1.3	1.1					4.6																			0.0	4.6
Maheshpur						3.3	1.2		4.5											4.1	0.3							4.4	8.9
Kankanee			0.3	1.1	2.4	1.0			4.8																			0.0	4.8
Bansdeopur				2.7	1.8		0.1		4.6																			0.0	4.6
Bhowrah (North+South) UG						66.3			66.3																			0.0	66.3
Amalgamated Bhowrah North South OCP				8.1	3.0	1.2			12.3																			0.0	12.3
ASP colliery				1.6	1.0	14.0			16.5																			0.0	16.5
Dahibari Basantimata						0.1			0.1										1.7									1.7	1.7
Kalyaneshwari OCP		0.2	1.8	3.7	6.5	47.7	17.4	1.7	79.0																			0.0	79.0
Moonidih- Seam XV		0.2	8.7	13.2	3.0	0.9			26.0																			0.0	26.0
Amal Joyrampur- Mega Patch D		0.7	1.4	2.6	1.3	9.4	0.4	0.4	16.2																			0.0	16.2
Kendwadih Patch		0.4	0.5	0.3	0.2	0.4			1.8											0.1	0.1	0.1	0.1					0.4	2.2
Total	**0.0**	**13.6**	**22.8**	**140.5**	**269.2**	**879.3**	**445.2**	**7.0**	**1777.6**	**0.0**	**0.1**	**0.2**	**3.5**	**13.1**	**85.1**	**106.1**	**130.9**	**92.1**	**65.5**	**5.1**	**0.5**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**502.3**	**2279.9**

Grade-wise Indicated Resource (Mt)

Mines	Indicated Resource (Mt)																											Total Indicated Resource (Mt)
	S-I	S-II	W-I	W-II	W-III	W-IV	W-V	W-VI	Total Coking Coal	UG	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	G15	G16	G17	Total Thermal Coal	
Damoda Patch									0.0																			0.0	
ABOCP									0.0																			0.0	0.0
Pure Benedih- Block-B									0.0																			0.0	0.0
Pure Benedih- Block-C						5.5			5.5																			0.0	5.5
AMP colliery OCP									0.0																			0.0	0.0
Block-D									0.0																			0.0	0.0
Block-E									0.0																			0.0	0.0
Amalgamated NTST-Kujama OCP									0.0																			0.0	0.0
Madhuband Colliery									0.0																			0.0	0.0
Kharkharee Colliery									0.0																			0.0	0.0
Amalgamated Salanpur Gaslitand Katras Choitudih Colliery (ASGKCC)									0.0																			0.0	0.0
Loyabad Colliery									0.0																			0.0	0.0
PB Project Colliery									0.0																			0.0	0.0
Amlabad Colliery									0.0																			0.0	0.0
New Godhur-Kusunda-Alkusa Colliery									0.0																			0.0	0.0
New Godhur Kusunda UG									0.0																			0.0	0.0
ADIC									0.0																			0.0	0.0
Ena Colliery									0.0																			0.0	0.0
Bastacolla Colliery									0.0																			0.0	0.0
ROCP									0.0																			0.0	0.0
Amal Bera-Dobari-Kuya-Ghanudih									0.0																			0.0	0.0
Gopalichuck									0.0																			0.0	0.0
Maheshpur									0.0																			0.0	0.0
Kankanee									0.0																			0.0	0.0
Bansdeopur									0.0																			0.0	0.0
Bhowrah (North+South) UG									0.0																			0.0	0.0
Amalgamated Bhowrah North South OCP									0.0																			0.0	0.0
ASP colliery									0.0																			0.0	0.0
Dahibari Basantimata									0.0																			0.0	0.0
Kalyaneshwari OCP									0.0																			0.0	0.0
Moonidih- Seam XV									0.0																			0.0	0.0
Amal Joyrampur- Mega Patch D									0.0																			0.0	0.0
Kendwadih Patch									0.0																			0.0	0.0
Total	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.5**	**0.0**	**0.0**	**5.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.5**

Grade-wise Inferred Resource (Mt)

Mines	Inferred Resource (Mt)																											Total Inferred Resource (Mt)
	S-I	S-II	W-I	W-II	W-III	W-IV	W-V	W-VI	Total Coking Coal	UG	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	G15	G16	G17	Total Thermal Coal	
Damoda Patch									0.0																			0.0	0.0
ABOCP									0.0																			0.0	0.0
Pure Benedih- Block-B									0.0																			0.0	0.0
Pure Benedih- Block-C									0.0																			0.0	0.0
AMP colliery OCP									0.0																			0.0	0.0
Block-D									0.0																			0.0	0.0
Block-E									0.0																			0.0	0.0
Amalgamated NTST-Kujama OCP									0.0																			0.0	0.0
Madhuband Colliery									0.0																			0.0	0.0
Kharkharee Colliery									0.0																			0.0	0.0
Amalgamated Salanpur Gaslitand Katras Choitudih Colliery (ASGKCC)									0.0																			0.0	0.0
Loyabad Colliery									0.0																			0.0	0.0
PB Project Colliery									0.0																			0.0	0.0
Amlabad Colliery									0.0																			0.0	0.0
New Godhur-Kusunda-Alkusa Colliery									0.0																			0.0	0.0
New Godhur Kusunda UG									0.0																			0.0	0.0
ADIC									0.0																			0.0	0.0
Ena Colliery									0.0																			0.0	0.0
Bastacolla Colliery									0.0																			0.0	0.0
ROCP									0.0																			0.0	0.0
Amal Bera-Dobari-Kuya-Ghanudih									0.0																			0.0	0.0
Gopalichuck									0.0																			0.0	0.0
Maheshpur									0.0																			0.0	0.0
Kankanee									0.0																			0.0	0.0
Bansdeopur									0.0																			0.0	0.0
Bhowrah (North+South) UG									0.0																			0.0	0.0
Amalgamated Bhowrah North South OCP									0.0																			0.0	0.0
ASP colliery									0.0																			0.0	0.0
Dahibari Basantimata									0.0																			0.0	0.0
Kalyaneshwari OCP									0.0																			0.0	0.0
Moonidih- Seam XV									0.0																			0.0	0.0
Amal Joyrampur- Mega Patch D									0.0																			0.0	0.0
Kendwadih Patch									0.0																			0.0	0.0
Total	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Grade-wise Proved Reserve (Mt)

Mines	Proved Reserve (Mt)																												Total Proved Reserve (Mt)
	S-I	S-II	W-I	W-II	W-III	W-IV	W-V	W-VI	Total Coking Coal	UG	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	G15	G16	G17	Total Thermal Coal	
Damoda Patch						1.5			1.5																			0.0	1.5
ABOCP						22.0	31.1		53.2																			0.0	53.2
Pure Benedih- Block-B																												0.0	0.0
Pure Benedih- Block-C						7.5			7.5																			0.0	7.5
AMP colliery OCP					0.5	7.2	37.5		45.2																			0.0	45.2
Block-D					2.0	103.9	45.1		151.0																			0.0	151.0
Block-E		0.4		0.3	17.2	133.8	10.9	0.2	162.8			2.9	11.1	23.5	80.7	35.0	1.7	43.1	0.1									198.1	360.9
Amalgamated NTST-Kujama OCP				5.5	0.1	49.7	75.0		130.4					20.6														20.6	151.0
Madhuband Colliery		1.7	1.9	4.3	32.0	16.4			56.3							2.1	1.0											3.1	59.4
Kharkharee Colliery																												0.0	0.0
Amalgamated Salanpur Gaslitand Katras Choitudih Colliery (ASGKCC)				4.6	7.8	38.0	14.1		64.5					2.2		17.2	10.9											30.3	94.8
Loyabad Colliery																												0.0	0.0
PB Project Colliery		4.0	0.6	16.1	37.6	4.3			62.6																			0.0	62.6
Amlabad Colliery																												0.0	0.0
New Godhur-Kusunda-Alkusa Colliery		0.1	0.5	0.1	0.3	7.8	1.2	0.7	10.7																			0.0	10.7
New Godhur Kusunda UG					3.6	2.0	11.7		17.3																			0.0	17.3
ADIC					1.6	5.5	0.8	0.8	8.7		0.1	0.2	0.8	1.2	2.4	6.5	12.2	4.9	2.3	0.3								30.9	39.6
Ena Colliery		0.1	0.1	2.7	7.9	17.9	5.3	1.2	35.3								2.2	1.3	1.9									5.4	40.7
Bastacolla Colliery				0.7		9.8	2.1	1.0	13.6							0.5												0.5	14.1
ROCP			0.8	0.3	3.6	7.0	1.5		13.2							0.5	1.0											1.5	14.7
Amal Bera-Dobari-Kuya-Ghanudih				13.9	0.8	1.1	25.2	0.5	41.5					6.4														6.4	47.9
Gopalichuck																												0.0	0.0
Maheshpur						2.0	0.7		2.7									2.5	0.2									2.7	5.4
Kankanee			0.2	0.9	2.2	0.9			4.2																			0.0	4.2
Bansdeopur																												0.0	0.0
Bhowrah (North+South) UG																												0.0	0.0
Amalgamated Bhowrah North South OCP				7.2	2.7	1.0			10.9																			0.0	10.9
ASP colliery				1.4	0.9	12.6			14.9																			0.0	14.9
Dahibari Basantimata																	1.2											1.2	1.2
Kalyaneshwari OCP		0.2	1.6	3.2	5.7	42.4	15.4	1.5	7																			0.0	70.0
Moonidih- Seam XV		0.2	7.8	11.9	2.7	0.8			23.4																			0.0	23.4
Amal Joyrampur- Mega Patch D		0.6	1.2	2.3	1.2	8.4	0.4	0.4	14.5																			0.0	14.5
Kendwadih Patch		0.3	0.5	0.3	0.2	0.3			1.6									0.1	0.1	0.1	0.1							0.4	2.0
Total	**0.0**	**7.6**	**15.2**	**75.7**	**130.6**	**503.8**	**278.1**	**6.3**	**1017.4**	**0.0**	**0.1**	**3.1**	**11.9**	**53.9**	**83.1**	**61.8**	**30.2**	**51.9**	**4.6**	**0.4**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**301.1**	**1318.5**

Grade-wise Probable Reserve (Mt)

Mines	Probable Reserve (Mt)																											Total Probable Reserve (Mt)
	S-I	S-II	W-I	W-II	W-III	W-IV	W-V	W-VI	Total Coking Coal	UG	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	G15	G16	G17	Total Thermal Coal	
Damoda Patch									0.0																			0.0	0.0
ABOCP									0.0																			0.0	0.0
Pure Benedih- Block-B						9.3			9.3																			0.0	9.3
Pure Benedih- Block-C						7.6			7.6																			0.0	7.6
AMP colliery OCP									0.0																			0.0	0.0
Block-D									0.0																			0.0	0.0
Block-E									0.0																			0.0	0.0
Amalgamated NTST-Kujama OCP									0.0																			0.0	0.0
Madhuband Colliery									0.0																			0.0	0.0
Kharkharee Colliery					23.8	30.2			54.0						9.4			17.3	2.8									29.5	83.5
Amalgamated Salanpur Gaslitand Katras Choitudih Colliery (ASGKCC)									0.0																			0.0	0.0
Loyabad Colliery			1.9	3.5	2.2	4.0			11.6						3.1	8.2			1.9									13.2	24.8
PB Project Colliery									0.0						1.3		6.4	2.8										10.5	10.5
Amlabad Colliery				16.6					16.6																			0.0	16.6
New Godhur-Kusunda-Alkusa Colliery									0.0																			0.0	0.0
New Godhur Kusunda UG									0.0																			0.0	0.0
ADIC									0.0																			0.0	0.0
Ena Colliery									0.0																			0.0	0.0
Bastacolla Colliery									0.0																			0.0	0.0
ROCP									0.0																			0.0	0.0
Amal Bera-Dobari-Kuya-Ghanudih									0.0																			0.0	0.0
Gopalichuck		1.6	0.8	0.9					3.3																			0.0	3.3
Maheshpur						0.3	0.1		0.4									0.4										0.4	0.8
Kankanee									0.0																			0.0	0.0
Bansdeopur				2.6	1.8		0.1		4.5																			0.0	4.5
Bhowrah (North+South) UG						16.1			16.1																			0.0	16.1
Amalgamated Bhowrah North South OCP									0.0																			0.0	0.0
ASP colliery									0.0																			0.0	0.0
Dahibari Basantimata									0.0																			0.0	0.0
Kalyaneshwari OCP									0.0																			0.0	0.0
Moonidih- Seam XV									0.0																			0.0	0.0
Amal Joyrampur- Mega Patch D									0.0																			0.0	0.0
Kendwadih Patch									0.0																			0.0	0.0
Total	**0.0**	**1.6**	**2.7**	**23.6**	**27.8**	**67.5**	**0.2**	**0.0**	**123.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**13.8**	**8.2**	**6.4**	**20.5**	**4.7**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**53.6**	**176.9**

APPENDIX C: ECO PARKS

Panchvati, Eco- Park, Koyla Nagar

Parasnath Udhyan Katras Area

Parasnath Udhyan Katras Area

Parasnath Udhyan Katras Area

Vrindavan Eco Park, GKKC, Kusunda Area

Vrindavan Eco Park, GKKC, Kusunda Area

Vrindavan Eco Park, GKKC, Kusunda Area

Govardhan Eco-Park, Bera

Netaji Subhash Chandra Bose Eco-Park, (Ashok Vatika), Kuya

APPENDIX D: COMPETENT PERSON'S CONSENT FORM

SRK Mining Services (India) Pvt Ltd
DD-30, 5th Floor, Andromeda Building,
Sector 1, Salt Lake City
Kolkata - 700 064
CIN - U74210WB2006PTC110842

T: +91 8274088317
E: enquiries@srk.co.in

www.srk.com

Statement

I/We,

Shameek Chattopadhyay

(*Insert full name(s)*)

confirm that I am the Competent Person for the Report and:

- I have read and understood the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition).
- I am a Competent Person as defined by the JORC Code, 2012 Edition, having twenty years experience that is relevant to the style of mineralisation and type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am a Member or Fellow of *The Australasian Institute of Mining and Metallurgy* or the *Australian Institute of Geoscientists* or a 'Recognised Professional Organisation' (RPO) included in a list promulgated by ASX from time to time.
- I have reviewed the Report to which this Consent Statement applies.

I am a full time employee of

SRK Mining Services (India) Pvt. Ltd.

(Insert company name)

Or

I/We am a consultant working for

(Insert company name)

and have been engaged by

Coal India Limited

(Insert company name)

to prepare the documentation for

JORC-equivalent Audited Coal Resources & Reserves Statement for proposed public issue and listing of equity shares of Bharat Coking Coal Limited (BCCL)

(Insert deposit name)

on which the Report is based, for the period ended

31 March 2025

(Insert date of Resource/Reserve statement)

I have disclosed to the reporting company the full nature of the relationship between myself and the company, including any issue that could be perceived by investors as a conflict of interest.

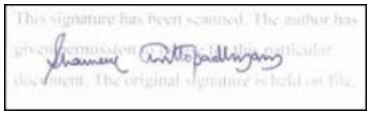
I verify that the Report is based on and fairly and accurately reflects in the form and context in which it appears, the information in my supporting documentation relating to Exploration Targets, Exploration Results, Mineral Resources and/or Ore Reserves *(select as appropriate).*

Consent

I consent to the release of the Report and this Consent Statement by the directors of:

Coal India Limited

(Insert reporting company name)



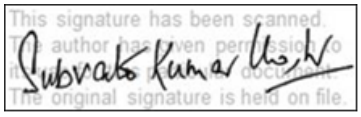
02-12-2025

Signature of Competent Person: Date:

Australasian Institute of Mining and Metallurgy 304459

Professional Membership:
(insert organisation name)

Membership Number:



Subrato Kumar Ghosh

Kolkata

Signature of Witness:

Print Witness Name and Residence:
(eg town/suburb)

SRK Mining Services (India) Pvt Ltd
DD-30, 5th Floor, Andromeda Building,
Sector 1, Salt Lake City
Kolkata - 700 064
CIN - U74210WB2006PTC110842

T: +91 8274088317
+91 33 4062 1003
E: enquiries@srk.co.in

www.srk.com

Statement

I/We,

Soumen Bhadra

(*Insert full name(s)*)

confirm that I am the Competent Person for the Report and:

- I have read and understood the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition).
- I am a Competent Person as defined by the JORC Code, 2012 Edition, having twenty five years experience that is relevant to the style of mineralisation and type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am a Member or Fellow of The Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists or a 'Recognised Professional Organisation' (RPO) included in a list promulgated by ASX from time to time.
- I have reviewed the Report to which this Consent Statement applies.

I am a full time employee of

SRK Mining Services (India) Pvt. Ltd.

(Insert company name)

Or

I/We am a consultant working for

(Insert company name)

and have been engaged by

Coal India Limited

(Insert company name)

to prepare the documentation for

Group Offices:
Africa
Asia
Australia
Europe
North America
South America

JORC-equivalent Audited Coal Resources & Reserves Statement for proposed public issue and listing of equity shares of Bharat Coking Coal Limited (BCCL)

(Insert deposit name)

on which the Report is based, for the period ended

31 March 2025

(Insert date of Resource/Reserve statement)

I have disclosed to the reporting company the full nature of the relationship between myself and the company, including any issue that could be perceived by investors as a conflict of interest.

I verify that the Report is based on and fairly and accurately reflects in the form and context in which it appears, the information in my supporting documentation relating to Exploration Targets, Exploration Results, Mineral Resources and/or Ore Reserves *(select as appropriate).*

Consent

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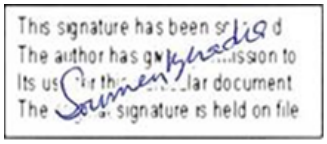
Coal India Limited

(Insert reporting company name)



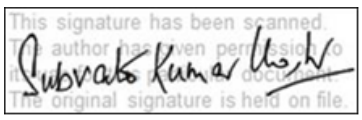
02-12-2025

Signature of Competent Person: Date:

Australasian Institute of Mining and Metallurgy 320312

Professional Membership:
(insert organisation name)

Membership Number:



Subrato Kumar Ghosh

Kolkata

Signature of Witness:

Print Witness Name and Residence:
(eg town/suburb)

SRK Mining Services (India) Pvt Ltd
DD-30, 5th Floor, Andromeda Building,
Sector 1, Salt Lake City
Kolkata - 700 064
CIN - U74210WB2006PTC110842

T: +91 8274088317
+91 33 4062 1003
E: enquiries@srk.co.in

www.srk.com

Statement

I/We,

Sudipta De

(*Insert full name(s)*)

confirm that I am the Competent Person for the Report and:

- I have read and understood the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition).
- I am a Competent Person as defined by the JORC Code, 2012 Edition, having thirty years experience that is relevant to the style of mineralisation and type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am a Member or Fellow of The Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists or a 'Recognised Professional Organisation' (RPO) included in a list promulgated by ASX from time to time.
- I have reviewed the Report to which this Consent Statement applies.

I am a full time employee of

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(Insert company name)

Or

I/We am a consultant working for

(Insert company name)

and have been engaged by

Coal India Limited

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(Insert deposit name)

on which the Report is based, for the period ended

31 March 2025

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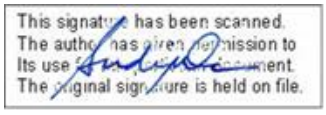
I verify that the Report is based on and fairly and accurately reflects in the form and context in which it appears, the information in my supporting documentation relating to Exploration Targets, Exploration Results, Mineral Resources and/or Ore Reserves *(select as appropriate).*

Consent

I consent to the release of the Report and this Consent Statement by the directors of:

Coal India Limited

(Insert reporting company name)



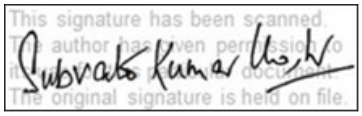
02-12-2025

Signature of Competent Person: Date:

Australasian Institute of Mining and Metallurgy 324165

Professional Membership:
(insert organisation name)

Membership Number:



Subrato Kumar Ghosh

Kolkata

Signature of Witness:

Print Witness Name and Residence:
(eg town/suburb)