



PROMOTIONAL AND DETAILED EXPLORATION



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1. Promotional Exploration

Mineral Exploration Corporation Limited (MECL), State Governments and Central Mine Planning and Design Institute (CMPDI) and other contractual agencies of CMPDI conducted Promotional Exploration under the Ministry of Coal's Plan scheme of "Promotional Exploration for Coal & Lignite".

During 2024-25 (till Nov.'24), a total of 1.387 lakh meters of Promotional (Regional) drilling was carried out in Coal and Lignite by CMPDI.

The summary of Promotional Drilling carried out in coal & lignite during the period 2020-21, 2021-22, 2022-23, 2023-24, 2024-25 (Apr'24-Nov'24), 2024-25 (Dec'24-Mar'25) (Expected), 2024-25 (Expected) and Jan'24-Nov'24 is given below:

(Drilling in Meter)

Command Area	2020-21 Actual	2021-22 Actual	2022-23 Actual	2023-24 Actual	2024-25 (Apr'24- Nov'24) (Prov.)	2024-25 (Dec'24- Mar'25) (Proj.)	2024-25 (Proj.)	(Jan'24 - Nov'24) (Prov.)
Drilling in CIL Command Area	1.117	1.552	0.768	1.530	1.328	0.620	1.948	1.923
Drilling in SCCL Command Area	0.000	0.000	0.000	0.025	0.021	0.003	0.024	0.030
Drilling in Lignite Areas	0.147	0.140	0.000	0.188	0.038	0.000	0.038	0.104
Total	1.264	1.691	0.768	1.743	1.387	0.623	2.010	2.057
Growth %	9%	34%	-54%	126%	127%			

2. Detailed Drilling in Non-CIL Blocks -

CMPDI carries out Detailed Exploration in CIL/Non-CIL and Consultancy blocks as per strict timelines to bring resources falling in indicated and inferred category into the Measured (Proved) category. The exploratory drilling in non-CIL/captive Mining blocks is taken up under the Ministry of Coal's Plan scheme of "Detailed Drilling in Non-CIL Blocks".

In 2024-25 (till Nov'24), a total of 2.054 lakh meters drilling was achieved by CMPDI and its contractual agencies. Out of which, the departmental drills of CMPDI carried out 0.826 lakh meters of exploratory drilling whereas 1.228 lakh meters was achieved through outsourcing drilling.



The details of actual drilling in Non-CIL/Captive Mining Blocks during the period 2020-21, 2021-22, 2022-23, 2023-24, 2024-25 (Apr'24-Nov'24), 2024-25 (Dec'24-Mar'25) (Expected), 2024-25 (Expected) and Jan'24-Nov'24 are given below:

(Drilling in Metre)

Agency Type	2019-20 Actual	2020-21 Actual	2021-22 Actual	2022-23 Actual	2023-24 Actual	2024-25 (Apr'24- Nov'24) (prov.)	2024-25 (Dec'24- Mar'25) (Proj.)	2024-25 (Proj.)	(Jan'24 - Nov'24) (Prov.)
CMPDI (Departmental)	2.092	1.746	0.876	0.932	0.983	0.826	1.000	1.826	1.292
Outsourcing by CMPDI	4.648	4.700	1.718	0.890	1.565	1.228	1.480	2.708	1.546
Total	6.740	6.446	2.593	1.822	2.547	2.054	2.480	4.534	2.838
Growth %	39%	-4%	-60%	-30%	40%			-	

3. Drilling Performance in 2023-24:

CMPDI deployed its departmental resources for detailed exploration of CIL, Non-CIL, Promotional, and Consultancy blocks. Under MoU with CMPDI, MECL deployed its resources in CIL, Non-CIL, Promotional, NMET funded, and Captive blocks. DGM (Nagaland), DGM (Assam), deployed their departmental resources in Promotional exploration. DGM (Assam), DGM (Nagaland) have also participated in exploration in Non-CIL/ Promotional blocks through their outsourced agencies. Besides, five contractual agencies also deployed resources for detailed /regional exploration in CIL, Non-CIL, Promotional & NMET blocks.

In 2024-25, as of November 2024, CMPDI, along with its contractual and MoU agencies, has conducted exploratory drilling in 109 coal blocks/mines across 27 coalfields and 4 lignite blocks in 3 lignite fields, spread over 11 states. Of the 109 coal blocks/mines, 28 are Non-CIL blocks, 27 are Promotional blocks, 7 are Consultancy blocks, 44 are CIL blocks, and 3 are NMET-funded blocks. Additionally, CMPDI has undertaken exploration in 1 bauxite block, funded by NMET, and 1 base metals block, funded by NMET, in the state of Jharkhand.

The overall performance of exploratory drilling during FY 2024-25 (till Nov'24), during Jan'24 - Nov'24 and Dec'24-Mar'25 is given below:

Agency	Annual Target 24-25 (Lakh m)	Detailed Drilling in FY 2024-25 (till Nov'24)			Achieved Prev. Year: FY 23-24 (till Nov'23) (Lakh m)	Growth (%)	2024-25 (Dec'24-Mar'25) (Proj.) (Lakh m)	2024-25 (Proj.) (Lakh m)	(Prov.) Jan'24 - Nov'24 (Lakh m)
		Target (Lakh m)	Achiev. (Lakh m)	Achiev. (%)					
I. Departmental	4.200	2.503	2.488	99%	2.076	20%	1.800	4.288	4.324
II. Outsourcing	5.800	2.800	2.808	100%	2.695	4%	3.000	5.808	4.026
Grand Total	10.000	5.303	5.296	100%	4.772	11%	4.800	10.096	8.350



During 2024-25 (Apr'24 to Nov'24), a total of about 2.488 lakh metre drilling was carried out through Departmental resources. About 2.808 lakh metre drilling was carried out through outsourcing, out of which about 0.014 lakh meter drilling was carried out through State Govts., 0.440 lakh metre drilling was carried out through tendering & 2.355 lakh metre drilling through MoU with MECL.

4. Geological Reports

In 2024-25, till Nov'24, 18 Geological Reports were prepared based on detailed/ regional exploration conducted in previous years. About 5.68 billion tonnes of coal resources are expected to be added to the Measured Category through Detailed Exploration covering an area of about 158 sq km through 13 Geological Reports. While, about 2.70 billion tonnes of new coal resources (in Indicated and Inferred categories) are expected to be added Promotional (Regional) Exploration covering an area of about 98 sq km through 5 Geological Reports.

During December 2024 to March 2025, CMPDI is expected to submit 13 Geological Reports, covering about 250 sq km area and another 5 billion tonnes of measured resources expected to be added to the inventory.

Overall, during Jan'24 – Nov'24, CMPDI submitted 22 Geological Reports of Detailed Exploration in CIL/ Non-CIL/Consultancy blocks, covering an area of about 323 sq km and with proved resource of about 10.8 billion tonnes, and 7 Geological Reports of Regional Exploration covering an area of about 148 sq km with about 7.5 billion tonnes of new coal resources (in Indicated and Inferred categories).

Geophysical Studies -

(a) 2D/3D Seismic Survey

During 2024-25, till Nov'24, CMPDI achieved 161.44 line km of 2D/3D seismic survey against the cumulative target of 160-line km. Out of 161.44 line km of 2D/3D seismic survey, about 79.34 line km

of survey was carried out departmentally against the cumulative target of 70 line km and additionally 82.10 line km of 2D/3D seismic survey was also carried out through outsourced resources.

From December 2024 to March 2025, CMPDI is expected to conduct seismic surveys covering 122 line kilometers using departmental resources and 118 line kilometers through outsourced services.

Overall, during the period between Jan'2024 to Nov'2024, CMPDI carried out 335.56 line km of 2D/3D seismic survey, out of which 227.59 line km through departmental & 107.97 Line KM through outsourcing has been carried out.

(b) Other Geophysical work

During the year 2024-25, till Nov'24, a total of 0.83 lakh meters of geophysical logging has been carried out in CIL, Non-CIL, Promotional and Consultancy projects with multi-parametric geophysical logging equipment through departmental resources. About 7.66 line km Resistivity Imaging and 13 stations of Gravity survey were also carried out departmentally.

Overall Geophysical surveys during Jan'2024 to Nov'2024 are as follows:

- 1) Geophysical Logging: 1.86 Lakh meters (Departmental)
- 2) Magnetic Survey: 36.44 Line Km (Only departmental)
- 3) Resistivity Survey: 39.25 Line Km (Only departmental)
- 4) Gravity Survey: 165 stations (Only departmental)

(c) Hydrogeological Studies

In 2024-25, till Nov'24, CMPDI prepared 58 nos. of Comprehensive Hydrogeology Report (CHR) of Coal Mine / Projects and 61 nos. of Groundwater Modelling report (GWM) have been prepared for obtaining NoC for Coal mines / Projects from CGWA,



New Delhi. 25 nos. of Hydrogeological study report have been incorporated in EIA / EMP studies of Coal mines / Projects. 20 nos. of other hydrogeological studies (i.e., chapter for GR / PR, Piezometers, Pumping Tests, Damage Assessment Reports etc.) have been prepared. Quarterly ground water level & quality monitoring of 4 nos. of Coalfields i.e., ECL, BCCL, CCL & NCL command area are completed.

During Dec'24 to March'25, CMPDI is expected to prepare 15 nos. of CHR of Coal Mine / Projects and 15 nos. of GWM will be prepared for obtaining NoC for Coal mines / Projects from CGWA, New Delhi. 5 nos. of Hydrogeological study report have been incorporated in EIA / EMP studies of Coal mines / Projects. 5 nos. of other hydrogeological studies (i.e., chapter for GR / PR, Piezometers, Pumping Tests, Damage Assessment Reports etc.) have been prepared. Quarterly ground water level & quality monitoring of 4 nos. of Coalfields i.e., ECL, BCCL, CCL & NCL command area are completed.

During Jan'24 - Nov'24, CMPDI prepared 84 nos. of Comprehensive Hydrogeology and 82 nos. of

Groundwater Modelling report for obtaining NOC for Coal mines / Projects from CGWA, New Delhi. About, 40 nos. of Hydrogeological study report have been incorporated in EIA / EMP studies of Coal mines / Projects. 30 nos. of other hydrogeological studies (i.e., chapter for GR / PR, Piezometers, Pumping Tests, Damage Assessment Reports etc.) have also been prepared. Quarterly ground water level & quality monitoring of 4 nos. of Coalfields i.e., ECL, BCCL, CCL & NCL command area completed.

5. COAL RESOURCES

Inventory of Geological Resources of coal in India -

As a result of exploration carried up to the maximum depth of 1200 m by the Geological Survey of India (GSI), CMPDI, SCCL and MECL, a cumulative total of 389.42 Billion tonnes of geological resources of coal have so far been estimated in the country as on 01.04.2024.

The details of State-wise geological resources of coal are given below:

STATE-WISE GEOLOGICAL RESOURCES OF COAL IN INDIA AS ON 01.04.2024

(Resource in million tonnes)

State	Measured (331)	Indicated (332)	Inferred (333)	Resource
ODISHA	53799.43	39053.01	6351.39	99203.83
JHARKHAND	59876.88	27135.39	4799.30	91811.57
CHHATTISGARH	40078.14	41092.78	1495.44	82666.36
WEST BENGAL	18752.19	11432.59	3773.29	33958.07
MADHYA PRADESH	15425.17	12378.97	5010.99	32815.13
TELANGANA	11256.78	8496.57	3452.17	23205.52
MAHARASHTRA	8163.11	3371.82	1816.70	13351.63
BIHAR	2346.36	3014.65	36.66	5397.67
ANDHRA PRADESH	1024.65	2368.94	778.17	4171.76
UTTAR PRADESH	884.04	177.76	0.00	1061.80
MEGHALAYA	95.64	16.65	470.93	583.22



State	Measured (331)	Indicated (332)	Inferred (333)	Resource
ASSAM	464.78	57.21	3.02	525.01
NAGALAND	8.76	21.83	447.72	478.31
SIKKIM	0.00	58.25	42.98	101.23
ARUNACHAL PRADESH	31.23	40.11	18.89	90.23
Total	212207.16	148716.53	28497.65	389421.34

Source: Geological Survey of India's Inventory of Geological Resources of Indian Coal and Lignite Resources as on 1.4.2024. The inventory did not take into account the mined-out reserves.

6. Categorization of Resources -

The coal resources of India are available in older Gondwana formations of peninsular India and younger tertiary formations of north eastern region. Based on the results of Regional/Promotional Exploration, where the boreholes are normally placed 800-1600 m apart, the resources are classified into 'Indicated' or 'Inferred' category. Subsequently, Detailed Exploration in selected blocks, where boreholes are less than 400 meter apart, upgrades the resources into more reliable 'Measured' category.

The formation-wise and Category-wise coal resources of India as on 1.4.2024 are given in table below:

(Resource in million tonnes)

Formation	Measured (331)	Indicated (332)	Inferred (333)	Total
Gondwana Coals	211606.75	148595.20	27557.09	387759.06
Tertiary Coals	600.41	121.31	940.56	1662.28
Total	212207.16	148716.53	28497.65	389421.34

The Type and Category-wise resources of India as on 1.4.2024 are given in table below:

(Resource in million tonnes)

Coal Type	Measured (331)	Indicated (332)	Inferred (333)	Total	% share
Prime Coking	5132.65	310.76	0	5443.41	1.40%
Medium Coking	17401.87	10408.7	1761.43	29572	7.59%
Semi Coking	529.68	1081.47	186.33	1797.48	0.46%
Sub-Total of Coking	23064.2	11800.93	1947.76	36812.89	9.45%
Non-Coking	188542.55	136974.29	25609.33	350946.17	90.12%
High Sulphur	600.41	121.31	940.56	1662.28	0.43%
Grand Total	212207.16	148716.53	28497.65	389421.34	100.00%
% share	54.49%	38.24%	7.32%	100.00%	



Lignite Resources in India

Lignite reserves in India have been currently estimated at around 47295.61 million tonnes as on 01.04.2024. The state wise distribution of lignite reserves as on 01.04.2024 is as follows:

(Resource in million tonnes)

State	Measured (331)	Indicated (332)	Inferred (333)	Resource
Pondicherry	0.00	405.61	11.00	416.61
Tamilnadu	5476.00	21412.16	10635.49	37523.65
Rajasthan	1203.85	3108.55	2273.84	6586.24
Gujarat	1278.65	283.70	1159.70	2722.05
Jammu & Kashmir	0.00	20.25	7.30	27.55
Kerala	0.00	0.00	9.65	9.65
West Bengal	0.00	1.13	2.80	3.93
Odisha	5.93	0.00	0.00	5.93
Total	7964.43	25231.40	14099.78	47295.61

