



**PROMOTIONAL
AND DETAILED
EXPLORATION**

Promotional and Detailed Exploration

GSI, MECL, State Govts. and CMPDI are continuing Promotional Exploration in XII plan under the MoC's Plan scheme of Promotional Exploration for Coal & Lignite. The summary of Promotional Drilling carried out in Coal & Lignite sectors in 2011-12, 2012-13, 2013-14, 2014-15 (Upto 31.12.2014) and target for 2015-16 is given below:

(Drilling in metre)

Command Area	2011-12 Actual	2012-13 Actual	2013-14 Actual	2014-15 Actual Upto Dec. 14	2015-16 Proposed BE*
Physical:					
1. Drilling in C.I.L. Command Area	34.90	36725	53695	52500	83300
2. Drilling in S.C.C.L. Command Area	9,228	8899	9553	3600	15500
3. Drilling in Lignite Areas	49564	67728	68774	51400	76200
TOTAL	93722	113352	132022	107500	175000
Growth %	-8.71	20.94	16.47		

* Achievement of target depends upon timely availability of forest clearance to take up drilling in forest areas, local support and occurrence of lignite in identified blocks.

CMPDI carries on Detailed Exploration in CIL and Non-CIL blocks as per strict timelines to bring resources falling in indicated and inferred category into the proven category. The exploratory drilling in Non-CIL/Captive Mining blocks is taken up under the MoC's Plan scheme of Detailed Drilling in Non-CIL Blocks.

The details of actual drilling in Non-CIL/Captive Mining Blocks in 2011-12, 2012-13, 2013-14, 2014-15 (Upto 31.12.2014) and target for 2015-16 are as follows:

(Drilling In metre)

Agency	2011-12 Actual	2012-13 Actual	2013-14 Actual	2014-15 Actual Upto Dec. 14	2015-16 Proposed BE*
Physical:					
1) CMPDI Departmental	55230	77458	93742	46700	53350
2) Outsourcing by CMPDI	166648	150250	144159	143400	428500
TOTAL	221878	227708	237901	190100	481850

- CMPDI has substantially improved the capacity of drilling during the XI & XIIth plan period. As against the achievement of 2.09 lakh metre in 2007-08, CMPDI has achieved 4.98 lakh metre in 2011-12, 5.63 lakh meter in 2012-13, 6.97 lakh meter in 2013-14 and drilling target about 8.12 lakh meter is likely to be achieved in 2014-15 (**16% Growth**) through departmental resources and outsourcing. For capacity expansion through modernization of departmental drills, *39 new Mechanical drills & 4 Hi-Tech Hydrostatic drills have been procured since 2008-09, out of which 10 have been deployed as additional drills and 33 as replacement drills.* CMPDI has also replaced 38 mud pumps and 74 trucks in last six years. In addition to this supply order for **8 Hi-Tech Hydrostatic drills** have been placed in 2014-15 and delivery of drills has started.
- To meet the increased work load, recruitment has been taken up through campus interviews/ open examinations. 225 Geologists, 32 Geo-physicists and 20 Mechanical Engineers as Drilling Engineers have joined CMPDI since 2008-09. About 540 non-executive staffs have also been inducted for exploration work.
- Under outsourcing, the work of 45 blocks involving 16.46 lakh metre of drilling was awarded through tendering since 2008-09, out of which drilling has been concluded in 23 blocks. Due to local (law & order) problems, work could not start in 2 blocks and stopped in 6 running blocks. Due to non-availability of forest clearance work had to stop in 11 blocks. Due to lack of forest clearance and adverse law & order, about 4.0 lakh metre of drilling could not be carried out in departmental &

outsourced blocks in 2014-15. In 2014-15, a total of about 4.60 lakh metre (**24% Growth**) is likely to be drilled through outsourcing, out of which 2.39 lakh metre drilling would be done through tendering & 2.15 lakh metre through MoU with MECL.

Drilling Performance in 2014-15:

- CMPDI deployed its departmental resources for detailed exploration of CIL/Non-CIL blocks whereas State govts. of MP and Odisha deployed additional resources in CIL blocks . In addition, eight other contractual agencies have also deployed resources for detailed drilling/exploration in CIL/Non-CIL blocks. A total of 140 to 160 drills were deployed in 2014-15 out of which 57 were departmental drills.
- Apart from the above, CMPDI continued the technical supervision of Promotional Exploration work undertaken by MECL in Coal Sector (CIL & SCCL areas) in 7 blocks, GSI in 9 blocks and DGM(Nagaland) in 2 blocks. Promotional Exploration work was undertaken by MECL in Lignite Sector in 8 blocks & by the GSI in 4 blocks. A total of 1.40 lakh metre of promotional drilling is likely to be carried out in Coal (0.73 lakh metre) & Lignite (0.67 lakh metre) during 2014-15.
- In 2014-15, CMPDI and its contractual agencies took up exploratory drilling in 93 blocks/mines of 22 coalfields situated in 6 States. Out of 93 blocks/mines, 30 were Non-CIL/Captive blocks and 63 CIL blocks/mines. Departmental drills of CMPDI took up exploratory drilling in 57 blocks/mines whereas contractual agencies drilled in 36 blocks/mines.

The overall projected performance of exploratory drilling in 2014-15 is given below:

Agency	Target 2014-15 (metre)	Performance of Exploratory Drilling in 2014-15 (Projected)			Achieved Prev. Year: 2013-14 (m)	Growth %
		Achieved (metre)	Achieved (%)	+/- (m)		
A. Detailed Drilling Undertaken by CMPDI :						
I. Departmental	350000	351000	100%	1000	325362	8%
II. OUTSOURCING						
State Govts.	10000	6500	65%	-3500	5943	9%
MECL (MOU)	215000	215000	100%	0	171006	26%

Tendering (CIL blocks)	374000	156500	41%	-217500	156359	0%
Tendering (Non-CIL blocks)	251000	82500	33%	-168500	38171	116%
Total Outsourcing	850000	460500	54%	-389500	371479	24%
GrandTotal A	1200000	811500	68%	-388500	696841	16%
B. Promotional Drilling by MECL, GSI, DGM (Nagaland) & DGM (Assam):						
I. COAL SECTOR						
GSI	16500	19000	115%	2500	15589	22%
MECL	70000	52500	75%	-17500	46753	12%
DGM, Nagaland	500	550	110%	50	783	-30%
DGM, Assam	500	0	0%	-500	123	-100%
CMPDI	3000	1064	35%	1936	0	
Total Coal:	90500	73064	81%	-17436	63248	16%
II. LIGNITE SECTOR						
GSI	13500	8300	61%	-5200	7380	12%
MECL	61000	59000	97%	-2000	61394	-4%
Total Lignite	74500	67300	90%	-7200	68774	-2%
Grand Total	165000	140364	85%	-24636	132022	6%

Note: The Achieved Figure given above includes Actual for April'14 to February'15 and Projected for March'2015.

- In 2014-15, CMPDI is likely to achieve its departmental and overall drilling targets by 100% and 68% respectively. The performance of departmental drilling is better than previous year with **likely growth of 8%** and recording average operational drills productivity of **500 m/drill/month**. Non-availability of permission to explore in forest areas & local problems (law& order) has affected the performance of outsourced drilling. MECL could not achieve the targets of Promotional drilling in coal sector due to forest problems and CMPDI could not take promotional drilling due to its priority in detailed drilling.
- About 8,848 metre of exploratory drilling was carried out in License Area Nos. 3450L & 3451L, Moatize Coalfield, Tete Province, Mozambique under supervision Coal India Africana LDA.

Progress of 2D & 3D seismic survey

- It was decided in the 182nd Board Meeting of CMPDI to take up 2D seismic survey in 4 blocks by the end of FY 2014-15.

Accordingly, seismic survey has been taken up in Pundi East block, West Bokaro Coalfield and Dabor, Central Salanpur A, Central Salanpur Phase-II, Sangramgarh East, Sadhna East, Sadhna South East, Mohanpur East and Mohanpur South East blocks of Raniganj Coalfield collectively from the last week of December, 2014. Data acquisition has been completed in Pundi East Block, West Bokaro Coalfield and data processing is under progress. Processing and interpretation of data of Raniganj Area will be taken up after data acquisition is completed. Nearly 50 Line K.M. of seismic data has been collected in the above 9 blocks.

- NGRI has already started data acquisition of 3D seismic survey in Belpahar Block, Ib-Valley Coalfield under the promotional scheme. Till date, approx. 3.5 Sq. K.M. area has been covered. Geophysicists from CMPDI have been attached with the NGRI team for acquaintance of 3D seismic data acquisition.

Geological Reports:

- In 2014-15, **16** Geological Reports are likely to be prepared on the basis of detailed exploration conducted in previous years. In addition to this 8 Revised Geological Reports have also been prepared. The prepared Geological Reports are likely to prove about **3.0 Billion Tonnes** of additional coal resources under 'Proven' category.
- Geological Report of License Area Nos. 3450L & 3451L, Moatize Coalfield, Tete Province, Mozambique is likely to be submitted by Coal India Africana LDA in July'2015

COAL RESOURCES

- Inventory of Geological Resources of Coal in India
As a result of exploration carried upto the maximum depth of 1200m by the GSI, CMPDI, SCCL and MECL, a cumulative total of 301.56 Billion tonnes of geological resources of coal have so far been estimated in the country as on 1.4.2014. The details of state-wise geological resources of Coal are given below:

(In million tonnes)

State	Proved	Indicated	Inferred	Total
West Bengal	13403	13022	4893	31318
Jharkhand	41377	32780	6559	80716
Bihar	0	0	160	160
Madhya Pradesh	10411	12382	2879	25673
Chhattisgarh	16052	33253	3228	52533
Uttar Pradesh	884	178	0	1062
Maharashtra	5667	3186	2110	10964
Odisha	27791	37873	9408	75073
Telangana	9729	9670	3068	22468
Assam	465	47	3	515
Sikkim	0	58	43	101
Arunachal Pradesh	31	40	19	90
Meghalaya	89	17	471	576
Nagaland	9	0	307	315
Total	125909	142506	33149	301564

The next inventory of coal resources would be prepared in April 2015 and would be available on 1st May 2015. No projections are possible for this inventory.

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➤ 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 1-2 Km apart, the resources are classified into 'Indicated' or 'Inferred' category. Subsequent Detailed Exploration in selected blocks, where boreholes are less than 400 meter apart, upgrades the resources into more reliable 'Proved' category. The Formation-wise and Category-wise Coal resources of India as on 1.4.2014 are given in table below:

(In million tonnes)

Formation	Proved	Indicated	Inferred	Total
Gondwana Coals	125315	142407	32350	300072
Tertiary Coals	594	99	799	1493
Total	125909	142506	33149	301564

➤ The Type and Category-wise Coal resources of India as on 1.4.2014 are given in table below:

(In million tonnes)

Type of Coal	Proved	Indicated	Inferred	Total
(A) Coking :-				
-Prime Coking	4614	699	0	5313
-Medium Coking	13303	11867	1879	27049
-Semi-Coking	482	1004	222	1708
Sub-Total Coking	18400	13569	2101	34070
(B) Non-Coking:-	106916	128838	30249	266002
(C) Tertiary Coal	594	99	799	1493
Grand Total	125909	142506	33149	301564

➤ Lignite Reserves In India

Lignite reserves in India have been currently estimated at around 43246.69 million tonnes. The state wise distribution of lignite reserves as on 1.4.2014 is as follows:

State	Area		Geological Reserves (M.T.)
Tamil Nadu & Pondy	A(i)	Neyveli Region	4150.00
	(ii)	Jayamkondacholapuram	1206.73
	(iii)	Eastern part of Neyveli	562.32

State	Area		Geological Reserves (M.T.)
	(iv)	Veeranam	1342.45
	(v)	Others	987.82
	(vi)	Pondy (Bahur)	416.61
	B	Mannargudi Lignite field	24202.34
	C	Ramanthapuram	1896.05
	Total		34764.32
Rajasthan			5720.35
Gujarat			2722.05
Jammu & Kashmir			27.55
Kerala			9.65
West Bengal			2.77
Total			43246.69