

CHAPTER

9



# **PROMOTIONAL AND DETAILED EXPLORATION**

**ANNUAL REPORT 2018-19**



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## Promotional Exploration

Geological Survey of India (GSI), Mineral Exploration Corporation Limited (MECL), State Governments and CMPDI are conducting Promotional Exploration under the Ministry of Coal's Plan

scheme of "Promotional Exploration for Coal & Lignite". The summary of Promotional Drilling carried out in coal & lignite during the period 2014-15, 2015-16, 2016-17, 2017-18, 2018-19 and proposed target for 2019-20 is given below:

(Drilling in Metre)

Command Area	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 Proposed BE
Drilling in CIL Command Area	67144	52086	49043	92787	91238	117500
Drilling in SCCL Command Area	3575	0	0	0	4747	500
Drilling in Lignite Areas	68777	60259	55624	41894	43023	35000
<b>Total*</b>	<b>139496</b>	<b>112343</b>	<b>104567</b>	<b>134681</b>	<b>139008</b>	<b>153000</b>
<b>Growth%</b>	<b>6%</b>	<b>-19%</b>	<b>-6%</b>	<b>28%</b>	<b>3%</b>	

\*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.

## Detailed Drilling In Non-CIL 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 **measured (proven)** 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".

The details of actual drilling in Non-CIL/Captive Mining Blocks during the period 2014-15, 2015-16, 2016-17, 2017-18, 2018-19 and proposed target for 2019-20 is given below:

(Drilling in Metre)

Command Area	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 Proposed BE
CMPDI Departmental	61427	55769	57663	113228	140683	294500
Outsourcing by CMPDI	220972	231502	251044	372661	342926	448000
<b>Total</b>	<b>282399</b>	<b>287271</b>	<b>308070</b>	<b>485889</b>	<b>483609</b>	<b>742500</b>
<b>Growth %</b>	<b>19%</b>	<b>2%</b>	<b>7%</b>	<b>57%</b>	<b>0%</b>	

CMPDI has substantially improved its capacity of drilling during the XI & XII plan period. As against the achievement of 2.09 lakh meter in 2007-08, CMPDI has achieved 4.98 lakh meter in 2011-12, 5.63 lakh meter in 2012-13, 6.97 lakh meter in 2013-14, 8.28 lakh meter in 2014-15, 9.94 lakh meter in 2015-16, 11.26 lakh meter in 2016-17, 13.66 lakh metre in 2017-18 and 13.60 lakh meter in 2018-19 through Departmental resources and outsourcing. For capacity expansion through modernization of departmental drills, 39 new Mechanical drills & 26 Hi-tech Hydrostatic drills have been procured since 2008-09, out of which 15 have been deployed as additional drills and 33 as replacement drills. CMPDI has also replaced 38 mud pumps and 74 trucks in last nine years.

To meet the increased work load, recruitment has been taken up through campus interviews/open examinations. 259 Geologists, 34 Geo-physicists and 20 Mechanical Engineers as drilling Engineers have joined CMPDI since 2008-09. About 1240 non-executive staffs have also been inducted for exploration work. Out of this, 45 Geologists, 7 Geo-physicists, 5 Mechanical Engineers & 14 non-executives have resigned.

During 2018-19, a total of about 8.60 lakh meter drilling was carried out through outsourcing, out of which 3.97 lakh meter drilling through tendering & 4.61 lakh meter through MoU with MECL.

### Drilling Performance in 2018-19:

CMPDI deployed its departmental resources for detailed exploration of CIL/Non-CIL blocks whereas State Govt. of Odisha deployed resources in CIL blocks only. In addition, seven other contractual agencies have also deployed resources for detailed drilling/exploration in CIL/Non-CIL blocks. A total of 130 to 150 drills were deployed in 2018-19, out of which, 68 were departmental drills.

Apart from the above, CMPDI continued the technical supervision of Promotional Exploration work undertaken by MECL in coal Sector (CIL areas) in 14 blocks & DGM (Nagaland) in 1 block. CMPDI has also taken up promotional drilling in 2 blocks. Promotional Exploration work was undertaken by MECL in Lignite Sector in 6 blocks. A total of about 1.39 lakh meter of Regional drilling was carried out in Coal (0.96 lakh meter) & Lignite (0.43 lakh meter) during 2018-19.

In 2018-19, CMPDI and its contractual agencies took up exploratory drilling in 114 blocks/Mines of 19 coalfields situated in 14 States. Out of 114 blocks/mines, Departmental drills of CMPDI took up exploratory drilling in 57 blocks/mines, whereas, contractual agencies took up exploratory drilling in 57 blocks.

The overall performance of exploratory drilling 2018-19 is given below:

Agency	Target 2018-19 (Lakh M)	Performance of Exploratory Drilling in 2018-19			Achieved Prev. Year: 2017-18 (m)	Growth %
		Achieved (L)	Achieved (%)	+/- (m)		
<b>A Detailed Drilling Undertaken by CMPDI</b>						
I. Departmental	4.800	4.997	104%	0.197	4.505	11%
<b>II. OUTSOURCING</b>						
State Govts.	0.010	0.020	200%	0.010	0.021	-6%
MECL (MOU) CIL/Non-CIL	3.500	4.613	132%	0.064	4.688	-2%
Tendering – CIL/ Non-CIL	5.360	3.970	74%	-0.158	4.446	-11%
<b>Total Outsourcing</b>	<b>8.870</b>	<b>8.603</b>	<b>97%</b>	<b>-0.267</b>	<b>8.477</b>	<b>-2%</b>
<b>Grant Total A</b>	<b>13.670</b>	<b>13.600</b>	<b>99%</b>	<b>-0.069</b>	<b>13.661</b>	<b>0%</b>

<b>B. Promotional Drilling by MECL, GSI, DGM (Nagaland) &amp; DGM (Assam)</b>						
<b>I. COAL SECTOR</b>						
GSI	0.000	0.000	0%	0.000	0.000	0%
MECL	0.900	0.767	85%	-0.133	0.853	-5%
DGM, Nagaland	0.007	0.011	154%	0.004	0.008	34%
DGM, Assam	0.013	0.000	0%	-0.013	0.000	0%
CMPDI	0.160	0.135	84%	-0.025	0.067	101%
SCCL	0.020	0.047	237%	0.027	0.000	100%
<b>Total Coal</b>	<b>1.100</b>	<b>0.960</b>	<b>87%</b>	<b>-0.140</b>	<b>0.928</b>	<b>3%</b>
<b>II LIGNITE SECTOR</b>						
GSI	0.000	0.000	0%	0.000	0.003	-100%
MECL	0.900	0.430	48%	-0.470	0.416	4%
<b>Total Lignite</b>	<b>0.900</b>	<b>0.430</b>	<b>48%</b>	<b>-0.470</b>	<b>0.419</b>	<b>3%</b>
<b>Grand Total</b>	<b>2.000</b>	<b>1.390</b>	<b>70%</b>	<b>-0.610</b>	<b>1.347</b>	<b>3%</b>

In 2018-19, CMPDI achieved overall drilling targets by 99%. The performance of departmental drilling by CMPDI was the best ever with growth of 11% over previous year and recording average operational drills productivity of 619 meter /drill/ months. Non availability of permission to explore in forest areas & local problems (law & order) have affected the performance of outsourced drilling. GSI has not taken up the promotional exploration in coal, MECL could not achieve the targets of Promotional drilling due to forest problems & less deployment of drills and its priority in detailed drilling & DGM (Assam) could not deploy its rigs due to adverse law & order condition.

### Geological Reports

In 2018-19, 24 Geological Reports were prepared on the basis of detailed exploration conducted in previous years. About **6.6 Billion Tonne** of additional coal resources under Measured (Proven) category were added in the Coal Inventory of India.

### Geophysical Studies

HRSS Survey has been carried out in the Dip-side of Sakhigopal 'A' block, Talcher Coalfield, Bartara block in Sohagpur Coalfield and the survey is under progress in North of Piparwar Phase-II block,

N.K. area. A sum total of 80 line km. survey has been carried out. Vibrosis imported from M/s SERCEL, France was commissioned and deployed in North of Piparwar Phase-II block.

Disposal of 24 km of disused radiation source have been completed with M/s AFRB, BARC Mumbai. All the disused radiation sources were accumulated for the last 30 years.

Two lakh meter of Geophysical logging were carried out departmentally especially for complimenting non-coring drilling.

### Hydro-geological Studies

Hydro-geological studies of 15 numbers of mining projects/ mines were taken up for preparation of 'Groundwater Clearance Application' for CGWA approval and EMP Clearance. CMPDI is carrying out groundwater monitoring of MOEF cleared projects 74 nos. of mines of WCL area and 15 nos. Cluster of Mines in BCCL area. Water level monitoring in other area of ECL, CCL, SECL, NCL and MCL are also in progress. Total 90 nos. of Hydro-geological studies on GR/PR/Piezometers and others have been completed.

Hydro-geological studies in 5 projects have been carried out for water supply arrangements to mines, colony and villages.

## 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 319.020 billion tonne of geological resources of coal have so far been estimated in the country as on 01.04.2018. The details of State-wise geological resources of coal are given below:

#### STATEWISE GEOLOGICAL RESOURCES OF COAL IN INDIA AS ON 01.04.2018

STATE	Category-wise Coal Resources (in MT)				
	Measured	Indicated	Inferred	Inferred	Total
	(Proved)		(Exploration)	(Mapping)	
WEST BENGAL	14156	12869	4643	0	31667
BIHAR	161	813	392	0	1367
JHARKHAND	45563	31439	6150	0	83152
MADHYA PRADESH	11958	12154	3875	0	27987
CHHATTISGARH	20428	34576	2202	0	57206
UTTAR PRADESH	884	178	0	0	1062
MAHARASHTRA	7178	3074	2048	0	12299
ODISHA	37391	34165	7739	0	79295
ANDHRA PRADESH	0	1149	432	0	1581
TELANGANA	10475	8576	2651	0	21702
SIKKIM	0	58	43	0	101
ASSAM	465	57	1	3	525
ARUNACHAL PRA-DESH	31	40	13	6	90
MEGHALYA	89	17	28	443	576
NAGALAND	9	0	104	298	410
<b>GRAND TOTAL</b>	<b>148787</b>	<b>139164</b>	<b>30319</b>	<b>750</b>	<b>319020</b>

Source: Geological Survey of India's Inventory of Geological Resources of Indian Coal as on 1.4.18. The inventory did not take into account the mined out reserves.