

CHAPTER

8



# **RESEARCH & DEVELOPMENT**

## **ANNUAL REPORT 2017-18**

# RESEARCH & DEVELOPMENT

## Status Of Research Projects Under S&T Grant Of Ministry of Coal

The R&D activities in Coal sector are administered through an apex body namely, Standing Scientific Research Committee (SSRC) with Secretary (Coal) as its Chairman. The other members of this apex body include Chairman CIL, CMDs of CMPDI, SCCL and NLCIL, Director General (DG) of Directorate General of Mines Safety (DGMS), Directors of concerned CSIR Laboratories, Representatives from Department of S&T (DST), NITI Aayog and Educational Institutions, etc. The main functions of SSRC are to plan, programme, budget and oversee the implementation of research projects. The SSRC is assisted by a Technical Sub-Committee headed by CMD, CMPDI.

The R&D projects are covered under 4 thematic areas viz. improvement in production, productivity & safety in coal mines,

coal beneficiation, coal utilization and protection of environment & ecology.

CMPDI acts as the Nodal Agency for co-ordination of research activities in the coal sector, which involves identification of 'Thrust Areas' for research activities, identification of agencies which can take up the research work in the identified fields, processing the proposals for Government approval, preparation of budget estimates, disbursement of fund, monitoring the progress of implementation of the projects, etc.

A total of 390 S&T projects were taken up (till 27.12.2017) and 320 S&T projects completed (till 27.12.2017).

## PHYSICAL PERFORMANCE

The status of Coal S&T projects during 2017-18 is as under:

Sl. No.	Parameters	Quantity
1	Projects on-going as on 01.04.2017	12
2	Projects sanctioned by SSRC during 2017-18	01 + 02* (*1 project has been sanctioned and will be started w.e.f. 01.01.2018 and another project has been approved by SSRC, Sanction letter from MoC is awaited)
3	Projects completed during 2017-18 (till 27.12.2017)	Nil (One Project is expected to be completed by March, 2018)
4	Projects on-going as on 27.12.2017	13

## Following Coal S&T project is expected to be completed during 2017-18:

### Sustainable livelihood activities on reclaimed opencast coal mines: a technology enabled integrated approach in Indian coal sector

This project is being executed by TERI / TERI University, New Delhi in association with CMPDI, Ranchi and Bharat Coking Coal

Limited (BCCL), Dhanbad.

The prime aim of the project is to develop permanent green cover on overburden dumps / backfilled mined land areas for eco-friendly mine reclamation, utilization of reclaimed land to develop entrepreneurship and vocational skills among local community for empowerment in and around the project affected areas and to promote local economic growth by driving income generation activities.

Under this project following activities have been carried out:

- Data collected on Mining land suitability analysis software 'DEFINITE'.
- Stylisanthes hamata' and 'Dinanath', two grass species have been spread on the 15 acres Muraidih project site.
- Soil and water samples were analysed at Indian Council of Agriculture Research (ICAR), New Delhi laboratory for heavy metal content.
- Post completion of socio economic survey and stake holders' participation workshop, livelihood team of TERI University analysed all possible activities.

Training program for mushroom cultivation, fisheries were provided to the villagers at VTC

### STATUS OF RESEARCH PROJECTS UNDER CIL R&D

For in-house R&D work of CIL, an R&D Board headed by Chairman, CIL is also functioning. CMPDI acts as the Nodal Agency for processing the proposals for CIL approval, preparation of budget estimates, disbursement of fund, monitoring the progress of implementation of the projects, etc.

In order to enhance R&D base in command areas of CIL, the CIL Board in its meeting held on 24<sup>th</sup> March 2008 had delegated substantial powers to CIL R&D Board and the Apex Committee of the R&D Board. The Apex Committee is empowered to sanction individual R&D project up to Rs. 5.0 Crore value with a limit of Rs. 25.0 Crore per annum considering all the projects together, whereas CIL Board is empowered to sanction individual R&D project up to Rs. 50.0 Crore.

So far, 86 CIL R&D projects have been taken up (till 27.12.2017), out of which 61 projects have been completed (till 27.12.2017).

### PHYSICAL PERFORMANCE

The status of CIL R&D Projects during 2017-18 is as follows:

Sl. No.	Parameters	Quantity
1	Projects on-going as on 01.04.2017	14
2	Projects sanctioned during 2017-18	6

Sl. No.	Parameters	Quantity
3	Projects completed during 2017-18 (till 27.12.2017)	1
4	Projects on-going as on 27.12.2017	20

### FINANCIAL STATUS

Budget provisions vis-à-vis actual fund disbursement during the period are given below:

(Rs. in Crores)

2016-17		2017-18		
RE	Actual	RE	Actual (till 27.12.2017)	Provisional (27.12.2017 to 31.03.2018)
10.00	10.38	25.00 (yet to be approved)	2.76	22.24

Following CIL R&D project was completed during 2017-18:

### Demonstration of Coal Dry Beneficiation System using Radiometric Technique

This project has been completed by CMPDI, Ranchi, Ardee Hi-Tech Pvt. Ltd, Visakhapatnam and BCCL, Dhanbad. The project aims at developing a demonstration plant for dry deshaling of coal based on modified radiometric detection and pneumatic removal technology.

The proposed dry beneficiation technology is based on radiometric detection and removal of stones and shale from coal streams and works on the differential gamma ray absorption properties of coal and ash forming minerals. The mass absorption coefficient of coal is dependent on the chemical composition of coal and shale. The distinct advantage of radiometric technology is that the target for clean coal or the threshold value for rejection can be planned and set as per need. This technology is an efficient, dust free and energy friendly also.

Under this project, it was proposed to take up this technology at demonstration scale. This project has been executed at Madhuband Washery by installing two modules of ArdeeSort for deshaling coals in the size fraction of 13mm-50mm (in two stages i.e.13-25mm & 25-50mm).

**Financial status**

Budget provisions vis-à-vis actual fund disbursement during the period are given below:

**(Rs. in Crores)**

2016-17		2017-18		
RE	Actual	RE	Actual (till 27.12.2017)	Provisional (27.12.2017 to 31.03.2018)
50.00	13.19	75.00 (yet to be approved)	49.34	25.66