



RESEARCH & DEVELOPMENT

RESEARCH & DEVELOPMENT

1. 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 Research Institutions, Chairman of Technical Sub-committee, 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 HoD(Mining) of IIT- KGP/BHU/ ISM on annual rotation basis.

The R&D projects are broadly covered under 7 thematic areas, viz. Advanced technology / methodology for improvement of production & productivity, Improvement of safety, Health and environment, Waste to wealth, Alternative use of coal and clean coal technology, Coal beneficiation and utilization, Exploration, Innovation and indigenization (Under Make-in-India concept).

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.

2. 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 24th 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 ₹5.0 Crore value with a limit of ₹25.0 Crore per annum considering all the projects together, whereas CIL R&D Board is empowered to sanction individual R&D project up to ₹50.0 Crore.

Physical performance

The status of CIL R&D Projects during 2021-22 are as follows:

Sl. No.	Parameters	Quantity
1	Projects on-going as on 01.04.2020	25
2	Projects sanctioned during 2021-22 (Till 30.11.2021)	07
3	Projects completed during 2021-22 (Till 30.11.2021)	03
4	Projects terminated during 2021-22 (Till 30.11.2021)	01
5	Projects on-going as on 30.11.2021	28

3. Physical performance

Sl. No.	Parameters	Quantity
1	Projects on-going as on 01.04.2021	12
2	Projects completed during 2021-22 (Till 30.11.2021)	02
3	Projects approved by SSRC during 2021-22 (Till 30.11.2021)	01
4	Projects on-going as on 30.11.2021	11

4. Financial status

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

(in ₹ Crores)

2020-21			2021-22			
RE	Fund received from MoC	Actual	BE	RE	Fund received from MoC	Actual
12.00	9.91	9.91	18.00	12.00	4.60	4.59 (Till 30.11.2021)

Following S&T project was approved during 2021-22 (till 30.11.2021):

- a) Establishment of Geo-thermal energy (20KW Capacity) power generation Pilot Project at Manuguru area of SCCL Command area based on closed loop Binary Organic Rankine Cycle Process technology.

Implementing agencies: Singareni Collieries Company Limited, Kothagudem and Shiram Institute for Industrial Research, New Delhi.

Following S&T projects were completed during 2021-22 (till 30.11.2021):

- a) On-line coal dust suppression system for opencast mines.

Implementing agencies: Centre for Development of Advanced Computing (CDAC), Thiruvananthapuram & CMPDI, Ranchi.

- b) Reclamation of coal mined land of North Eastern Coalfields, Assam through soil amendment and re-vegetation with native plant species using integrated biological approach.

Implementing agencies: Rain Forest Research Institute (RFRI), Jorhat, & North Eastern Coalfields (NEC), Margherita.

5. Financial status

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

(₹ in Crores)

2020-21		2021-22	
RE	Actual	RE	Actual
12.00	12.29	25.00	28.22 (Till 30.11.2021)

Following R&D projects were approved during 2021-22 (till 30.11.2021):

- a) Appraisal of Gondwana Sediments (Coal, Clay, Shale, Sandstone) for Trace Elements & REE concentration in the Singrauli coalfield.

Implementing agencies: CMPDI, Ranchi and NCL, Singrauli.

- b) Study on Performance improvement of Coking Coal Washery of Coal India Limited through modelling & simulation analysis.

Implementing agencies: National Metallurgical Laboratory, Jamshedpur; BCCL, Dhanbad and CMPDI, Ranchi.

- c) Effective utilization of middlings and fines of coking coal washery for recovery of carbon value.

Implementing agencies: National Metallurgical Laboratory, Jamshedpur; BCCL, Dhanbad and CMPDI, Ranchi.

- d) Scaling up the conversion of CO₂ to methanol and other value added chemicals with 500 Kg CO₂/day capacity.

Implementing agencies: Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru; BREATHE Applied Sciences Pvt. Ltd., Bengaluru and Singareni Collieries Company Limited (SCCL), Kothagudem.

- e) Upgradation of high ash Indian coal through physical and chemical beneficiation.

Implementing agencies: IIT-Kharagpur; CMPDI, Ranchi; MCL Sambalpur and BCCL Dhanbad.

- f) Design and development of knee and spinal smart protective devices for improving the health and safety of miners.

Implementing agencies: IIT-ISM, Dhanbad and BCCL, Dhanbad.

- g) Indigenous Development of Monolithic Perovskite Module Manufacturing by Printing.

Implementing agencies: IIT, Bombay; CIL, Kolkata and CMPDI, Ranchi.

Following R&D projects were completed during 2021-22 till 30.11.2021:

- a) Indigenous Development of Through the Earth (TTE) Two- Way Voice Communication System for Underground Mines.

Implementing agencies: IIT, Bombay, and CMPDI, Ranchi.

- b) Requirement of air in mine for Mass Production Technology.

Implementing agency: CMPDI, Ranchi.

- c) Design of cost effective process flow sheet for improved washing efficiency of Indian coking and Non-coking coals.

Implementing agencies: IIT-ISM, Dhanbad; CMPDI, Ranchi and BCCL, Dhanbad.

