LIST OF ONGOING S&T PROJECTS
(As on 15.07.2022)

Sl. No.	Name of the project, Implementing Agency(s) & Objective(s)	Date of Start	Date of Completion	Approved Outlay (Rs.in lakh)
1	*2*	*3*	*4*	*5*
1.	**Indigenous development of early warning radar system for predicting failures/slope instabilities in open cast mines** [Project code: MT-169] **Implementing Agency:** Society for Applied Microwave Electronics Engineering & Research (SAMEER), Mumbai, Armament Research & Development Establishment (ARDE), Pune, Centre of Studies in Resources Engineering (CSRE), Indian Institute of Technology (IIT), Mumbai and Central Mine Planning & Design Limited (CMPDI), Ranchi **Objectives:** • To develop a prototype instrument of SSR system based on GB-SAR principle • To develop an Interferometric Information Generation System (IIGS) • To develop a Control Logic, Archiving and Prediction System (CLAPS) • To develop the Displacement Map Generation System (DMGS) of the SAR processed time series data	01.02.2018	31.12.2022	585.58 SAMEER - 520.58 CMPDI - 65.00

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(As on 15.07.2022)

Sl. No.	Name of the project, Implementing Agency(s) & Objective(s)	Date of Start	Date of Completion	Approved Outlay (Rs.in lakh)
1	*2*	*3*	*4*	*5*
2.	**Design and Stability of Pillars/Arrays of Pillars for Different Mining Methods in Coal Mine Workings** [Project code: MT-170] **Implementing Agency:** Central Institute of Mining and Fuel Research (CIMFR), Dhanbad, IIT-ISM, Dhanbad, CMPDI, Ranchi, South Eastern Coalfields Ltd. (SECL), Bilaspur, Bharat Coking Coal Ltd. (BCCL), Dhanbad and Singareni Collieries Co. Ltd. (SCCL), Kothagudem **Objectives:** • Design and stability of pillars and arrays of pillars in coal mine workings includes: • estimation of load/stress on pillars for shallow as well as deeper horizons • estimation of pillar strength for deeper horizons • Development of guidelines to link (a) and by proper safety factor of pillars depending on mining methods and purposes. • To establish mode of failure (progressive or instantaneous nature) vis-à-vis squat pillar design. • Risk Assessment vis-à-vis parametric analysis with respect to pillar stability. will be useful for the other coalfields of India for the support design	16.03.2018	31.12.2022	562.29 CIMFR- 299.37 IIT-ISM - 211.00 CMPDI-51.92

LIST OF ONGOING S&T PROJECTS
(As on 15.07.2022)

Sl. No.	Name of the project, Implementing Agency(s) & Objective(s)	Date of Start	Date of Completion	Approved Outlay (Rs.in lakh)
1	*2*	*3*	*4*	*5*
3.	**Development and Field Trial of 500 T Capacity SAGES-III for Use with Continuous Miners (Phase-III)** [Project code: MT-171] **Implementing Agency:** IIT-ISM, Dhanbad, SECL, Bilaspur, M/s Andhra Pradesh Heavy Machinery & Engineering Limited (APHMEL), Vijayawada and M/s Jaya Bharat Equipment Pvt. Ltd. (JBEPL), Hyderabad **Objectives:** • To design, develop and manufacture of 4 nos. of 500 t capacity Self Advancing Goaf Edge Supports (SAGES) compatible with continuous miners in extraction of coal pillars and field trial of developed SAGES in depillaring operation with continuous miner at one of the underground mines of SECL • To study the techno-economic of deployed SAGES (500 T) with Continuous miner.	01.05.2019	31.12.2022	396.69 IIT-ISM- 85.69 APHMEL- 311.00

LIST OF ONGOING S&T PROJECTS
(As on 15.07.2022)

Sl. No.	Name of the project, Implementing Agency(s) & Objective(s)	Date of Start	Date of Completion	Approved Outlay (Rs.in lakh)
1	*2*	*3*	*4*	*5*
4.	**Indigenous Development of IoT Enabled Technology for Monitoring, Analysis and Interpretation of Longwall Shield Pressures for Improving Safety and Productivity** [Project code: MT-172] **Implementing Agency:** CMPDI, Ranchi, IIT, Kharagpur & Eastern Coalfields Limited (ECL), Sanctoria **Objectives:** • Indigenous Development of IoT Enabled Technology for Monitoring, Analysis and Interpretation of Longwall Shield Pressures for Improving Safety and Productivity	01.12.2020	30.11.2023	471.00 IIT-KGP: 367.16, CMPDI: 103.84, ECL: Nil
5.	**Assessment of Rare Earth Elements (REE) and other economic resources in Coal & Non-Coal Strata and Characterization of Acid Mine Drainage and its pollution control from the North Eastern Region (NER) Coalfield** [Project code: EE-51] **Implementing Agency:** Panjab University, Chandigarh, CMPDI, Ranchi & Duke University, USA **Objectives:** • To assess all Rare Earth Elements (La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Em, Yb, Lu) and Sc, Y in Coal and Non-Coal strata and overburden in NE Region.	01.12.2020	30.11.2022	361.38 Panjab University: 215.04, CMPDI: 103.84, Duke university: 42.50

LIST OF ONGOING S&T PROJECTS
(As on 15.07.2022)

Sl. No.	Name of the project, Implementing Agency(s) & Objective(s)	Date of Start	Date of Completion	Approved Outlay (Rs.in lakh)
1	*2*	*3*	*4*	*5*
	• To assess other economic resources (Uranium, Thorium, Monazite sand, Rutile, Zircon etc) in Coal, Non-Coal strata and overburden dumps in NE Region. • To measure of major and trace elements of the acid mine drainage water samples; • To conduct sequential leaching experiment on coal and Coal Combustion Residual (CCR) to evaluate mechanism of mobilization of REE and associated CCRs. • To develop the most cost-effective remedial design through in-situ remediation processes as currently an emerging practice globally.			
6.	**Study of hazards due to mining induced sub-surface cavities and waterlogged areas in inaccessible old workings in underground coal mines using geophysical technique** [Project code: MT-173] **Implementing Agency:** IIT-ISM, Dhanbad and ECL, Sanctoria **Objectives:** To detect subsurface cavities or fire areas leading to potholing, sinking or sudden collapse of ground and also risk of inrush of water from water logged areas in the inaccessible / doubtful location of underground coal mines causing loss of lives, damage to surface structures, houses, roads etc. and also ascertaining its location using geo-physical methods	15.03.2021	14.03.2023	199.96 IIT-ISM: 199.96, ECL: Nil

LIST OF ONGOING S&T PROJECTS
(As on 15.07.2022)

7.	**Development of Coal Quality Exploration Technique based on Convolutional Neural Network and Hyperspectral Images** [Project code: CP-50] **Implementing Agency:** CIMFR, Nagpur and Department of Computer Science & Engineering, Shri Ramdeobaba College of Engineering & Management, Nagpur **Objectives:** To develop a new coal quality identification and classification equipment and a technique to predict coal quality data by using Hyper-spectral imaging	15.03.2021	14.09.2022	103.59 CIMFR, Nagpur: 23.30, Shri Ramdeobaba College of Engineering & Management, Nagpur: 80.29
8.	**Establishment of Geo-thermal energy (20KW Cap) power generation Pilot Project at Manuguru area of SCCL Command area based on closed loop Binary Organic Rankine Cycle Process technology** [Project code: CE-33] **Implementing Agency:** Singareni Collieries Company Ltd, Kothagudem and Shiram Institute for Industrial Research, New Delhi **Objectives:** • To establish indigenous 20 KW first Pilot Demonstration unit in India based on closed loop Binary Organic Rankine Cycle (ORC) process technology to produce clean, reliable and efficient electricity using Geothermal fluid as heat source at Manuguru, Telangana. • To standardize and optimize the power generation cost using geothermal source independently or in combination to ensure uninterrupted power supply for commercial viability. • To indigenize the process and establish model for scaling up.	01.06.2021	30.11.2022	172.28

LIST OF ONGOING S&T PROJECTS
(As on 15.07.2022)

9.	**Modelling and design of indirect coal gasification reactor for high-ash Indian coals** [Project code: CE-34] **Implementing Agency**: IIT Madras, Chennai and Central Mine Planning & Design Limited (CMPDI), Ranchi **Objectives**: • To conduct two-phase numerical simulations to understand particle separation in a convective transport. Multiple (three or four) configurations will be considered. • To design and construct cold flow setups to study the particle transport from one reactor column to another. • To conduct experiments to understand particle separation and fix the design of the reactor with two columns (combustion and gasification). • To conduct two-phase numerical simulations of reacting flow to establish the working of the reactor designed through cold flow setup. • To analyze the heat and mass balances and ensure the required heat transfer in column one, where partial burning occurs, and required heat and mass transfers to column two, where endothermic gasification reaction occurs.	01.12.2021	30.11.2022	72.07 IIT, Madras – 54.37 CMPDI – 17.70