# LIST OF ONGOING S&T PROJECTS
## (As on 24.02.2025)

| 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. | **Development and Field Trial of 500 T Capacity SAGES-III for Use with Continuous Miners (Phase-III)** [Project code: MT-171]<br><br>**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<br><br>**Objectives:**<br><br>• 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<br>• To study the techno-economic of deployed SAGES (500 T) with Continuous miner. | 01.05.2019 | 30.06.2025 | 396.69<br>IIT-ISM- 85.69<br>APHMEL- 311.00 |

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|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 2. | **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 (SIIR), New Delhi **Objectives:** <ul><li>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.</li><li>To standardize and optimize the power generation cost using geothermal source independently or in combination to ensure uninterrupted power supply for commercial viability.</li><li>To indigenize the process and establish model for scaling up.</li></ul> | 01.06.2021 | 28.02.2025 | 236.51 SCCL, Kothagudem: Nil SIIR, New Delhi: 236.51 |

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|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 3. | **Ultrasonic Washing for Desulphurization of Coal** [Project code: CP-51] **Implementing Agency**: Indian Institute of Technology Guwahati (IITG), Guwahati, Avinashilingam Institute for Home Science and Higher Education for Women (AIHSHEW), Coimbatore, Tamil Nadu, Kuvempu University, Jnanasahyadri, Shankaragatta, Tumkur University, Venkatesh Rao Colony, Tumakuru and NEC, Margherita **Objectives**:<br>• Ultrasound experimental and simulation studies: Optimization studies on the process parameters (ultrasound frequency, particle size, temperature, pH, solvent, residence time etc.) would be performed in a batch reactor. Pressure field and velocity pattern of the solvent feed stream during coal washing would be investigated by CFD studies for the proper location of ultrasonic probes in the reactor to avoid bypassing and short circuiting of feed stream.<br>• Production of low cost solvent: Water soluble alkali would be extracted from the ash content of biomass (water hyacinth, tea wastes etc.).<br>• Treatment of sulfur based effluent: Sulfur containing waste solvent from the ultrasonification reactor would be treated with suitable adsorbents (activated carbon, graphene oxide, etc.) to recover the sulfur for pollution free environment. | 15.10.2022 | 31.03.2025 | 197.35 IIT, Guwahati: 167.69 AIHSHEW: Rs. 29.66 lakh KU: Nil TU: Nil NEC, Margherita: Nil |

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|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 4. | **Study on Optimal Strategy for Phasing Down Coal Uses in India** [Project code: MT-176] **Implementing Agency**: School of International Studies (SIS), Jawaharlal Nehru University (JNU), New Delhi **Objectives**: <ul><li>To refine and update the existing integrated assessment model for India for quantitative research and analysis for an in-depth analysis of coal-consuming sectors.</li><li>To perform scenario analysis using the model incorporating different storylines and scenarios encompassing alternative energy source-technology combinations to assess implications of coal-phase down under various scenarios.</li><li>To provide strategic insights on how India can seamlessly and successfully transition away from coal to other clean energy sources while also ensuring compatibility with India's net zero commitments.</li><li>To assess the relative risks and benefits of a transitioning away from coal to arrive at a practical and feasible policy option for phasing down coal while ensuring that interest all impacted stakeholders in the coal sector are not adversely affected.</li><li>To provide inputs for practical and feasible coal phase down implementation plan based on prioritization.</li></ul> | 15.10.2022 | 31.03.2025 | 79.17 JNU, New Delhi: 79.17 |

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|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 5. | **Electrostatic deposition and functionalization of multiwalled carbon nanotubes (MWCNTs) for sensitive & selective detection of Coal Mine Methane (CMM)** [Project code: MT-177] **Implementing Agency**: Amity Institute for Advanced Research & Studies (Materials & Devices), Noida & BCCL, Dhanbad **Objectives**: <ul><li>Synthesis of variety of nanocomposites based on MWCNTs sensitive to methane. Optimization of the composition within nanocomposite for high sensitivity and faster response and recovery.</li><li>Fabrication of the prepared nanocomposite as a sensing device on a suitable substrate. Variation in the electrical resistance of the nano- composite film on its exposure to methane will be 6nalysed.</li><li>Qualitative as well as quantitative detection of methane. Optimization & calibration of the sensor prototypes developed. Interfacing the prototyped sensor with microprocessor based electronic circuitry to develop it into an efficient and user-friendly sensing module.</li></ul> | 15.10.2022 | 14.02.2025 (to be discussed in the next TSC) | 41.39 Amity, Noida: 41.39 BCCL: Nil |

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|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 6. | **Use of Micro-seismicity as a tool for underground mines hazard monitoring with the motive to enhance safety and production** [Project code: MT-178]<br>**Implementing Agencies:** Indian Institute of Technology, Kharagpur, CMPDI, Ranchi & ECL, Sanctoria<br>**Objectives**:<br>• To monitor the changes in the destressed zone of roof strata in terms of microseismic parameters during coal excavation for ECL Jhanjra Longwall and KumarDih-B.<br>• Understand the mechanisms of cyclic weighting/loading around the longwall tail/ Bord & Pillar through microseismicity and fractal study.<br>• Identification of stressed zones through estimation of correlation integral and fractal dimension.<br>• Monitor the variation of seismic parameters such as b-value, magnitude, apparent volume, energy during coal excavation and dynamic roof displacement from the longwall face.<br>• Identification of precursory signatures of roof fall and mining related activities and making a user friendly display application for automated prediction.<br>• Audio visual alarm before unpredictable/unwanted roof fall 24hrs@365days.<br>• Development of GUI that can be installed on both MacOS/Windows for commercializing of work. | 29.12.2022 | 28.06.2025 | 199.78<br>IIT, Kharagpur - 145.50<br>CMPDI, Ranchi –54.28<br>ECL, Sanctoria - Nil |

| 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* |
| 7. | **Assessing the Abiotic and Biotic Factors in Pit Lakes for Sustainable Management of Water and Environment** [Project Code- EE-52] **Implementing Agencies:** – BIT, Mesra, CMPDI, Ranchi, CCL, Ranchi, and MCL, Sambalpur. **Objectives**: <br><br>• Assess the spatial (including depth-wise) and temporal variations of water quality (physico-chemical and biological characteristics) in pit lakes including the effect of surface drainage <br><br>• Assess the biodiversity of the selected pit lake with reference to the Ramsar convention <br><br>• Assess the ecosystem services offered by the pit lakes and the value of pit lakes to the local communities with reference to the SDGs <br><br>• Provide detailed inputs on sustainable usage options and model post-closure practices of pit lakes | 01.09.2023 | 31.08.2025 | 208.54 <br> BIT, Mesra – 185.41 <br> CMPDI, Ranchi –23.16 <br> CCL, Ranchi – Nil <br> MCL, Sambalpur - Nil |

| 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 |
| 8. | **Recycling Coal Mine Overburden to Reuse as a Value Added Building Material to Promote a Circular Economy** [Project Code- EE-53]<br>**Implementing Agencies:** – Jawaharlal Nehru Aluminum Research Development and Design Centre (JNARDDC), Nagpur, BIT, Mesra, Visvesvaraya National Institute of Technology Nagpur (VNIT), Nagpur, and CMPDI, Ranchi<br><br>**Objectives**:<br><ul><li>To develop mix designs from Coal Mine Overburden (CMO) in homogenized slurry form for making building elements by heat treatment and geopolymer processes.</li><li>To develop coal mine overburden as a value-added building material in manufacturing different structural (JNARDDC & VNIT) and non-structural (BIT, Mesra & CMPDIL) elements in the construction industry.</li><li>Design development of modular construction elements complying with physicomechanical, structural, non-structural, and functional requirements as per the standards.</li><li>To analyse the strength of the developed material both structural and non-structural as per the standards and codes.</li><li>To demonstrate the developed technology/know-how and to evaluate the performance concerning the base case for speed, cost & energy efficiency of the system for urban & rural housing, EWS mass housing, and rehabilitated housing needs</li></ul> | 01.09.2023 | 31.08.2025 | 285.92<br>JNARDDC– 67.38<br>VNIT, Nagpur –37.64<br>BIT, Mesra – 124.44<br>CMPDI, Ranchi –56.46 |

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|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 9. | **Indigenous Development of NIR spectroscope for instant prediction of Coal Quality Parameters** [Project Code- CP-52]<br><br>**Implementing Agencies:** – Shri Ramdeobaba College of Engineering & Management (RCOEM), Nagpur, CIMFR, Nagpur and SCCL, Kothagudem<br><br>**Objectives**:<br><br>• To Develop a NIR Imaging Camera for particular use in instant Coal Quality Prediction | 01.09.2023 | 28.02.2025 | 110.75<br>RCOEM, Nagpur – 90.77<br>CIMFR, Nagpur –19.98<br>SCCL, Kothagudem - Nil |

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|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 10. | **Development of Synthetic Lightweight Aggregates as Backfilling Material using Hydraulic Stowing Method** [Project Code- MT-180]<br><br>**Implementing Agency:** – IIT-ISM, Dhanbad<br><br>**Objectives**:<br>• To study the physical, mechanical properties, settlement properties, auto- oxidation characteristics, thermal stability, flammability properties, toxicity characteristic leaching procedure (TCLP) of developed SLAs, and comparing with sand, fly ash to select the proportion suitable for backfilling.<br><br>• To evaluate the Water drainage, water absorption, stowing percentage, coefficient of consolidation of selected SLA proportion using laboratory mine goaf model and assessing critical velocity required for pumping using pre-existing analytical method.<br><br>• To evaluate the performance of SLAs as backfilling material using a physical mine model and validating using numerical modelling (FLAC-3D). | 01.09.2023 | 31.08.2025 | 36.47<br>IIT-ISM, Dhanbad – 36.47 |

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|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 11. | **Design and development of an AI-enabled Dust Suppression System for Opencast Mines** [Project Code- MT-181]<br>**Implementing Agency:** Central Mechanical Engineering Research Institute (CMERI), Durgapur, Centre for Development of Advanced Computing (C-DAC), Thiruvananthapuram, Unyrshapa Corporation Lord Tech. (UCLT), Ranchi and ECL, Sanctoria<br>**Objectives**:<br>• Design and development of a dust suppression system on a vehicle along with a storage water tank; PTO or electrically operated pump; pipe-valve-nozzle network for spraying the water mixed with special additive in the form of jet or mist; mechanism for collection of waste water and re-use it<br><br>• Development of AI-enabled control system for optimized operation of the water spraying system and sensor suite for collection of environmental data; AI/ML-based optimization algorithm for spraying of water mixed with special additives in the form of jet or mist; control system for operation of the complete system<br><br>• Development of IoT based on-board and remote dashboard for dust-data visualization and monitoring; tracking of the most polluted sites and performance of the system against dust suppression | 08.01.2024 | 07.01.2026 | 340.84<br><br>(CMERI, Durgapur – 139.71, CDAC, Thiruvananthapuram – 151.57, UCLT, Ranchi- 49.56 & ECL, Sanctoria - Nil |

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|---|---|---|---|---|
| *1* | *2* | *3* | *4* | *5* |
| 12. | **Development of hard carbons and ultrahigh specific surface area porous activated carbon from coal for energy storage applications** [Project Code- CU-61]<br>**Implementing Agency:** CMERI, Durgapur, Centre for Advanced Studies in Electronics Science and Technology (CASEST), School of Physics, University of Hyderabad, Hyderabad and SCCL, Kothagudem<br><br>**Objectives**:<br>• Production of ultrahigh specific surface area activated carbon (2000-2500 $m^2 g^{-1}$) from coal for supercapacitor<br><br>• Fabrication of coal-derived hard carbon anode ($\leq 8 m^2 g^{-1}$) for sodium-ion battery<br><br>• Fabrication of high performance supercapacitor ($> 20$ Wh $kg^{-1}$) and sodium-ion battery ($> 300$ mA h $g^{-1}$)<br><br>• Coal-derived activated carbon for use in electrochemical energy storage applications.<br><br>• Synthesis of activated carbon from various coal types by chemical activation.<br><br>• Li-ion/Na-Ion/Mg Ion Cell Assembly & Li-ion/Na-Ion Battery/Mg Ion Testing.<br><br>• Electrode preparation and electrochemical characterization | 08.01.2024 | 07.01.2026 | 155.62<br><br>(CMERI: 61.32, UoH: 94.30, SCCL: Nil)<br><br>[CMERI Contd: Rs. 10.00 lakh, CASEST, UoH Contd: Rs. 16.60 lakh,<br><br>MoC Contd.: Rs. 129.02 lakh {1st year: Rs. 93.59 lakh, 2nd year: Rs. 35.43 lakh}] |

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|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 13. | **Development of Indigenous technology for extraction of critical minerals including Rare earth elements from overlying strata of Northeastern coalfields** [Project Code- CP-53]<br><br>**Implementing Agency:** Indian Institute of Technology, Guwahati, Panjab University, Chandigarh and NEC, Margherita<br><br>**Objectives**:<br>• Physical separation of critical metals: To develop enrichment technique of critical metals (REEs, Li Sc, Y, Rb, Ni, Sr, V) from non-coal strata by physical separations<br><br>• Ion Exchange Resin separation of critical metals: To develop extraction technique of critical metals (REEs, Li Sc, Y, Rb, Ni, Sr, V) from non-coal strata and Acid mine drainage by Ion-Exchange Resin.<br><br>• Leaching of critical metals.<br><br>• Electro-winning extraction of critical metals | 15.01.2024 | 14.01.2026 | 581.05<br><br>(IIT, Guwahati – 365.75, PU:215.30, NEC: Nil) |

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|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 14. | **Coal Mine Overburden Alkali-activated Composites (CMOAAC) for Pre-Fabricated 3D Volumetric Construction Elements & System thereof (3DVCES)** [Project Code- MT-182]<br><br>**Implementing Agency:** VNIT, Nagpur, JNARDDC, Nagpur, CMPDI, RI-IV, Nagpur and IIT (BHU), Varanasi<br><br>**Objectives**:<br>• To review, design and develop the Coal Mine Overburden Alkali Activated Construction Products (CMOAACP) for pre-fabricated 3D elements (unreinforced/reinforced)<br><br>• Additive Manufacturing (3D Printing) of Viscoelastic Materials from Coal Mine Overburden (CMO) depend on the flow behavior of CMO components at ambient conditions (not under meltflow or higher temperatures)<br><br>• To develop standardized type designs of toilet units & guard room schemes suiting to socio-cultural requirements in different geo-climatic region to demonstrate the developed technology(ies)/knowhow(s) and to formulate guidelines for construction of mass housing elements ensuring speed, durability, and energy efficiency.<br><br>• To formulate design of affordable mass housing using geo-polymerized materials from foundation to superstructure considering soil-structure interaction, through experimental and numerical investigation | 15.01.2024 | 14.01.2026 | 259.37<br><br>(VNIT, Nagpur – 95.80, JNARDDC, Nagpur – 77.45, RI-IV, Nagpur – 23.24, IIT-BHU, Varanasi – 62.88) |

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|---|---|---|---|---|
| *1* | *2* | *3* | *4* | *5* |
| 15. | **Design and Development of a Model Cargo-Hyperloop using Pipe Following Robot** [Project Code- MT-183] <br><br> **Implementing Agency:** IIT, Kanpur <br><br> **Objectives**: <br><br> **PHASE-I** <br><br> • Analysis and Design of compressed airflow-powered robotic transportation module. <br><br> • Physics based virtual Simulation of the Cargo Hyperloop Transportation System. <br><br> **PHASE-II** <br><br> • Development of a proof-of-concept model of a pipe following modular robotic system driven by compressed air in a controlled testbed which can mimic an autonomous cargo system for carrying coal between two destination points. | 15.01.2024 | 14.01.2026 <br><br> (Phase-I: 15 months; Phase-II:9 months) | 219.63 <br><br> IIT, Kanpur– 219.63 <br><br> (Phase-I: 109.34; Phase-II: 110.29) |

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|---|---|---|---|---|
| *1* | *2* | *3* | *4* | *5* |
| 16. | **Development of an Indigenous Ground Vibration Monitoring and Analysis System using IoT Enabled Devices and AI-ML Techniques** [Project Code- MT-184]<br><br>**Implementing Agency:** CMPDI, Ranchi, IIT, Kharagpur, NCL, Singrauli & SCCL, Kothagudem<br><br>**Objectives**:<br>• Development of indigenous IoT enabled continuous monitoring system for measuring ground vibrations, peak particle velocity (PPV), peak particle accelerations (PPA) and damage frequency in an opencast mine.<br><br>• A blasting dashboard will be developed for easy access/query of geometry of the bast design, information of explosives and the measured vibration data.<br><br>• The dashboard will be designed to display the timing delays of each blast hole, as well as identify any delays below 8 milliseconds between successive blast holes. In the event of such a delay, the dashboard will indicate an error in the delay sequence and provide an alert to adjust the delay sequence for improved fragmentation and reduced ground vibrations. | 01.03.2024 | 28.02.2026 | Rs. 209.77 lakh ( CMPDI: Rs. 61.36 lakh, IIT, KGP: Rs. 148.41 lakh, NCL, Singrauli : Nil, and SCCL, Kothagudem: Nil) |

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|---|---|---|---|---|
| *1* | *2* | *3* | *4* | *5* |
| | • The dashboard will include a feature that allows access to blast fragmentation analysis software, which is used for the purpose of analyzing the fragmentation of blasted material.<br><br>• The compliance of vibration and air-overpressure intensity levels with the impact assessment on the nearby surface structures.<br><br>• Effect of dominant frequency and peak intensitieson surface structures due to cyclical blast vibrations conducted at different elevations (benches).<br><br>• Classification and comparison of blast and traffic-induced vibration signatures (such as PPV, frequency, PPA, and duration of vibration) using AI-ML techniques | | | |

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|---|---|---|---|---|
| *1* | *2* | *3* | *4* | *5* |
| 17. | **Payload monitoring of loading equipment (Hydraulic Excavators) displayed in operator's cabin** [Project Code- MT-185]<br><br>**Implementing Agency:** Gainwell Commosales Private Limited (GCPL), Kolkata, Eastern Coalfields Limited, Sanctoria<br><br>**Objectives**:<br>• Accurate weighing of the loading material<br>• Optimize the loading performance such as cycle time, working hour<br>• Real-Time Data Reporting: Capture and transmit the KPIs in real-time displayed on the dashboard. | 01.08.2024 | 31.07.2026 | 266.34 (GCPL – 266.34 ECL-Nil) |

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|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 18. | **Technology to Detect the Effect of Blasting on Propagation of Cracks in Structures** [Project Code- MT-186] <br><br> **Implementing Agency:** Indian Institute of Technology (Banaras Hindu University), Varanasi, Techno Wave Solutions Private Limited (TWSPL), Ranchi, NCL, Singrauli <br><br> **Objectives**: <br> • Develop a universal blast damage prediction model for building crack prediction, incorporating all relevant input parameters through machine learning techniques. <br><br> • Design a user-friendly map-enabled interface and an online adaptable system to facilitate the practical application of the model for building damage prediction. | 01.08.2024 | 31.07.2026 | 116.79 lakh <br><br> [(IIT (BHU) - 80.27 lakh, TWSPL, Ranchi – 36.52 lakh NCL, Singrauli - Nil)] |

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|---|---|---|---|---|
| *1* | *2* | *3* | *4* | *5* |
| 19. | **Coal Derived Value-Added Carbonaceous Nanomaterials for Energy Harvesting and Gas Detection-Based Sensor Applications** [Project Code- CU-62]<br><br>**Implementing Agencies**: Central Mechanical Engineering Research Institute, Durgapur, Bharat Coking Coal Limited, Dhanbad<br><br>**Objectives**:<br><br>• Process technology establishment for porous activated carbon and CNT production derived from coal samples.<br><br>• Use of porous carbon/CNT-based nanocomposites as mechanical energy harvesters and conversion into electrical energy in the form of sensors.<br><br>• Use of porous carbon/CNT-based nanocomposites in developing CO gas sensors | 01.08.2024 | 31.07.2026 | Rs. 189.54 lakh<br><br>(CMERI- 189.54 lakh BCCL, Dhanbad - Nil) |

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|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 20. | **AI-ML cloud-based real-time comprehensive autonomous system for monitoring & suppression of dust particles & hazardous gases in coal mines using UAV** [Project Code- EE-54]<br><br>**Implementing Agencies**: Jaypee Institute of Information Technology (JIIT), Noida, GarudaUAV Soft Solutions Private Limited (GSSPL), Noida, MCL, Sambalpur<br><br>**Objectives**:<br><br>• Minimizing human intervention: Implementing automation, Internet of Things (IoT), and remote-controlled systems to reduce the need for human involvement in hazardous or repetitive tasks.<br><br>• Mitigating environmental impact: Focus on reducing air pollution and greenhouse gas emissions related to coal mining operations.<br><br>• Promoting sustainable practices: Encourage the adoption of environmentally friendly techniques and technologies to minimize the negative impact of coal mining on the environment and surrounding communities. | 01.08.2024 | 31.07.2026 | Rs. 146.90 lakh<br><br>(JIIT, Noida - 146.90 lakh, GSSPL, Noida – Nil MCL, Sambalpur - Nil) |

| 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* |
| 21. | **Development of a novel NDT instrument using 3d Asymmentric Giant Magnetoimpedance Sensors for coal mines** [Project Code- MT-187]<br><br>**Implementing Agencies**: Centre for Advanced Studies in Electronics Science and Technology (CASEST), School of Physics, University of Hyderabad, Hyderabad, Gandhi Institute of Technology and Management (GITAM), Visakhapatnam, SCCL, Kothagudem and M/s Ananth Technologies Pvt. Ltd., Hyderabad<br><br>**Objectives**:<br><br>• Simulate 3d sensor and eddy current analysis using Ansys Maxwell software<br><br>• Develop a single 3d circular magnetic sensor<br><br>• Use the eddy current method to detect and fabricate a complete electronic circuit | 01.08.2024 | 31.07.2026 | 91.77 lakh (CASEST, University of Hyderabad - Rs. 91.77 lakh, GITAM, Visakhapatnam – Nil and SCCL, Kothagudem – Nil) |

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|---|---|---|---|---|
| *1* | *2* | *3* | *4* | *5* |
| 22. | **Reusability assessment of Coal Tailing Extracts (CTE) for large-scale geotechnical fill applications** [Project code: CU-63] **Implementing Agency:** Indian Institute of Technology, Dharwad BCCL, Dhanbad<br><br>**Objectives:**<br><br>• The major objective of the study is to evaluate the suitability of coal tailing extracts (CTE) as backfill materials in geotechnical structures. In order to qualify as the engineered fill, CTE should satisfy two different criteria, namely, strength criteria and drainage criteria. Both the aforesaid criteria will be assessed using various laboratory tests.<br>• To explore the possibilities of enhancing the strength properties of CTE by using the geogrid reinforcements. To perform various laboratory tests to compare and quantify the effect of geogrids.<br>• To perform finite element simulation of the prototype Mechanical Stabilized Earth (MSE) wall with CTE backfill to assess the practical performance.<br>• To investigate the possibilities of utilizing CTE as a soil conditioner. | 01.12.2024 | 30.11.2026 | Rs. 27.74 lakh (IIT, Dharwad - Rs. 27.74 lakh, University of Agricultural Sciences, Dharwad – Nil and BCCL, Dhanbad - Nil |