

**No. DSIR/MS/2022/11**  
Government of India  
Ministry of Science & Technology  
Department of Scientific & Industrial Research  
**MONTHLY SUMMARY FOR THE CABINET**  
(For the month of **November, 2022**  
(Part-I Unclassified)

**Major achievements during the month of November, 2022:**

**Council of Scientific & Industrial Research (CSIR)**

**New Technologies/Processes Developed/Transferred**

- **CSIR-CFTRI**
  - Developed a process for the production of quinoa germ.
  - Transferred its process for preparation of beverage mix from malted ragi to M/s Ram Gold Organics, Ramanagara Karnataka.
  - Transferred its process for Fruit syrups and squashes to M/s Udupi Home Made, Udupi, Karnataka.
- **CSIR-CSMCRI**
  - Developed processes for:
    - preparation of highly selective dihydropyran compounds.
    - Process for reducing iodide and bromide content in common salt during solar salt harvesting.
    - Preparation of Activated Carbon from leftover Rice Husk Ash waste after extraction of Silica.
- **CSIR-IICT**
  - Developed process feasibility for continuous bromination of 2[H]-heptafluoropropane (HFC-227ea) at laboratory scale.
- **CSIR-IIP**
  - Technology Know-how on CSIR-IIP "Improved Jaggery Making Plant" was transferred to Sh. Pradeep Kumar, Modinagar, Ghaziabad, Uttar Pradesh on 07.11.2022.
- **CSIR-NIIST**
  - Developed biodegradable tablewares from agroresidues as alternatives to single-use plastics in close association with Marikar Green Earth Private Limited to launch biodegradable plates under the brand name QUDRAT.

**Collaborations/Agreements/MoUs Signed (National)**

- **CSIR-CBRI**
  - Signed agreement with Central Public Works Department (CPWD) for undertaking project on "Third Party Quality Assurance and Technical Advice work in respect of Construction of Permanent Campus of Central University of Gujarat (CUG) at Village Kundhela, Vadodara, Gujarat" (November 15, 2022).

- Signed MoU with Jaypee University of Information Technology, Solan, HP to enhance the availability of highly qualified manpower in the area of Civil Engineering, Building Science & Technology, Engineering Geology, Architecture & Planning and other areas of Engineering Technology and Sciences on November 28, 2022.
- **CSIR-CCMB**
  - Signed MoU with the Office of the Project Manager, Ganga Pollution Control Unit, U.P. Jal Nigam (Rural), Prayagraj, Uttar Pradesh for environmental surveillance of sewage and wastewater.
  - Signed MoA with Ashoka University, Sonapat for pathogen genomics surveillance to track various other emerging diseases in addition to SARS-CoV-2 variants.
- **CSIR-CDRI**
  - Sponsored Agreement executed with Adgyl Lifesciences Private Limited, Bengaluru on 23-11-2022 w.r.t. Micro CT of Rat bones.
- **CSIR-CECRI**
  - Signed MoU with M/s. Fluid Technologies, Raipur for Electrochemical De-fluoridator for Drinking Water
- **CSIR-CEERI**
  - Collaborative Project Agreement signed with 'M/s Metawatersure Technologies Pvt. Ltd.', for Development of 'Portable, IoT enabled Waste WaterQuality Estimation System' on 21-11-2022.
- **CSIR-CFTRI**
  - Signed MoU with Defence Food Research Laboratory, Mysuru on 16.11.2022 to undertake studies on development of 'Postbiotics fermentate formulation for the management of diabetes, hyperlipidemia and gut health'.
- **CSIR-CIMFR**
  - Signed an Agreement with M/s. Vardhman Towers Pvt. Ltd., Hazaribagh, Jharkhand; M/s. Krishna Udyog, Ramgarh, Jharkhand; M/s. Anjaneya Fuels, Kolkata, West Bengal; M/s. Hemkunt Ventures, Hazaribagh, Jharkhand and M/s. Synergy Urja Ventures, Hazaribagh, Jharkhand for Improved Soft Coke Making Technology on 18.11.2022.
- **CSIR-CMERI**
  - Licence Agreement signed with M/s Himatsingka Agencies Pvt. Ltd. Dumka, Jharkhand on 30th Nov 2022 for technology transfer of Water canon system of Mob Control Vehicle.
- **CSIR-CRRI**
  - Signed MoU with College of Engineering(CIE), Trivandrum on 18th November, 2022.
  - Signed MoU with KSCSTE - National Transportation Planning and Research Centre, Thiruvananthapuram, on 18th November, 2022

- **CSIR-IHBT**
  - Collaborated with M/s HAUCH Ecovations Pvt. Ltd., Ludhiana (Punjab) to establish facility for process for production of dual bio-products (bioplastic and violacein pigment) from Himalayan bacterial isolate PCH194 on 15.11.2022.
- **CSIR-IIP**
  - Collaborated with Petroleum Planning & Analysis Cell, New Delhi to Facilitate jointly on mutually identified areas.
  - Collaborated with Transport Department, Govt. of Manipur, Manipur on E-vehicles, Policy, Program and training, etc.,
  - Collaborated with Luvit Renewables Energy Pvt. Ltd. New Delhi on Analysis of Biochar sample and Pyrolyzer development Crowd Sourced Carbon sequestration project.
  - Collaboration with GB Pant Shiksha Samiti, Kashipur for Biofuel cropping and set up for CSIR-IIP based RT Biodiesel Process.
- **CSIR-IITR**
  - MoA were signed for jointly perform R&D activities as per “Term of reference for incubation at BIRAC-BioNEST, CSIR-IITR” with:
    - M/s ENV Developmental Assistance Systems (I) Pvt.Ltd., Lucknow on 1stNovember 2022.
    - M/s IEEARC Technology Pvt. Ltd., SSCBSInnovation and Incubation Foundation (SIIF), New Delhi on 17th November 2022.
    - M/s AiRTH Research Pvt. Ltd., New Delhi on 17th November 2022
- **CSIR-NAL**
  - MoU signed with M/s. AICLOUDS Private Limited, Hyderabad on 03-11-2022 to explore the possibilities of collaboration for development of futuristic Drones.
- **CSIR-NML**
  - Signed Agreements with:
    - IIT, Patna for General Collaboration
    - NTPC Limited, New Delhi for General Agreement
    - Raj Borax Private Limited,Mumbai for Calcined colemanite / calcined ulexite addition in pelletizing hematite ore to develop pellet for using in blast furnace
    - Jamipol, Jamshedpur for General R&D Collaboration
    - Vedanta Pvt. Ltd. Collaboration for R&D in Mutual Interest Areas
    - Signed MoU with Industry and Academic Institutions to carry out collaborative research in futuristic R&D area and solving current& future industrial R&D problems.

Patents Filed		Patents Granted		Patent Prosecutions	
India	Abroad*	India	Abroad*	India	Abroad*
17	09	13	07	39	130

\* Data reported to IPU during the month of November 2022 and may increase later during national phase entries

### High impact S&T services offered

- **CSIR-AMPRI**
  - Thermal conductivity measurements to CSIR -NIIST for 30Nos sample
  - TEM imaging to NIT Jamshedpur for 03 Nos samples
- **CSIR-CCMB**
  - Skill Development training program on Molecular Cloning and Protein Expression was held from 1st to 19th November (11 participated).
  - Conducted 3-day workshop for high school students on antimicrobial resistance (AMR) from 21-23 Nov.2022.
  - Start of Milo CCMB program with Telangana Social and Tribal Welfare schools
- **CSIR-CDRI**
  - Common Research and Technology Development Hub (CRTDH): Provided analytical services, technology assessment services, or consultancy/assistance in regulatory filings [New Drug Applications (NDAs)/Investigational New Drug (IND) Applications] in India and the European Union to three MSME in the Pharmaceuticals sector.
  - Animal Facility Laboratory: The CPCSEA (Committee for the Purchase of Control and Supervision of Experimental Animals) approved experimental animals (total no. 506) were supplied to outside research organizations for research purpose.
  - Sophisticated Analytical Instrument Facility: Provided service for analysis of sample by IR (Infrared), Mass, NMR (Nuclear Magnetic Resonance) and EM (Electron Microscopy)
- **CSIR-CMERI**
  - Testing of FLC winding roper and NDT of vital components & CSG unit of winders at Jitpur Collieries.
- **CSIR-CRRI**
  - Recommendation and Remedial Measures for managing Potholes in and around Dock area Bituminous Road at Kolkata Dock System for Syama Prasad Mookerjee Port, Kolkata
  - Investigation for strengthening of roads under East road (M212)by cold milling and recycling process for Public Works Department (PWD), Delhi
  - Evaluation of Resilient modulus and vetting of JMF DBM mix for six laning of Chakari-Allahabad section of NH-2 (Km 483+687 to Km 628+758) in the state of UP for PNC Triveni Sangam Highways Pvt. Ltd.

- Investigation of Cracks in Highly skewed 4-Lane Underpass at Ch.44.523 of Green Field Alignment of Delhi Vadodara Expressway near Khanpur Ghati (Sohna End) for National Highway Authority of India (NHAI), Gurugram
- Reinforced soil Structure connection testing and report for Maccaferri Environmental Solutions Private Limited, Haryana
- Evaluation of Delhi PWD Bituminous Roads for Strengthening Requirements for Public Works Department (PWD), Delhi
- Design of Flexible pavement for New Transport Nagar, Aligarh, Uttar Pradesh. for Aligarh Development Authority.
- Checking of quality of construction of Improvement development of road by PDG. Dense carpeting in pocket D&E Mayur Vihar phase-II Patparganj & Improvement development of lanes of Konark, Dhruv, Chetna & Tarang apartments in west Vinod Nagar for Municipal Corporation of Delhi (MCD)
- **CSIR-CSMCRI**
  - Technical services entitled “Installation of Electro-dialysis of size 30x60 cm<sup>2</sup> for water desalination at Pandit Deendayal Energy University (PDEU) Gandhinagar” with Pandit Deendayal Energy University (PDEU) Gandhinagar
  - Technical services entitled “Prefeasibility analysis of Biochemical methane potential of lignocellulosic biomass (cotton Stack) samples” with Chem Process Systems Pvt. Ltd. (CPSPL), Ahmedabad
  - In a first-ever scientific effort in the country, scientifically designed, state-of-the-art facility tank cultivation facility of seaweeds, has been inaugurated on 1 November, 2022 at Center for Agri-Horticulture Development, Manar, Gujarat under Public Private Partnership mode.
- **CSIR-IHBT**
  - Flow Cytometry and Cytotoxicity analysis of samples were done.
  - Process development for extraction of lutein from *Tagetes erecta* performed.
  - Performed Isolation of Bioactives from *Swertia ciliata* and *Thallictrum foliolosum*.
  - Insecticidal biological evaluation of isolated compounds was done.
- **CSIR-IICT**
  - Exploration of Different Organic Solvents for the Isolation and Refining of Rice Bran Wax from Crude Rice Bran Wax for Nandan Agro Private Limited, MP
- **CSIR-IITR**
  - Eco-toxicity studies were performed in Alpave mixture sponsored by LSR Infinity Exim Private Limited, Chandigarh.
- **CSIR-NAL**
  - Design, fabrication and supply of tara-250, tara-450 and tara-500 models - Research Centre Imarat (RCI)

- **CSIR-NEERI**
  - Environmental Site Assessment on Ash pond contaminated site of national Aluminum Co. Ltd.
  - Evaluation of Toxicity of Servo Drilling Fluid base oil according to PARCOM/OSPAR.
  - Evaluation of Electrolytic De Fluoridation Plants Installed for safe Rural Drinking water supply in Fluoride affected area of Jharkhand State.
  - Studies on Quantification and status of the Existing Condition of Legacy Waste at Devendra Chandra Waste Processing site of Agartala.
- **CSIR-NGRI**
  - The first infrasound sensor installed in Uttarakhand as a part of knowledge generation for the development of Early Warning system in Himalayan region.
  - 3-D inversion of MT data along profiles in eastern Kumaun and central Ganga Basin;
- **CSIR-SERC**
  - Testing of 400 kV SC “R-NS (0°-2°)” horizontal type tower for MOLDOVA Energy Projects Implementation Unit (MEPIU) was performed.
  - Structural integrity assessment of open web steel bridge girder of Mayar Bridge and Main Rihand Bridge, NTPC, Rihand
  - Structural integrity assessment of open web steel girder of Mayar Bridge and Main Rihand Bridge was performed.
  - Assessment of performance of super structure through instrumentation in two major bridges 166 (1 span) and 169 (2 spans) between Dahanu Road and Vangaon stations in Mumbai division of Western Railway was performed.
  - Verification of Prestress Cable Profile for A Bridge Girder by NDT
  - Experimental investigation of Southern Railways was performed constructed railway bridges consisting of PSC U-type girder as super-structure between Ettumanur and Chingavanam in ETM-KTYM-CGV section.

### **Outreach Activities (Jigyasa, Skill Development, and others)**

- **CSIR-4PI**
  - 49 students & 2 faculties from Er. Perumal Manimekalai College of Engineering, Hosur, TN, and 50 students & 3 faculties from Mechanical and automobile school of engineering and technology CHRIST University, Kengeri, Bangalore were briefed about various Scientific activities and recent research trends in mathematical modelling and data sciences and centralized HPC & cyber security infrastructure performed at CSIR-4PI during their visit on 09.11.2022 and 10.11.2022 respectively.
- **CSIR-AMPRI**
  - Conducted a training workshop on "Advanced Materials for Bio-medical engineering applications" organized on 14 Nov. 2022 at CSIR-AMPRI Bhopal. 65 candidates participated.

- **CSIR-CBRI**
  - Three days' Skill development training programme on "Disaster Resilient Building Construction Practices" was organized at CSIR-CBRI, Roorkee on November 14, 2022 with the aim to familiarize the participants on planning and designing, multi-hazard resistant construction techniques and quality control to ensure the safety of structures. 28 participants attended from Kerala, Chandigarh & Uttarakhand.
- **CSIR-CDRI**
  - Student-Scientist connect program was organised on 18th November 2022 for the students of Department of Journalism and Mass Communication, National P.G. college, Lucknow and students of Shri Nishadraj Akhandanand Snatkottar Mahavidyalaya Kitiyawan Shahgarh, Janpad-Amethi. Faculty (3 number) and 72 students participated in the program and interacted with the Scientists of the Institute.
- **CSIR-CECRI**
  - Organized the following events:
    - Research Seminar and Career Guidance was jointly organized with Royal Society of Chemistry (RSC), South India Section during November 10-11, 2022. More than 100 school students participated from Karaikudi, Madurai, and Pudukkottai and College students from Virudhunagar, Dindugal, Madurai and Karaikudi.
    - Conducted Young Student Scientist Programme during November 14-19, 2022. 20 students have worked with scientists (20 scientists - 15 at CSIR - CECRI Karaikudi and 5 at CECRI Chennai Unit, Chennai.). The students were encouraged to present their work carried in the lab.
    - As a part of AcSIR students societal project, State Level Competition was organized on "Emerging Energy Storage Devices" consisting of Working/ prototype model; Elocution competition and Essay competition on November 23, 2022. 250 students along with escort teachers from all over Tamilnadu participated.
    - Demo cum Do It Yourself (DIY) 'Kit on Electrolysis' - As a part of DST-SERB project of GAP 37/18 The Scientific Social Responsibility on the societal cause, the programme was conducted on November 24, 2022. 40 students and 3 teachers from Government Higher Secondary School, Pulidipatti, Sivagangai District participated. About 40 DIY was distributed to the students.
  - Conducted Training Programmes on:
    - Electroplating and Metal Finishing during 07.11.2022 to 11.11.2022. (48 participants).

- Electrochemical Power Sources: Li- ion Battery- Science and Technology duration 14.11.2022 to 18.11.2022. (23 participants).
  - Industrial Refresher Course on "Surface Coatings for Value Added Products Viz. Decorative and Functional Applications" was conducted from 21.11.2022 to 25.11.2022. (9 participants)
- **CSIR-CEERI**
  - Mega Tinkering Activity in Birla Shishu Vihar on 14-11-2022 under CSIR Jigyasa.
  - Lab visit of 80 Students on 14th Nov 2022, as a part of Jigyasa outreach program
- **CSIR-CFTRI**
  - Conduct a student-scientist connect program for:
    - Students of Govt. High School, Doddahajjuru, Hunsur on 16.11.2022. 150 students and 6 teachers participated.
    - Students of Jawahar Novodaya Vidhyalaya, Mysuru, Mandya, Hassan and Chamarajanagar on 25.11.2022. 100 students and 10 teachers participated.
- **CSIR-CGCRI**
  - Skill development training programme was conducted on Advanced instrumental analysis for chemical characterization of glass, ceramics and allied materials by modern instrumental and Classical methods of analysis from 15th to 18th Nov.'22. (17 participated).
  - School visit programme was organized on 26th November 2022 at Contai High School, Purba Medinipore under **CSIR Jigyasa**. Around 100 students from different Schools and Institutions participated in the programme.
- **CSIR-CMERI**
  - **Skill Development Programme (SDP)**
    - Workshop on 'Innovation for Excellence'; 01 November, 2022.
    - SDP on Dimension, Mass, Volume, Density and Pressure Metrology; 02-03 November, 2022.
    - Analytical Techniques and Instrumentation for Water Quality Assessment; 09-11 November, 2022.
    - Analytical Techniques and Instrumentation for Water Quality Assessment; 14-16 November, 2022.
    - SDP on Dimensional Metrology; 15-17 November, 2022.
    - "Plastic Waste Disposal and Fuel Recovery - Characterization through Gas Chromatography; Nov 22-24, 2022.
  - **Jigyasa Programmes**
    - Outreach programme for Showcasing of technologies of CSIR-CMERI followed by interactive quiz session at Ukhra Nehru Vidyapith, Ukhra; Nov 11, 2022.
    - Outreach programme for Showcasing of technologies of CSIR-CMERI followed by interactive quiz session at JNV, Durgapur where Students from DPS, Durgapur, Amrita Vidyalayam, Durgapur also participated; Nov 29, 2022



- Jigyasa Programme on "Renewable Energy and onsite technology demonstration" was organised for the students of KV Panagarh; Nov 03, 2022.
  - Jigyasa Programme on "Energy: Basics, Types & Applications and onsite technology demonstration" was organised for the students of KV CMERI, Durgapur, JNV, Durgapur and DTPS, Durgapur; Nov 29, 2022.
  - Team CSIR-CMERI, Durgapur visited two ATL Schools i.e. JNV, Durgapur and (i) RP Vivekananda Vidyapith School for Mega Tinkering Activity:
- **CSIR-CSIO**
    - In collaboration with The Environment society of India Organized a "Teachers Orientation workshop for National Children's Science Congress" was organised on 7th Nov 2022.
    - Lab Visit and live demonstration of the scientific projects organized on 9th Nov 2022.
    - Visit of school students for their innovative project for National Children Science Congress was organised on 11th Nov 2022.
    - Scientist of CSIR-CSIO delivered lecture on CSIR and JIGYASA virtual lab in Bhartiya Vidya Bhavan in Chandigarh on 21st Nov 2022.
  - **CSIR-IGIB**
    - Organized Open day for School Children on 04-11-2022
  - **CSIR-IHBT**
    - Role of Herbarium and their preservation method was demonstrated to 185 students and faculty members from different academic institutions.
    - Conducted two awareness cum training programme on cultivation and processing of aromatic crops at Village Saniya and Mara, Distt. Champawat, Uttarakhand under CSIR Aroma Mission Phase (II) on 09/11/2022.
    - 150 students and 11 teachers from 04 different Schoolsof Himachal Pradesh visited CSIR-IHBT, Palampur under "Jigyasa" Programme.
    - 194 students and 14 faculty members from Colleges/Universities/ Institutes visited CSIR-IHBT, Palampur from Punjab, and Himachal Pradesh. They visited different laboratories of the Institute and were appraised about the ongoing R&D programmes/ activities.
    - Capacity building programme on "Advance Scientific Laboratory and Instrumentation" under UGC-STRIDE was conducted at CSIR-IHBT, Palampur, H.P. on 07.11.2022 for 14 Ph.D. students and 3 faculty members from Maharishi Dayanand University (M.D.U.) Rohtak.
    - 2 days' hands on training / exposure visit programme was organized for 56 students and 05 faculty members of Sardar Patel University, Mandi (H.P.) at CSIR-IHBT, Palampur on 22nd and 25th November, 2022.
  - **CSIR-IICT**
    - Organizing Skill Development Training Programme on "Lab Technician - R & D" during 1st -30th November, 2022 under CSIR Integrated Skill Initiative. The training aims to impart skills required to assist in scientific activities of Chemistry based laboratories (14 participants).

- Organizing Skill Development Program on Animal Cell Culture Techniques for a period of 06 weeks from 21st Nov to 30th Dec 2022 in association with Gujarat State Biotechnology Mission (GSBTM), Gujarat under CSIR Integrated Skill Initiative. The inauguration of the SDP held on 21st Nov 2022 and an MoU was exchanged by both the parties for the purpose. 19 graduate students in Life Sciences from different parts of Gujarat are attending this training.
- **CSIR-IIP**
  - Organized an event entitled, "Farmer-Industry-Scientist Meet" on 21.11.2022 at village Nidawali, Mawana, District Meerut, U.P. to connect with the stake holders of Jaggery making cottage industry and showcase CSIR technologies of rural importance. Also, to create an awareness of Kisan Sabha App among the farmers for their benefits.
  - Conducted Skill Development Training on 'Spectroscopic Analytical Techniques NMR & FTIR' during November 21-25, 2022.
- **CSIR-IITR**
  - Under the flagship programme of the National Skill Development Corporation (NSDC) one-month training program was jointly organized with the Agriculture Skill Council of India (ASCI) on "Soil and Water Testing Lab Analyst" on November 09, 2022, at CSIR-IITR (13 participants).
- **CSIR-IPU**
  - Organised hands-on Practical Training to CSIR labs' Intellectual Property Coordinators from 07-Nov-22 to 11-Nov-22 and from 21-Nov-22 to 25-Nov-22.
- **CSIR-NAL**
  - Christ University Students visit on 10-11-2022.
  - Jigyasa programme at Bendiganahalli Village for 230 school children on 12-11-2022
  - CSIR laboratories namely CDRI, IMTECH, 4PI, NAL participated Bangalore Tech Summit event during 16-18 Nov., 2022 @ Bangalore Palace, Bangalore.
- **CSIR-NEERI**
  - Following programmes were organized:
    - Analytical Instrumentation Techniques for Measurement of Environmental Contaminants, November 01-02,2022.
    - Water Quality Testing and Analysis, November 15-17,2022
- **CSIR-NGRI**
  - Advanced Training Program on Ground Water modelling using FEFLOW during 9th November – 11th November 2022 (45 candidates).
  - CSIR's Integrated Skill Development program "Seismology -Theory, Practice and Applications" 28 November to 09 December.
  - As part of a tinkering activity of Atal Innovation Mission, NITI Aayog, CSIR-NGRI introduced schoolchildren to the possibilities that emerge out of science and innovation at Johnson Grammar High School ICSE & ISC, Mallapur, on Friday, 25th November, 2022.
  - Students from classes 9 to 12 were trained to build a DIY Innovation Project together. (50 students and six teachers participated).

- The “DIY project on water table measurement kit” can be used to measure the water level of our own surroundings. This generated an awareness among students towards the sustainability of aquifers.
- Scientists of NGR explained the formation of aquifers below the sub-surface and also explained the importance of groundwater in the “Sustainability Development Goals of United Nations.”
- **CSIR-NIO**
  - As a part of CSIR Jigyasa 2.0 project for dissemination of knowledge on ocean related activities a workshop for the Science teachers of High School & Higher Secondary Schools of Goa, was organized from 22-25 Nov., 2022. Science and Maths teachers from 26 schools of Goa have participated in the workshop.
- **CSIR-NIIST**
  - Conducted Skill Development course on:
    - "Technique of Phyto chemical profiling and characterization"
    - " Analytical chemistry & Instrumentation Technique"
    - Training on “Lab Technician-Research & Quality Control Job Role” for around 130 teachers and instructors of Vocational Higher Secondary schools to improve their knowledge skills.
- **CSIR-NML**
  - Conducted following Virtual Lab Integration and DST Women Technology Park programmes
    - 90 days training programme on Computer 3D Printing product development (C3PD) starting from 9/2/2022 (40 students participated).
    - One-month programme on Hands on Experiment on Water Splitting for Green Hydrogen Production starting from 11/9/2022 (30 students participated).
- **CSIR-SERC**
  - Advanced Courses (through online mode) on:
    - Recent Advancements in Earthquake Engineering (RAEE-2022) held during 16-18 November 2022. No. of Participants: 23.
    - Quality Control and Assessment of Field Concrete and Rehabilitation of Structures held during 24-25 November 2022. No. of Participants:17
  - A two-day, CSIR JIGYASA ATL workshop was organized on 24-25 November 2022, exclusively for the students of the adopted schools in Thiruvavur districts of Tamil Nadu. Four scientists of CSIR-SERC and CSIR Madras Complex visited the schools and delivered lectures on topics related to basic science, the latest scientific advancements, battery experimental workshops, etc., and also witnessed the facility created under the ATL program. About 280 students and 30 teachers participated in the workshop.

### **Major Conferences, Seminar/Webinars, Workshops organized**

- **CSIR-Hqtrs**
  - CSIR participated in the following Exhibitions:

- 13th Agrovision 2022 during 25-28 Nov., 2022 at Nagpur, Maharashtra. Labs participated were CSIR-CIMAP, CSIR-NEERI, CSIR-NBRI and CSIR-CFTRI.
  - STREE 2020 National Conference & Expo during 24-26 Nov., 2022 at Jawaharlal Nehru University (JNU), New Delhi. Labs participated were CSIR-CIMAP, CSIR-IIP, CSIR-CLRI, CSIR-IGIB, CSIR-CDRI, CSIR-IHBT, CSIR-CFTRI and CSIR-CRRI.
  - Rise in Uttar Pradesh 2022 during 22-24 Nov., 2022 at HRIT Group of Institutions, Ghaziabad. Labs participated were CSIR-NISCP, CSIR-CRRI
  - Akash For Life during 5-6 Nov., 2022 at Dehradun. Labs participated were CSIR-NAL, CSIR-NEERI, CSIR-CIMAP and CSIR-IMMT
  - INDIA CHEM 2022 during 2-3 Nov., 2022 at Pragati Maidan, New Delhi. Labs participated were CSIR-NCL, CSIR-IICT, CSIR-CSMCRI and CSIR-NIIST
  - Vision Rajasthan 2022 during 1-3 Nov., 2022 at Sirohi, Rajasthan. Labs participated were CSIR-CEERI and CSIR-IHBT.
  - Bangalore Tech Summit during 16-18 Nov., 2022 at Bangalore. Labs participated were CSIR-CDRI, CSIR-IMTECH, CSIR-4PI and CSIR-NAL
- **CSIR-AMPRI**
    - Advanced Materials for Bio-medical engineering applications was organized on 14 Nov. 2022 at CSIR-AMPRI Bhopal.
  - **CSIR-CDRI**
    - The Annual DSIR-CRTDH Conclave was organized in collaboration with the sister-institution, CSIR-IITR on 17th-18th November 2022. The event was inaugurated by Secretary, DSIR and Director-General CSIR. A brochure describing services available to MSME in the Pharmaceuticals sector was released.
  - **CSIR-CEERI**
    - 50th Management Council Meeting was organized on 24-11-2022.
    - DST-SERB karyshala organized from 08-19 Nov 2022 at CSIR-CEERI, 25 participants participated in the event.
  - **CSIR-NBRI**
    - Organized a workshop on Advanced Bioinformatics during November 15-30, 2022 (10 candidates).
  - **CSIR-HRDC**
    - International Knowledge Sharing Workshop was conducted on Cross-border Innovation, Acceleration and Challenges in International Transfer of Technologies on 14-15 November, 2022.
  - **CSIR-IHBT**
    - Organized Hands on Training Program on Development of Nutraceutical Based Formulations and Their Characterization from 22 to 28 November 2022 funded by SERB (Under Accelerate Vigyan Scheme).
    - Organized training-cum-exposure visit to the officers of the Rural Development Department, Himachal Pradesh at CSIR-IHBT on 01-

02.11.2022. 20 officers from different districts of Himachal Pradesh participated.

- **CSIR-IICT**
  - Two days RMIT-IICT International workshop on Creating Profound Impact Through Multidisciplinary Collaborations was organized during 28th - 29th November 2022 at CSIR-IICT
- **CSIR-IIP**
  - Organized Farmer-Industry-Scientist meet at village Nidawali, Mawana, District Meerut, U.P. On 21.11.2022. The event was attended by more than 100 farmers and Gur Bhatti owners of the region.
  - Two-day Awareness Programme cum Workshop on Electric vehicle, charging Infrastructure and Renewable Hybrid Energy in North East India, was jointly organised by CSIR-IIP Dehradun, CSIR-NEIST Branch Lab, Lamphelpat and Transport Department, during 9-10 November, 2022 at City Convention Centre.
- **CSIR-IITR**
  - DSIR-CRTDH Conclave was inaugurated by Dr. N. Kalaiselvi, Secretary, DSIR & DG, CSIR on 17/11/2022, an exhibition showcasing the success stories from the different CRTDH centers of the country. Some of the notable technologies on display included those related to new chemicals from biology to material applications, affordable machining technologies for energy applications, effluent & pollution control, and healthcare. The exhibition highlighted the achievements of the CRTDHs and the MSMEs in working together towards the “Atmanirbhar Bharat” and “Make in India” programs of the Govt. of India
- **CSIR-NCL**
  - Jointly organized with Indian Institute of Science Education and Research (IISER), Pune, and Savitribai Phule Pune University (SPPU) the 16th International Conference on Science and Technology of Polymers and Advanced Materials through Innovation, Entrepreneurship and Industry in association with The Society for Polymer Science, India and NCL- Research Foundation during November 2-4, 2022.
- **CSIR-NGRI**
  - Indian Geophysical Union (IGU) of CSIR-NGRI along with other important Earth science organizations of the country successfully organized 3rd Triennial conference of Federation of India Geoscience Association (FIGA) -2022 at Wadia Institute of Himalayan Geology, Dehradun during 16-18, November-2022.
- **CSIR-NIO**
  - Conducted First Oceanographers and Hydrographers Conference under the Colombo Security Conclave (CSC) on Our Ocean is Our Future. During the first day of the conference, the Heads of Oceanographic and Hydrographic Institutes of Bangladesh, India, Maldives, Mauritius and Sri Lanka engaged in discussions on sharing of knowledge and best practices. They identified each other's strengths and capabilities in the field of Ocean Observation, Ocean Modelling, Hydrographic Surveys, and Ocean Information & Advisory services with

the overall aim of adopting a collaborative approach to address regional challenges related to the oceans

- **CSIR-NML**
  - Celebrated 73rd foundation day on 26th of November 2022. Dr. A K Srivastava, Director CSIR-NML delivered the welcome address and talked about the contributions of CSIR-NML in the S&T development of the country, since its foundation year 1950. Dr. Arvind Sinha, Advisor Management introduced the chief guest to the audience.
- **CSIR-URDIP**
  - Hands-on Practical Training was conducted on Hands on IP training to IP coordinators from CSIR labs at CSIR-IPU, New Delhi on 9th November 2022 & 23rd November 2022.

### **Visit of high-level dignitaries to the Institute/Laboratory**

- **CSIR-CCMB**
  - Visit of Prof Ajay Sood, Principal Scientific Adviser to Government of India
- **CSIR-CIMFR**
  - Dr. B. Veera Reddy, Director (Technical) CIL, Kolkata graced the occasion as a Chief Guest on Foundation Day.
- **CSIR-IICT**
  - Delegation from King's College, London visited to explore cooperation with CSIR-IICT& CSIR-CCMB for scientific exchange programs in mutually interested areas.
- **CSIR-IGIB**
  - German delegation, headed by Prof. Dr. Werner Knöss, Vice President of Federal Institute for Drugs and Medical Devices (BfArM) interacted with Ayurgenomics team at CSIR-IGIB on 14-11-2022
- **CSIR-NCL**
  - Prof. Sir Richard Roberts, 1993 Nobel Laureate in Physiology visited NCL as the Guest of Honor, inaugurated International conference on polymer science and technology of the SPSI MACRO from 2-4 Nov., 2022. Many academicians like Professor Nikos Hadjichristidis and professor Yves Gnanou from KAUST, Saudi Arabia, Professor Richard Hoogenboom from Ghent University, Belgium visited NCL as part of the SPSI MACRO conference attendees.

### **COVID related developments/research**

- **CSIR-CSMCRI**
  - Exploring the mechanism of potential anti-SARS-CoV-2 agents in preventing viral attachment to host cells through modeling and simulations.
  - Purification of 1L gamma linolenic acid from 10litre crude oil. Five Lactobacillus isolates sent to MEDGENOME, Bangalore for whole genome sequencing which would be developed for preparing a probiotic formulation for women health.

- **CSIR-IHBT**
  - Coordinated of sampling relocation for Kangra district and transfer of the RT-PCR Kits.
- **CSIR-IIP**
  - 480 samples received at IIP Covid testing lab, all samples were tested negative.
  - 1000 L hand sanitizer has been prepared for the in-house distribution in IIP
- **CSIR-URDIP**
  - Provided IP search and analysis services to the Anti-viral mission.

### **Details of events celebrated to mark India@75 or Azadi Ki Amrit Mahotsav / 75 Years of Indian Independence**

- **CSIR-CECRI**
  - In association with SAEST organized monthly Lecture Series on Electrochemical Science and Technologies: A Path Forward to Sustainable Society.
  - Director, Nanosol Energy Pvt. Ltd., Hyderabad & Alumnus of CSIR-CECRI delivered the lecture on Green Hydrogen Production and its Future in the Context of Increased Climate Change on 2nd November, 2022
  - Prof. S. Balasubramanian, Honorary Secretary, Royal Society of Chemistry (South India), Department of Inorganic Chemistry, University of Madras, Chennai delivered the lecture on Nanomedicine from natural product in the fight against cancer on 11th November, 2022
- **CSIR-IICT**
  - On the occasion of the WorldDiabetesday, brief talks and interaction on diabetes awareness and prevention of its complications has been organised as a part of Azadi Ka Amrit Mahotsav on 14th November 2022.
  - Lecture series was organized on:
    - Epigenetics and Drug Discovery by Prof. Tapas K. Kundu, Former Director, CSIR-CDRI and Sir J.C.Bose National Fellow, Jawaharlal Nehru Center for Advanced Scientific Research, Bengaluru on 21st November 2022.
    - Discovery and development of EP2 receptor antagonists to treat Epilepsy and Alzheimer's disease by Dr. Thota Ganesh from Department of Pharmacology and Chemical Biology, Emory School of Medicine, USA, on 25th November 2022 in IICT.
- **CSIR-NBRI**
  - Celebrated Constitution Day on November 25, 2022. The Preamble of the Constitution was read by all the staff members on the occasion.
- **CSIR-NIO**
  - Conducts regular talks on every Thursday on the occasion of Azadi ka Amrit Mahotsav. A talk on Emerging infectious diseases: the challenges for survival was delivered by Prof. Chandrima Shaha, President Indian

## **DEPARTMENTAL ACTIVITIES**

DSIR's mandate is to promote Industrial Research and Development besides technology promotion, development and utilization. In order to promote and nurture Research and Development in the country, Industrial R&D Promotion Programme of the department gives recognition and registration to in-house R&D units of industries, not for profit Scientific and Industrial Research Organizations (SIROs), Public Funded Research Institutions (PFRIs) and periodically renews these recognition / registration under the respective Government Notifications (as amended from time to time), by virtue of which these organizations are able to obtain Customs duty exemptions, Goods & Service Tax (GST) concessions and Weighted tax deductions on R&D by Industry (under section 35(2AB) of IT Act). This scheme helps in encouraging industrial R&D in the country.

### **Industrial R&D Promotion Programme Recognition/ Registration and renewal of In-house R&D in Industry**

- 21 in-house R&D units of industries were granted recognition as well as registration certificates.
- 14 in-house R&D units of industries were granted renewal of recognition and 41 were granted renewal of registration certificates.

### **Scientific and Industrial Research Organisation (SIROs) Recognition/ Registration and renewal of SIROs**

- 13 SIROs were granted recognition and 05 were granted registration certificates.

### **Public Funded Research Institution (PFRIs) Registration and Renewal of PFRIs**

- 03 PFRIs were granted registration certificates.
- 03 PFRIs were granted renewal of registration certificates.

DSIR Central Sector scheme 'Industrial Research and Development (IRD)' comprise of the four sub-schemes i.e (i) Promoting Innovations in Individuals, Start-ups and MSMEs (PRISM), wherein financial assistance is extended to independent innovators for converting innovative ideas into demonstrable working models / prototypes / processes that may take the form of new or improved products, processes, or services; and assist them to become incubatees / techno-entrepreneurs, (ii) Patent Acquisition and Collaborative Research and Technology Development (PACE), wherein support shall be provided to industries and institutions for development and demonstration of innovative technologies, (iii) Building Industrial R&D and Common Research Facilities (BIRD), wherein support shall be provided for creation of



Common Research and Technology Development Hubs for use by entrepreneurs and industries and (iv) Access to Knowledge for Technology Development and Dissemination (A2K+) wherein studies and conferences in up-coming areas of industrial research shall be taken up besides undertaking a Technology Development and Utilization Programme for Women (TDUPW).

### **Promoting Innovations in Individuals, Start-ups and MSMEs (PRISM) :**

Three new projects were awarded and two projects were reviewed during November 2022.

### **Scheme CRTDH:**

#### **Successful organization of two days' "DSIR CRTDH Conclave" at CSIR-IITR, Lucknow.**

DSIR-CRTDH conclave was organized at CSIR-Indian Institute of Toxicology Research (IITR), Lucknow on 17<sup>th</sup> & 18<sup>th</sup> November, 2022 showcasing the technological insight of varied supported sector by the public funded research institutes. The conclave highlighted the achievements made and benefits drawn by MSMEs & other stakeholders and the continued commitment of DSIR for MSME. The conclave was inaugurated by Dr N Kalaiselvi, the Secretary, DSIR & DG, CSIR and was attended by highly eminent scientists, industry representatives and MSMEs.

- The conclave witnessed IIT Guwahati and CSIR IITR Lucknow signing of MoUs with different industries.
- Achievements made by various CRTDH were also showcased in exhibition during the conclave.
- DSIR also released a compendium on CRTDH scheme that has comprehensive details of all 18 CRTDH along with success stories of MSMEs/Startups which benefited from the DSIR-CRTDHs.

### **Scheme A2K+:**

#### **1. A2K+ Studies: Knowledge Dissemination Program:**

Technical Advisory Committee (TAC) meeting was convened under A2K+ Studies program and 10 fresh proposals for conducting studies under 06 different STI theme areas were recommended for financial support.

#### **2. A2K+ Technology Development and Utilization Programme for Women (TDUPW):**

- Two Project Review Committee (PRC) Meetings were held to review the financial and technical progress of two projects supported to (i) CSIR – National Botanical Research Institute, Lucknow and (ii) CSIR – Central Food

Technological Research Institute (Regional Centre), Lucknow under TDUPW programme of A2K+ scheme of DSIR.

The Project of CSIR-NBRI, Lucknow was on “Dehydrated Flowers and Foliages for Women Empowerment” and that of CSIR-CFTRI (Regional Centre), Lucknow was on “Skill development program on processing, preservation & value-addition of food & agro-based products for commercial use in eight aspirational districts of UP with special emphasis on development of entrepreneurs”.

- 195 Women Beneficiaries have been trained under the various ongoing TDUPW projects aiming at women empowerment through technology deployment and dissemination.

## **PUBLIC SECTOR ENTERPRISES**

### **Central Electronics Limited (CEL)**

CEL is an enterprise under DSIR having an objective to commercially exploit the indigenous technologies developed by National Labs and R&D institutions in the country. CEL has developed a number of products for the first time in the country through its own R&D efforts and it continues to emphasize its leading role in the area of solar photovoltaic systems, electronic gadgets for Railway and other strategic electronic equipment/components among others.

- The company manufactured electronic components/systems/SPV products worth Rs.1845.71 Lakhs during November, 2022.
- Sale of items worth Rs.1405.32 Lakhs was realized during November, 2022.

### **National Research Development Corporation (NRDC)**

NRDC continues to lay emphasis on broadening and strengthening the technology resource base by nurturing long term relationships with R&D institutions as well as universities, technical organizations, industries and also individual inventors.

- NRDC has been assigned ten technologies by GLA University, Mathura, one technology by CSRTI, Mysuru and one technology by National Institute of Ocean Technology (NIOT), Chennai. NRDC has licensed one technology on ‘Saline Water Lantern’ and one technology on ‘Sea Surface temperature sensor’ to NIOT, Chennai during November 2022.
- NRDC has collected premia of Rs.0.55 Lakhs and royalty of Rs.52.31 Lakhs from respective technologies during November, 2022.

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