

**No. DSIR/MS/2023/03**  
Government of India  
Ministry of Science & Technology  
Department of Scientific & Industrial Research  
**MONTHLY SUMMARY FOR THE CABINET**  
(For the month of **March, 2023**)  
(Part-I Unclassified)

**Major achievements during the month of March, 2023:**

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

**New Technologies/Processes Developed/Transferred**

- **CSIR-CFTRI**
  - Developed the following process:
    - Process for the production of transglycosylating alpha-glucosidase using novel fungal strain;
    - A process know-how for 'Freshness keeper paper for extension of shelf life of cut roses';
    - Glucose-amlam beverage mix;
    - Process for the production of baker's yeast.
  - Developed the process of Fermented and dehydrated ready mixes for idli/dosa batter and transfer to M/s Ponnampilly Traders and Manufacturers, Thissur, Kerala.
  - Developed the process of Meat/ Fish/ Chicken/ Egg/ Pork/ Prawn wafers and transfer to M/s Palindrome Enterprises, Mahadevapura, Mysuru.
- **CSIR-CIMFR**
  - Improved Soft Coke Making Technology and transferred to M/s. Hazi Prakash Udyog Company, Dhanbad, Jharkhand on 07.03.2023.
- **CSIR-CMERI**
  - Following technologies have been developed and transferred to M/s Himatsingka Agencies Pvt. Ltd., Dumka, Jharkhand on 24.03.2023:
    - Wide Angle Video through Video Stitching of Mob Control Vehicle
    - PTZ Camera with Telescopic Mast of Mob Control Vehicle Technology/Know-how.
- **CSIR-IIP**
  - Developed the following processes:
    - Production of beta-glucan from deoiled yeast cake;
    - Purification of lutein and beta-carotene from yeast pigment mixture;

- Deconstruction of Sorghum biomass and syrup to generate monomeric fermentable sugars and further production of ethanol through yeast mediated fermentation;
  - Production of sophorolipid from yeast fermenter broth;
- **CSIR-NAL**
  - Developed process for Eco-friendly graphene oxide-based spectrally selective solar absorber coating.
- **CSIR-NCL**
  - Histidinal-based anti-malarial agents with potential to target the hemoglobin-degrading proteases falcipain-2/3 from the human malaria parasite have been developed.
  - Developed NMR test for honey analysis in India.
  - Process developed for Sulfinpyrazone drug.
- **CSIR-NIIST**
  - Transforming pathogenic biomedical waste into soil additives technology developed and transferred to M/s Bio Vastum Solutions (BVS) Pvt. Ltd. (Angamaly).
  - Indigenous Development of Aluminum-Silicon Carbide Composite Thermal Management Component for Flight Control Computers of Light Combat Aircrafts of ADE-DRDO to DRDO.
  - Developed Technology for manufacturing Vegan leather from agro-residues and transferred to M/s Streekaya Services Private Limited, Maharashtra.

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

- **CSIR-CDRI**
  - An MoU was executed with Birla Institute of Technology, Mesra on 07.03.2023 for promoting institutional linkage and to explore other avenues for possible collaboration.
- **CSIR-CFTRI**
  - MoU was signed with Spices Board, Cochin on 3rd March, 2023 to collaborate in mutually agreed-upon aspects for operating an 'Incubation Centre for Spices' at CSIR-CFTRI campus, within the facility established under the assistance of Nutra-Phyto Incubation Centre & Common Instrumentation Facility (NPIC-CIF), Mysore to support and mentor eligible startups/ exporters/ entrepreneurs/ FPOs to promote and accelerate the innovation in various disciplines of spices including product research & development with export potential.
- **CSIR-CIMFR**
  - Agreements signed on 07.03.2023 for Know-How Transfer of Improved Soft Coke Making with the following:
    - M/s. Hazi Prakash Udyog Company, Dhanbad, Jharkhand
    - M/s. Modern Industries, Dhanbad, Jharkhand
- **CSIR-CMERI**

- Following License Agreement signed on 24.03.2023 with M/s Himatsingka Agencies Pvt.Ltd., Dumka, Jharkhand for:
  - Technology/Know-how Transfer of Wide-Angle Video through Video Stitching of Mob Control Vehicle
  - Technology/Know-how Transfer of PTZ Camera with Telescopic Mast of Mob Control Vehicle
- **CSIR-CRRI**
  - Technology Transfer Agreement (TTA) signed with AM/NS (ArcelorMittal Nippon Steel) India plant Hazira for Utilization in Road Construction for “to promote Development of Processed EAF Steel Slag” on 28-Feb-2023.
- **CSIR-IHBT**
  - MoU was signed on 27.03.2023 for installing distillation unit (under CSIR-Aroma Mission-II) with Shivalik Medicinal and Aromatic Plants Cultivation Society, Chauki Maniar, Una (H.P.)
- **CSIR-IICT**
  - MoU executed with Central Tobacco Research Institute, Rajahmundry under ICAR, on 7th March 2023 - Plant (Turmeric, chilli, Aswagandha, castor and tobacco) based API extraction and standardization - Tobacco waste utilization for commercial purpose.
  - MoU executed with Delhi Pharmaceutical Sciences and Research University (DPSRU), on 7th March 2023 for Research and development in natural products, Analytical chemistry, medicinal chemistry, chemical biology and biotechnology.
  - MoA executed with DBT on 6th March 2023 in the area of Drug Development towards effective treatment of aggressive oral cancer
  - Investigating the efficacy of SPIL compounds against palmitate-induced cell death/oxidative stress by modulating the AMPK activation.
  - Screening and development of novel solid forms of agrochemicals Topramezone.
- **CSIR-IIIM**
  - Tripartite MoU was signed between CCRAS-CARI, Jhansi, CSIR-CDRI, Lucknow & CSIR-IIIM, Jammu on 13.03.2023 for Pre-clinical development of
    - Vasa (*Justicia adhatoda* Linn.) leaves through AYUSH route for adjunct therapy in tuberculosis to reduce anti-tubercular treatment (ATT) induced hepatotoxicity.
    - Guduchi (*Tinosporacordifolia* (Thunb) Miers) stem through AYUSH route for adjunct therapy in tuberculosis to reduce anti-tubercular treatment (ATT) induced hepatotoxicity.
    - Amalaki (*Phyllanthus emblica* Linn.) fruit through AYUSH route for adjunct therapy in tuberculosis to reduce anti-tubercular treatment (ATT) induced hepatotoxicity.

- **CSIR-IIP**

- MoUs signed with:

- THDC-Institute of Hydropower Engineering and Technology, Tehri, Uttarakhand, Academic.
    - Airbus Group India Private Limited, Bengaluru for Sustainable Aviation Fuel 3. BASF India Limited, Mumbai to mutually identified areas, joint R&D projects and any other collaborative opportunities
    - IILM University, Greater Noida, Academic

- **CSIR-IITR**

- An MoU was signed on March 02, 2023 with Community Empowerment Lab, Lucknow for collaborate on academics, research, training and consultancy related activities with the general provision and terms.
  - An MoU was signed on March 02, 2023 with Marico Limited, Mumbai for Research collaboration.
  - An MoU was signed on March 02, 2023 with ICAR-Central Institute of Fisheries Education, Mumbai for Research collaboration.
  - AnMoA was signed on March 07, 2023 with DBT, New Delhi for the research work titled A study on the intergenerational effect of maternal Vitamin D3 deficiency on cognition and Hippocampal neurons in rats.
  - An MoU was signed on March 07, 2023 with CSMCARI, Chennai for Toxicity profile of Ttibhuvana Kirti Rasa in experimental animals.
  - An MoU signed on March 14, 2023 with NARIP, Cheruthuruthy, Thrissur for Toxicity profile of Swaskuthar Rasa in experimental animals.
  - An MoU was signed on March 14, 2023 with CARI, Kolkata for Toxicity profile of Rasamanikya Rasa in experimental animals.
  - An MoU was signed with Edward Food Research & Analysis centre Limited, Kolkata for research collaboration.

- **CSIR-NBL**

- MoU signed for the collaborative work on “Identification of adulterants / substitutes for Ayurveda plant raw material in trade using pharmacognostics and phytochemical parameters” with Central Council for research in Ayurvedic Sciences (CCRAS), New Delhi on 14.03.2023.
  - MoU signed for academic research and collaborative work together with Mahatma Gandhi Central University Motihari, Bihar on 19.03.2023.
  - Tripartite MoU signed for the collaborative work on “Mechanistic studies in elucidation of Shodhana for nine poisonous medicinal plants of E1 schedule” with Central Council for research in Ayurvedic Sciences (CCRAS), New Delhi & Sambalpur University, Odisha on 21.03.2023.

- **CSIR-NCL**
  - MoU signed with Pune Knowledge Cluster Foundation (PKCF) for carrying out project on Pathogen surveillance in environment and animal samples.
  - MoU signed with Ashoka University, Sonipet, to carry out whole genome sequencing of clinical isolate of bacteria. Supplied microbial strains and microbial identification services to industries and academia.
  - Signed agreement with Libra Techcon Ltd., Mumbai for scientific experiments for a period of 3 months.
- **CSIR-NIIST**
  - Collaborated with:
    - TATA Coffee Limited, Bengaluru for production of crema (coffee) with improved foam retention time.
    - Food Industry Capacity and Skill Initiative FICSI, New-Delhi for Skill/Training Collaboration with Food Industry Capacity and Skill Initiative.
    - Victoria Innovative, Ernakulam for development of Bio-electrochemical reactor for Bio-Hydrogen production from liquid waste.
    - Technopark Technology Business Incubator (T-TBI), Thiruvananthapuram in scientific entrepreneurship
    - Sreekrishna industries for development of Friction dust resin from Cashew Nut Shell Liquid.
    - Tachlog Pvt.Ltd, Thiruvananthapuram for development of wearable electronic-skin patch for real time monitoring of human health parameters and tactile sensing.
    - Zealous Endeavours Pvt Ltd, Kochi for Indigenization of Printable Conductive Gold Technology for Electronic Applications-Research programmes in areas of flexible and printed electronic materials and devices for strategic and societal applications.
    - The Kerala Minerals and Metals Limited (KMML), Kollam for Extraction of Rare Earth Elements from the Acid Leach Liquor of KMML.
    - Neyyattinkara Coir Cluster Development Society (NCCDS) for development of New Coir-Geocomposite Prototypes and Products.
    - Streekaya Services Pvt Limited, Mumbai for Manufacturing Vegan Leather from Cactus Leaves.
- **CSIR-NIO**
  - Agreement with Indian Institute of Tropical Meteorology, Pune on 14.03.22023 for Enhancing the relationship in synergizing their respective strengths and to work together for developing cutting-edge research in Earth Science.

- **CSIR-SERC**

- Signed Memorandum of Cooperation (MoC) with Construction Industry Development Council (CIDC), New Delhi for carrying out "Performance Appraisal and Certificate of Competency for the Construction Chemical and Waterproofing Applicators" on 23 March 2023
- Signed Memorandum of Understanding (MoU) with National Highways and Infrastructure Development Corporation Limited (NHIDCL), New Delhi, for Carrying out "Consultancy Services on Safety Auditing, Maintenance and Management of Structures and Facilities of NHIDCL" on 23 March 2023

### **Collaborations/Agreements/MoUs Signed (International)**

- **CSIR-CECRI**

- Surface-modified porous Ti-based implants produced by additive methods for cranio-maxillofacial and dental surgery / National University of Science and Technology "MISiS" (NUST MISiS), Russia

<b>Patents Filed</b>		<b>Patents Granted</b>		<b>Patent Prosecutions</b>	
India	Abroad*	India	Abroad*	India	Abroad*
31	55	18	09	24	120

\* Data reported to IPU during the said period and may increase later during national phase entries

### **High impact S&T services offered**

- **CSIR-CDRI**

- Common Research and Technology Development Hub (CRTDH): Provided analytical services to two MSME, and consultancy for new drug product development to Medium-Sized Enterprise 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. 452) were supplied to outside research organizations for research purpose. This includes 255 Rats & 197 Mice.
- Sophisticated Analytical Instrument Facility: Provided service for analysis of sample by IR (Infrared), Mass, NMR (Nuclear Magnetic Resonance) and EM (Electron Microscopy). In the month of March, total 218 external samples have been analyzed for 47 users and 1679 internal samples for 81 users.

- **CSIR-CMERI**

- Vibration analysis subsequent balancing if required of 07 nos. base motor of BAF CRM-III, BSL at Bokaro steel plant, Jharkhand for Steel Authority of India Ltd., Ranchi, India.

- ARC for metallurgical investigation to find out the hardness, PMI and RA of high chrome grinding media balls for the BBD type coal mills of unit no 1 to 6 for Mejia Thermal Power Station, Bankura, West Bengal.
- **CSIR-CRRI**
  - Construction of Steel Slag Road using Steel slag aggregates in Six Lane Bhandara Bypass Section of NH-53 from Km 485.0 to km 499.545 under Bharatmala Pariyojana in the state of Maharashtra under NHAI Project for Shri Swami Samarth Engineers Ltd., Pune
  - Study for Rehabilitation / Strengthening of identified roads by Cold milling and recycling process under Division East Road M 212 Sub Division IV for Public Works Department (PWD), Delhi
  - Design Construction, Supervision and Pavement performance evaluation of road constructed by using red mud. for Hindalco Industries Limited, Mumbai
  - Performance Evaluation of Road Constructed using Brick Aggregates in Sub-Base and Foam Bitumen in Base Layers for National Highways & Infrastructure Development Corporation Ltd., New Delhi
- **CSIR-IIP**
  - Testing services offered under various ongoing projects of the institute, industrial clients and AcSIR activities. These tests include gaseous fuels (ASTM D7833, D5504), liquids fuels (D6730, UOP744, D5623, D4815, D6584 and IP 391), engine oils (ASTM D3524, D3525), lubricating oils (ASTM D7419), waxes (ASTM D5442), GC-MS and HRMS of petroleum fuels and general chemicals.
    - Determination of Gross Calorific Value of sample "JALAN-IBO-LSHS" (received from Jalan carbons and chemicals Pvt. Ltd. Kolkata).
    - Deliver test report after testing and evaluation of Bukhari Heater & Flame Concentrator Ceramic Device, received from National Innovation Foundation, Dehradun, Uttarakhand.
    - Performed the Air release value as per ASTM D3427 for 5 turbine oil sample supplied by M/s. Hindalco Pvt. Limited for:
      - Development of Coal Tar -Petroleum Hybrid Pitch Sponsored by Tata Steel Limited: 8 different softening point Isotropic pitches were prepared from TI Free Coal tar and Petroleum feed stock.
      - MLP-1164 Recovery of Aromatics from Cracked Naphtha: Batch extraction runs were carried out for different feedstocks and thermal stability study was carried out for different solvents.
- **CSIR-IITR**
  - Performed Pre-clinical toxicity studies of nonfertilizer sponsored by RCFL, Mumbai.

- **CSIR-NML**
  - Analysis and Upgradation of Subgrade iron ore fines through Fluidized Bed Reduction with separation to reduce the carbon dioxide (CO<sub>2</sub>) emission during iron making operation and make an environment friendly iron making process, the production of iron using hydrogen and synthetic gas as the main reducing agent instead of coke is being considered.
- **CSIR-SERC**
  - Condition Assessment & Structural Stability of Identified Steel Structures of OCSL Plant, Donimalai, based on NDT studies Analysis of the measured data/ observations, such as visual inspection, NDT, vibration measurement and load test on EOT cranes, at NMDC, Donimalai, were being carried out based on the field studies conducted on the steel structures.

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

- **CSIR-CDRI**
  - Student Scientist Connect Program was organized on 15th March 2023, for the student of " Department of chemistry, GLA University Mathura (U.P.)" 16 students & 04 staff attended the Program and Perceived the research on going in the laboratory.
  - Student Scientist Connect Program was organized on 17th March 2023, for the student of " Sir Madanlal Institute of Pharmacy, Etawah (U.P.)" 57 students & staff attended the Program & interacted with Scientist activities.
  - Vigyan Jyoti Program organized on 28th March 2023 for the students of "Jawahar Navodaya Vidyalaya, Hardoi (U.P.)" 55 students & 04 staff attended the Program Perceived the research on going in the laboratory.
  - IPR Awareness Programme organized on 29th March 2023 in association with CSIR-NCL, Pune. More than 200 Research scholars attended the Program..
- **CSIR-CEERI**
  - 21 Scholars and faculty staff of Photonics Society from MNIT Jaipur visited the Lab on 03-03-2023
  - 52 students and their staff from Govt. Sr. Secondary School, Churu visited Lab on 14-03-2023.
  - 21 Engineering Students and faculty staff from SKIT, Jaipur visited Lab on 28-03-2023 and 29-03-2023.
- **CSIR-CECRI**
  - Following talks were delivered during March 2023 in Alagappa University Community Radio (Vigyana Vindhai) on:
    - "Struggle for Swatantrata through Science"; "Stephen Hawking: Brief Answers to the Big Questions"; "Electrochemical Spectroscopy"; "The development of indigenous materials for energy applications and its importance"; "Scientific Thoughts in



- Tamil Literature"; "Fuel Cells"; "Marie Curie Life History"; "Carbon Vs Green Hydrogen".
- Online Quiz contest was organized through Website on the following National/ International days during March 2023:
    - "International Year of Millets"; "World Wildlife Day"; "National Safety"; "International Women's Day"; "Commonwealth Day"; "International Day of Mathematics"; "National Vaccination Day"; "World Forestry Day"; "World Water Day".
  - 55 Students and 5 Faculty Members from Muthayammal Memorial College of Arts and Science, Rasipuram visited on 17.03.2023.
- **CSIR-CGCRI**
    - Skill Development program was conducted on Testing of drinking water quality parameters using advanced instrumental analytical techniques during 15. 03. 2023 to 17. 03. 2023. Total participants were 22 Nos.
  - **CSIR-CIMFR**
    - Organized "Coin Battery Experiment" Programme at Eklavya Madhyamik Vidyalaya, Sahraj, Govindpur (Dhanbad) on 04.03.2023.
    - Conducted Refreshers Course & Skill Development Program on "Coal Carbonisation" from 13 - 17 March, 2023. The course was attended by 15 Steel Plants officials from throughout India like Tata Steel, SAIL, Mundra Petrochemicals, Ahmedabad, KIOCL, Mangalore, etc.
    - Organized "Coin Battery Experiment" Programme at Shishu Vidya Mandir, Baliapur, Dhanbad on 17.03.2023.
    - Organized 15 days' Skill Development program on "Underground Excavation Techniques" under "CSIR Integrated Skill Initiative" from 13th March to 28th March, 2023 for 41 Officers/JCOs/ORs of Eastern Command, Indian Army at CSIR-CIMFR, Dhanbad.
    - Organized 02 Days interaction programme for students as part of scientific social responsibility from 23.03.2023 to 24.03.2023 for 51 UG/PG Students at CSIR-CIMFR Digwadih Campus
  - **CSIR-CLRI**
    - The Students of R.M.K. Engineering College & Eva Stalin Business School (EBS) visited on 16 March 2023. They interacted with the staff of different departments of the institute.
    - Students from Nadar Saraswathi College of Arts and Science, Theni visited on 20 March 2023. They interacted with the staff of CSIR-CLRI to understand the research programmes of the institute.
    - 31 B.Tech Students and Faculty of Civil Engineering Department of BVC Institute of Technology & Science, Andhra Pradesh visited on 22 March 2023 to understand the research programs of the institute. The students were encouraged to take up higher learning and research.
    - Science India Forum Bahrain is an initiative of Vijnana Bharati to promote science education to the students and create awareness among them of the glorious past of our great nation. As per this

initiative, about 18 Students (from Class 5 to Class 11), Faculty members and Parents visited on 23 March 2023 to understand the ongoing research activities of the institute.

- **CSIR-CMERI**

- Organized following Skill Development Programmes (SDP):
  - Industrial Internet of Things; March 13-28, 2023
  - Municipal Solid Waste Management for Entrepreneurs; Mar 22-31, 2023
- Outreach programme on Jigyasa 2.0 was organized on 03.03.2023 for the students of Adarsh Madhuamik Vidya Niketan, Dhanbad, Jharkhand. 200 students and 07 teachers attended the programme

- **CSIR-CRRI**

- Conducted 5-day regular training program on
  - “Geotechnical and Landslide Investigations for Highway Project” during March 13-17, 2023. 07 participants from various parts of India attended.
  - “Design, Construction and Quality Control of Flexible and Rigid Pavements” during March 13-17, 2023. 26 participants nominated / sponsored by NRIDA, Govt. of India attended.
  - “Rural roads & Marginal materials

- **CSIR-HRDG**

- CSIR-CSMCRI was visited by 1200+ students under Science week organized by Shri Balwant Parekh Science City, Bhavnagar on 1st March 2023
- CSIR-IHBT organized a visit for school students in which 11 students and 2 teachers participated from Govt. Middle School, Biara, Distt. Kangra (H.P.) on 1st March 2023
- CSIR-CSIO organized an event on 3rd March 2023 in which 90 girl students and 6 teachers from KVS and Jawahar Navodaya Vidyalaya participated
- CSIR-IHBT organized a workshop in which 30 teachers participated from Parmarth International School, Baijnath, Dist. Kangra (H.P.) on 3rd March 2023
- CSIR-NIScPR visited Murmuria School and 20-25 students participated on 13th March 2023
- CSIR-IMMT organized a program in which 60 students and 3 teachers participated on 13th March 2023
- CSIR-CIMAP was visited by more than 300 students from various government institutions on 16th March 2023
- 29 research Scholars from CSIR-CSMCRI visited 30 schools of Bhavnagar involving 2494 students and 128 teachers on 16th March 2023

- CSIR-IMMT organized an event in which about 23 school teachers participated with Royal Society of Chemistry (UK) on 17-18 March 2023
- CSIR-IMMT organized a visit for 14 girl students of JNV on 20 March 2023
- CSIR-IHBT organized an event in which 90 students (8th and 9th standard) and 8 Teachers from Govt. Sr. Sec. School, Khera, Distt. Kangra (H.P.) on 21st March 2023
- **CSIR-IHBT**
  - 450 students and 90 teachers from Govt. and Private Schools Kangra, Bilaspur and Hamirpur District of Himachal Pradesh visited CSIR-IHBT, Palampur from 1st to 27th March, 2023.
  - On 06th March, 2023, CSIR-IHBT commemorated “International Women’s Day” In this program, 114 students and their teachers from GGDSD College Rajpur, District Kangra, Himachal Pradesh; Sri Sai University, Palampur, District Kangra, Himachal Pradesh and Chitkara University, Rajpura, Punjab participated.
  - In addition to this, 184 students and 16 faculty members from different colleges (Himachal Pradesh, Punjab, Haryana and Maharashtra) visited the Institute on different dates (9th-14th March, 2023).
  - Participated in the Science Conclave and Agro-Tech Expo from March 15-16, 2023. It was organized in Gurugram by CSIR-NIScPR, New Delhi, DST Haryana and Gurugram University.
  - Appraised the role of Herbarium to the 51 students and faculty members from different schools/colleges.
- **CSIR-IICT**
  - Valedictory function of the sixth batch of Orientation cum Training Programme (19th December 2022 to 18th March 2023) for the M. Sc. (Chemistry) students from the North Eastern States was conducted on 15th March 2023. Course Completion certificates were distributed by Director, to all the participants.
  - Organized a jigyasa program for the 10th standard students from MJPTBCWREIS school of excellence. Around 300 students attended the program.
- **CSIR-IIIM**
  - Five days National Hands-on Workshop on "Taxonomic Identification & Authentication of Medicinal and Aromatic Plants & Crude Drugs in Biodiversity Conservation, Traditional Knowledge and Drug Discovery" was organized by Janaki Ammal Herbarium & CDR, Plant Sciences & Agro Technology Division, CSIR-IIIM, Jammu from 21st to 25th March 2023 under CSIR-Skill Development Initiative in collaboration with CSIR-Aroma Mission and Society for Ethnopharmacology (SFE), India Jammu Chapter. 25 participants including 13 women researchers from Tamil Nadu, Karnataka, Punjab, Himachal Pradesh, Punjab, Uttar Pradesh, Maharashtra, Uttarakhand, and J&K attended this workshop.

- **CSIR-IIP**
  - One-day Scientist-Student Interaction and Lab Visit for the school students under 'Jigyasa' programme organized on 13th Mar 2023 at CSIR-IIP, Dehradun. More than 250 girls students from Government Girls Inter College, Rishikesh and Government Girls Inter College, Harrawala Dehradun participated in this Program.
  - Students and Faculties from Devbhoomi Uttarakhad University, visited Biochemistry and Biotechnology lab, on 2nd March 2023.
  - Students and faculties of Govt. Girls Inter College (GGIC), Rishikesh visited Biochemistry and Biotechnology lab, on 13th March 2023.
  - Students and Faculties of KendriyaVidhyala, Harrawala visited Biochemistry and Biotechnology lab, on 13th March 2023.
  - Students and Faculties from IEHE Bhopal visited Biochemistry and Biotechnology lab, on 15th March 2023.
  - Participated in Government Development Schemes Expo 2023 at Pitampura Dilli Haat, New Delhi during 03-05 March, 2023.
  - Participated in Bharat Pride, National Science Technology, Industry Expo-2023 at Hyderabad during 9-12 March, 2023
  - Participated Science Conclave and Agrotech Expo at Gurugram University, Gurugram Haryana, during 15-16 March, 2023
  - 24 Students along with 4 Faculty from SRT Campus HNB Garhwal University visited on 2nd March, 2023
  - 15 High School Girl Students of Government Girls High School, Harrawala, Dehradun, along with their faculty members visited on 13th March, 2023
- **CSIR-IITR**
  - During the week long OWOL campaign at CSIR-IITR marked the start of a three-day CSIR-IITR and NABL joint training programme on Analysis of pesticide residues in Fruits and Vegetables which was inaugurated by Shri N Venkateshwaran, CEO, NABL.
- **CSIR-NBRI**
  - 100 students of IX to XI class and, 20 teachers of different government schools of Bahraich district, Uttar Pradesh visited on 24-03-23. The students visited CIF, Herbarium and Exposition of institute.
- **CSIR-NCL**
  - Scientist, Organic Chemistry division, delivered a keynote talk on a topic "Catalytic Amidation and its application in API synthesis" at National Conference on "Chemical Science for Sustainable Development" which organized by Association of Chemistry Teachers and KBNMU Jalgaon University held at SPDM College Shirpur on 17th March 2023.
  - Scientist visited Department of Chemistry SRTM University Nanded to increase awareness about skill development program of CSIR NCL Pune.

- **CSIR-NIIST**
  - Screening of recipe competition held at CSIR-NIIST as part of the Millet Festival on the sidelines of the One Week One Lab program.
  - Implemented the “Integrated Skill Initiative” program by offering various skill development and up-skilling courses for undergraduates, postgraduates and to the unemployed youth. The skill program also benefits the workers and staff members of the industries.
- **CSIR-NIO**
  - Scientist visited Shivdayal Jayaswal Vidyamandir Inter College, Ayodha to demonstrate and show the films of underwater robots to the students under the Atal Twikering Lab program. He also gave a talk on in house developed underwater technologies
- **CSIR-SERC**
  - Visit of school student winners of the Sastra Prathiba by Organized Science India Forum, Bahrain the winners (Sastra Pratibhas) of Vidhyarthi Vigyan Manthan (VVM), organized by Science India Forum, Bahrain, visited CSIR-SERC on 24 March 2023 and interacted with scientists. 36 visitors (18 student winners, parents and representatives of Science India Forum, Bahrain) visited our campus.
  - Advanced Course on "Behaviour and Design of Connections in Steel Structures" held during 15-17 March 2023..

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

- **CSIR-Hqrs**
  - CSIR celebrated International Women’s Day on 9<sup>th</sup> March, 2023 at CSIR-NPL Auditorium. Hon’ble Minister of State (Independent Charge) of Ministry of Science & Technology and Earth Sciences Dr. Jitendra Singh and Mrs. Manju Singh were the Chief Guests for the event. The occasion was graced with the presence of Prof Ajay K Sood, Principal Scientific Advisor to the Govt of India, Ms Nivruti Rai VP, Intel Corp & Country Head, Intel India and Secretaries of Scientific departments under Ministry of S&T.
  - CSIR and its labs participated in Madhya Pradesh Scientific Literacy cum Health & Wellness Festival at Dindori (M.P.) from 24 to 26 March, 2023. Labs participated were CSIR-AMPRI, CSIR-CDRA.
- **CSIR-CECRI**
  - One-Day Seminar on “Paradigm Shift in Electrochemistry: Evolution of Interfacial Architectures” was organized by Society for Advancement of Electrochemical Science and Technology (SAEST) in association with CSIR-CECRI on 29.03.2023.

- 31st National Symposium of Electrochemical and Chemical Technology on "Enriching Minds towards Sustainability through Electrochemical Science and Technology (INTERSECT-2023)" was organized by Centre for Education, CSIR-CECRI, Karaikudi on 3-4 March, 2023.
- **CSIR-CGCRI**
  - National Science Day 2023 was celebrated on March 02, 2023. Director, National Institute of Technology, Jamshedpur graced the occasion as Chief Guest and deliver the National Science Day Lecture on "Atma Nirbhar Bharat-Science & Technology".
  - Head, Traditional Knowledge Digital Library Unit, CSIR, New Delhi graced the program of International Women Day on March 03, 2023 and delivered a lecture on "Changing Dynamics and the Constants - Touching upon Ethics and Traditional Knowledge" and another lecture on "Advanced Materials and Techniques for Radioactive Waste Storage - in Laboratory Conditions" was delivered by Dr. Fabian Margit, Senior Researcher, Environmental Physics Department, Centre for Energy Research, EötvösLoránd Research Network, Budapest, Hungary.
- **CSIR-CLRI**
  - A week-long celebration for International Women Day 2023 celebrated from 06 -10 March 2023. Various talk delivered such as "Mind & Body well-being"; "Womanhood, an evolutionary process"; "Woman and Kids Health - Current Status" and "Balancing Life: Women's Role". Several Indoor activities such as games, Quiz Competition and Cultural events Singing, Dance were conducted.
- **CSIR-CRRI**
  - A Conference on geotechnics for transportation infrastructure was organized on 25.03.2023 in association with SVNIT Surat.
- **CSIR-HRDC**
  - Organized programme on Work-Life Balance on March 14, 2023
- **CSIR-IHBT**
  - Celebrated 'International Women's Day' on 06.03.2023. The theme for this year's International Women's Day was "Digital: Innovation and Technology for Gender Equality". On this occasion various scientists of the institute interacted with the students and discussed the opportunities available in the science-based profession. Various lectures delivered such as 'Bioactives from Himalayan Medicinal plants and their value addition'; 'Microbial enzymes and their industrial applications'; 'Importance of balanced diet and micronutrients for health and well-being of women' and 'Value Addition in Floriculture'. Besides this, other highlights of the event were the Technology Exhibition and visit to Tulip Garden, Chemistry Lab, Tissue Culture Lab, Tea Processing Unit, Dry Flower and Pilot Plant of the institute.

- **CSIR-IICT**

- Institute conducted One Week One Lab (OWOL) program from 7-12th March 2023, graced by Dr. Jitendra Singh, Hon'ble Minister of Science & Technology as the Chief Guest. As a part of OWOL, organized an EXPO of galleries with archives, posters and exhibits of technologies, live demonstrations etc. Further, lectures by eminent industry tycoons, academicians, science communicators, women entrepreneurs delivered.

Week-long activities include Industry meet, International women's day, Kisan Mela & Technologies for society, Researcher's conclave and Students-Scientists connect, Science communication and Ethics in science and opened to all sections of people including stakeholders, general public and students.

- **CSIR-IIIM**

- Conducted significant programmes under Floriculture Mission:
  - Awareness cum quality planting material Distribution Programme at CSIR-IIIM Field Station Pulwama on 10.03.2023. 30 farmers/ growers/ agri-entrepreneurs were provided Liliun, Gerbera and Gladiolus planting material.
  - Quality planting material of Liliun and Gladiolus flagged off from CSIR-IIIM, Jammu to Chenab Valley.
  - Interactive Workshop cum quality planting material distribution Programme at DC Office Doda under CSIR Floriculture Mission on 16.03.23 wherein 56 farmers were provided Liliun and Gladiolus planting material and 365 farmers were provided hybrid marigold seeds.
  - Awareness cum Training Programme and quality planting material distribution Programme at Mini Secretariat Kishtwar under CSIR Floriculture Mission on 17.03.23 wherein 65 farmers were provided quality planting material of Gladiolus and Hybrid Marigold seeds.
  - Student Scientist Interface organized for research scholars of Govt. Degree College, Pulwama at Field Station Pulwama on 18.03.2023 wherein the faculty and scholars of the college were apprised about the cultivation and post-harvest technologies of aromatic and floricultural crops.
  - Awareness and training programme on "Entrepreneurship Opportunities in Cultivation and Post-Harvest of Medicinal, Aromatic and Floricultural Crops" in collaboration with KVK, Ganderbal on 19.03.2023 wherein 30 farmers were imparted training.
  - Awareness cum quality planting material Distribution Programme at CSIR-IIIM Field Station Pulwama under CSIR Floriculture

Mission on 22.03.2023, 23.03.2023 and 24.03.2023 wherein 43 farmers/Entrepreneurs were provided free of cost Lavender, Liliium, Gerbera and Gladiolus planting material.

- Distribution of 1200 Honey boxes to 120 farmers from districts of Pulwama, Shopian, Budgam and Ramban conducted at Field Station Pulwama in collaboration with Khadi Village and Industries Commission in presence of Chairman, KVIC Sh. Manoj Kumar on 21.03.2023 under CSIR-Floriculture Mission and Honey Mission.

- **CSIR-IIP**

- Training Program on “Overview of New generation Automotive Fuel/Vehicles” (6-10 March 2023)
- Advanced Automotive Technology and Indian Road Traffic Pattern-Challenges & Opportunities.”for Officers of MoRTH, New Delhi (20/03/2023 to 24/03/2023)
- Deepti Agarwal, Jyoti Porwal, et al. organised International Womens Day Celebration (IWDC 2023) event at Dr Lovraj Kumar Auditorium, CSIR-Indian Institute of Petroleum, Dehradun, dated 1st March 2023.

- **CSIR-IITR**

One Week One Laboratory (OWOL) Campaign organized at CSIR – IITR since 24 Feb 2023. Sri Indrajeet Singh, IAS, Municipal Commissioner, Lucknow Municipal Corporation was the chief guest for the event. Awards were also given to the prize winners of the Research Scholars Poster Presentation Competition that was held as a part of the OWOL Celebrations on 27 Feb 2023. Also, participants of the three-day CSIR – IITR and NABL joint training programme on Analysis of Pesticide Residues in Fruits and Vegetables were felicitated by the Chief Guest. Event was concluded on 3<sup>rd</sup> March, 2023.

- **CSIR-ITD**

- Organized Virtual Meeting of ISTADS with Mexican Foreign Affairs and Hon'ble Minister Dr. Jitendra Singh on 4th March 2023.
- Organized International Women Day on 9th March at NPL Auditorium.

- **CSIR-NBRI**

- Organized a 'Two-day Pushp Krishi Mela and Bougainvillea Festival' under CSIR Floriculture Mission during March 19-20, 2023. More than 500 individuals including farmers and entrepreneurs across the country participated in the programme. More than 10 lakh planting materials were distributed to the farmers. CSIR-NBRI showcased more than two dozen of Bougainvillea varieties developed by the institute.
- Celebrated International Women's Day on March 10, 2023. Dr. Radha Rangarajan, Director, CSIR-CDRI, Lucknow was the chief guest of the function and delivered the lecture on Gender and science: Navigating



the intersections. On this occasion the institute also organized a Yoga Camp for the women employees of the institute on March 03, 2023.

- **CSIR-NCL**
  - Organized the "Stakeholders Meeting on NMR Testing of Honey @ CSIR-NCL " on 13th March 2023 with participation from all over India.
  - NET-Pre meeting organized at NCL during 4-7th March; 21 professors from IIT/IISER attended the meeting.
- **CSIR-NEIST**
  - One Week One Lab Event was organized at CSIR-NEIST from 18<sup>th</sup>March to 24<sup>th</sup>March 2023.
- **CSIR-NIIST**
  - One Week One Lab Event was organized at CSIR-NIIST from 13th March 2023 to 18th March 2023.
- **CSIR-NML**
  - Women's Day Celebrations at CSIR-NML the occasion was celebration with many programs. A medical test camp was organized for the Janitorial and other Contractual female staff at the lab. In the main function distinguished ladies from various fields were felicitated and a Fun and Food fair was organized for staff and staff-families.

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

- **CSIR-CFTRI**
  - Consul General of France Mr. Thierry Berthelot and Dr. Francois-Xavier Mortreuil, Attache for Science and Academic Cooperation, Embassy of France – Institute Francais visited the Institute on 9th March 2023.
- **CSIR-CIMFR**
  - Shri Sanjay Kumar Singh, Director Technical, BCCL as a Chief Guest of Inaugural of the Skill Development Programme on "Underground Excavation Techniques" on 13th March 2023
- **CSIR-IHBT**
  - Hon'ble Chief Minister of Himachal Pradesh, Shri Sukhwinder Singh Sukhu, visited on 08.03.2023. Dr. Vipin Hallan, Senior Principal Scientist welcomed the Hon'ble Chief Minister. He interacted with scientists of the institute and visited the Tulip garden and appreciated the same. He discussed expansion of Tulip cultivation and bulb production in suitable areas of the state and took keen interest in other products developed by CSIR-IHBT.
- **CSIR-IICT**
  - Institute conducted One Week One Lab (OWOL) program from 7-12th March 2023. Dr. Jitendra Singh, Hon'ble Minister of Science & Technology graced the occasion as the Chief Guest.
  - International Women's Day (IWD) was celebrated on 8th March 2023. The theme of IWD 2023 was "DigitALL: Innovation and technology for

gender equality". Dr. R. Hemalatha, Director, NIN graced the occasion as the Chief Guest of the event and delivered the lecture. Ms. Rani Kumudini, IAS, Special Chief Secretary, Govt. of Telangana was the Guest of Honour.

- Kisan Mela & Technologies for Society was organized on 9th March 2023. Dr. B. Janardhan Reddy IAS (Retd.), Chairman, Telangana State Public Service Commission, was Chief Guest of the event, delivered the key note address.
- **CSIR-IIP**
  - Visit by AGNII Team of PSA on 12th Feb.2023 at Renewable Hybrid Energy Farm (ReHEF)
- **CSIR-IITR**
  - Sri Brajesh Pathak, Honourable Deputy Chief Minister, Government of Uttar Pradesh was the Chief Guest for the Centenary Celebrations on 03rd March 2023 at CRK Campus, CSIR-IITR, Lucknow
- **CSIR-CLRI**
  - The delegates from Taiwan Footwear Manufacturers Association (TFMA), Taiwan, visited CSIR-CLRI on 13 March 2023 and interacted with Dr. K.J.Sreeram, Director CSIR-CLRI at Triple Helix Auditorium. Director briefed and presented about CSIR-CLRI activities, Research facilities and also training programmes in leather. The TFMA team also visited Shoe & Product Design Centre and CATERS facilities of CSIR-CLRI.
  - Mr. R. Madhan, Director, Indo-German Science and Technology Centre (IGSTC), New Delhi visited CSIR-CLRI on 7 March 2023 to review the ongoing PYRASoL project being carried out at CSIR-CLRI by installing the pilot pyrolysis plant. Dr. S.V. Srinivasan, Senior Principal Scientist explained the process and operation of the installed pilot pyrolysis plant along with the pre-treatment facility. Mr. R. Madhan interacted with Director, CSIR-CLRI and discussed about the ongoing and future R&D projects with IGSTC.
- **CSIR-NAL**
  - Lt. Col. Gil Elmalem Dy. DA and R&D Attache, Embassy of Israel in New-Delhi visited on 28-March, 2023
- **CSIR-NBRI**
  - Hon'ble State Minister of Agriculture, UP Government, Shri Baldev Singh Aulakh, visited on the occasion of valedictory function of Two Day Pushp Krishi Mela and Bougainvillea Festival on March 20, 2023. He also felicitated progressive farmers.
- **CSIR-NCL**
  - Dr. Jeremy Burrows, (Vice President, Head of Drug Discovery, Medicines for Malaria Venture, Geneva, Switzerland) visited on 3 March 2023 and he delivered a lecture on "Antimalarial Medicinal Chemistry". Prof. Rene M. Koenigs (RWTH Aachen University, Germany) delivered

a lecture on 10 March 2023 on Enabling tools for CH functionalization. Similarly, Prof. Biplab Maji, IISER-Kolkata delivered a lecture on 9 March 2023 on " Proximity and interlocking in photoredox/Nickel Dual catalysis; Dr. Jesse Dambacher (Valvolin Global R&D, USA), Dr. Ed Murphy (Valvolin Global R&D, USA), visited our laboratory for a discussion about collaborative projects.

- **CSIR-NIIST**

- Union Minister of State Shri Prahlad Singh Patel visited during which he observed the food processed products produced by the institute in collaboration with the Ministry of Food Processing Industry.
- Scientists discussed with Dr.Jelfina C Alouw, Executive Director, International Coconut Community, Indonesia on collaboration in capacity building, international standards and policy formations on 3rd March 2023
- Secretary, DSIR and Director General, CSIR inaugurated the One Week One Lab program at CSIR-NIIST, Pappanamcode Thiruvananthapuram in the presence of Prof. Javed Iqbal Chairman, Research Council, CSIR-NIIST, Thiruvananthapuram, Dr. C.Anandharamakrishnan (Director, CSIR-NIIST). Various technology transfers and MoUs were signed.
- Hon. Food and Civil Supplies Minister, Government of Kerala, Shri. G.R Anil visited CSIR-NIIST and attended the #OWOL program and the Millet Festival.
- Hon. Minister for Agriculture, Shri. P. Prasad visited CSIR-NIIST and attended the #OWOL program and the Millet Festival.
- Former Governor of Mizoram and senior BJP leader Shri. KummanamRajasekharan at the ongoing #OWOL program and Millet Festival organized by CSIR-NIIST at its campus at Pappanamcode
- Renowned actor Shri. Krishna Kumar visited #OWOL program and Millet Festival organised by CSIR-NIIST at its campus at Pappanamcode, Thiruvananthapuram.

## **COVID related developments/research**

- **CSIR-CECRI**

- As part of ongoing CSIR-COHORT Project, i.e., "Phenome India-CSIR Health Cohort Knowledgebase (PI-CHeCK)", project coordinator(s) from CSIR-IGIB, New Delhi and CSIR-CCMB, Hyderabad visited CSIR-CECRI, Karaikudi and delivered a lecture on "Benefits of CSIR COHORT Study".

- **CSIR-IHBT**

- Finalizing sampling transfer of remaining RT-PCR kits and sending samples for sequencing purpose and coordination for sample relocation.

- **CSIR-IIIM**

- Tested 532 samples for COVID-19 at Kargil centre and 239 samples at Leh centre using RT-PCR.

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

- **CSIR-HRDG**

- AKAM banners, posters and website links were updated on the CSIR-HRDG & SSB Prize Website.

## **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 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**

- 25 in-house R&D units of industries were granted recognition as well as registration certificates.
- 19 in-house R&D units of industries were granted renewal of recognition and 06 were granted renewal of registration certificates.

### **Scientific and Industrial Research Organisation (SIROs)**

#### **Recognition/ Registration and renewal of SIROs**

- 11 SIROs were granted recognition and 06 were granted registration certificates
- 54 SIROs were granted renewal of recognition and 29 were granted renewal of registration certificates.

### **Public Funded Research Institution (PFRIs)**

#### **Registration and Renewal of PFRIs**

- 01 PFRI was granted registration certificate.
- 01 PFRI was granted renewal of registration certificate.

## **Fiscal Incentives for Scientific Research**

- 02 industries were approved for issuance of form 3 CM and 42 industries were approved for issuance of extension of 3CM under Section 35(2AB) of IT Act for weighted tax deduction.
- 13 reports in form 3CL submitted to CCIT(E) under Section 35(2AB) of IT Act for weighted tax deduction on industrial R&D involving a total amount of Rs.3177.75 Crores.

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 (CRTDH) for use by entrepreneurs and industries and (iv) Access to Knowledge for Technology Development and Dissemination (A2K+) wherein studies and conferences in upcoming 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) :**

Four new projects were sanctioned and one project was successfully completed during March 2023.

### **Scheme CRTDH:**

Fourth Project Guidance cum Review Committee (PGRC) meeting of CRTDH established at CSIR- Central Electronics Engineering Research Institute (CEERI), Pilani was held on 13<sup>th</sup> March, 2023. The committee reviewed the achievements of the CRTDH and its role in addressing the MSME needs since inception, outcome on each of the project objectives for the culmination of project and future directions in preparing the closure report.

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

Following studies were supported under A2K+Studies program of DSIR :

- Under A2K+ studies sponsored project “Techno-commercial assessment of TRL-6 and above technologies developed in India in academia, research labs and industry”, a roundtable on 28<sup>th</sup> March, 2023 on “Current technology landscape & futuristic trends in the domains of Energy and Transportation” was organized by FITT, IIT Delhi.
- A study entitled “A report on ICT tools catering to a wide range of learners, including children with special needs” has been supported to The Symbiosis Institute of Management Studies, Constituent of Symbiosis International (Deemed University) Pune .The duration of the study is 12 Months.
- A study entitled “Techno-commercially Optimized Waste Management System Based on SMART Trash Bin” has been supported to Academy of Technology, Hooghly, West Bengal. The duration of the study is 12 Months.

### **A2K+Events:**

Following events were supported under A2K+Events program of DSIR :

- An event entitled “Opportunities for Technology Upgradation for MSMEs in the Engineering Sector” was organized by EEPIC India (formerly Engineering Export Promotion Council) from 16.03.2023 to 18.03.2023 to deliberate on Emerging Technological Breakthroughs in engineering manufacturing which are likely to bring significant impact in the future markets, Disruptive Technologies, New Technological Markets – Hi Tech Manufacturing, Smart Manufacturing, Energy Efficiency, Waste Management, Sustainable Transportation & E- Mobility.
- “International Conference on Current Technologies and Opportunities in Biosciences (CTOB-2023)” was held from 27.03.2023 to 29.03.2023 which was organized by Department of Biotechnology, College of Agriculture, Karekere, Hassan, Karnataka (College Under University of Agricultural Sciences (UAS), Bangalore). It effectively addressed & disseminated information on Plant Biotechnology, Animal Biotechnology, Microbiology, Molecular Biology, Bioinformatics, Remote-Sensing in Agriculture & Forestry, Usage of Drones in Agriculture, AI in Agriculture from various parts of Country, East Africa, Sudan, Egypt. The conference sensitized about the importance of use of newer & applied technologies in Biosciences.
- An event titled “International Conference on Artificial Intelligence of Things” was supported to National Institute of Technical Teachers Training & Research (NITTTR), Chandigarh which was held from 30.03.2023 to 31.03.2023 at NITTTR, Chandigarh. The workshop aimed to bring together leaning Academicians, Scientists, Researchers and Research Scholars to exchange and share their experiences and research on all aspects of Artificial Intelligence application in IoT in the field of Industrial and Consumer Electronics, Smart Grid and handling of Big Data. It also provided a premier interdisciplinary platform for researchers, practitioners, and educators to present and discuss the most recent innovations, trends, and concerns as well

as practical challenges encountered and encountered and solutions adopted in the fields of AI algorithms implementation in IoT Systems. About 100 participants comprised of Scientists, Industry experts, Scholars, attended the conference. Under the Conference, presentation was made by the domain experts and scientists.

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

- 'DigitAll: Innovation and Technology for Gender Equality' program was organized to celebrate and to mark International Women's Day under the TDUPW Program of DSIR. During the event invited speakers shared their efforts/platforms/programs and success in increasing accessibility of digital technology and marketing opportunities to women supporting their goals and achieve success. A panel discussion was also hosted during the event where experts expressed their insights and experience on technology and gender equality.
- Following two new projects were supported under A2k+TDUPW program of DSIR :
  - i) A project entitled "Livelihood Improvement of Women through Skill Development in Ornamental Fish Farming with Special Emphasis on Production of Attractive & High Quality Ornamental Fishes" was supported to Tamil Nadu Dr. J. Jayalalithaa Fisheries University, Nagapattinam, Tamil Nadu for 2 years.
  - ii) A project entitled "Livelihood Enhancement for Resource Poor and COVID-19 Victim Families Women and Girls through Skilling and Enterprising" was supported to Coastal Voluntary Network (CVN), Tenali, Guntur, Andhra Pradesh for 2 years.
- 432 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.3901.46 Lakhs during March, 2023.
- Sale of items worth Rs.10064.23 Lakhs was realized during March, 2023.

### **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.

- National Research Development Corporation (NRDC) has been assigned technology on 'Validation of lateral flow based rapid assay for the differential sero-diagnosis of Mycobacterium tuberculosis complex (MTBC) infection in animals' by GLA University, Mathura; 'Adjustable Tapered Vice' by MLR Institute of Technology, Hyderabad; 'Bioadhesive patch for buccal/ sublingual delivery of Insulin' by Central University of Rajasthan and 'Ammonia gas sensor ( visual color change type)' by SN Bose centre for Basic Sciences, Kolkata. NRDC has licensed technology on 'Dipping Oil Formulation for Grapes' to M/s Kisan Agro cold House, Maharashtra ; 'Instant ragi muddemix' to M/s Ancestry millets ; 'Tamarind Juice Concentrate', 'Tamarind Powder and Green Tamarind Spice Mix' and 'Green Tamarind Spice Mix ' to M/S Yallas Technology Solutions (OPS) private Limited ; ' Saline Water Lantern' to M/S IMEX Overseas and M/S Amit Biotech Private limited, during March 2023.
- NRDC has collected premia of Rs.1.71 Lakhs and royalty of Rs. 14.35 Lakhs from respective technologies during March, 2023.

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