

No. DSIR/MS/2022/09
Government of India
Ministry of Science & Technology
Department of Scientific & Industrial Research
MONTHLY SUMMARY FOR THE CABINET
(For the month of **September, 2022**
(Part-I Unclassified))

Major achievements during the month of September, 2022:

Council of Scientific & Industrial Research (CSIR)

New Technologies/Process Development/Transferred

- **CSIR-CECRI** developed the following:
 - Technology for carbon-coated lithium ion phosphate as high rate cathode material for lithium ion battery.
 - Technology for carbon coated sodium vanadium phosphate as high-rate cathode material for sodium ion battery.
- **CSIR-CFTRI**
 - Transferred technology for Nutrachikki (3 formulations) to M/s Mysore Organic Tree, Mysore.
- **CSIR-CMERI** developed the following technologies:
 - Retractable Roof Polyhouse.
 - AC powered, intelligent, remote controlled UVC-LED Sterilizer Unit.
 - Concrete [M20 to M25 Grade] utilizing Legacy Waste with complete replacement of natural sand.
- **CSIR-NCL**
 - Prepared Azelaic acid process technology document for 10 kg/h capacity consisting of mass balance, energy balance, design of tubular reactor, design of wiped film evaporators, design of condensers, CSTR Design and solvent collection tanks, etc. The complete technology package was submitted to the Godrej Industries Ltd. (Chemicals) on 26th September 2022.
- **CSIR-CSIO** developed the following
 - Colorimeter device for measurement of water and soil parameters
 - Phase Shifting Fizeau Interferometer.
- **CSIR-CSMCRI**
 - Developed a process for the selective extraction of r-phycoerythrin from red seaweeds by biorefinery pathways.

- Transferred the Technology/knowhow process for preparation of Liquid Seaweed Plant Bio-stimulant (LSPB) from brown algae – Sargassum to M/s CM Biotech, Rajkot.
 - Transferred the Technology/Knowhow for production of Sap from Kappaphycus alvarezii and its application to M/s Marinelixirs, Tuticorin, Tamil Nadu.
- **CSIR-IIP**
 - Developed new polymeric products from petroleum refinery streams such as light cycle oil, heavy gas oil, light coker gas oil, heavy sulfur light cycle oil, light gas oil and one crude oil.
 - Synthesis of schiff base functionalized DMC catalyst for polyether polyol and polyether carbonate polyol synthesis.
 - Ethanol to ethylene conversion was performed with >98% selectivity and conversion.
 - Developed Technology for producing biodiesel from Used Cooking Oils/Non-edible Oils and was transferred to KNP Arises Green Energy Pvt Ltd Jaipur, Rajasthan
 - Technology Know-how on Improved Jaggery Making Plant was transferred to M/s Hastinapur Gud Udhyog, Meerut, UP.
- **CSIR-NAL**
 - Transferred the Solid Oxide Fuel Cell -Single Cell technology for power generation to M/s.VB CERAMIC CONSULTANTS,Kottivakkam, Chennai.
- **CSIR-NIIST**
 - Transferred the technology for manufacturing biodegradable tableware from agro waste to Venki Biodegradables Private Limited, Ernakulam.

Collaborations/Agreements/MoUs Signed (National)

- **CSIR Headquarters & Units**
 - CSIR signed MoU with Royal Society of Chemistry (RSC) on 22 September 2022, committing to work together on the CSIR's Jigyasa programme.
- **CSIR-CDRI**
 - Signed MoU with AIIMS Rishikesh on 07-09-2022 for Identification of molecular therapeutic target leading to development of chemo-resistance in non-GC DLBCL patients in India.
 - Executed a sponsored agreement with Cadila Pharmaceuticals Limited, Ahmedabad on 12-09-2022 for Genetic characterization of rats and mice from breeding colony of Candila.
 - Signed MoU with IIT, Delhi on 14-09-2022 to promote institutional linkage and to explore other avenues for possible collaboration.

- Signed MoU with Cipla Foundation, Mumbai on 19-09-2022 to support to CSIR-CDRI-Centre for Science Outreach and Research under corporate social responsibility.
- **CSIR-CIMAP** signed agreements with:
 - Tata Institute for Genetics and Society (TIGS) to Facilitate intense mutual academic interactions and collaborations that synergize the mandate, benchmarks and deliverables of both parties.
 - MahayogiGorakhnath University Gorakhpur for joint collaboration and mutual benefits involving faculty exchanges for higher degrees, research, lectures, trainings and discussions.
 - Maharni Lal Kunwari (P.G.) College, Balrampur to provide short term training to students, research and faculty member and share laboratory facilities and testing of samples.
- **CSIR-CIMFR**
 - Signed tripartite agreement with Western Coalfields Limited, Nagpur and GMR Warora Energy Limited, Mumbai for Coal Sampling Work on 08-09-2022.
- **CSIR-CMERI**
 - Signed License Agreement on transfer of Inter-row Rotary Cultivator for wide row crops technology to M/s DAJI Industries Pvt. Ltd., Maharashtra on 12.09.2022.
- **CSIR-NCL**
 - Collaboration initiated with the group of Prof. Per Zetterlund (School of Chemical Engineering, University of New South Wales, Australia) to develop supramolecular polymers featuring our recently developed Nature-inspired Janus G-C nucleobase self-assembling system.
- **CSIR-CSMCRI**
 - Technical Services Project Agreement signed with IIT Ropar for services towards the supply of one electro-deionization (EDI) unit (capacity: 50 LPH)
 - Technical Services Project Agreement signed with Shanro Key Chem Ind Pvt. Ltd., Bhavnagar for Report on the environmental monitoring and assessment of surface water, ground water and soil.
- **CSIR-IHBT**
 - Signed MoU to join hands for the cause of promotion of quality research and high-end science with Sardar Patel University, Mandi on 05.09.2022.
 - MoU for the purpose of increasing farm income, livelihood promotion and rural development in Himachal Pradesh with Directorate of Horticulture, Government of Himachal Pradesh Navbahar, Shimla (HP) on 21.09.2022.

- Agreement under 'Chief Minister Startup Scheme' in HP for Development of Plant based digestive stimulant for human gut health on 15.09.2022.
- Technology Transfer Agreement for making herbal incense cones and sticks from temple waste flowers with Jagriti Self Help Group, Kangra (HP) on 21.09.2022.
- **CSIR-ICT** signed the following MoUs:
 - Isolation and characterization of saponins from Shatavari (*Asperagus recemosus*), Waleria Healthtech Private Limited, Hyderabad.
 - Feasibility studies for TOC Removal from high TDS effluent, TGVSR AAC LIMITED, Kurnool, Andhra Pradesh.
 - Evaluation of catalysts for Vapor phase ammoxidation and isomerization reactions, Aarti Industries Limited (AIL), Mumbai
 - Evaluation of catalysts provided by AIL for development of process for preparation of suggested benzotrifluorides and study of Balz-Schiemann reaction for preparation of suggested fluorobenzene derivatives, Aarti Industries Limited (AIL), Mumbai
 - Structural confirmation and impurity profile of Pyrazole group intermediate (agrochemical intermediate), Shanmukhaagritec limited, Hyderabad.
 - Consultancy in setting up flow chemistry lab at USP site, United States Pharmacopeia (USP) – India, Hyderabad.
- **CSIR-IIP**
 - MoU was signed with Air India Limited, Air Asia India, Tata SIA Airlines Limited, CSIR-IIP and Tata Participating Companies to explore working together for a potential collaboration on Single Reactor HEFA Technology for Drop-in liquid Sustainable aviation and Automotive Fuel (DILSAAF) and also other areas such as Vacuum swing adsorption process for the up-gradation of raw biogas to pipeline quality bio-methane, Room Temperature Biodiesel Process, Conversion of Waste Plastics to Fuels and Petrochemicals, Valorization of Tea and Coffee waste, EV Retrofit and other areas of mutual interest.
- **CSIR-NEERI**
 - MoU was signed with Chandigarh Municipal Corporation, Chandigarh for Co-operation work together towards environmental protection, pollution prevention and control through need-based research, knowledge dissemination, training and capacity building in areas like water & wastewater treatment, sewage, solid waste management, air pollution control etc.
 - An Agreement was signed with Chandrapur Municipal Corporation (CMC) for identify the tentative area requirement and convey to CMC.
- **CSIR-NIIST** signed the following MoUs with:

- Venki Biodegradables Private Limited, Ernakulam for manufacturing biodegradable tableware from agro waste
- Institute of Bioresources and Sustainable Development, Imphal for Bioresources development and their sustainable use through biotechnological interventions for the socio-economic growth of the region
- **CSIR-SERC**
 - MoU was signed with NTPC for Condition assessment of civil structures in NTPC power stations situated at different parts of the country.
- **CSIR-TKDL**
 - Access Agreement signed with Institute national de la propriété industrielle (the National Industrial Property Institute), France.

Patents Update

Patents Filed		Patents Granted		Patent Prosecutions	
India	Abroad*	India	Abroad*	India	Abroad*
13	19	20	07	36	44

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

High impact S&T services offered

- **CSIR-CDRI**
 - Sophisticated Analytical Instrument Facility: Provided service for analysis of sample by IR, Mass, NMR and EM.
 - Common Research and Technology Development Hub (CRTDH): Provided analytical services, technology assessment services, or consultancy/assistance in regulatory filings in India and the European Union to four MSMEs in the Pharmaceuticals sector
- **CSIR-CSIO**
 - NIR testing of 104 samples was performed for Advanced System Laboratory of DRDO during 12-16 September, 2022. Under these services, several types of fabric materials were tested with spectrophotometric technique.
- **CSIR-CSMCR**
 - Successful demonstrations for (i) K-SAP (500 kg fresh weight capacity), (ii) semi-refined carrageenan (250kg dry weight capacity) and (iii) agar (25 kg dry weight capacity) were given to the Fisheries Officials at the Seaweed Processing Plant, Fisheries Building, Mandapam during 1st to 7th September, 2022. The seaweed processing plant is designed, installed and commissioned successfully by CSIR-CSMCR scientific team. These activities were part of the project entitled "Empowerment in seaweed cultivation and by-product development in Ramanathapuram

district", funded by the Department of Fisheries, Government of Tamil Nadu.

- **CSIR-IHBT**
 - Process development for 5-hydroxymethylfurfural (5-HMF) synthesis from carbohydrates.
 - Phytochemical Investigation of medicinal plants which results in the isolation of 8 bioactive compounds from *Swertiachirayita* and *Thalilictrumfoliolosum*.
 - Validation of developed analytical methods for *Juglansregia* and *Caryaillinoensis*.
 - Mechanistic studies of anthocyanins with co-pigments
 - Flow cytometry and cytotoxicity analysis of samples.
- **CSIR-IIP**
 - Three Experiments of Hybrid Pitch Production with different Coal Tar and Petroleum feed compositions under the Project 'Development of Coal Tar – Petroleum Hybrid Pitch'. Hybrid Pitches prepared were characterized for their important physico-chemical characteristics. Testing services offered under various ongoing projects of the institute, industrial clients and AcSIR activities. CSIR-IIP also developed an efficient photocatalytic approach for the first time for the synthesis of 2-hydroxy benzaldehydes selectively from the reaction of phenol with CO₂ in acetonitrile solvent under visible light irradiation at room temperature and atmospheric pressure.
- **CSIR-CMERI**
 - Visual Inspection and health assessment of selected structures at NTPC Bonagaigaon for Bongaigaon Thermal Power Project, Kokrajhar, Salakuti, Assam.
 - Condition assessment and service suitability for Ram Sarup Industries Ltd, Kharagpur(51.5 TPH & 35TPH).
- **CSIR-NAL**
 - Low RCS electronic warfare antennas for stealth platform - ARDB, Delhi
 - Developed & supply of MATLAB algorithms for infrared sensor-based missile approach & warning system(MAWS) – IRDE
- **CSIR-NEERI**
 - Performance Evaluation of ESP at 3X250MW units of New Parli Thermal Power Station, Parli- Vajinath Maharashtra.
 - Bioaccumulation & Bio magnification study in and around low laying area filled with Fly ash near Adani Power Maharashtra Limited.
 - Regeneration and assimilation of Natural Flora to develop green belt in safety zone of the mining lease area at Nagpur, Jodhpur, Rajasthan, using phyto hydraulic management system.

- **CSIR-NML**
 - High end scientific services provided to M/s.Reliable Test House, Lucknow, M/s.Jindal Steel &Power, Jharkhand, M/s.Sri Ram Scientific Co., Uttar Pradesh, M/s.Landmark Material Testing and Research.
- **CSIR-SERC**
 - Performance evaluation of new category of wheels for earthmovers in mining applications for M/s. Wheels India Limited, for carrying out performance evaluation of a 120 T payload truck wheel assembly under static loading.

Outreach Activities (Jigyasa, Skill Development, and others)

- **CSIR-HRDG**
 - CSIR-CEERI organised Jigyasa lecture on *meinbhibanukalam*, at MK Memorial Senior Secondary School, Sikar. Rajasthan on 2nd September, 2022. More than 1700 students participated.
 - CSIR-NBRI organised 'Nurturing Young Minds for a career in Science in collaboration with NASI on 7th September, 2022.
 - CSIR-NEIST organised two different Scientist – students connect programme on 7th September, 2022.
 - CSIR-IMMT organised Lab visit to 210 students who are toppers from different schools on 8 September 2022. The program was jointly organised with SAMBAD Digital under Jigyasa.
 - 8th September, 2022 CSIR NML team visited UPG +2S B.P.M. School Burma mines ,Jharkhand.
 - As a part of Prof. Yelavarthy Nayudamma birth centenary celebrations, JIGYASA event was conducted by CSIR-CLRI on 3rd September, 2022 at Z P School, Thurumella, Guntur District (where Prof.Nayudamma completed his school education).
 - On 8th September,2022 Jigyasa programme was organized on Solid waste management followed by interactive quiz. 44 students from KV (CRPF), Durgapur and three teachers attended the programme.
 - On 8th September 2022, CSIR-IGIB hosted students (and their guardians) from schools across the nation.
 - CSIR-NML organized lab visit for St. Peter's English High School Karandih students on 13th September, 2022.
 - Inter School Science Quiz was organised by CSIR-SERC on 15th September, 2022.
 - Workshop and orientation programme on Global Battery Experiment was organised by CSIR-HRDG for all CSIR laboratories on 16th September, 2022. The Workshop was conducted by RSC.
 - RSC's Global Battery experiment was conducted on 22nd Sept, 2022 across 30 CSIR laboratories with more than 2000 students & 150 teacher's participation.

- **CSIR-4PI**
 - 43 students & 2 faculties from B. Tech. Programme in Computer Science & Engineering, Vellore Institute of Technology, Tamil Nadu, visited CSIR-4PI campus on 09-09-2022, the Journey of Supercomputer at CSIR-4PI was explained.
- **CSIR-CDRI**
 - Participated in Student Motivation program, themed, "Scientists as Teachers" at Institute of Professional Schooling and Research, Unnao as a part of celebration of World's Pharmacists day on 25th September, 2022.
- **CSIR-CECRI**
 - Conducted the following Skill Development Training Program:
 - One-week Training Program on "Biosensor: Design and application" between 12.09.2022 - 16.09.2022.(31 participants)
 - Three-dayUp-Skilling training workshop on "Emerging Solar Energy Technologies: Fundamentals to Device Fabrication" between 15.09.2022 - 17.09.2022.(52 participants).
 - One-week Training Program on "Chromatography and Thermal Analysis" between 19.09.2022 - 23.09.2022. (37 participants).
 - One-week Training Program on "Photolithography based Micro-fabrication of Sensors" between 19.09.2022 - 23.09.2022. (31 participants)
 - DST- SERB Sponsored - Two days Workshop on "Additive Manufacturing: A Technology of Rapid Customization" conducted between 20.09.2022 - 21.09.2022. 41 participants participated in this programme.
 - Orientation Programme for school on 05.09.2022. (30 studentsparticipanted)
 - Lab@schoolprogramme - 5 Scientists and 9 AcSIR students visited the following 4 schools in Tamil Nadu.
 - Two days Training to INSPIRE school students from Sivagangai& Pudukkottai District schools held on 15 -16 September 2022. 15 studentsparticipanted.
 - Jointly organized an Elocution competition for College Students with Dr. Umayal Ramanathan College for Women, Karaikudi on 21.09.2022 sponsored by Ariviyal Sangam of VIBHA. 33 student participated.
- **CSIR-CFTRI**
 - Under the JIGYASA program, several programmes commemorating National Nutritional week, World Ozone Day, were organized. Around 820 students and 68 Teachers/Volunteers participated in the programme. Under Skill Development Programmes, the following programmes were organised:

- Workshop on Entrepreneurship Development in Spice Processing in hybrid mode was held on September 20, 2022. (78 participants)
- Online workshop on Post harvest Technologies for Horticultural Crops held on September 30, 2022. (54 participants).

- **CSIR-CGCRI**

- Two Skill development training programmes were conducted on Advanced instrumental analysis for chemical characterization of glass, ceramics and allied materials by modern instrumental and classical methods of analysis for chemical characterization of glass, ceramics and allied materials from 6-9 and 20-23 September, 2022 respectively. Total 16 and 15 nos. of students participated in these programmes respectively.

- **CSIR-CIMAP**

- Two training programmes on cultivation of medicinal and aromatic plants on 1-2, September, 2022 and 13-14, September, 2022 were organised for 59 and 112 farmers respectively, the programmes were sponsored by Department of Horticulture and Food Processing, Uttar Pradesh, Lucknow.
- A training programme on cultivation, primary processing and marketing aspects of medicinal and aromatic plants during 20-22 September, 2022 was organised for 28 officers of Jharkhand State livelihood promotion Society.
- An awareness programme on cultivation of medicinal and aromatic plants on 16th September, 2022 was organised for 26 farmers of Rajagaon, Kondagaon, Chhattishgarh.
- Three training programmes on making incense sticks and fragrant cones from offered flowers were organised on 06, 12, 17 September, 2022 at CSIR-CIMAP, Lucknow, Block Development Office Mishrikh, Sitapur and Kalli, KVK Varanasi UP. In these programmes 157 candidates participated.

- **CSIR-CMERI**

- The following Skill Development and Students Programmes were organized:
 - Analysis & Assessment of Water & Waste Water using Sophisticated Instruments on Sep 01-30, 2022.
 - DST-SERB High-end Workshop on Present and Future Trends of Electric Vehicle Technologies on Sep 07-13, 2022.
 - Municipal Solid Waste Management on Sep 13-15, 2022.
 - Plastic Waste Disposal and Fuel Recovery - Characterization through Gas Chromatography on Sep 21-23, 2022.
 - Summer Practical Training Programme for B.Tech (Agriculture) students on Sep 05-30, 2022.

- Lab visit for Showcasing of technologies of CSIR-CMERI, followed by lecture on “Solid Waste management” and onsite Demonstration of the same for the students of KV CRPF, Durgapur on Sep 08, 2022.
 - Two outreach programmes for showcasing of technologies of CSIR-CMERI followed by interactive quiz were organized at Bakernagar High School, Raniganj and Madavpur Mahesh Vidyamandir, Andal on Sep 14, 2022 and Sep 15, 2022 respectively.
 - Under ATL mentoring programme demonstration of the Municipal Solid Waste Management plant for ATL School, Jawahar Navodaya Vidyalaya, Durgapur where Scholars of Vigyan Jyoti participated on Sep 24, 2022.
 - Dr. Biswajit Ruj delivered a lecture on “Water quality Parameters & their impact on health” under visits of Scientist to school on Sep 29, 2022.
- **CSIR-NCL**
 - Under skill development program OCD is conducting 2 months training on Synthetic Organic Chemistry from 10th August to 10th October, total 15 Master students participated from Maharashtra, Kerala, Andhra Pradesh, Assam, Jammu, Gujrat and all over India.
 - An interactive talk was organized for the VIth to XIIth standards school students on 06th July 2022 on online mode.
- **CSIR-CSIO**
 - “Vigyan Mela” organized by Indian National Young Academy of Science (INIAS) in association with the Society for Promotion of Science & Technology in India (SPSTI) and CSIR-CSIO Jigyasa program held at Bir Bangra Rajound, Kaithal, Haryana on 03.09.2022.
 - Conducted a lecture cum interaction session on topic "Fun with Chemistry" under “VigyanPeCharcha” series and a bootcamp session on "Jigyasa Virtual Lab" at KV K area Zirakpur on 17.09.2022.
 - Organized labs /facility visits for around 75 school students from Y.S. Public School on 26.09.2022
 - Teachers Orientation Workshop for 30th State Children's Science Congress – (SCSC) 2022 and teachers training program organized at CSIO on 30.09.2022.
- **CSIR-CSMCRI**
 - Conducted the skill development program entitled “Theory and practical aspects of household solar thermal gadgets” from 5th to 8th September 2022.
 - Organized three training programs under “CSIR Integrated Skill Initiative”
 - Theory and practical aspects of Household Solar Thermal Gadgets (5th September – 9th September 2022)

- Solar Salt production process and quality control aspects (12th September – 23rd September 2022)
- Soil & Water Testing Lab Analyst (12th September – 11th October 2022) – in progress
- **CSIR-IHBT**
 - Under Jigyasa Programme, Officials from CSIR-IHBT visited 5 different schools and motivated about 400 school students and their teachers on 09.09.2022.
 - Lecture were delivered on "Value addition of flowers through dehydration techniques" in two training programs organized at CSIR-IHBT Palampur for Farm livelihood community resource persons (Krishi and PashuSakhi) and Mahila Kisan under Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM) conducted at CSIR-IHBT during (i) 14-15.09.2022 and (ii) 21-22.09.2022.
 - Awareness cum training programme were organized on dehydration technology of flowers at Gram Tatehal, District Kangra under CSIR Floriculture Mission on 9th September, 2022 for 25 women.
 - Conducted awareness cum training programme on dehydration technology of flowers at Paprola, District Kangra under CSIR Floriculture Mission on 28th September 2022. More than 40 women participated in this program.
- **CSIR-IICT**
 - Two-week course on "Analytical Skills Development Course-Global" for 20 participants representing different scientific organizations/institutions from 16 countries was organised during 5th-16thSept 2022 under CSIR-Integrated Skill Initiative. This course was sponsored by The Organization for Prohibition of Chemical Weapons (OPCW), The Netherlands.
 - CSIR-IICT and CSIR-CCMB jointly conducted 'Jigyasa' program at Telangana State Model School, Banswada, Kama Reddy District, Telangana on 21st September 2022. Scientists briefed about JIGYASA program and they demonstrated and provided experiment kits for Mg/Graphite, NaCl cell, biodegradable polymer, DNA extraction from Banana and on adulteration checks in milk etc. They also explained about domestic & industrial water treatment, hydrogen production from waste, and water filtration methods with Models. Nearly 350 children attended the program.
- **CSIR-IIP**
 - Skill Development Training Program on 'Analysis with Elemental, Microscopic and Thermogravimetric Tools' conducted during September 12-23, 2022.

- Lecture on 'EV Charging Infrastructure and vehicle Categorization' was delivered for Training Programme on "Fundamentals of Electric vehicles (EV) and Hybrid Electric Vehicle (HEV)" sponsored by Ministry of Road Transport and Highways (MoRTH), New Delhi. A total of 47 Transport participated the Training Programme.
- CSIR-IIP participated and showcased its technologies at the Kisan Mela-2022 organized at FRI, Dehradun on 7th September, 2022.
- SEFCO 2022, Two-day Skill India training on FTIR and FTNMR to six students.
- **CSIR-NEERI**
 - The following programmes were organized:
 - Programme on Soil Quality Assessment and Land Management was conducted on September 14-15,2022
 - Efficient Operation, Maintenance, Performance and Design of Waste Water Treatment Plants, during September 20-22,2022
- **CSIR-NIIST**
 - CSIR-NIIST designated as one of the nodal labs for 'SwachhSagarSurakshitSagar' programme organized by MoES. CSIR-NIIST team involved in the cleaning activity to create awareness in the society at Kovalam beach on 17th September, 2022
- **CSIR-SERC**
 - Advanced Course on "Microstructural Characterization Techniques and Mix Design of Special Concretes" was held during 14-16 September, 2022. No. of Participants: 25.
 - Advanced Course on "Engineering of Precast Concrete Technology for Mass Housing" was held during 22-23 September, 2022. No. of Participants: 12.

Major Conferences, Seminar/Webinars, Workshops organized

- **CSIR Headquarters & Units**
 - CSIR and its labs participated in "State S&T Ministers' Conclave & Exhibition" at Science City, Ahmedabad on 10-13 September, 2022 and showcased its technologies & exhibits.
 - CSIR Foundation Day was celebrated at CSIR Headquarters and at CSIR laboratories with open day for school children. More than 3000 students visited CSIR laboratories on the day.
 - On the occasion of CSIR Foundation Day, a Leadership meet of CSIR Directors and Heads of CSIR Headquarters with the Hon'ble Minister S&T (I/C) Dr. Jitendra Singh was organized on 26th September, 2022.
 - Start-up Expo, Jammu was organized by CSIR-Indian Institute of Integrative Medicine (IIIM), Jammu and was inaugurated by Hon'ble Minister S&T (I/C) Dr. Jitendra Singh on 30th September, 2022.

- Hindi *saptah/pakhwada* was organised and celebrated at CSIR Headquarters and the CSIR laboratories with various activities, talks and seminars.
- ITD facilitated BRICS S&T Minister Meeting on 27th Sept 2022 on Virtual Platform.
- **CSIR-CBRI**
 - Celebrated 13th Himalayan Day on the theme “Himalaya the Climate Governor” on September 9, 2022. Dr. Kalachand Sain, Director, Wadia Institute of Himalayan Geology, Dehradun delivered a key note address on “Geo-hazards in the Himalaya due to Climate Change and Plausible Mitigation” and Dr. R.P. Singh, Director, Indian Institute of Remote Sensing, Dehradun delivered the lecture on “Space based observations of Himalaya”.
- **CSIR-CECRI**
 - 81st CSIR Foundation Day was celebrated on 27th September, 2022. Prof. G. Ravi, Vice Chancellor, Alagappa University, Karaikudi was the Guest of Honour. The Chief Guest Commodore Amit Rastogi released the Annual Report of CSIR-CECRI 2021-2022 and CSIR-CECRI's Safety Manual during the event.
- **CSIR-IICT**
 - Organized CSIR Foundation Day-2022 celebrations in the institute on 24/09/2022. Padma Bhushan Dr. P. Balaram, Chair Professor, National Center for Biological Sciences, Bangalore and former Director of Indian Institute of Science graced the occasion as the Chief Guest and delivered foundation day lecture titled "Chemistry and Biology in the Age of the Coronavirus".
- **CSIR-CFTRI**
 - Co-organized the 62nd Annual International Conference of Association of Microbiologists of India on Microbes and Society: Current Trends and Future Prospects (MSCTFP-2022), September 21, 2022
- **CSIR-CGCRI**
 - 7th Webinar held on 28/9/2022 at CSIR-CGCRI as part of Celebrations of the International Year of Glass. Lecture by Prof. J. M. Parker, Emeritus Professor, University of Sheffield, UK.
- **CSIR-CIMFR**
 - Organized 73rd Annual Meeting and Symposium of the International Committee for Coal & Organic Petrology (ICCP-2022) from 18-25 Sept, 2022 at New Delhi, India.

- **CSIR-CSMCRI**
 - Workshop on Awareness Generation on Sexual Harassment of Women at Workplace (Prevention, Prohibition & Redressal) Act 2013 was organized on 29 Sept 2022.
 - Workshop on "Essentials of Technology Transfer" was organized on 9th Sept 2022.
- **CSIR-IHBT**
 - Visit of farmers of Lahaul valley CeHAB, Ribling, Lahaul-Spiti in collaboration with HP State Horticulture Department on 16.09.2022.
 - Programme on "Heeng, Kesar, Pushpropansmagriva Compost Booster VitranKaryakram" was organized at CeHAB, Ribling, Lahaul-Spiti on 19.09.2022.
 - Two days "comprehensive training on sustainable harvesting, processing and sustainable cultivation of Medicinal Plants" (sponsored by SECURE Himalaya Project through Forest Department, Lahaul Forest Division) was organized at CeHAB, Ribling and KVK Kukumseri, Lahaul-Spiti during 28-29 Sept 2022.
- **CSIR-IIP**
 - As a part of Hindi Mah Celebrations, Hindi *SahityaSammelan* was organized on 29th Sept. 2022, Prof. Roop Kishore Sashtri, Vice Chancellor, Gurukul, Kangri, Haridwar graced the occasion as Chief Guest.
- **CSIR-NEERI**
 - Industrial Waste and Wastewater Management for Grossly D20Ni Industries (GPIs) in the National Capital Region of Delhi, September 28-30,2022
 - National Hindi *Sangosthi* on *Samakalin Hindi Sahitya mein paryavaran vimarsh*, on September 28.
- **CSIR-NML**
 - Hindi Week Celebrations-2022: Theme: Importance of Hindi language in the development of the nation, lecture on Breast Cancer by Dr. Natasha Das, Cofounder and Director of Hazlo Consultancy Pvt. Ltd.
- **CSIR-SERC**
 - Stakeholders Meet for proposed project titled "Innovative Structural Systems, Integrity Assessment and Structural Health Monitoring of High-Speed Railway Bridges" was held on 22 September 2022.
- **CSIR-NIIST**
 - Institute celebrated Hindi *Pakhwada* from 14th September to 29th September 2022. On the Occasion various programmes/competitions were organized for the Staff members/Research Fellows/ Project Assistants/Contract Staff.

Visit of high-level dignitaries to the Institute/Laboratory

- **CSIR-CFTRI**
 - Visit of French Embassy officials and the CNRS Bureau on September 15, 2022 to introduce the Indo-French Cooperation strategies including funding tools, research opportunities and student mobility
 - Dr. Shankar Balachandran, IFS, Ambassador of India to Suriname, September 19, 2022.

- **CSIR-CSMCRI**
 - Dr P V Lalitha, Chief Scientific Officer, Indo-German Science & Technology Centre New Delhi visited CSIR-CSMCRI Bhavnagar on 6th September 2022.

- **CSIR-NML**
 - Prof. Tanusri Saha-Dasgupta, Director, Satyendra Nath Bose National Centre for Basic Sciences delivered a lecture on CSIR Foundation Day at CSIR-NML.

- **CSIR-IHBT**
 - Dr. Ram Lal Markanda, Hon'ble Technical Education Minister, Himachal Pradesh Government visited to CeHAB at Ribling, Keylong, (HP) as a Chief Guest in Heeng, Kesar, Pushpropansmagriva Compost Booster VitranKaryakram held on 19.09.2022.
 - Organized "Student Seminar Series 2022-6th Edition" in Hybrid mode on the occasion of Teacher's Days. The ceremony was presided over by Honorable DG & Secretary, DSIR, Dr. N. Kalaiselvi. Chief Guest of the function was Prof. S.P. Bansal, Vice Chancellor of Central University of Himachal Pradesh.

- **CSIR-IIP**
 - Dr T Ramasamy, Former Secretary to the Government of India in the Department of Science & Technology graced the CSIR-Foundation Day celebrations as Chief Guest and delivered the Foundation Day lecture on 28th Sept, 2022

COVID related developments/research

- **CSIR-IHBT**
 - COVID-19 samples testing for Kangra district of Himachal Pradesh continued.

- **CSIR-IIP**
 - Installation and commissioning of additional air compressor, vacuum pump, auto change over system and voltage stabilizer for PVSA MO2 plants, deployed at various govt. hospitals across India, is undergoing through CSIR-IIP's designated vendors under PMCARES funding.

- **CSIR-NML**
 - Booster dose of COVID vaccination drive has been organized at the CSIR-NML for employees, wards and others contract laborers. More than 100 people got booster dose vaccine.

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

- **CSIR-CECRI**
 - In commemorating our nation's 75th Independence, *Azadi Ka Amrit Mahotsav* and *CSIR-CECRI@75*, CSIR-CECRI in association with SAEST is organizing a monthly Lecture Series on 'Electrochemical Science and Technologies: A Path Forward to Sustainable Society'. Lectures organized during Sep. 2022:
 - Mr. Amalraj, CEO, Tirame Technologies Pvt. Ltd., delivered the lecture "Performance and safety testing of lithium ion batteries" on Sep. 5.
 - Prof. Dr. K. Kalyanasundaram (Retd.), EPFL, Swiss Federal Institute of Technology, Laussane, Switzerland delivered the lecture on "Can low-cost third generation solar cells provide viable solution to global energy needs?" on Sep. 15.
 - Dr. Anil Kumar, CSIR-NCL, Pune delivered the lecture "Joy in doing Science" on Sep. 28.
 - Dr. Judy Jeevarajan, Vice President and Executive Director, Electrochemical Safety Research Institute, UL Research Institutes delivered the lecture "Advancing Safer Lithium-ion Energy Storage through ESRI Research Projects" on Sep. 30.
- **CSIR-CSMCRI**
 - Organized the webinar on "Tribute to Engineers: Applying Minds to Engineering Solutions" on the occasion of Engineers Day, *Azadi Ka Amrit Mahotsav & CSIR-Jigyasa*. The expert talk was given by Shri Shivaprasad Khened, Former Director, Nehru Science Centre, Mumbai on 15.09.2022.
 - Research scholars (AcSIR) of CSIR-CSMCRI visited different schools of Bhavnagar for CSIR-800, under scientist-student interaction (CSIR-Jigyasaprogram), demonstration, presentation to create awareness and motivation in the science to young minds of school children, and problem solution of solutions.
- **CSIR-IICT**
 - Two-day symposium on Polymers and Advanced Materials for Coatings and Energy (SPACE-2022) was held during 28-29 Sept 2022. It was organised under the aegis of Centre of Excellence on Polymer Coatings sponsored by Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilisers, Govt. of India, New Delhi.

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

- 11 in-house R&D units of industries were granted recognition as well as registration certificates.
- 34 in-house R&D units of industries were granted renewal of recognition certificates.

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

- 03 SIROs were granted recognition and 02 were granted registration certificates.
- 02 SIROs were granted renewal of registration certificates.

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

- 34 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).

Scheme CRTDH:

CRTDH: IIT Gandhinagar – Sixth PGRC Meeting of CRTDH at IIT-Gandhinagar was conducted on 16th September, 2022 on-line through virtual mode. The meeting was conducted to review the progress made in setting up the facilities. DSIR Officials, PGRC Experts, Scientists of IIT Gandhinagar participated in the PGRC Meeting.

CRTDH: IIT Guwahati – IIT Guwahati organized Taiwan-India 2022 Exchange Workshop and Symposium (TIEWS-2022) on September 04-06, 2022 at IIT Guwahati, India with the aim of intensifying the connection of sustainable technology between the two nations. A brainstorming session for the industries as part of DSIR-IITG-CRTDH and also to enlighten them on various schemes of Department of Scientific & Industrial Research (DSIR) was organized.

Scheme A2K+:

A2K+ Events: An event entitled “Conference on Industry 4.0 – An Enabler for Make in India” was organized by PHD Chamber of Commerce & Industry under the A2K+ Events Program in PHD House, New Delhi on 16th September, 2022. The Conference had four Technical Sessions with discussions on Industry 4.0 for Smart Manufacturing, Metaverse & Web 3.0 Technologies for Industry 4.0 and Brainstorming session with Sector Skill Councils for Bridging Skills Gap in Industry 4.0 for creating a Robust Make in India Ecosystem. Many stakeholders like Scientists, Academicians, Industry Representatives, Students, Researchers, MSME's/ Start-up's participated in the conference.

Seventeenth Meeting of Technical Advisory Committee (TAC) was organized on 19th September 2022 to consider 27 new proposals for support. Out of these proposals, TAC recommended 11 proposals for DSIR support.

A2K+ Studies: Knowledge Dissemination Program:

1. DSIR, IIT Jammu & IIM, Jammu under A2K+ Studies program organized a workshop (1-2 September, 2022) with the theme of 'Advancement in Composite Products, Process and Systems (Technology Readiness Level in Indian Context)', where all stakeholders from DSIR, IITs, CSIR, and Industries joined to deliberate upon methodologies for scouting and assessment of composite technologies in some key domains at TRL 6 and above levels and also showcasing of technologies successfully commercialized in material domain.
2. A Seminar on 'Technological Readiness Level and its Application in Food Processing and Agriculture Technologies' was organized by IIT(ISM) Dhanbad under DSIR-A2K+ Studies program on 26th September 2022 at IIT(ISM) Dhanbad. The seminar brought together various stakeholders involved in

developing technology in the field of agriculture and food processing to deliberate on the significance of TRL in the commercialization of technologies and the challenges stakeholders encounter in the commercialization process.

3. Project Guidance cum Review Committee (PGRC) meeting was held on 15th September, 2022 to assess the financial and technical progress and devise roadmap for ongoing project "Performance Evaluation of Advanced Dielectric Materials in Transformers" by NIT, Srinagar. PGRC meeting was chaired by Scientist-G & Head, A2K+ Studies and attended by DSIR officials, Expert members of PGRC from other academic and research institute.
4. A workshop on Techno-Commercial Assessment of TRL 6 and above Technologies was organized by TIFAC under DSIR-A2K+ Studies program at CSIR-IICB, Hyderabad on 23rd September, 2022 in domains of Chemical, Pharmaceutical, Healthcare and Medical Sciences.

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

1. First meeting of Project Review Committee (PRC) of TDUPW Project entitled "Promoting opportunities for Women Empowerment Rejoicing through Traditional Arts/Crafts for Women in Varanasi District" was undertaken on 7th September, 2022 to review the financial and technical progress of project. The project is being supported to Sai Institute of Rural Development, Basani, Varanasi under TDUPW program of A2K+ scheme of DSIR. PRC was chaired by Scientist-G & Head, A2K+ TDUPW and attended by DSIR officials, Expert members of PRC from other academic institute and research institute.
2. **281 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.1501.77 Lakhs during September, 2022.
- Sale of items worth Rs.1742.17 Lakhs was realized during September, 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 licensed technology on 'Auto Adjusted Obtuse Angle Cutting Machine for Silkworm Pupal Separation' to M/s NSTG INDIA KANCHIPURAM during September, 2022. NRDC has been assigned eight technologies by National Institute of Food Technology Entrepreneurship and Management (NIFTEM), Haryana and two technologies by Central Sericultural Research & Training Institute (CSR& TI), Mysore during September 2022.
- NRDC has collected premia of Rs.1.75 Lakhs from respective technologies during September, 2022.
