

**No. DSIR/MS/2019/10**  
Government of India  
Ministry of Science & Technology  
Department of Scientific & Industrial Research  
**MONTHLY SUMMARY FOR THE CABINET**  
(For the month of October, 2019)  
(Part-I Unclassified)

**Ministry/Department:** Department of Scientific & Industrial Research

**Major achievements during the month of OCTOBER, 2019:**

**Key Contributions and Activities of CSIR**

**Whole Genome Sequencing of 1008 Indians**

- Union Minister for Science & Technology, Earth Sciences and Health and Family Welfare, Dr. Harsh Vardhan announced the completion of “whole-genome sequence” of a 1,008 Indians. The project called IndiGen was implemented by CSIR-IGIB and CSIR-CCMB and will widen understanding about one’s susceptibility to genetic diseases. An IndiGenome card and mobile application for researchers and clinicians to access clinically actionable information has also been developed that will ensure privacy and data security, which is vital for personal genomics to be implemented at large scale.

**Green Initiatives of CSIR**

- **Launch of Green Crackers before Diwali:** In response to the increasing crisis of air pollution, Union Minister for Science & Technology, Earth Sciences and Health and Family Welfare, Dr. Harsh Vardhan launched green firecrackers developed by CSIR-NEERI. Various environment-friendly were launched that have reduced particulate emissions by 30 per cent. These fireworks, based on new formulations developed by CSIR, have been manufactured and are available in the Indian market for consumers and sellers. A green logo as well as a Quick Response (QR) coding system has been developed for differentiation of green crackers from conventional crackers that avoids manufacture and sale of counterfeit products. Further, emissions testing facilities for the new firecrackers have been set up at CSIR NEERI and a Raw Materials Compositional Analysis (RACE) facility has been launched in Sivakasi to facilitate manufacturers for testing their raw materials and chemicals. About 530 emissions testing certificates have been issued to fireworks manufactures for new and improved formulations meeting the stipulated guidelines of green crackers.
- In a bid to prevent indiscriminate dumping of plastic waste which is a major source of water and land pollution., **CSIR-IIP, Dehradun** and **Delhi Development Authority (DDA)** have signed an MoU to build waste processing plants to convert plastic into tiles and materials, which can be used for construction of road and produce diesel.

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- Further, towards National Mission Clean Ganga (NMCG), **CSIR NEERI** is preparing a baseline using Geographic Information System (GIS) for entire stretch of Ganga to characterize microbial population. This will address these questions by mapping the microbial community across the stretch of the river using the tool of Metagenomics. Wastewater characteristics will also be assessed on the same site and hence data available will identify the microbial community vis-s-vis water quality. This will serve as a basis for any future monitoring in the river.
- CSIR-NEERI has developed a unique application of Drones Assisted Vertical Air Profiling, “**NEERI-KSHAN-AQ**” with calibrated light weight sensor modules & professional drones. Different sensors can be attached to the drone depending on requirements and payload capacity. New generation sensors and CSIR-NEERI’s expertise in Air Quality Monitoring make this UAV added device a Very Powerful Tool for Environmental Professionals and Agencies. This device can fly in different urban and rural sites to study various air qualities Parameters at different heights.

### Industrial Sector and Patents Update

- Industry meet on ‘Technologies for Aerospace, Electronics, Instrumentation & Strategic Sectors’ has been organised by **CSIR-NAL** where in many labs such as CSIR-CGCRI, CSIR-CEERI, CSIR-CMERI, CSIR-CSIO, CSIR-IIP, CSIR-IMMT and CSIR-NML participated along with more than 100 industries from aerospace & defence manufacturing like BEL, HPCL, Aditya Birla, Reliance Composites, CUMI – Murugappa Group among others.
- CSIR signed a MoU with **NEC Technologies India** (NECTI), a subsidiary of NEC Corporation (TSE: 6701) to collaborate in the development of innovative solutions using big data analytics and High-Performance Computing (HPC).
- Industry Meet on Food Processing (CSIR-YES Bank Initiative) was held at **CSIR-CFTRI** on its Foundation Day. The industry meet brought together Govt. officials from CSIR, CFTRI, NEIST, IHBT, leading industry players like ITC, Sumeru Foods, MTR Foods & many innovative Food and Agri startups. **YES BANK** and CSIR will collaborate to establish research-industry collaboration and develop an enabling ecosystem for skill development & scaling up startups

Patents Filed		Patents Granted		Patents Prosecutions	
India	Abroad	India	Abroad	India	Abroad
12	11	18	18	29	12

### Research Highlights

- **CSIR-CIMAP** has developed hybrid Tulsi that could be cultivated in a 70 days period in various aromatic forms like Paan, Lavender, Lemon and Cardamom. These new varieties will increase the market value and double the farmer’s income.
- **CSIR-IGIB**, New Delhi in collaboration with IIT-Bombay has identified a bacterium, which can clean up the pesticide carbaryl used in India from several years. Carbaryl is known to be toxic to humans and has been banned in many countries. The

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bacteria can also be used to treat wastewater and effluents from industries using or producing carbaryl 1-naphthol.

- Scientists from CSIR-CCMB have deciphered the molecular mechanisms behind cold-induced autoinflammatory responses. These studies may pave way for future treatments for familial cold autoinflammatory syndrome is a condition that causes episodes of fever, skin rash, and joint pain after exposure to cold temperatures.
- CSIR CBRI is contributing to conservation of the Sun Temple at Konark, by working with Archaeological Survey of India (ASI) and has suggested that sand refilling as a solution.
- Researchers from CSIR-NEERI have examined different factors causing damage to paintings in Ajanta Caves. They report that original colour of the paintings is altering due to various microbes and insects and suggest that light sources such as ultraviolet light can be used to tackle the issue.

### CSIR Outreach Programs and Jigyasa

- **CSIR-IHBT**, Palampur organized a seven days training programme on latest advances in bee-keeping for 50 farmers under the Chief Minister Madhu Vikas Yojana and also organised training cum seed distribution program of aromatic crop chamomile (*Matricaria chamomilla*) at village Puthar, Haryana.
- The installation cum commissioning of an improved field distillation unit of 500 kg capacity was conducted for the Bodo tribal farmers under the CSIR Aroma Mission at Kachukata village, Tanakpur (Bodoland), Assam by **CSIR-CIMAP**.
- The installation and commissioning of distillation unit was conducted under CSIR Aroma Mission at Village Jhargaon Talla in Nainital, Uttarakhand; Village Puthar in Panipat, Haryana. The installation and commissioning of distillation unit was conducted by **CSIR-IHBT** Palampur at Leh, Ladakh and at Chirgaon, Rohru in Shimla, Himachal Pradesh
- One-day training cum seed distribution of aromatic crop, chamomile (*Matricaria chamomilla*), was organized by Team **CSIR-IHBT** at Puthar village in Panipat district of Haryana on 1st October 2019. A total of about 35 farmers participated in the programme.
- In outreach events to **promote awareness of S&T and India International Science Festival (IISF)**, 2019 to be held in November, many outreach events were held across CSIR labs. Few of the key ones include Dr. Harsh Vardhan, Hon'ble Minister of S&T, MoES and Health & Family Welfare addressed a press meet and curtain-raiser organized at CSIR-CFTRI, Mysuru. CSIR-NML, Jamshedpur as part of Fifth IISF-2019 celebrations, organized an outreach programme. The thematic choice of this exhibition rests on 'Technologies, products & technological services'. The contributions of CSIR-NML in the context of nation building were showcased in this exhibition under the broad theming viz. 'Mining, Minerals & Materials', 'Engineering & Infrastructure' and 'Ecology & Environment'. CSIR-NCL, Pune organized a curtain-raiser outreach program of IISF-2019 jointly with Vijnana Bharati, Pune. CSIR-CBRI and CSIR-NEERI also organized outreach events which

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were chaired by DG CSIR

- **CSIR-CMERI** conducted awareness Workshop to sensitize school students to manage and stop the use of single use plastic (CSIR-CMERI)
- **CSIR-CBRI**, Roorkee organized Students for Swachhata Programme for students of KV Roorkee during Swachhata Hi Seva-2019 to observe 150th Birth Anniversary of Mahatma Gandhi.
- A group of 55 students from Kendriya Vidyalaya Khaliar Distt. Mandi (H.P.) accompanied by teachers visited **CSIR-IHBT**, Palampur (H.P.) under the "JIGYASA Programme". A group of 72 students and 04 faculty members from Tibetan Children Village School, Gopalpur, Kangra (HP) visited **CSIR-IHBT** Palampur on 14.10.2019. Students were appraised about the research and development activities of the institute.
- Students from Goel Institute of Pharmacy & Science; Amity University, Christian college; SRMU-Lucknow visited **CSIR-IITR** for the outreach program
- **CSIR-CDRI** hosted a batch of 48 students with faculties from Bharathiar University, TN
- **CSIR-NEIST**, Jorhat in collaboration with Royal Society of Chemistry has organized a two-day workshop for Chemistry Teachers covering the theme "Periodic Table" under CSIR-KV's JIGYASA program during October 17-18, 2019.
- Under the JIGYASA Programme, students with faculty from Govt Sr Sec School Paprola, HP and from Green Field Public Sr Sec School Nagrota, HP, visited **CSIR-IHBT** on 22-10-2019 for getting exposure to latest advances in S&T activities. A group of 43 students of B. Pharmacy with a faculty member from Government Pharmacy College Nagrota Bagwan, Kangra H.P. visited CSIR-IHBT Palampur on 21.10.2019.
- Students out reach program 'Jigyasa' conducted on 22 Oct at Residential Tribal College at Adilabad by **CSIR-IICT** Scientists.
- **CSIR-NEERI**, Nagpur in its outreach efforts to approach to the society, taking up issues related to common public, teaching people several things that would benefit society at large through its programme named Jagruti- 'Ek Samaaj Ek Lakshya' that endeavor at building people-driven science and technology network.
- **CSIR-NEIST**, Jorhat signed a MoU between CSIR-NEIST and University of Science and Technology Meghalaya (USTM) to promote cooperation in Science Education and Research.
- A group of 22 students of along with 04 faculty members from IIMT Aligarh, U.P. visited different laboratories and the state-of-art facilities of **CSIR-IHBT**, Palampur (HP) on 10.10.2019. They interacted with the scientists and researchers of the Institute. (CSIR-IHBT)
- **CSIR-IHBT**, Palampur, National Agri-Food Biotechnology Institute (NABI) and Centre of Innovative and Applied Bioprocessing (CIAB), Mohali signed an MoU for collaboration on research & development as well as academics including faculty and student exchange.

#### Skill Development and Workshops:





- Sh. Venkaiah Naidu, Hon'ble Vice-President of India inaugurated International Symposium at **CSIR-NEERI, Nagpur**, entitled 'Metal Ions and Organic Pollutants in Biology and Medicine and Environment'.
- A eight weeks Training programme on **Petroleum Refining Technology and Petrochemicals** was conducted by **CSIR-IIP**, Dehradun. About 15 foreign Government officials mainly from African countries participated in the programme under Indian Technical and Economic Cooperation.
- **1st Indo-Swiss Workshop** on Building Integrated Solar Energy Systems (BiSe-2019) organized by **CSIR-NIIST** in association with Institute for Applied Sustainability to the Built Environment (ISAAC-SUPSI, Switzerland) and Swissnex, held on 17th October 2019
- **CSIR-CFTRI**, Mysuru has conducted National Skill Qualifications Framework (NSQF)-aligned Skill Development Programme on "Post-Harvest Technologies for Fruits and Vegetables" as per the requirement of the National Skill Development Corporation (NSDC) guidelines. The course offered hands-on training in processing, production, and quality aspects of different fruit and vegetable products.
- **CSIR-NEERI** with IEA has organized a Round Table conference on the 'The Water Crisis' on 5 Oct 19, to discuss the reasons for water crisis and status of national policy which saw participation from IITB, UDRI, TCE, WTER, MWRRA and MCGM and other govt. departments
- Workshop on "Chemical Risk Analysis Framework for Food Safety" in partnership with FSSAI was organized on October 21, 2019 by **CSIR-IITR**
- **CSIR-CSIO** conducted a course on 'Policies on Biomedical Devices' under 'Indian Technical and Economic Cooperation (ITEC)', sponsored by the Ministry of External Affairs (MEA), New Delhi.
- **CSIR-CSIO** also conducted a workshop on "Advanced Photonics Technologies in Sensing, Communication and Instrumentation" during 17-18 October 2019. (CSIR-CSIO)
- **CSIR-CIMAP**, Lucknow conducted seven days' skill development training program on Machine Learning Application in Biological Data Analysis: Linear Regression & k-Means Clustering
- **CSIR-IITR**, Lucknow organized a Skill Development Programme on Computational and Regulatory Toxicology for the Pharmacy Students of Smt Vidyawati College of Pharmacy.
- **CSIR-CBRI**, Roorkee conducted three days Masons Skill Development program on Earthquake Resistant Constructions has commenced at Sundernagar, Himachal Pradesh in association with HIMCOSTE
- **CSIR-IITR** conducted a Skill Development Training Course on "Air Pollutants Monitoring"
- Workshop on Advanced Techniques in Microbial Systematics was organized by **CSIR-IMTECH**
- Week-long Training Of Trainers program on "Monitoring of PM2.5 & other notified Air Pollutants as per revised NAAQS2019", sponsored by CPCB was conducted **CSIR IITR**

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- One week training on "Koha Software for Library Automation-Advance" scheduled during 14-18 October 2019 commenced **CSIR-NISCAIR**
- Training programme conducted on Development of combination products under CSIR-HARIT Project "Enhancement of Economic and Social Status of Rural Populace of North East India" at Ningthoukhong, Bishnupur District, Manipur was conducted by **CSIR-CLRI**
- **CSIR-NEIST**, Jorhat conducted awareness program on 'Conservation, cultivation, sustainable utilization of medicinal plants and cultivation mushroom where at least 65 beneficiaries, farmers, local healers and others attended the program.
- 2<sup>nd</sup> Triennial **Congress on Geosciences for Sustainable Development Goals** at **CSIR-NGRI**, Hyderabad was organized by Association of Exploration Geophysicists, Indian Geophysical Union & CSIR-NGRI which was inaugurated by DG CSIR

## 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 (us 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

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

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

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

- 04 SIROs were granted recognition and 03 were granted registration certificates.

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

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## Registration and Renewal of PFRIs

- 01 PFRi was granted registration certificate.
- 02 PFRIs were granted renewal of registration certificates

## Fiscal Incentives for R&D by Industry

47 reports in form 3CL submitted to CCIT under Section 35(2AB) of IT Act for weighted tax deduction on R&D by Industry involving a total amount of Rs. 225554.35 Lakhs incurred on R&D by Industry.

## Publications Launch

Two publications, i.e. a report on "Framework of University-Industry Linkages in Research", prepared by PHD Chamber of Commerce and Industry (PHDCCI) and a "Compendium on Scientific and Industrial Research Organizations (SIROs)", prepared by The Energy Resources Institute (TERI) were launched by the Secretary, DSIR on 17<sup>th</sup> October, 2019 at PHD House, New Delhi.

## PUBLIC SECTOR ENTERPRISES

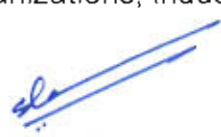
### 1. Central Electronics Limited (CEL)

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.2747.95 Lakhs during October, 2019.
- Sale of items worth Rs.1811.41 Lakhs was realized during October, 2019.
- Major Achievements reported are (i) License agreement on Transfer of Technology (LATOT) for Drishti Transmissometer has been signed between CEL and CSIR-NAL on 31<sup>st</sup> October, 2019
- Microwave Electronics division has been certified by CII for 'Manufacturing Excellence' under the "Good to Great" Projects.
- Industry Academia conference has been held in CEL on 3<sup>rd</sup> October 2019 to promote academics to work on industry oriented projects.

### 2. National Research Development Corporation (NRDC)

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



- NRDC has been assigned 16 technologies by CMTI, Bangalore.
- NRDC has collected a royalty of Rs.60.07 Lakh for licensing of technology during the month.
- NRDC has been awarded ISO-9001-2015 certification to acquire, promote and transfer of technologies.
- NRDC signed a Memorandum of Understanding (MOU) with DRDO, to provide consultancy services for the licensing of 6 technologies developed at DRDO. The agreement was signed at Vibrant Goa on 17<sup>th</sup> and 18<sup>th</sup> October, 2019.

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