

**No. DSIR/MS/2019/08**  
Government of India  
Ministry of Science & Technology  
Department of Scientific & Industrial Research  
**MONTHLY SUMMARY FOR THE CABINET**  
(For the month of **August 2019**)  
(Part-I Unclassified)

**Ministry/Department: Department of Scientific and Industrial Research (DSIR)**

**Major achievements during the month of AUGUST 2019**

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

**Contributions to Societal Sector**

- In a major boost to waste to wealth initiative, and plastic free environment a demonstration plant for converting plastic waste to diesel based on technology developed by CSIR-IIP was inaugurated by Union Minister of S&T. The plant can convert one tonne of plastic waste into 800 liters of diesel every day that will be automotive grade. This has been done in collaboration with GAIL (India) and will be scaled up soon
- Union environment ministry has designated CSIR-NPL as the national verification agency for certifying instruments and equipment for monitoring emissions and ambient air quality
- At the behest of Maharashtra Government, CSIR-NEERI has undertaken a first-of-its-kind study to understand the ill effects of noise pollution by mapping its sources across 25 locations in Mumbai and Nagpur over the next two years.
- CSIR-IITR received the Certificate of Recognition from FSSAI as National Reference Laboratory in the area of Toxicological Evaluation / Risk Assessment of Nutraceuticals and for CFTRI, in the area of Nutritional Information and labeling.
- CSIR- NEERI has submitted a proposal to study all aspects of restoration, maintenance and rejuvenation of lakes and tanks in the Bengaluru. The proposal is for carrying out the study in partnership with other CSIR institutes and private parties who have expertise in this area.
- IIT Jodhpur, AIIMS and IGIB would be working together in devising an AI engine to distinguish between TB and silicosis, which would speed up diagnosis in Sirohi, Rajasthan where there is widespread occupational hazard of silicosis.
- CSIR-NEERI introduced new software named RISK-PiNET 2.0, which is a modeling tool for risk assessment and rehabilitation planning of water distribution system. RISK-PiNET identifies the pipes with greatest risk of hydraulic deficiencies

**Farmer Centric and Aroma Mission**

- 12 CSIR labs are part of a pilot project for development of agriculture & increase in income of farmers and poor in tribal-dominated Nabarangpur district. 15 State Govt depts & 12 R&D labs of CSIR, ICAR ICMR, DBT will support implementation and CSIR-IMM, Bhubaneswar is the nodal institute of this project.
- CSIR-CMERI Durgapur has set up a center for post-harvest processing near here to help farmers in Arunachal Pradesh. CSIR-CMERI Durgapur has developed post-harvest technologies, which will increase the shelf-life of the end products.
- Flowers offered at the Kashi Vishwanath temple & others in Varanasi will be turned into incense sticks by the women's self-help groups & marketed by ITC. CSIR-CIMAP to provide scientific expertise.
- Team CSIR-IHBT Palampur, conducted an awareness programme on boosting farmers' income through aromatic crops at Barthin in Bilaspur district.
- Team CSIR-IHBT Palampur, H.P., conducted oneday awareness program under CSIR-Aroma Mission on cultivation of aromatic plants in village Ranvirpura, district Leh, J&K state on August 3, 2019 in which more than 50 farmers participated.
- Training programme as a part of the Aroma Mission was conducted for farmers in Arunachal Pradesh which aims at promoting cultivation of aromatic crops for economic enhancement of the rural farmers through the aroma-based
- CIMAP improved distillation unit has been installed under the Aroma Mission in Nochikkadu, Cuddalore, Tamilnadu and the institute is also helping the farmers on various cultivation, processing and marketing issues of Vetiver.

### **Technology Transfers and Industry**

- CSIR-IICT has signed a global licensing pact with Sun Pharma for patents on dermatology, ophthalmology, Oncology and will pay upfront & milestone linked payments up to Rs 240 crore + royalties from commercialization
- Bharat Electronics & CSIR-NAL have signed Technical Collaboration Agreement for design & engineering production & commercialization of Electronic Target System a training aid for enhancing marksmanship of Defence & Paramilitary during live firing exercises.
- Low Cost Air Conditioner Efficiency Meter a new unique product has been launched by CSIR-CSIO and here was transferred to private industry for commercial production and marketing.
- CSIR-CMERI transferred the technology of Improved Iron Removal Plant to M/s ECO Polluted Engineers, New Delhi
- CSIR- CSIO has developed a portable microscope that can acquire multiple fields of views to create a bigger perspective of the sample under study and it has been transferred to a Telangana-based private firm for commercial production and marketing.

- CSIR-NML, Jamshedpur transferred technology to M/s SBCON Recycling Private Limited, Ahmadabad. The technology has been transferred for the extraction of cobalt and manganese from black cathodic material of lithium cobalt batteries.
- CSIR-CMERI transferred Community Level Improved Iron Removal Plant technology to M/s M/s ISW Industries, Howrah.
- Improved Iron Removal Plant Technology has been transferred to M/s Harambh Chemicals Pvt. Ltd. Varanasi, UP by CSIR-CMERI
- **CSIR-IMMT**, Bhubaneswar is planning to set up a Common Research and Technology Development Hub to provide technological assistance and a broad range of services to micro, small and medium enterprises (MSMEs) of the state. This would help them doing their failure analysis and trouble-shooting of productivity related problems among others.

### **CSIR Intellectual Property**

- CSIR filed 12 patents in India and 09 patents abroad. CSIR was also granted 33 patents abroad and 18 patents in India

### **International**

- On the international collaborations front, in a major development, extensive series of workshops and meetings took place towards Indo - German collaboration in Research and Innovation towards leapfrogging in Frontier Technologies. The areas of collaborations discussed were, Battery Technologies, Sustainable Building Technologies, Water Technologies, Advanced Production Technologies, and IP Management. The workshops were attended by several CSIR labs (CSIR-CECRI, CSIR-CBRI, CSIR-SERC, CSIR-AMPRI, CSIR-NEERI, CSIR-CGCRI, CSIR-CMERI, CSIR-NCL, CSIR-CSMCRI, CSIR-IMMT, CSIR-NGRI) many key Industries and German experts from Fraunhofer Institute.
- CSIR and National Institute of Environmental Health Sciences (National Institutes of Health) USA, signed an MoU to strengthen and develop research cooperation related to environmental health sciences with emphasis on understanding the health effects associated with exposure to air pollutants and other environmental chemicals.
- CSIR-CLRI hosted delegates from various African countries coordinated by SITA (Supporting Indian Trade and Investments for Africa) and evinced interests in the Shoe & Product Design Activities of the Institute.
- A delegation of 20 officials of Regional Administration and Local Government from The United Republic of Tanzania visited CSIR-CRRI on 6th Aug 2019 along with the officials of Ms Lea Associates to get an exposure on various R&D activities and other State-of-Art equipments at CRRI.
- A two day international conference on 'Advances in Catalysis: Industrial Outlook' (ACIO- 2019) was inaugurated on Thursday at CSIR-IICT which was

attended by over 200 delegates from across the country. Conference was organised to provide a platform

## **Research Highlights**

- In a first ancient DNA from India, its whole genome sequencing and other analysis of samples obtained from the skeletons of Roopkund Lake, by an international team including CSIR-CCMB, reveals that the skeletons derive from at least three distinct genetic groups. These include present-day Indian populations, and a large number of individuals more typical of populations from eastern Mediterranean and South East Asia.
- Research from CSIR-CCMB shows how human fads and practices cost animals tremendously. The findings highlight the need to stop against using elephants, especially the females in their reproductive ages, in processions.
- Scientists from CSIR NIIST have been a part of the collaborative studies where in Indian researchers have now developed a new method to fabricate graphene sheets from camphor.
- CSIR NCL scientists have found that in pre-diabetes, blood has abundance of glucose bound to units of protein serum albumin which can be used as biomarker for diagnosing pre-diabetic condition, which If not controlled in time it can lead to diabetes and complications
- Research from CSIR-NCL has found evidence suggesting that life on Earth could have its origin in the interaction between water & hydrogen cyanide fueled by heat in the oceans of early earth instead of using energy from the light of the sun as believed

## **Activities Under Scientific Social Responsibility**

### **Skill Development**

- CSIR-CLRI in association with CSIR-NEIST organized a four-day training programme on “Novel Products Based on Ethnic Designs & Fabrics of North East India and Enhancement of Economic & Social Status of Rural Populace of North East India.” Apart from the above activity, Training programmes were organized for Design and development of Website, Intranet and CAD/CAM for Leather Products
- Under Scientific Social Responsibility of CSIR-CIMAP, Kashi Vishwanath Temple followed examples of Shirdi Sai Baba Temple & Mata VaishnoDevi Temple, in producing incense sticks from discarded flowers.
- Skill Development Programme on "Materials Characterization"
- Skill Development Programme on "Phytochemical Profiling and Characterization"
- CSIR-Skill Development Training Program: Basic and Advance Skills for Water Testing and Analysis organized by CSIR-IMMT, Bhubaneswar

- CSIR-NEERI is organised a workshop on 'Environmental Modelling: Resolving Complexity for a Predictable Tomorrow' during August 7-8, 2019.
- Under the CSIR Integrated Skill Initiative, CLRI has carried out assessment of 28 trainees [Shoe Mfg. Skills] in Tiruvarur, Tamilnadu on 7 August 2019.
- CSIR-CSMCRI's conducted Skill Development/training initiative in the area of microalgal diversity & its uses
- CSIR-NGRI has organized a training program on "Groundwater Exploration Techniques" during July 29-Aug 10, 2019 under CSIR Integrated skills development. 26 participants from different parts of the country attended the program.
- Training course on 'Multi-Hazard Resistant Construction Practices' was organized by CSIR-CBRI under CSIR Integrated Skill Initiative. 62 Engineers of PWD, Govt of Arunachal Pradesh participated.
- A workshop on 'Science Communication in Digital Age' was organized for CSIR Scientists at CSIR-HRDC
- CSIR-SERC conducted a Course on Recent Advances in Concrete Technology & Durability of Concrete Structures (RACT & DCS) "CSIR Integrated Skill Initiative"
- CSIR-IIMMT organized an interactive Workshop on "Technology & Quality Assurance needs of MSME Industries in Minerals, Metals, Materials & Chemical Sector".
- Bio-Entrepreneurship Meet held at CSIR-CFTRI on 22-8-2019. The event discussed about various opportunities for startups in Food & allied areas pertaining to BIRAC & BIG support schemes.
- CSIR-NGRI organized a training program on Seismological Data Analysis and Its Applications" from Aug 19-30, 2019. 23 participants from different parts of the country attended the program.
- CSIR-CMERI and NITD organized two days symposium on Waste Management. Participants visited and appreciated the concept of the zero waste colony at CMERI
- The workshop aimed at addressing the existing need for a sound analytical foundation for Machine Learning (ML) and Artificial Intelligence (AI) is jointly sponsored by IIT Mandi, Control Society, and CSIR-CSIO
- CSIR-CFTRI conducted one day Symposium on "Science Journalism and Science Communication" in Association with Vigyan Prasar, New Delhi on 13-8-2019 at Mysore. More than 100 delegates attended the event.

### **Jigyasa: Student-Scientist Connect Program**

- Engineers of Arunachal Pradesh Public Works Department (PWD) attended training programme on "Multi-hazard construction practices" at **CSIR-CBRI**, Roorkee. Sixty-one engineers attended the programme. Earlier a batch of 35 PWD engineers attended the same training programme.

- Under two day JIGYASA-2019 programme a scientist-student connect programme was initiated between **CSIR-CFTRI**, Mysuru and Kendriya Vidyalaya Sanghatan (KVS) to extend students the facility of classroom and planned research laboratory learning.
- Under the aegis of 'JIGYASA', **CSIR-CSIO**, Chandigarh organized a special science outreach programme entitled 'The Beauty and Importance of Science', for 180 school students to disseminate knowledge about the chemical reactions taking place in science laboratories.
- **CSIR-IMMT**, Bhubaneswar organized a five day skill development training programme on 'Basic and Advanced Skills for Water Testing and Analysis'. The training programme was organized to impart practical knowledge to the students and industry persons about the water testing and analysis using the advanced instrumental facilities.
- **CSIR-NEIST**, Jorhat in collaboration with Ignited Minds, JNC, Pasighat organized awareness programme on utilization of medicinal plants that was attended by over 245 beneficiaries, farmers and local healers.
- A oneday workshop on science journalism was organized by the Postgraduate Department of Journalism and Mass Communication of Dhoba College, in collaboration with Pushpa Gujral Science City (PGSC), Kapurthala. Director, **CSIR-NISCAIR**, New Delhi and Scientist, Vigyan Prasar, were the keynote speakers for the event.
- A group of 48 students from Kendriya Vidyalaya, Chakardharpur accompanied by teachers visited **CSIR-NML**, Jamshedpur and interacted with scientist and research scholars under Jigyasa Program. The objective of the program is to provide exposure of research environment and simultaneously inculcate interest towards science among school students so that they could plan to pursue their carrier in the science stream.
- A group of 59 students from Baldwin Farm Area School visited **CSIR-NML**, Jamshedpur and interacted with the scientists and research scholars under Jigyasa programme, jointly collaborated by Ministry of HRD, Govt. of India and CSIR, New Delhi.
- CSIR-CGCRI hosted 60 students and 4 Teachers from Kendriya Vidyalaya No. 2 Salt Lake, Kolkata.
- Under the aegis of Scientific Social Responsibilities (SSR) of Institute, a batch of 56 students of City International School, Balaganj, Lucknow visited CSIR-CDRI.

- JIGYASA-2019, Scientist-student connect programme held at CSIR-CFTRI on 6-7 August 2019 for students of Jawahar Navodaya Vidyalaya students of 4 Districts (Mysore, Chamarajanagar, Mandya & Hassan).
- A batch of 44 school students with 4 teachers from Marigold Public School, Batala, Gurdaspur (Punjab) visited CSIR-IHBT Palampur on 07.08.2019. Students were appraised about the research and development activities of the institute.
- 50 students and 4 teachers from Kendriya Vidyalaya Barrackpore (Army), Kolkata, on visited R&D Divisions of CSIR-CGCRI
- Dr. Anjan Ray, Director, CSIR-Indian Institute of Petroleum visited CSIR-AMPRI, Bhopal and delivered an interesting talk to a gathering of scientists/researchers, students and teachers from KVs of Jabalpur region on 'Sustainable development, carbon footprint of India' etc.
- Under the aegis of Scientific Social Responsibilities (SSR) of Institute, a batch of 69 students of Amity Institute Lucknow visited CSIR Ianbs.
- Scientists from CSIR-CBRI, Roorkee interacted with the students at Rajiv Gandhi Navodaya Vidyalaya, Shikarpur, Landhaura on August 14, 2019, under the aegis of JIGYASA.
- Under the "JIGYASA" programme, a group of 38 students from International Sahaja Public School (ISPS), Talnoo, Dharamshala (H.P.) accompanied by four teachers visited CSIR-IHBT Palampur (H.P).
- CSIR CFTRI hosted 80 PUC students & 8 teachers of Jawahar Navodaya from Mysuru, Mandya, Hassan & Chamarajanagar districts. 2 day event included exhibition, popular science, lectures, quiz, lab experience & demo of food processing technologies
- Under 'JIGYASA', a special science outreach programme for schools, a hands-on session on chemistry practical and theory was organised at CSIR-CSIO
- A group of 45 students and teachers from KVS HQ KV 2 Chandi Mandir visited CSIR-IMTECH on 20th August. A tour of the BIC and Big Data Analytics Centre, Fermentation facility and MTCC facility, & given a demonstration of agarose gel electrophoresis and PCR.
- Workshop for Science Teachers under JIGYASA: CSIR-CECRI, Karaikudi conducted a 3 days Workshop under JIGYASA for Science Teachers during August 21-23, 2109. Science Teachers from all over Tamil Nadu (15 from KVs and 9 from State Govt. Schools) participated.
- CSIR-CDRI invited a batch of 40 students with 4 faculties from KV BHEL, Jagdishpur, Amethi
- CSIR-CMERI conducted JIGYASA program on water processing technologies
- Students were acquainted with the research & development activities of CSIR and CSIR-IHBT to motivate young students to peruse their carrier in science.
- Students of KV Halwara KVS-HQ had a great learning with the scientists of CSIR-IMTECH under Jigyasa activities of student-scientist connect program

- CSIR-CBRI organised a Three-Day State-Level Students' Residential Workshop during 27-29 August 2019 under JIGYASA.

### **Outreach Programs**

- CSIR Pavillion Agritech India 2019 30-1st Sept Bangalore. Technologies from CSIR-IHBT CSIR-CFTRI CSIR-CIMAP CSIR-CEERI CSIR-IIIM CSIR-NEIST & CSIR-CMERI are on display. Scientists from CFTRI, CIMAP, IHBT and CMERI interacting with visitors
- CSIR hosts Seminar & Panel Discussion on Busting the Myth: RO Based Water Purification is a Must. This was to highlight the National Green Tribunal's recommendation that RO purification should not be used indiscriminately. The order came on the basis of a joint report submitted by NEERI and other organizations.
- On a mega-event today on Girl Child Protection, Education and Opportunities. Awareness brochures of CSIR-IITR on Adarsh Gaon, Swachh Jal, Women Health, Swachh Paryavaran, and Avoiding Plastics were distributed to the kids and they showed a lot of interest.
- Showing commitment to society CSIR-NEIST Jorhat carried out distribution of relief items for the flood affected people in Malow Pam village of Jorhat district on Saturday. Food & other essential items among distributed to 200 flood-hit families
- CSIR participated by displaying various technologies at Tech For Seva at IIT Delhi during 10-12 August 2019.
- A Public Seminar on S&T behind Indian Elections was organized by CSIR at IICB Kolkata
- CSIR participated at the Government Achievement and Scheme & Food Expo at Pragati Maidan from 1st to 3rd August.
- Bharat Niti in association with Ministry of Jal Shakti and CSIR-NEERI organised a conference on "Water Secure Water Surplus India" in Delhi. CSIR-NEERI's work related to water bodies rejuvenation was showcased during the conference.
- CSIR-CFTRI Scientists Interaction Meeting with Mysore-Kodagu M.P. Sri Pratap Simha on 15-8-2019
- Director, CSIR-IHBT Palampur and team met Hon'ble Governor of Himachal Pradesh. They apprised him about the R&D activities being undertaken by the Institute for the benefit of the people of the state
- Ayush students from Murlidhar Ayurved College Kalipat Rajkot visited CSIR-TKDL unit (Traditional Knowledge Digital Library) Unit yesterday
- Work by CSIR-NEERI on Rejuvenation of Raipur's Telibandha Lake bags National Excellence Award. This model is based on NEERI's patented Phytorid Technology with Florafacts.



## **(x) Memorandum of Understanding (MoU)**

- CSIR-NEERI signed a MOU with Delhi Industrial Infrastructure Development Corporation (DSIIDC).
- Signing of MoU between CSIR and Ordnance Factory Board (OFB) recently to facilitate interaction between CSIR and Ordnance Factory Board and joint R&D activities in diverse areas of mutual interest.
- CSIR- Indian Institute of Petroleum (CSIR-IIP), Dehradun inks the MoU with Graphic Era (Deemed to be) University, Dehradun today to develop co-operation and promote mutual understanding through excellence in practice-based education, research and knowledge exchange CSIR-INDIA
- Using AMPRI technologies, students of Lovely Professional University will be apprised of how to make wealth from the waste with whom CSIR-AMPRI has signed MoU
- **CSIR-AMPRI**, Bhopal and Lovely Professional University (LPU) signed an MoU to bring entrepreneurial opportunities for LPU students. The MoU has been signed to undertake joint “Research and Academics’ pursuits in various areas related to Nation building.
- **CSIR-CBRI**, Roorkee and SRM Institute of Science and Technology signed an MoU to set up a mechanism for concerted efforts by the institute to cater the rapidly growing scientific and technological knowledge and professional excellence in all fields of science and technology.
- **CSIR**, New Delhi and Amity University signed an MoU for academic and scientific research. The MoU was exchanged in the presence of Dr. Shekhar C. Mande, DG, CSIR and Dr. Ashok K Chauhan, Founder President, Amity University.
- **CSIR, New Delhi** and IIT Jodhpur signed an MoU for the development of technology and scientific research. The MoU, which was signed during the decennial foundation ceremony of IIT Jodhpur will focus on the technology development and translation, exchange of academia information and material, human resource development and infrastructure sharing.

## **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**

- 13 in-house R&D units of industries were granted recognition as well as registration certificates.
- 90 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**

- 07 SIROs were granted recognition and 02 were granted registration certificates.

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

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

- 04 PFRIs were granted renewal of registration certificates.

## **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.1459.90 Lakhs during August, 2019.
- Sale of items worth Rs.1874.12 Lakhs was realized during August, 2019.

### **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 three technologies by Individual inventor.
- NRDC has also licensed one technology, collected a premia of Rs.10.00 Lakh from licensing of technology during August, 2019.

- NRDC signed an agreement with Anna University for setting up one university Innovation Facilitation Centre at their campus.
- NRDC was awarded PSE excellence award by Indian Chamber of Commerce (ICC).

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