No. DSIR/MS/2019/09
Government of India
Ministry of Science & Technology
Department of Scientific & Industrial Research
MONTHLY SUMMARY FOR THE CABINET
(For the month of **September 2019**)
(Part-I Unclassified)

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

Major achievements during the month of SEPTEMBER 2019

1. Council of Scientific & Industrial Research (CSIR)

CSIR 78th Foundation Day (26th September 2019)

CSIR celebrated its 78th Foundation Day in Vigyan Bhawan, New Delhi on 26 September 2019. The Chief guest of the ceremony was the Hon'ble President Shri Ram Nath Kovind, Hon'bl and Hon'ble Minister of Union Minister for Science & Technology, Earth Sciences and Health and Family Welfare graced the function. The prestigious Bhatnagar Awards for the Year 2019 were announced and the CSIR Young Scientists Awards, CSIR Technology awards and CSIR Innovation Awards for School Children were presented on this occasion.

CSIR Activities towards Environment Protection and Ecology

- On the foundation day, the Hon'ble Minister of S&T, ES and HFW handed over an a prototype of the indigenous technology- the high-temperature fuel cell developed by CSIR to the Hon'ble President of India. This has been developed by **CSIR-NCL**, **CSIR-NPL** and **CSIR-CECRI** and partnered with Thermax Ltd, under the NMITLI program. The fuel cell delivers power with about 70 per cent efficiency and a silent power-generating unit and has very low carbon footprint and may displace diesel generators.
- In a significant initiative towards sustainable development, Hon'ble Union Minister for S&T and ES inaugurated a pilot plant at CSIR-NCL, Pune with indigenous process technology to create Dimethyl Ether (DME) from methanol. DME is a clean fuel with potential to replace diesel and will be a non-fossil additive to LPG gas. This will also help the Prime Minister Ujjwala Yojana program, by reducing LPG imports.

- **CSIR-NEERI** developed Noise App (Noise Tracker), which can be used by the general public to record the noise levels. (NEERI). The App displays minimum, maximum and average decibel levels, and can locate the noise source by using GPS. This App can also be used by the regulatory authorities, which are involved in noise monitoring and noise data management.

- **CSIR-NIO**, Goa in a significant breakthrough study to boost the production of biodiesel has found a cleaner, cheaper way to grow biodiesel producing

microalgae—*Chlorella vulgaris* (NIOCCV). The algae grew well in a medium of seafood industry wastewater and were tolerant to different salinity regimes and higher concentrations of carbon dioxide.

- **CSIR-NML**, Jamshedpur has signed a MoU for technology transfer to M/s Exigo Recycling Private Limited, New Delhi and Evergreen Recycle Karo Private India Limited, Mumbai for the extraction of cobalt and gold from the lithium cobalt battery of mobile phones and gold coated surface of e-waste, respectively.

- Towards consolidation of all the national agencies working towards disaster relief, CSIR and DRDO and National Disaster Response Force (NDRF) are working together for technology and allied assistance. Additionally, NDRF has also signed MoU with CSIR-CSIO, Chandigarh for finding live bodies, buried under debris in case of a calamity by using radio waves.

(ii) Strategic Sector

- Towards strengthening strategic sector, smart aerospace composite manufacturing facility was inaugurated at **CSIR NAL**, Bangalore by Hon'ble Union Minister of S&T and ES. The facility will produce high quality lightweight polymer composite airframes for the HANSA-NG program of CSIR-NAL and the present prototyping facility shall produce 3 to 4 aircraft per year.

- The Hon'ble Union Minister of S&T and ES also laid the foundation for system check facility and aircraft integration facility at **CSIR-NAL**. The aircraft integration facility will minimize the aircraft certification time and cost and help in design, development and certification of Saras Mk2, a twin-engine turboprop 19-seater transport aircraft for connecting small cities that may transform aviation industry.

- The system check facility to be set up at **CSIR-NAL** will assist in pre-installation checks of aircraft system that are required to be carried out on the ground before installing on the aircraft. These are mandatory requirements for aircraft prototypes as per regulatory authorities and the facility will accelerate obtaining regulatory clearances for aircrafts of CSIR-NAL.

- A critical navigation and targeting system for Navy's warships and submarines that has been designed and developed by **CSIR-CSIO** Chandigarh. The technology has been transferred to M/s Elcome Integrated Systems, Mumbai (CSIO). The technology is an offshoot of the ongoing activities in the related area and outcome of the recent MoU between CSIR and Indian Navy.

- In a significant milestone in the Indian military aviation, the naval variant of Tejas, light combat aircraft (LCA), on Friday made it's first-ever 'arrested landing', paving the way for its usage from an aircraft carrier. The indigenous capability was possible due to contributions from Aeronautical Development Agency (ADA) and design-and-build capability of HAL (ARDC), DRDO and

CSIR Labs.

Technology Transfers and Industry

- CSIR-NCL developed a cost-effective and eco-friendly process for the manufacture of paracetamol, which will bring down the production cost by 15-20% and which could help Indian drug manufacturers compete more effectively against their Chinese counterparts
- The Hon'ble Union Minister of S&T and ES inaugurated at CSIR-NCL Venture Center, a MedTech clean room facility. The facility is designed for the manufacture of medical devices and diagnostic services for undertaking clinical study and testing purposes. This has the potential to boost the innovation ecosystem and startups in the medical devices sector.
- CSIR-CMERI developed and successfully transferred the technology of "Smart Dimmable LED Street Lighting" to the industry. The technology may help in reducing total energy consumption in street lighting.
- Technology Transfer of Terafil Water Filtration Technology was carried out by CSIR-IMMT to M/s Tatva The Life, Vidisha, Madhya Pradesh.
- Technology Transfer on Fire Retardant Water Repellent Canvas from CSIR-CBRI to M/s Sehgal Doors
- Leading activities on In-situ Nallah Treatment with Natural Attenuations, CSIR-NEERI transferred it's technology – RENEU (REstoration of Nallah with Ecological Units) to Emergy Enviro Pvt Ltd

CSIR Intellectual Property

- CSIR filed 11 patents in India and 19 patents abroad. CSIR was also granted 15 patents abroad and 25 patents in India

Skill Development

- CSIR-NML organized training programs on Welding, Fitter job, Turner job and a 10 days program on innovative product prototyping for entrepreneurship development.
- A Skill Development Certificate course on Basic Cheminformatics was conducted at CSIR-IICT.
- One Day GLP Skill Development Training Workshop was organized CSIR-IITR. About 50 participants of the GLP Test Facility benefited from the workshop and expertise of the faculty from current and former GLP inspectors and Test Facility heads.
- CSIR-CSIO conducted ITEC Programme sponsored by Ministry of External Affairs spanning over 160 partner countries in the field of Instrumentation

- CSIR-NEER organized a training programme, sponsored by CPCB, on Advanced Instrumentation Analytical Technique and Preventive Maintenance - Hand on Training.
- CSIR-IITR organized CPCB sponsored Five-day training program on “Analysis of Pesticides and other Organic Chemicals in Environmental Samples” for the employees of UPCCB, CPCB and from the Private Sector.
- CSIR-NGRI organized a training program on "Near Surface Shallow Seismic Techniques-Applications". Twenty-eight participants from different parts of the country attending the program.
- CSIR-IITR conducted a training program on “Analysis of Pesticides & other Organic Chemicals in Environmental Samples”
- Two-day training programme on "Calibration and Uncertainity Measurements as per NABL and ISO/IEC 17025-2017" was organized by CSIR-CSIO
- Training Program on A Perspective into Indian Codes of Practice for Reinforced Concrete and Pre-stressed Concrete Structures (InCoRP-2019) was conducted by CSIR- SERC
- CSIR-CMERI conducted Workshop on Skill Development for Engineering Degree/Diploma Faculties and Students and introduced more than 18 skill courses from 6 different departments.

CSIRs Farmer Centric Activities

- **CSIR-CIMAP**, Lucknow organized a Scientist and Aroma Industry Interaction meet under CSIR Aroma Mission project. A total of 30 industry representatives from Ultra International, Kelkar Group, Ajmal Perfumers and others from various parts of the country participated in the meeting. Around 4800 hectares of additional land has been covered by aromatic crops in 1008 clusters across the country generating 300 tonnes of essential oils worth Rs. 38 crores by the farmers which is now available to the aroma industry to buy.
- **CSIR-IHBT**, Palampur has brought more than 500 hectares of land under cultivation in last two years. The cultivation of wild marigold resulted in the production of 7.6 tonnes of essential oil in Himachal Pradesh that would further help in revenue generation of Rs.5.56 crore benefitting approximately 861 farmers of the city.
- **CSIR-IMMT**, Bhubaneswar developed low cost, non-electric Terafil water filter were distributed to the people of Arakh akuda village of Puri district. This sustainable water filter could efficiently remove iron and turbidity from drinking water at a very low maintenance cost.
- Distillation units were installed and commissioned at Village Bhalla, Saho Road of aspirational district Chamba and Kamla village, Himachal Pradesh by CSIR-IHBT
- **CSIR-NEIST**, Jorhat, Assam transferred its agrotechnology of Lemongrass (variety Jor Lab L-8) to Shri Arindam Reang, Tripura, Citronella (variety Jor Lab C-5), Lemongrass (varieties Jor Lab L-9 & Jor Lab L-10) and Patchouli (variety Jor Lab P-1) to M/s Krishi Shakti Food and Beverages, Ahmadnagar, Maharastra. The

agrotechnology of Patchouli (Jor Lab P-1 variety) was transferred under CSIR Aroma Mission to M/s Institute of Horticultural Technology, Mandira, Kamrup, Assam

- The distribution of quality planting material of Damask rose variety "Jwala" and Muskbala variety "Himbala" was conducted under CSIR-Aroma Mission for plantation in 6 acres of land at Shillibaghi village, Thunag, Mandi in HP by CSIR-IHBT in collaboration with Department of Environment, Science and Technology (DEST), Shimla

CSIR Outreach Programs

- Dr Harsh Vardhan Union Minister of S&T, ES and HFW visited **CSIR-NEERI**, Nagpur and launched an outreach programme, JAGRUTI: Ek Samaaj Ek Lakshya. The programme aimed to create awareness on water to achieve our goals by protecting the environment.
- **CSIR-CCMB**, Hyderabad, organized first student-centric Biology Conference-2019. The objective of the conference was to stimulate discussions and collaborations among research students for carrying out cutting edge biology research in the country. The event saw the confluence of over 260 students from 11 different institutions.
- **CSIR-CCMB**, Hyderabad witnessed more than 9,000 visitors, mostly school children on its 'Open Day" celebration of CSIR's Foundation Day-2019, where students were exposed to science behind processes occurring in different kinds of living cells- microbial, plants and animals.
- **CSIR-NEERI**, Nagpur organized a seminar to mark Bamboo Day in which various experts shared their views on how sustainable utilization of bamboo can go forward by integrating environment, society and economy.
- A group of 39 students from DAV Public School visited at CSIR-NML, Jamshedpur and interacted with scientists and research scholars under the aegis of "Jigyasa programme".
- **CSIR-AMPRI,** Bhopal, Vigyan Prasar, AICTE and Vigyan Bharti organized Eighth Vigyan Mela 2019- A science and technology fair.
- **CSIR-NEERI**, Nagpur organized a seminar to mark Bamboo Day in which various experts shared their views on how sustainable utilization of bamboo can go forward by integrating environment, society and economy.
- 50 KV students and 12 teachers visited **CSIR CSMCRI** for two-day program
- **CSIR-CBRI** scientists motivated the students at Kendriya Vidyalaya No. 2, Roorkee on 02 September 2019 during Science Exhibition by Students, under JIGYASA.
- **CSIR-CBRI** scientists motivated the students at Kendriya Vidyalaya No. 1, Roorkee on September 09, 2019 during Science Exhibition by Students, under JIGYASA. (CBRI)
- Two-day residential, 7th batch of Jigyasa: Student Scientist Interaction Program was carried out at **CSIR-CSMCRI**, Bhavnagar. 55 students and 8 faculty members from five KVs at Surat, Silvassa and Ankleshwar participated in this outreach program.
- About 40 teachers from 27 KVs of Uttarakhand state participated in State-

Level Scientist-Teacher Interactions Programme organized by **CSIR-CBRI**, under JIGYASA.

- Under CSIR JIGYASA science outreach program, **CSIR-CSIO** scientists visited schools outside Chandigarh region in Abohar, Fazilka and Jalalabad.
- JIGYASA organized by women scientists of CSIR-CLRI at Kendriya Vidyalaya-Kalpakkam, Chennai
- Scientists and scholars from **CSIR-IICT** visited Zilla Parishad High School, Gowdavalli (T.S.) and demonstrated models (waste-to-wealth, Pheromone trap, water filtration and energy materials) under the JIGYASA Programme.
- On **CSIR-NBRI** Open Day, over 1500 students of 20 schools from Lucknow and neighboring districts, including 500 students from various Kendriya Vidyalayas visited the institute.
- Jigyasa event conducted on 78th CSIR Foundation Day celebrations at **CSIR IITR** for positioning our nation at the frontline of innovative R&D by providing scientific discovery experiences and advance tech. 150 students and 7 teachers from KV CRPF, Bijnaur participated.
- Conference on "Science communication, Popularization and Extension in Kannada- The Road Ahead" organized by **CSIR-CFTRI**

Research Highlights

- **CSIR-CIMAP** Research Centre located at Pantnagar, Uttarakhand bagged permission from the Narcotic department within the revenue wing of the Union Finance Ministry to pursue R&D projects on cannabidiol (CBD) and tetrahydrocannabinol (THC) - two unique natural compounds found in cannabis.
- **CSIR-CLRI, Chennai** has developed a novel amylase-based biocatalyst that helps in processing leather in an environment-friendly way and also drastically cutting the time taken to process the skin at the pre-tanning stage that generates 60-70% of total pollution during processing. The quantum of effluent discharge is considerably cut as there is threefold reduction in water usage when the biocatalyst is used.
- **CSIR-CCMB**, Hyderabad pointed out through their studies conducted on mammalian faecal samples collected from different forest fragments of Anamalai Hills of Western Ghats that by changing the land use patterns and introducing livestock in their ecosystem, there is indirect increase in the parasite diversity in their gastrointestinal system that might affect their population decline.

Memorandum of Understanding (MoU)

- CSIR-IMTECH & Department of Science, Technology & Environment (DSTE) Government of Punjab has signed a MoU to jointly address issues pertaining to environment, climate change & public health 2 achieve the overall goals and objectives of Mission Tandrust Punjab 2.0.

- CSIR-IHBT signed MOU for cultivation of high value aromatic crops and establishment of processing unit at village Ranvirpura, Thikse, Leh with Ladakh Farmers & Producers Cooperative Limited, Leh & Ladakh
- MoU was signed between CSIR-NEIST and KIIT Technology Business Incubator (KIIT-TBI) to formulate & promote programmes for bio-entrepreneurship development in the country particularly in NE region.
- CSIR- NEERI signed an MoU with BUIDCO to prepare I&D and STP scheme detailed project report for four towns of Bihar- Narkatiyaganj, Raxaul, Jogbani and Harinagar.
- CSIR-NEERI inks pact with Govt. of Punjab in presence of Principle Secretary, Department of Science, Technology & Environment, Govt. of Punjab to address various environmental issues of the State.
- CSIR-IMTECH, Chandigarh and IIT, Ropar signed an MoU to facilitate exchange of ideas, development of new knowledge, promote collaborative research and enhance high quality research acumen amongst researchers and faculty of both the institutes

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

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

45 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

06 SIROs were granted recognition and 04 were granted registration certificates.

Public Funded Research Institution (PFRIs)

Registration and Renewal of PFRIs

10 PFRIs were granted renewal of registration certificates.

Fiscal Incentives for R&D by Industry

27 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**.** 28593.25 Lakhs incurred on R&D by Industry.

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.2485.23 Lakhs during September 2019.
- Sale of items worth Rs.2648.77 Lakhs was realized during September 2019.
- Major Achievements reported are (i) Prototype System of new generation Multi Digital Axle Counter developed and (ii) Supply of C-BAND PCM for export order of BEL, during the month.

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.27.29 Lakh for licensing of technology during the month.

- NRDC signed a Memorandum of Understanding (MOU) with New Jersey Economic Development Authority (NJEDA), Rowan University, New Jersey, USA for intensifying cooperation on innovation; facilitating the identification of specific projects and partnerships between entities from India and New Jersey; Coordinating suitable resources and programs to support the R&D projects and startups and establishing a framework to provide financial support to jointly approved projects. Rowan University announced during the MOU ceremony that they will offer office space to NRDC in their Technology Business Incubation Centre so that it can act as soft landing platform for Indian Startups in New Jersey.

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