

**No. DSIR/MS/2020/08**  
Government of India  
Ministry of Science & Technology  
Department of Scientific & Industrial Research  
**MONTHLY SUMMARY FOR THE CABINET**  
(For the month of **August, 2020**)  
(Part-I Unclassified)

**Major achievements during the month of August, 2020:**

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

**Key contributions, activities and achievements of CSIR**

**Update on Initiatives for Covid-19 Mitigation**

CSIR has been engaged in developing various products, processes, technologies in the areas of diagnostics, drugs, surveillance, hospital assisted devices and PPEs and supply chain logistics towards mitigation of Covid-19 for the past several months. Few of the key activities in the month of August are:

- CSIR labs now are engaged in developing high-throughput testing of patient samples in the range of thousands of samples at one go. Recently, CSIR-IGIB achieved a significant feat by being the first among 10 countries that were evaluating the new CovidSeq Assay developed by Illumina Inc. a global genomics company. This is based on next-generation sequencing (NGS) technology. CSIR-IGIB demonstrated that this could be a highly sensitive assay for the detection of SARS-CoV-2. The CovidSeq assay apart from diagnosis also generates a sequence of viral genome for the entire SARS-COV-2 genome at a cost below Rs 1500/-. This technology has the potential to expand India's Covid19 testing capacity in the country. The advantage of genome-based diagnosis is that it is not dependent on the primers used and will not vary with the strains and mutations.
- Meanwhile, CSIR labs have sequenced more than 1500 viral genomes so far and their analysis shows from where the virus is originating, how it is spreading and how it is mutating. CSIR-IGIB carried out an analysis of viral genome sequences that revealed that there are some variations in primers or probes sites, which are widely used in India and across the world for molecular diagnosis. If the variations are at the significant frequency, they may affect the quality of diagnosis suggesting a need for low variability loci to be used for diagnostics. The analysis revealed some genomic loci that had significantly low variability in Indian isolates of SARS-CoV-2 isolates suggesting an opportunity to develop better molecular assays.

- CSIR labs together have tested ~ 2.1 Lakh samples so far. 12 labs of CSIR have done testing across the country, from Jammu to Northeast. Even labs not known for biological research like CSIR-IIP and CSIR-CLRI have risen to the occasion and contributed to testing at the time of the need in the country. The latest COVID-19 testing laboratory of CSIR at CFTRI in Mysore was set up at the Government Ayurveda Hi-tech Panchakarma Hospital at Brindavan Extension
- New ways of surveillance for detection of SARS-CoV-2 such as in sewage is being carried out by CSIR-CCMB in Hyderabad. Few samples have been collected from 7 sites in Hyderabad and early estimate shows that about 7 lakh people have shed coronavirus while one fourth is active at present. More data collection is in progress and this mode of surveillance will help in the detection of the virus in the community
- The novel paper based diagnostic kit based on CRISPR-Cas FELUDA developed by CSIR-IGIB and licensed to TATA Sons has now been successfully validated at NCBS, Bangalore. Now an application is being made to DCGI for regulatory approval, and is hoped to be launched soon in the market.
- A simple and fast dry swab based and direct RT-PCR method with no RNA isolation, that can easily scale up the current testing by three fold (without any additional financial and human resource burden) has been developed and is awaiting ICMR approval.
- Quick and easy to use RT-LAMP diagnostic test developed in partnership with Reliance Industries has also been submitted to ICMR for approval.
- Aurobindo Pharma Ltd. have entered into a collaboration for developing a Covid-19 vaccine against SARS-CoV-2. CSIR labs CSIR-CCMB, CSIR-IMTECH and CSIR-IICB, will carry out the pre-clinical studies in animal models and the GMP compliant development and scale-up of the vaccine for clinical trials and commercialization will be carried out by Aurobindo Pharma Ltd.
- An MoU has been signed with Mylan for CSIR as a knowledge partner, where in CSIR will facilitate planning of clinical trials for Covid-19.
- In addition to jointly developing of Favipiravir with CSIR, Cipla has agreed to give 40,000 tablets of Favipiravir which could be used for further combination clinical trials which are being planned.
- Regarding CSIR-NAL's Swasthvayu- BiPAP non-invasive ventilator, clinical trials on Covid-19 patients has been completed and **DGHS approval is awaited.**

- CSIR-CSMCRI has developed a silver nanoparticle-based hand sanitizer which has been tested at THSTI for its efficacy on pathogenic bacteria and early experiments have also been done with SARS-CoV-2 and found suitable.
- Two lakh PPEs and two lakh nasal swabs have been supplied to date.
- ENCEESPRAY project was selected as one of the top Covid-19 innovations for the award and grant for scaling up the project in India as well as the US. The project partners are RiteWater, CSIR-CSIO, and the University of Florida, US.
- CSIR-CMERI, Durgapur, unveiled the COVID Protection System (COPS) for workplace as a game-changer in the current Pandemic Scenario. The COPS is a conglomeration of the following technologies: *Solar Based Intelligent Mask Automated Dispensing Unit cum Thermal Scanner (IntelliMAST)* that identifies the body temperature and whether an individual is wearing face mask or not through customised software solutions; *Touchless Faucet (TouF)*; *360° Car Flusher* and *Dry Fogging Shoe Disinfection*.
- CSIR-NIIST developed know how for Steam Inhalation Drops (NIISTeam) and Alcohol based herbal sanitizer gel (CleaNIIST).

### **Rural Programs and Outreach**

- As a part of farmer outreach and help them economically CSIR-IHBT distributed about 60,000 slips of aromatic plant lemon grass to the farmers of rainfed area of Jawalamukhi and Dehra of district Kangra, Himachal Pradesh
- CSIR-IHBT: 5384 bamboo plants of different species have been supplied under National Bamboo Mission funded by State Agriculture Department of HP.
- CSIR-NBRI held a meeting with developmental agencies (including CSIR-IMMT) and entrepreneurs of Nabrangpur district, Odisha for CSIR-NBRI rural development technologies on 13 Aug 2020.

### **Technologies transferred during the month**

- CSIR-CECRI transferred the knowhow for Electrochemical Production of Sodium Hypochlorite to M/s. RS Nano Technologies.
- CSIR-CFTRI transferred the process of many food products to industries which include Preparation of ready to cook Multigrain Whole mix for Drink/Porridge; Nutra chikki with added spirulina; Instant coffee cubes;

Banana pseudostem juice; Dehydrated drum stick powder; Instant moringa leaves soup mix; Flaking of foxtail millet and Low glycemic Index noodles.

- CSIR-CRRI transferred “Modified Mix Seal Surfacing (MSS+)” technology to JMVD Industries Pvt. Ltd.
- CSIR-NIIST transferred the UV-Clean disinfecting unit to M/s Panchtatva Technologists and Services.
- CSIR-IHBT transferred technology on “Development of efficient psychrotrophic bacterial formulation for preparation of enriched compost/ vermicompost in cold hilly region and, production and testing of enriched compost/ vermicompost” in cold hilly region for its implementation at large scale as per technical know- two parties viz. M/s Moonew Tareybhair Enriched Composting /Vermicomposting Cluster (MECC), West District, Sikkim and M/s Triloki Enriched Composting /Vermicomposting Cluster (TECC), Sirmour District, Himachal Pradesh.

### High impact S&T services offered

- CSIR-IIIM: Certificate of Analysis were released on 21 Aug 2020 with Complete CMC analysis including Quantification of markers using HPLC for the Ashwagandha tablets, Yastimadhu Tablets and Guduchi-Pippali Tablets.
- CSIR-IIP: Expert Advisory Services for reviewing the Pyrolysis Oil Hydrotreater Unit: A report on evaluation of strategy process configurations was submitted to M/s Quanta Process Solutions Pvt. Ltd.

### Patents Update:

Patents Filed		Patents Granted		Patents Prosecutions	
India	Abroad	India	Abroad	India	Abroad
15	28	23	19	68	131

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

- CSIR-CBRI has signed a MoA with Ministry of External Affairs, Govt. of India for the purpose of “Design and Project Management Consultancy services for Reconstruction/ Retrofitting of Health Buildings in earthquake Affected Areas of Nepal’.

- CSIR-CDRI: A MoU executed with Marc Laboratories Ltd., Lucknow for Partnering in clinical trials of Niclosamide.
- CSIR-CEERI: An MoU with GLFBS, Kolkata has been signed on 6th August, 2020, for Entrepreneurship Development based on CSIR-CEERI Technologies to support Atmanirbhar Bharat Abhiyan.
- CSIR-CIMFR signed four Tripartite Agreements regarding coal sampling works.
- CSIR-CRRI: Amended agreement signed between CSIR-CRRI and JMVD Industries Pvt. Ltd. titled Modified Mix Seal Surfacing (MSS+) on 24th August, 2020.
- CSIR-IICT:
  - An MoU was signed for the project "Preparation of ortho-chloro benzonitrile by ammoxidation of ortho-chloro toluene" with M/s Shiva Pharmachem Limited, Vadodara- 390007, Gujarat.
  - An MoU was signed between CSIR-IICT and M/s Befach 4X Private Limited, Hyderabad, for a project on "exploratory studies on development of indigenous antiscalent pellets or mod of existing antiscalent pellets with surfactant additives for D'Cal Device".
  - An MoU was signed between CSIR-IICT and M/s Laurus Labs Limited, JN Pharma City, Parawada, Visakhapatnam for a project on "Transfer of Process knowhow of Remdesivir and Favipiravir".
  - MOU signed with Sravati Advanced Technologies Pvt Ltd on repurpose of drugs for COVID-19.
  - An MoU was signed between CSIR-IICT Technology and Cipla Foundation under CSR initiative for large scale mask production in response to COVID-19 pandemic.
- An MoU was executed between Apparel and Textile Parks of Telangana (ATPT), Office of the Director of Department of Handlooms & Textiles and Apparel Export Parks (DH&T and AEPs), Telangana Govt., and CSIR-IICT.
- Agreement is signed between CSIR-IIIM, Jammu and Laxai Lifesciences, Hyderabad for Phase III randomized, open labelled, multicentre, parallel group, clinical trial to study the efficacy and safety of multiple unique combination of antiviral and anti-inflammatory therapies compared with the standard of care in treating patients infected with Novel Coronavirus (COVID-19) (MUCOVIN).

- CDA was signed between CSIR-IIIM, Jammu and Boyce Biosynthetics, Mumbai to develop collaborative project of mutual interest.
- CSIR-IIP signed an MoU on Academic, Education Research and Knowledge Exchange with National Institute of Technology, Uttarakhand and MoU on BRU Technology Reliance Industries Limited, Mumbai.
- CSIR-NBRI : Secrecy agreement for evaluation of sample of Bio-film has been signed with to M/s Birla Corporation Ltd. Kolkata.
- MoA between CSIR & Avra Laboratories for operationalizing CSIR-AV Rama Rao Chairs.
- CSIR-NAL has signed agreement with NRDC for setting up Incubation-cum-Innovation Centre at CSIR-NAL with external funding to support and nurture start-ups in Aerospace & allied sectors.

### **International collaborations, agreements, MoUs signed**

- CSIR-CBRI has signed a MoA with Halspan Limited, United Kingdom to undertake the work entitled "Fire Performance Assessment of Fire Doors" on August 28, 2020.
- Academic and Research Agreement signed between CSIR-IICT and Yonsei University, South Korea.
- Sponsored Research Agreement between CSIR-NCL & M/s Unilever Industries.
- CSIR-NIO: Sample Analysis agreement signed between CSIR/NIO and M/s. Dialog Systems International FZE, UAE for assessing the ecotoxicity of 02 types of synthetic base drilling fluids

### **Others**

- CSIR-CECRI: Kathireasan M, Observation of inhomogeneous plasmonic field distribution in a nanocavity, *Nature Nanotechnology Letters*, <https://doi.org/10.1038/s41565-020-0753-y>; [**Impact Factor (2019): 31.438**]
- CSIR-CMERI has developed the Largest Solar Tree, which is installed in the campus.

## **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**

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

### **Scientific and Industrial Research Organization (SIROs) Recognition/ Registration and Renewal of SIROs**

- 60 SIROs were granted renewal of recognition and 25 were granted renewal of registration certificates.

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

- 01 PFRIs were granted registration certificate.
- 07 PFRIs were granted renewal of registration certificates.

## **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. 1234.83 Lakhs during August, 2020.
- Sale of items worth Rs.1341.76 Lakhs was realized during August, 2020.

### **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 technology on 'High Precision Optical Standard Glass Scales' by Central Manufacturing Technology Institute (CMTI).
- NRDC has collected royalty of Rs. 204.1 Lakh during August, 2020.