No. DSIR/MS/2020/11
Government of India
Ministry of Science & Technology
Department of Scientific & Industrial Research
MONTHLY SUMMARY FOR THE CABINET
(For the month of **November, 2020**)
(Part-I Unclassified)

Major achievements during the month of November, 2020:

1. Council of Scientific & Industrial Research (CSIR)

Update on Initiatives for Covid-19 Mitigation

- Diagnostic based on CRISPR Cas-9 technology called Feluda developed by CSIR-IGIB is now launched in the market by TATA as TataMD CHECK. This is a novel diagnostic testing for COVID-19, which is powered by CSIR-IGIB technology. Further, TATA is launching the kit in collaboration with Apollo Hospitals and its subsidiary, Apollo Diagnostics will offer the testing in the National Capital Region (NCR) from the first week of December 2020 and will be rolled out across all major centers including Kolkata, Mumbai, Hyderabad, Bengaluru, Chennai, Ahmedabad and Pune, followed by a second phase into other cities.
- On the other development on Covid-19 diagnostics, the Dry Swab-Direct-RT-PCR method of CSIR-CCMB for SARS-CoV-2 detection has been independently validated and approved by ICMR. After evaluating this method and finding an overall concordance of 96.9%, ICMR has now issued an advisory for the use of CSIR-CCMB dry swab method, considering its lesser cost and quick turn-around time. This method is a simple variation of the existing gold standard RT-PCR method and can easily scale up the testing by 2 to 3 fold immediately. Most importantly no additional human and financial resources are needed and no additional training, instruments or resources are required providing immense benefit to the country in scale up of the testing capacity of SARS-CoV-2.
- In addition to developing new diagnostics, 13 CSIR labs continue to support the testing for SARS-CoV-2 infection in the country and more than 6 lakh samples have been tested so far.
- CSIR has been pursuing the clinical trials of various repurposed drugs for treatment of Covid-19 and among those the Phase III clinical trial of Sepsivac with Cadila after completion of Phase II trial is under way. The phase III clinical trial of repurposed drug umifenovir being carried out at CSIR-CDRI is progressing well and recruitment is ongoing. Similarly, the clinical trials of Ayush drugs for Covid-19 treatment with Ministry of Ayush are ongoing.
- CSIR-IICB based in Kolkata has recently submitted its final report of the Phase 2 randomised control trial for convalescent plasma therapy in COVID-19. This trial was undertaken by CSIR in West Bengal, in collaboration with the Department of Health & Family Welfare, Govt. of West Bengal at Infectious Disease & Beleghata General Hospital (ID&BG). The study revealed that whileamong all the patients in the cohort the relative benefit of plasma therapy was not significant, it was found that moderate acute respiratory distress syndrome (ARDS) patients up to 67 years of age were significantly benefited from plasma therapy, in terms of reduction in mortality

and early remissions. This suggests that precise targeting of severe COVID-19 patients is necessary for reaping the clinical benefits of convalescent plasma therapy.

- CSIR-NAL designed non-invasive BiPAP Ventilator called Swasthvayu which has undergone extensive clinical trials has received a contract from Delhi Government for 1200 Ventilators. Further, CSIR-CBRI designed makeshift hospitals for Covid-19 patients are under construction at Himachal Pradesh at Shimla, Tanda and Nalagarh.
- CSIR-IIP completed the installation and commissioning of a 6 m3/h medical grade oxygen plant. The unit is operating at full throughput and meeting medical grade oxygen specification (93±3%).
- A 6 NM3/Hr Medical grade oxygen generation pilot plant for standalone hospital use catering to the need of 10-20 Covid patients, fabricated as per CSIR-IIP design specifications, was installed. Testing of the unit under various PVSA process conditions were initiated. Medical grade oxygen specifications (93±3%) have been met at the designed product throughput. Performance stability testing is currently ongoing.

New Products/Processes/ Technologies developed

- CSIR-CEERI developed the process of Silicon (Si) molds with micropattern over 4 cm^2 using optimization of anisotropic etching process. These molds are utilized for micro structuring of PDMS layers, which are important for obtaining high sensitivity in flexible pressure sensors. Flexible pressure sensors have various applications like electronic skin, monitoring of health parameters, robotics etc.
- CSIR-CMERI: A low cost microfactory with magnetic levitation based actuation for Micro machining
- CSIR-NBRI developed Mask Stress Reducer- Nitya that facilitates better breathing. The Institute also developed Traditional kadha – Josh that is useful for alleviating common cold symptoms.
- CSIR-IIP developed a process for improved alkali pretreatment and conducted enzyme blending studies for high-solids hydrolysis of sugarcane bagasse.

Technologies licensed/transferred during the month

- CSIR-NIIST licensed a system and a method for onsite wastewater treatment and resource recovery to Mr Ahmed Bilal, Kasargod

Patents Update:

Patents Filed		Patents Granted		Patents Prosecutions	
India	Abroad*	India	Abroad*	Indian	Foreign
11	14	23	07	23	30

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

Collaborations/Agreements/MoUs Signed (National)

- CSIR-CBRI and IIT, Kharagpur signed an MoU on November 25, 2020 for enhancing the availability of highly qualified manpower in the area of civil engineering, Building Science & Technology, Engineering Geology,

Architecture & Planning and other areas of Engineering, Technology and Sciences.

- CSIR-CBRI and Tezpur University, Assam signed an MoU on November 12, 2020 to promote cooperative research, to facilitate the exchange of Ideas, development of new knowledge and to enhance high quality research acumen in the area of Building Science and Technology including Energy and Environment, Geothermal Energy, Efficiency of Buildings, Environmental Science and Technology, Renewable Energy, Space Heating and Cooling, Hydrogen Energy, Organic Building Materials, Modelling & Simulation and Architecture And Planning.
- A Bilateral Agreement was between CSIR-CIMFR, Dhanbad and Maithon Power Limited, Corporate Centre, Sant Tukaram Road, Mumbai.
    - Agreement for Digital Mine Using Internet of Things between CSIR-CIMFR, Dhanbad and M/s Knowledge Lens Pvt. Ltd., Bengaluru, Karnataka, India.
    - Agreement for Digital Mine Using Internet of Things between CSIR-CIMFR, Dhanbad and M/s Coresonant Systems Private Limited, Secunderabad, India.
    - Agreement for Development of latest techniques for application of Geo-Synthetic Concrete Cement Mat (GCCM) for Indian geo-mining conditions and other areas between CSIR-CIMFR, Dhanbad and M/s Sanbros Spares Private Limited, Nagpur, Maharashtra, India.
    - Agreement for use of CIMFR facility "Electrical Resistivity Imaging Survey (ERI) System" for coal exploration at Bilaspur, Chattisgarh between CSIR-CIMFR, Dhanbad and M/s. AKD Geomining solutions (OPC) Private Limited, Mahananda Apartment, Lake Avenue, Kanke Road, Ranchi, Jharkhand.
    - Tripartite Agreement between Eastern Coalfields Limited (ECL); M/s. Talwandi Sabo Power Limited, Mansa, Panjab and CSIR-CIMFR, Dhanbad;
    - Agreement for Advice on Controlled Blast Design for Excavation of Rock at BRO Road Construction Sites between CSIR-CIMFR, Dhanbad and Border Roads Organisation (BRO), Ministry of Defence, Seema Sadak Bhawan, Ring Road, Delhi Cantt. New Delhi
- CSIR-CMERI: MoU signed with Indo-Danish Tool Room, Ministry of MSME-Technology Centre, Jamshedpur for forging partnerships for exchange of human resources, sharing of assets and facilities, promoting marketing of technologies, organizing joint workshops for skilling the youth, improving the job and entrepreneurial opportunities for the youth and conducting workshops on IoT applications for the Industry.
- CSIR-CSIO:
    - MoU with Hindustan Aeronautics, Lucknow on 17/11/2020 for Joint Design & Development, Manufacture and Supply of products relating to the needs of Indian Defence Forces and Civil Aviation customers focused to reduce dependency on foreign OEMs and increased indigenous content with a larger perspective of making India "ATMANIRBHAR" and furthering the "Make in India" policy of GoI.
    - MoU with Bharat Electronics, Panchkula on 28/11/2020 for joint development of HuDs, Cockpit Display Systems, Navigational & Visual Landing Aid Systems, Aviation Lighting Systems and Perimeter security systems.

- CSIR-IICT MoUs signed:
  - MoA with DBT on "Innovative algae platform for industrial waste waters vaporization".
  - MoU with Visvesvaraya National Institute of Technology (VNIT), Nagpur, executed on 20 November 2020 to promote institutional linkage between the two institutes and to explore avenues for possible collaboration in research & training in the area of Engineering & Technology.
  - Conversion of water hyacinth to soil conditioner through AAC technology from NMC lakes with M/s Nizampet Municipal Corporation, Hyderabad
  - Design strategy to enhance self-regeneration capacity with M/s Nizampet Municipal Corporation, Hyderabad
  - Collaboration in R&D activities related to Medicinal Chemistry and Intermediate Synthesis with M/s NSJ Prayog Life Sciences Pvt Ltd, Medak
  - Design of High rate biomethanation technology for the generation of biogas & bio-manure from food waste & market vegetable waste" (above 200 kg/day capacities) with M/s Nyrmalya Bio Engineering Solutions Pvt. Ltd, Hyderabad
  - Process development of Glufosinate with M/s Rallis India Limited, Mumbai
  - Process Development and Basic Design Report (BDR) for 1 ton/day of Furfural alcohol and by-products Cellulose, Lignin and Silica from rice husk with M/s BioKi Agro Products, Hyderabad
  - Process Development Sodium L-Ascorby-2-Phosphate (Slap) with M/s Srujuna Biopharma, Hyderabad
  - Metal-peroxo Open Sites Concept-based M2(O2) (dsbdc/tsbdc) MOF Adsorbents for Light Paraffin/Olefin Separation with M/s Hindustan Petroleum Corporation Limited, Bangalore
  - MoU signed with M/s Mylan Laboratories Limited, Hyderabad for the project R&D in APIs
- CSIR-NIIST and M/s Marikar Motors Limited, Thiruvananthapuram signed an MoU for setting up an industrial unit to manufacture eco-friendly & biodegradable products.
- CSIR-NIIST technology transfer of Customized portable Raman Spectrophotometric device for multiplex detection of breast cancer of biomarkers to M/s Vinvish Technologies Ltd, Thiruvanathapuram
- CSIR-IIP singed a NDA on Collaboration for developing the Technology for Vapor Recovery Systems (VRS) and Transmix Reclamation Unit with Vcare Engineering Private Limited, Vadodara on 09.11.2020

High impact S&T services offered

- CSIR-CBRI; Construction of the Makeshift Hospital at three locations in Himachal Pradesh is under process.
- CSIR-Indian Institute of Toxicology Research (CSIR-IITR), Lucknow conducted Air Quality survey at 7 locations (Aliganj, Vikasnagar, Gomtinagar, Charbagh, Aminabad, Alambagh and Amausi) of Lucknow city to assess the impact of firecrackers on the air quality during the Diwali festival, 2020 and released a report on Ambient Air quality assessment of Lucknow city during Pre-Diwali, Diwali and Post-Diwali on 16th November 2020.

Outreach Activities (Jigyasa, Skill Development, and others)

- CSIR-CBRI organized a Webinar Series 6.0 on Mechanization and Automation in Building Construction & Services during November 02-05, 2020.
- Web-lecture on Agro-machineries and Bio diesel plants developed by CSIR-CMERI.
- CSIR-IIP:
  - Online Training Program on Solvent Dewaxing Unit (02.11.2020 to 13/11/2020) for Chemical Engineers of Numaligarh Refinery Ltd organised by CSIR-IIP Dehradun
  - Online Training Program on Wax Hydrofinising Unitt (28.10.2020 to 12/11/2020) for Chemical Engineers of Numaligarh Refinery Ltd organised by CSIR-IIP Dehradun

Visit of high-level dignitaries to the Institute/Laboratory

- Dr. Harsh Vardhan, Hon'ble Minister of Science & Technology, Earth Sciences and Health & Family Welfare and Vice President – CSIR graced the Platinum Jubilee ceremony of CSIR-CIMFR as Chief Guest. On the occasion, Dr. Harsh Vardhan, Hon'ble Minister of Science & Technology, Earth Sciences and Health & Family Welfare, also dedicated to the nation the three technologies and facilities, as a step towards AtmaNirbhar Bharat Abhiyan. 1. The Centre of Excellence for Coal Gasification- Coal to Syngas Plant; 2. Centre of Excellence for Strategic and Infrastructure Sectors; 3. Indigenously developed innovative technologies for import substitution of coking coal. The day also witnessed the signing of different agreements for transfer of technology with mining and allied sector companies including Knowledge Lens Pvt Ltd, Bangalore and Coresonant Systems Pvt Ltd, Secunderabad for digital mining using IOT.
- A collaborative agreement with Sandros Pvt Ltd, Nagpur for Development of Technology for application of Geo synthetic Concrete Cement Mat (GCCM) & Intelligent Slope Monitoring System and its turn key based application was also made during the occasion.
- Another agreement with AKD Genmining Solutions (OPC) Pvt Ltd, Ranchi for use of CIMFR facility for Geophysical Exploration Related to Electrical Resistivity Imaging System for geophysical survey for coal preparation.
- A bilateral agreement with Maithon Power Limited, Dhanbad for Coal Quality Assessment at unloading point for coal sampling work was also made during the occasion.
- Two tripartite agreements on coal quality assessment at loading points for coal sampling work including one with Navi Nagar Power Generation Company Ltd and Central Coalfields Limited, Ranchi and another with Western Coalfields Limited, Nagpur and NTPC Mohuda was also signed.

Conferences, Workshops, etc. organized, if any, during the month

- CSIR-IICT hosted first Shanghai Cooperation Organisation (SCO) Young Scientists Conclave with over 200 participants. The Conclave was inaugurated November 24th by Dr. Harsh Vardhan, Union Minister for Science & Technology, Earth Sciences and Health & Family Welfare.
- 2-Days Online Seminar on "Special Techniques in Electron Microscopy for Materials Science Applications" was jointly being organized by CSIR-IMMT,

IIT Bhubaneswar and the Electron Microscope Society of India (EMSI) – East Zone, Kolkata during November 6-7, 2020

- 6th International Toxicology Conclave (2020) was organised on November 05, 2020 at CSIR–Indian Institute of Toxicology Research, Lucknow as a part of the Foundation Day Celebrations of the Institute.
- CSIR-CSIO conducted a Demonstration/Training Workshop on Divyanayan Device via webinar on the topic "Divyanayan: A step towards personal assistance for persons with visual impairment" held on 24th November, 2020 in collaboration with Centre of Excellence for Persons with Disabilities, SBI Foundation.

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

- 06 in-house R&D units of industries were granted recognition as well as registration certificates.
- 27 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

- 02 SIROs were granted recognition and 01 was granted registration certificate.

Public Funded Research Institution (PFRIs)

Registration and Renewal of PFRIs

- 26 PFRIs were granted renewal of registration certificates.

Fiscal Incentives for R&D by Industry

- 37 reports in form 3CL submitted to CCIT under Section 35(2AB) of IT Act for weighted tax deduction on industrial R&D involving a total amount of Rs.16005.07 lakhs.

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. 2343.87 Lakhs during November, 2020.
- Sale of items worth Rs. 2391.37 Lakhs was realized during November, 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 four technologies by National Institute of Ocean Technology; one technology by CCRAS, New Delhi and licensed three technologies to industry for commercialization during November, 2020.

- NRDC has collected premia of Rs.7.00 Lakhs and royalty of Rs.12.24 Lakh from respective technologies during November, 2020.

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