

No. DSIR/MS/2020/12
Government of India
Ministry of Science & Technology
Department of Scientific & Industrial Research
MONTHLY SUMMARY FOR THE CABINET
(For the month of **December, 2020**)
(Part-I Unclassified)

Major achievements during the month of December, 2020:

1. Council of Scientific & Industrial Research (CSIR)

Update on Initiatives for COVID-19 Mitigation

- The simple and fast method of Dry Swab-Direct RT-PCR, developed by CSIR-Centre for Cellular and Molecular Biology (CCMB), Hyderabad for scaling up of SARS-CoV-2 detection has been approved by ICMR based on their independent validation. It is currently being deployed through Spice Health and Apollo Hospitals.
- The CSIR-Indian Institute of Chemical Biology (IICB), 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 & Belegghata General Hospital (ID & BG).
 - The study revealed that the relative benefit of plasma therapy was not significant among the patients in the cohort. But 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. The study has been reported on the preprint server medRxiv and is yet to be peer-reviewed. <http://medrxiv.org/cgi/content/short/2020.11.25.20237883v1?rss=1>
- CSIR-NAL designed non-invasive BiPAP Ventilator called Swasthvayu has received a contract from Delhi Government for 1200 Ventilators.
- TATA MD Check CRISPR Cas Covid19 Diagnostic kit which is powered by CSIR-IGIB developed FELUDA is currently available on GEM portal too. In addition, TATAs have tied up with Apollo Hospitals for testing and also exploring with Delhi Government for deployment.
- Data from the first round of CSIR cohort sero-survey for COVID-19 has revealed that the data correlates incidence of sero-positivity with public transportation (versus private transportation), blood group (O being protective) and smokers are less likely to be infected. A plan has been made with the help of National Institute of Nutrition for doing sero-surveillance of Hyderabad city with State Government and ~10,000 samples covering the entire city may be

tested. The emerging data will be studied along with sewage surveillance data that is also being analysed by CSIR-CCMB and CSIR-IICT which will help in surveillance and control of the pandemic.

- Recent mutations reported in Coronavirus from the UK and the emergence of the variant strain B.1.1.7 have raised considerable concern in India and globally. Further, CSIR-IGIB and CSIR-CCMB are part of the ICMR approved sequencing centres who will sequence samples from COVID-19 positive people returning from U.K. to see if the B.1.1.7 strain is detected in them. This will enable screening and surveillance for this variant in the country at the earliest.
- Thirteen CSIR labs have been testing samples for COVID-19 across India and recently CSIR-CDRI alone crossed the one lakh testing mark and CSIR-IITR having tested more than 1.5 lakh samples. All the 13 CSIR labs together have tested about 7,29,000 samples so far.
- The Phase III clinical trial of Sepsivac by Cadila and CSIR on COVID-19 patients is underway after completion of Phase II trials.
- The Phase III clinical trial of repurposed drug Umifenovir at CSIR-CDRI is underway.
- Similarly, five clinical trials of various AYUSH drugs for use in Covid19 treatment are underway in partnership with Ministry of AYUSH. No severe adverse events have been reported so far and the trials are expected to be completed by end of March 2021.
- CSIR-CCMB has been working with industry partner VINS for development of therapeutic antibody from horse for COVID-19 treatment and now an application for Phase-I Clinical Trial has been filed.
- The three makeshift hospitals designed by CSIR-CBRI— who has been awarded the contract by Himachal Pradesh Government— are under construction. The one at Shimla is completed and one at Nalagarh and Tanda are expected to be completed soon.

New Products/Processes/ Technologies developed

- CSIR-CSIO designed Zerodur Off Axis Mirrors for Space Application and Zerodur Aspheric Mirrors for Space Application.
- CSIR-CSMCRI developed a process of selective extraction of pure lac resin from the aqueous effluent.
- CSIR-IICT developed a process for extruded Nutrafood products for management of metabolic disorders and anaemia for M/s. Ameya Life the brand of Wellcare life LLP and SDG Healthcare Pvt. Ltd., Hyderabad.

- CSIR-IICT developed high rate biomethanation technology for the generation of biogas & bio-manure from food waste & market vegetable waste (above 200 kg/day capacities) using AGR technology for M/s. Ahuja Engineering Services Pvt Ltd., Secunderabad.
- CSIR-IIP designed demo plant atMangalore Refinery Petroleum Limited(MRPL) for Bio-Jet Fuel Production in

Technologies licensed/transferred during the month

- CSIR-CSMCRI licensed the process of selective extraction of pure lac resin from the aqueous effluent to M/s. Jaiswal Shellac Industry Purulia, WB.
- CSIR-IHBT signed transfer agreements on cultivation of Shiitake mushroom at large scale as per technical know-how of CSIR-IHBT to the following three mushroom cultivators:
 - Norbu Choeiling Shittake Mushroom and Other Food Processing Cluster (NCSMC), South Sikkim, Block Namthang Pin—737 121
 - Sumbuk Shittake Mushroom and Other Food Processing Cluster (SSMC), Sumbuk South Sikkim
 - West Sikkim Shiitake Mushroom & Other Food Processing Cluster (WSSMC), Sikkim District, West-East Pin—737 121
- CSIR-IICT transferred process for extruded Nutrafood products for management of metabolic disorders and anaemia to M/s. Ameya Life the brand of Wellcare life LLP and SDG Healthcare Pvt. Ltd., Hyderabad.
- CSIR-NBRI signed licensing agreement signed for Traditional Kadha and Mask Stress Reducer with Marc Laboratories Limited, New Delhi .

Patents Update:

| Patents Filed | | Patents Granted | | Patent Prosecutions | |
|---------------|---------|-----------------|---------|---------------------|---------|
| India | Abroad* | India | Abroad* | Indian | Foreign |
| 12 | 25 | 23 | 21 | 45 | 30 |

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

Collaborations/Agreements/MoUs Signed (National)

- CSIR-NPL signed MoU with BARC (DI of India for Ionizing Radiation) for establishing and implementing Quality System as per ISO/IEC 17025 : 2017.
- CSIR-4PI signed a Memorandum of Association (MoA) for "Collaboration for Conducting Joint Programs in Cyber Security and Privacy" between CSIR -

Fourth Paradigm Institute (CSIR-4PI), Bengaluru and Data Security Council of India (DSCI).

- CSIR-CEERI signed Academic MoUs signed with Mewar University and IIT, Bombay.
- CSIR-CIMFR signed the following agreements:
 - Tripartite Agreement with Eastern Coalfields Limited (ECL), Sanctoria, WB and M/s. Andhra Pradesh Power Development Corp. Ltd., Vijayawada.
 - Tripartite Agreement with South Eastern Coalfields Limited (SECL), Bilaspur; M/s. Jindal Power Limited, Raigarh.
 - Tripartite Agreement among Eastern Coalfields Limited, Santoria, WB; Nabha Power Limited, Patiala, Punjab.
 - Bilateral Agreement with NTPC Limited, New Delhi
- CSIR-CSIO signed an MoU with Directorate of MSME Haryana and also a collaborative research agreement with M/s Ideamines Management Consultants Pvt. Ltd. Noida.
- CSIR-IHBT MoUs:
 - With Komal Innovation and Wellness Initiatives (Kiwi), Nagrota Bhagwan (H.P.) for co-development of herbal tea.
 - MoU (collaboration for Integration of Resources on Agroforestry Development and Adaptation) with Hrudaya Foundation, Lajpat Nagar, New Delhi .
- CSIR-IICT MoUs/Agreements:
 - Transfer of Mercaptan free Profenofos synthesis technology [Pesticides Manufacturers & Formulators Association of India (PMFAI), Mumbai].
 - Exploratory Studies on dimerization of unsaturated fatty acids and characterization of products [VVF [India] Limited, Plot No. V - 41, MIDC Industrial Area, Taloja, District Raigad Maharashtra].
 - Preparation of ortho chlorobenzonitrile by ammoxidation of ortho-chloro toluene [Diamines and Chemicals Limited, Vadodara].
 - Technical assessment of DPR on compressed biogas from poultry litter [Solika Energy Private Limited, Hyderabad].
- CSIR-IIIM MoUs:
 - Agreement was signed between CSIR-IIIM and National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore for Drug discovery collaboration.
 - Collaborative Research Agreement (CRA) was signed between CSIR-IIIM, Jammu and All India Institute of Medical Sciences (AIIMS), New Delhi on 22nd December, 2020 to undertake collaborative project entitled Evaluation of small molecules as potential stem cell modulators and their therapeutic relevance.

- CSIR-IIP: MoU on Medical Oxygen Generation Technology signed with Gaskon Engineers, New Delhi.
- CSIR-NAL agreements/MoUs:
 - Collaboration Agreement for Development of GMR based Spin Valve Current Sensor with M/s. Electrohms Pvt Ltd., Bangalore
 - Agreement for collaboration Project on Development of lignin based Carbon Fibre through Melt Spinning Process with Bharat Petroleum Corporation Limited, Greater Noida U.P
- CSIR-NBRI signed the following MoUs:
 - MoU signed for research and academic activities with Saraswati Dental College, Lucknow
 - MoU signed for research and academic activities with University of Lucknow, Lucknow
 - MoU signed for collaborative work in terms of taking up cost effective activities on medicinal and aromatic plants in Manipur with Manipur State Medicinal Plants Board, Govt. of Manipur – Imphal .
 - MoU signed for research and academic activities with Babasaheb Bhimrao Ambedkar University, Lucknow.
- CSIR-URDIP signed MoU with KPIT Technologies Ltd., Pune for providing IP search and analysis services.
- CSIR-NIO and the Indian Navy, represented by Integrated Headquarters, Ministry of Defence (Navy) / Directorate of Naval Oceanology and Meteorology, Government of India signed a Memorandum of Understanding (MoU) to seal Institutional Linkages and Expertise in the field of Oceanography.

Collaborations/Agreements/MoUs Signed (International)

- CSIR-CEERI signed Academic MoU with Hiroshima University, Japan on 16 December 2020.
- CSIR-IIP signed an MoU with Vietnam Petroleum Institute, Hanoi on Simultaneous Production of US Grade Gasoline and High Purity Benzene from FCC Naphtha: CSIR-IIP & RIL Technology (after CSIR-IIP obtains due approvals from its partner, Reliance Industries Ltd).

High impact S&T services offered

- DRDO-SASE is establishing the laboratory for calibration of the instruments used for snow avalanche and extreme weather forecasts in Indian Himalaya. CSIR-NPL is extending the Technical Services and submitted the 2nd Interim Report on few of the items, such as (i) Blackbody and IR pyrometers for field snow temperature measurements, (ii) ultrasonic snow depth measurements, and (iii) multifunctional calibrator for DMMs.
- CSIR-CEERI: S-Band Klystron Device delivered to BARC.
- CSIR-CRRI carried out following services:

- Condition Assessment, Structural Evaluation and Suggestions for remedial measures of Indravati Bridge at Km 294+600 on NH-30 in the Raipur-Jagdalpur Stretch in the state of Chhattisgarh.
- Pavement Analysis and suggestive course of action for frequent distress of flexible pavement of section Gundugolanu to Siddhantham of NH-16 in the state of Andhra Pradesh, Package-1 (72kms) & Package-2 (49 kms).
- Condition survey, structural evaluation and remedial measures of 19 nos of completed/ongoing bridge projects under Rural Development Department, Govt of Odisha
- CSIR-NAL: Development of flight control laws and air data algorithm for AMCA, LCA AF (MK1 & MK2) and LCA naval variants
- CSIR-NISCAIR:
 - NKRC - Access to e-resources for all CSIR & DST laboratories facilitated.
 - Total 157 ISSN applications received in the month of December.
 - Analysis and creation of data-tables for the 215 publications of CEFIPRA/IFCPAR (Indo-French Centre for the Promotion of Advance Research) for the year 2019.
 - Data pertaining to CSIR publications for the year 2019 along with Average-IF was sent to CSIR HQ.
 - Indian Science Abstracts goes completely online. It's new website was launched and available at isa.niscair.res.in

Outreach Activities (Jigyasa, Skill Development, and others)

- CSIR-CBRI organized two Five Day Virtual Skill Development Training Programme on "Earthquake Resilient Construction Practices" for Uttarakhand State Engineers and Staff members.
- CSIR-CECRI organized skill development training programmes on Paint and Coatings for Corrosion Protection, Waste Water Treatment Technologies in textiles and tanneries and Waste Water Treatment Technologies.
- CSIR-CEERI successfully concluded Online Value Added E-Course on AI Skill Development for students at JCBUST, Faridabad
- CSIR-CMERI organized web lecture (Jigyasa) on Scientist-Student Interactive Session on the topic titled "Biomimetic Robots" on 10.12.2020. An online Lecture was held on 16.12.2020 on 'Mechanical Engineering in current situation – perspectives and prospects, Participants: Students of Jalpaiguri Govt. Engg. College., WB
- CSIR-CRRI conducted online customized training programme on "Design, Construction and Quality Control Aspects of Flexible and Rigid Pavements" from December 21, 2020 to December 23, 2020 for the engineers of PWD (R&B) of UT Ladakh. It was attended by 45 participants.
- CSIR-CRRI conducted online regular training programme on "Quality Assurance, health Assessment and Rehabilitation of Bridges" from December 28, 2020 to December 30, 2020. The training programme was inaugurated by

Prof. Satish Chandra, Director, CSIR-CRRI and it was attended by 37 participants from various parts of India.

- CSIR-URDIP: Staff of URDIP in collaboration with CSIR-HRDC have conducted an online training programme on IPR and related issues from December 9-11, 2020 for CSIR Scientists and Technologists.

CSIR-HARIT Contributions

- CSIR-CSIO held a training workshop on *Divyanayan*: A personal reading machine for visually impaired on 11th December, 2020 at Institute for the Blind, Sector 26, Chandigarh.
- CSIR-IHBT distributed quality planting material of lavender (8800), damask rose (2500), and muskbala to Farmologist Essence and Organic Lip, Delhi for plantation in Champavat district of Uttarakhand under CSIR Aroma Mission. Planting material of lavender stem cutting (7000), lavender rooted plants (150) and rosemary rooted plants (150) were also distributed to farmers of aspirational district Chamba through STD, Mandi, Himachal Pradesh.
- CSIR-IHBT team visited Lahaul and distributed 1 tonne "Compost Booster: bacterial formulations for odourless rapid night soil composting " among 100 households of 4 Gram panchayats of Lahaul.

Conferences, Workshops organized

- The India International Science Festival (IISF) 2020 was organized from 22 to 25 December on virtual platform. The festival was the largest science festival to be held on virtual platform. The central theme of the 2020 Edition of the festival was "Science for Self-reliant India and Global Welfare". Five Guinness World Records were set during the IISF-2020. About 1.3 lakh registrants participated in the event that had 41 sub-themes.
- CSIR-CFTRI organized training of trainers programme on fruits and vegetables under the PM-FME scheme through virtual platform in which 20 participants from Agriculture University and Govt. departments of Karnataka participated. Also five days virtual Master Trainers programme on Grain Processing was also organized.
- CSIR-CMERI and MSME-Development Institute, Aizawl, Mizoram jointly organized Webinar on "Sustainable Processing of Municipal Solid Waste"
- CSIR-IHBT conducted Soft Intervention training on "Awareness Cum Training" programme on Captive production of Shiitake production and its enrichment with Vitamin D at Soreng, West Sikkim for the sanctioned SFURTI Shiitake processing cluster at West Sikkim.

Other items of significance

- MSW pilot plant installed in CSIR-CMERI residential colony has a capacity of processing approx. 1 Ton waste/day and can manage around 1000 households.

- Dr. Ch Raji Reddy, Sr. Principal Scientist, Department of Organic Synthesis & Process Chemistry, CSIR-IICT selected for the NASI-Reliance Industries Platinum Jubilee Award (2020).
- Dr. Vineet Aniya, Scientist, Process Engineering & Technology Transfer Department CSIR-IICT was awarded IChE Award for the year 2020, Amar Dye-Chem Award, for his Excellence in Research and Development.
- Dr. S. Sridhar, Sr. Principal Scientist, CSIR-IICT selected for the ICI India Ltd. Award -2020 for Excellence in Process or Product Development.
- CSIR-IITR has been adjudged as the winner of Golden Peacock Eco-innovation Award 2020.

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

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

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

- 13 PFRIs were granted registration certificates.
- 18 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. 2861.66 Lakhs during December, 2020.
- Sale of items worth Rs. 2089.05 Lakhs was realized during December, 2020.
- First RADOM production from CIP machine in CEL is the major achievement during December, 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 three technologies by three individual innovators , one technology by Central Sericultural Research and Training Institute, Mysore and one technology by Institute for Design of Electrical Measuring instruments, Mumbai during December, 2020.
- NRDC has collected royalty of Rs.29.54 Lakh from respective technologies during December, 2020.