

**No. DSIR/MS/2021/05**  
Government of India  
Ministry of Science & Technology  
Department of Scientific & Industrial Research  
MONTHLY SUMMARY FOR THE CABINET  
(For the month of **May, 2021**)  
(Part-I Unclassified)

**Major achievements during the month of May, 2021:**

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

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

- **Rapidly Deployable Hospitals:** After setting up 11 Makeshift Hospitals with around 350 beds in Ghaziabad & Chennai with NDRF, one in Bhopal and 6 in HP and 2 in Jammu CSIR has embarked on other constructions. CSIR is working on Makeshift Hospital at Safdarjung Hospital and at Lady Harding (total of 300 beds) in New Delhi. In addition, 500-bed hospital in Himachal Pradesh and 200-bed hospital in Punjab have been planned. A 200 bed hospital at Port Blair has been planned.
- **Modular UV Disinfectant System,** for rooms, HVAC systems in malls, offices etc has been developed. The UV exposure required to kill the coronavirus was tested and validated at CSIR-IMTech using SARS-CoV-2 viral cultures. As a pilot study, the system has been installed at CSIR HQ Auditorium, air duct system.
  - Two buses of UPSRTC have been equipped with the system and discussion is on with Association of State Road Transport Corporations.
  - Installation of the UV system in Railway Coaches for proof of concept has been taken up.
  - License for the technology has been transferred to 30 different industries and MSMEs.
- **Clinical Trials:** CSIR has taken up clinical trials of many repurposed drugs with the aim of quickly developing drugs for treatment of Covid-19. The Phase 3 clinical trial of Sepsivac with Cadila and the Phase III clinical trial of repurposed drug for Umifenovir for treatment of Covid-19 have been completed and analysis is in progress. Under the CSIR-Ministry of AYUSH Joint Initiative on validation of traditional Ayurvedic formulations through scientific evidence, four formulations have been taken up for their clinical safety and efficacy against COVID-19. Meanwhile the therapeutic trial with AYUSH-64 has been shown to exhibit efficacy in the treatment of asymptomatic, mild & moderate cases of Covid 19, as was announced by Ministry of Ayush. The other three clinical trials the results are expected from May-June 2021 onwards.
  - Colchicine clinical trial to be carried out by CSIR in partnership with LAXAI Life Sciences has been given the regulatory approval to undertake the two-arm phase-II clinical trial (ND/CT/20/000061). The design principle of the study is to

rationally combine and repurpose Colchicine, a well-known alkaloid drug used in cardiac ailments. The enrollment of volunteers is complete and the medication has begun at multiple hospitals. This trial is likely to be completed in 8 weeks.

- Phase II trial of Niclosamide has been initiated in partnership with LAXAI Life Sciences. Niclosamide is drug that has been used for treatment of tapeworm and is generally safe. Recent research from CSIR and NCBS and others including King College London has demonstrated that the drug has potential to block the entry of the SARS-CoV-2 and also can inhibit syncytia formation in lungs that is observed in Covid-19 patients.
- **Oxygen Concentrators:** A Medical Grade Oxygen Concentrator has been developed by CSIR-IIP, which has 100% indigenous components. This is suitable for 24/7 operations in hospitals and has a scalable design of 100-500 Liters Per Minute (LPM). It can cater to 20-100 patients @5LPM/patient. Along with DRDO, which is setting 500 Oxygen plants, CSIR-IIP technology licensed industry partners will set up 120 plants by July 2021 and will be funded through PM-CARES. A unit, which was set up in IIP-Dehradun, was transferred to Aundh Chest Hospital, Pune and has been successfully commissioned.
- **Dry Swab Direct RT-PCR** method developed by CSIR, which is rapid, safe and cost effective and removes step of RNA isolation and uses dry swab has been recommended for wider use by ICMR. Several CSIR and non-CSIR labs have been trained for this. CSIR-CCMB is conducting training for those who are interested in adopting this method in their testing centers. It has conducted training for CSIR labs, government and private testing labs totaling to 260 persons and 128 labs so far. Apart from CSIR labs using this method, the technology has been licensed to several industry partners who have developed kits based on this technology or have developed necessary reagents.

- Meril has launched its product for Dry Swab Technology and it is available in the market. Meril is currently equipped to manufacture 2 crore kits a month. Each kit suffices for 100 tests. Using these kits, each test will cost between Rs 45-60.



- The other licensees include Capital Health, Apollo, Biosmart, Spice Health
- **RT-PCR Testing:** Thirteen laboratories of CSIR has carried out 13,19,173 COVID-19 tests so far. CSIR-IITR alone has tested more than 2,65,000 samples for COVID-19 using Real-Time-PCR based quantitative assay. CSIR-IITR is a ICMR and State approved COVID-19 Testing Facility since May 2020.

- **CSIR-NEERI has developed 'Saline Gargle RT-PCR Method'** for testing COVID-19 samples. The Saline Gargle method offers a bunch of attractive benefits, all rolled into one. It is simple, fast, cost-effective, patient-friendly and comfortable; it also offers instant results and is well-suited for rural and tribal areas, given minimal infrastructure requirements. Saline Gargle RT-PCR method is instant, comfortable and patient-friendly. Sampling is done instantly and results will be generated within 3 hours.
- **CSIR-CEERI: One existing nitrogen generation plant has been converted into oxygen generation plant** and it has been installed at Government Bhagwan Das Khetan (BDK) Hospital, Jhunjhunu. All the cutting, welding, leak check & assembly re-routing of the pipes of the sub component as per the requirement has been carried out at central workshop. These includes 30 leak proof welding joints and leak check of all the joints before assembly.
- 118 COVID-19 testing labs have been trained in dry swab-based RT-PCR testing of COVID-19 samples, made informational video with CSIR on our role in avoiding coronavirus variants: English: <https://www.youtube.com/watch?v=qsplyBYmCpo>, Hindi: <https://www.youtube.com/watch?v=qT9SkA4tG7c>
- CSIR-CEERI: Design and development of first prototype of UV disinfection system for AC indoor unit has been carried out. Presently it is under testing stage.

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

- CSIR-CDRI: The MoU executed with Reliance Rasayan Pvt Ltd., Ahmedabad for sharing common understanding about the repurposing & possible use of Almitrine and Ifenprodil for the management of Covid-19 on 20-05-20.
- CSIR-CIMFR: Tripartite Agreement between Central Coalfields Limited, Darbhanga House, Ranchi; Nabha Power Limited, Patiala, Punjab and CSIR-CIMFR, Dhanbad for Coal Sampling Work on 07-05-2021.
  - Tripartite Agreement between Bharat Coking Coal Limited, Koyla Bhawan, Koyla Nagar, Dhanbad; UPRVUNI, Lucknow and CSIR-CIMFR, Dhanbad for Coal Sampling Work on 10-05-2021.
  - Tripartite Agreement between Northern Coalfields Limited, Singrauli, M. P.; Gujarat State Electricity Corporation Limited, Vadodra, Gujarat and CSIR-CIMFR, Dhanbad for Coal Sampling Work on 13-05-2021.
  - Tripartite Agreement between Central Coalfields Limited, Darbhanga House, Ranchi; M/s. Talwandi Sabo Power Limited, Mansa, Punjab and CSIR-CIMFR, Dhanbad for Coal Sampling Work on 13-05-2021.
  - Tripartite Agreement between Northern Coalfields Limited, Singrauli, M. P.; Jhabua Power Limited, Gurugram and CSIR-CIMFR, Dhanbad for Coal Sampling Work on 17-05-2021.
  - Tripartite Agreement between South Eastern Coalfields Limited (SECL), Bilaspur, Chhattisgarh ; M/s. Jindal Power Limited, Raigarh, Chhattisgarh and CSIR-CIMFR, Dhanbad for Coal Sampling Work on 20-05-2021.
- CSIR-CRRI: An MoU signed between CSIR-CRRI and Bihar State Road Development Corporation Limited (BSRDC Ltd.) on 24th May, 2021.
- CSIR-NEERI: Memorandum of agreement was signed in between CSIR-NEERI and Department of Biotechnology (DBT), Ministry of Science and Technology, Government of India, New Delhi.

- Agreement was signed in between CSIR NEERI and Arcelor Mittal India Pvt. Ltd. (AMIPL), Odisha for project.

### Patents Update:

Patents Filed		Patents Granted		Patent Prosecutions	
India	Abroad*	India	Abroad*	Indian	Foreign
06	10	16	12	24	75

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

### High impact S&T services offered

- CSIR-CRRI: Development of high strength and fast curing cementitious stabilized base layer Sponsored by National Highway Authority of India (NHAI) Delhi
  - Inspection and Testing of Rigid Pavement Quality at Emergency Landing Facilities on Chilakaluripet to Nellore Section of NH-16 in the State of Andhra Pradesh Sponsored by National Highway Authority of India (NHAI) Andhra Pradesh
- CSIR-NEERI: Ecological restoration on barren manganese mine spoil dump at Gumgaon manganese mine, MOIL Ltd, Nagpur, Maharashtra, India using phytoremediation technology.
  - Assessment of Contamination and preparation of remediation plan for taanam cheruvu, Taanam village, Visakhapatnam
  - Installation of 30KLD sewage treatment plant at ER-1HQ Patna based on phytorid technology (no use of chemicals)
  - Technical vetting of MSW processing projects undertaken by Ahmednagar Municipal corporation (AMC) Ahmednagar
  - Impact assessment of Coal mines and thermal power plant on wildlife of Tadoba Andhari Tiger reserve chandrapur, Maharashtra

### Other items of significance

- CSIR-CECRI: CSIR-Innovation Centre for Next Generation Energy Storage Solutions (ICeNGESS): 2nd Industry Meet on May 25, 2021 chaired by Dr. V. K. Saraswat, Hon. Member of NITI Aayog on efforts in identifying indigenous supply chain partners to promote indigenous Lithium-ion Battery production
- CSIR-CEERI: Finalization of specifications (design) for fabrication of gas and pressure sensors from M/s. Gatty Instruments, Sweden
  - Under the project activity entitled "Development of thick film IR emitter for gas sensing application" design for an IR gas sensor optical component arrangement has been made.
  - Under the project activity entitled "Development of LTCC based Accelerometer using PZT and lead free (BCZT) piezoceramics" design and simulation of LTCC

accelerometer has been carried out. The 1st mode of vibration (desired mode) for unimorph cantilever structure is observed at 11.49 kHz.

- CSIR-NEERI: First ever GIS-based mapping of Ganga

### **Outreach Activities (Jigyasa, Skill Development, and others)**

- Covid19: Virus Variants- Myths and Facts | Beyond Science webinar for medical doctors in India on the Omnicuris Platform (a social enterprise supported by Atal Innovation Mission and Niti Aayog). Independently organized interview/webinar, live to more than 20,000 Doctors across India. CSIR-CECRI: Two Skill Development Training Programmes [Online] were conducted in the month of May 2021.
- Surface Coatings for Value-added Products: Decorative and Functional Applications, conducted during 03.05.2021 to 07.05.2021. Total 75 candidates participated in this training.
- Photolithography based Microfabrication of Sensors conducted during 17.05.2021 to 21.05.2021. About 160 participants took part.
- CSIR-CFTRI: As part of mitigation of pandemic, the Institute has supplied 30 Kg of Spirulina fortified chikki to SDM, Delhi Cantonment Area; The Institute has established an emergency isolation block with all the facilities including oxygen concentrators and ventilators to support mild and moderate Covid patients in the campus.
- CSIR-IHBT: As a part of an expert panel, presented views on "Biodiversity conservation research in IHR: a futuristic view for solutions" on the Occasion of International Day for Biological Diversity, 22 May 2021, organized by GBPNIHE, Almora via online means.
- CSIR-NISCAIR: A webinar on "We're part of the solution" live through NISCAIR Facebook Page was organized to celebrate the International Day of Biological Diversity on 27th May 2021.
- CSIR-CCMB: CCMB Biologue with Micheal Rape on 'The Code to decide Fate - Ubiquitin-dependent control of development and disease'
- CSIR-NISCAIR: An online training session was organised by CSIR-NISCAIR, National Knowledge Resource Consortium (NKRC) unit in association with IEEE, Wiley, Elsevier and Taylor & Francis on "Optimum Utilisation of e-Resources for Research and Development" for CSIR and DST institutions during 24-27 May 2021.
- CSIR-CCMB: Dr G Umopathy-Delivered a webinar talk on "Conservation Breeding of Mouse deer in Nehru Zoological Park, Hyderabad, What makes it success?" as part of 75 Weeks, 75 Species, 75 Zoos plan by Centre Zoo Authority, MoEFCC (India@75 or Azadi Ki Amrut Mahotsav/ 75 years of Indian Independence) and the Hyderabad, Nehru Zoological park Hyderabad on 10 May 2021.
- CSIR-IITR: As part of CSIR-Jigyasa programme, CSIR-IITR announced the painting competition for school children to be held on the occasion of World Environment Day 2021.

## **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**

- 11 in-house R&D units of industries were granted recognition as well as registration certificates.
- 22 in-house R&D units of industries were granted renewal of recognition as well as 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. 929.15 Lakhs during May, 2021.
- Sale of items worth Rs. 352.73 Lakhs was realized during May, 2021.

### **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 licensed five technologies and has been assigned three technologies by National Institute of Pharmaceutical Education and Research (NIPER), Hyderabad; National Institute of Ocean Technology (NIOT), Chennai and The Maharaja Sayajirao University of Baroda during May, 2021. Four

companies have been licensed the technology to manufacture Ayush-64 – an ayurvedic drug which has been repurposed for use against mild to moderate cases of covid-19.

- NRDC has collected premia of Rs.21.00 Lakh from respective technologies during May, 2021.

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