

Government of India
Ministry of Science and Technology
Department of Biotechnology

SUB: Cabinet Summary for July-2020

I. Important policy decisions taken and major achievements are as follows:

1. Medical Biotechnology:

A. COVID related Initiatives:

i. Candidate Vaccine Advisory Committee (CVAC) of the Indo- US Vaccine Action Program (Indo-US VAP): The Department of Biotechnology (DBT) organized a 2day virtual 4th meeting of Candidate Vaccine Advisory Committee (CVAC) of the Indo- US Vaccine Action Program (Indo-US VAP) on 8-9 July, 2020, under the leadership of Dr. Renu Swarup, Secretary, DBT & Dr. Rafi Ahmad, Director Emory Vaccine Centre, to discuss the development of vaccines against COVID-19 by the Indian manufacturers. The CVAC reviewed COVID-19 vaccine development efforts by 8 Indian industries and 2 academic institutes. The meeting brought together Indian regulators and experts from India and US to review and provide oversight to the development of novel COVID-19 vaccines.

ii. COVID-19 Vaccine Expert Committee (COVID-19 VEC): The Department has constituted the COVID-19 Vaccine Expert Committee (COVID-19 VEC) under the Chairmanship of Prof. G. Padmanaban, Former Director IISc Bangalore, to provide oversight and to evaluate and review projects with the potential to develop vaccine against SARS-CoV-2 in the country. The committee comprises of experts from the Indian academia & industry, international experts and representatives from GATES foundation, CEPI, NIAID, ICMR, DST, CSIR and DBT. The first meeting of the COVID-19 VEC was organized on 28th July, 2020 to discuss the Indian COVID Vaccine Development Mission. Considering the efforts being made by the Public Sector Undertakings (PSUs) and autonomous institutes of DBT, for COVID-19 – Delivering Solutions for Healthcare Challenges, consolidated weekly updates are being provided to the office of the Hon'ble Minister and the PMO.

iii. DBT City/Regional Clusters for Covid-19: The City /Regional clusters are being established in a Hub and Spoke model to scale-up testing of COVID-19 samples in government institutions across the country. The Hubs are Government laboratories approved by respective Ministries /Departments (DBT, DST, CSIR, DAE, DRDO, ICAR etc) as per ICMR guidelines. So far 21 City /Regional clusters have been established. More than 100 institutions are involved and over 5,60,000 samples have been tested.

The first I-lab (infectious disease lab)- a mobile lab for Covid testing launched by Hon'ble Minister on 18th Jun is attached to THSTI hub and had performed about 1600 tests in the Faridabad region. More labs are expected to be deployed through participation of various State Governments.

iv. Special Call on Covid-19 Research Consortium: DBT and BIRAC announced a joint call for proposals- COVID-19 research consortium. A total of 120 proposals received from academia pertaining to diagnostics, were reviewed for support through dedicated Area Review Panels (ARP) meetings. 18 recommended proposals are being processed for financial support.

B. Inter-Institutional Bio design Center: 34 proposals were received against a call for proposal for establishment of Inter-institutional biodesign centers. 11 shortlisted proposals were considered through presentation in the meeting held in June and the five in-principle recommended proposals are considered in the meeting held on 30th July.

A bi-annual review meeting of all the current SiB fellows and their innovations was held and suggestions were provided for enhancing their prototypes, attracting seed fund and for tech commercialization efforts.

2. International Cooperation

A. Indo-EU Cooperation: The 15th Summit between the India and European Union (EU) was held virtually on 15th July 2020. From Indian side the event was steered by Hon'ble Prime Minister of India and Mr. Charles Michel, President of the European Council and Ms. Ursula von der Leyen, President of the European Commission represented the EU. The leaders from both side agreed that global cooperation and solidarity are essential to protect lives and to mitigate the socio-economic consequences of the pandemic. The leaders adopted the "EU-India Strategic Partnership: A Roadmap to 2025" to strategically guide cooperation between the India and EU over the next five years.

B. Mission Innovation (MI):

- i. A mission innovation webinar was organized by MI secretariat on 23-24 July to present mission proposals by lead countries. Mission Bioeconomy proposal was presented from India side.
- ii. Accelerating clean energy innovation: global needs and opportunities for India: International Energy Agency's high-level event was organized on 13th July on energy innovation in India (Virtual Platform)
- iii. DBT has been actively reviewing and supporting the second phase of Mission innovation (MI2.0) by providing consolidated feedback on the framing and overall developmental analysis of MI 2.0 covering the following areas:
 - Missions Scoping: Bioeconomy : Proposal submission
 - Ministerial Engagement: MI 5.0
 - Mission Platform Survey

C. India-Netherland: India-Netherlands joint call for proposal on 'Climate Smart Agriculture (Resumed)' is reopened with a deadline is September 2020.

D. India-Denmark: In response to a joint call in an area of "Bio-resources and Secondary Agriculture" (2019), 13 project proposals were received. The Expert Committee recommended 05 proposals. These proposals will be discussed by Danish counterpart soon.

3. Nano-biotechnology: Dr. Harsh Vardhan, Hon'ble Minister for Science &

Technology, Health & Family Welfare and Earth Sciences and Shri. Narendra Singh Tomar, Hon'ble Minister of Agriculture & Farmers Welfare and Rural Development & Panchayati Raj released 'Guidelines for Evaluation of Nano-based Agri-input and food products in India' on 7th July 2020 prepared jointly by Department of Biotechnology (DBT), Ministry of Science and Technology, Ministry of Agriculture and Farmers' Welfare (M/o A&FW) and Food Safety and Standards Authority of India (FSSAI), Ministry of Health and Family Welfare through concerted Inter-Ministerial efforts coordinated by DBT.

These 'Guidelines' are for delineating quality, safety and efficacy assessment of the novel nano-formulations. These guidelines are also intended to provide transparent, consistent and predictable regulatory pathways for nano-based agri-input and food products in India. The present 'Guidelines' apply to nano-agri-input products (NAIPs) and nano-agri products (NAPs). These 'Guidelines' also apply to nano composites and sensors made from NMs and those that require direct contact with crops, food and feed for data acquisitions.

These guidelines will pave the way for 'Doubling Farming Income by 2022' and 'National Mission on Sustainable Agriculture'.

4. **Energy Bioscience Programme:** The achievements of the 5 Bioenergy Centres in the thematic areas including pre-treatment of biomass, fermentation, enzyme technology and life cycle analysis was presented in a first meeting of Special Scientific & Technical Appraisal & Advisory Group (S-STAG). Committee appreciated progress on Cellulytic enzyme development and 2G-ethanol technology developed by DBT-IOC Centre and plan to set up 10TPD plant at Panipat.

5. Starts up/Make in India activities

- A. **First Hub: Facilitation of Innovation and Regulations for Start-Ups and Innovators:** 'First Hub' is a facilitation unit set up by DBT at BIRAC to address the queries of Innovators. With regards to prevailing situation around globe, special FIRST HUB COVID-19 sessions are being held every alternate Friday to solve the queries of innovators. Representatives from CDSCO, ICMR, NIB, GeM, KIHT, BIS, DBT and BIRAC are available to take queries on regulatory pathways, funding opportunities, public procurement, IVD testing and validation, standards and specifications, manufacturing and testing infrastructure support. In July sessions, more than 150 queries were taken.
- B. **Make-in India/Start-up India activities:** A Project Development Cell (PDC) at DBT/BIRAC is being established to identify and create Project Proposals for attracting investments in the Biotech Sector as per the recommendation of the Government and coordinated by DPIIT. Further to facilitate this, investment clearance cell (ICC) for reviewing biosafety requirements is being set-up as part of a part of the PDC.

6. Biosafety and Regulation:

- A. **RCGM activities:** The division had conducted 185th and 186th meetings of Review Committee of Genetic Manipulation (RCGM) on 02.07.2020 and 23.7.2020, respectively. During the meetings, the Committee considered 97 applications including information items submitted by the various applicants.

After deliberation on each application, appropriate decision was taken by the RCGM.

During the month, 14 Institutional Biosafety Committee were constituted on IBKP portal.

First meeting of the Expert Committee to Review and Update Risk Groups of Microorganisms was organized on 09.07.2020. The roadmap for updating the Risk Group of microorganism was decided.

Second meeting of the Sub Committee constituted to come up with the Engineering Controls for the Certification of BSL-3 facility was held on 24.07.2020.

B. DGFT Cases: The comments of the Department were communicated to DGFT on four application seeking permission for export of SCOMET (Special Chemicals, Organisms, Materials, Equipment and Technologies) items.

II. Autonomous Institutions

A. Covid related activities:

- i. The institutional Covid-19 testing centres tested the samples - Centre for DNA-Fingerprinting and Diagnostics, Hyderabad, Telangana (9975 till date), Institute of Life Sciences, Bhubhaneswar, Odisha (50000 tests; contributing nearly 15% of the test done in Odisha); National Centre for Cell Sciences, Pune, Maharashtra (6000 Samples; 14000 samples in total and sequencing of 90 samples); Translational Health Science and Technology Institute (THSTI), Faridabad (>23000 tests); National Institute of Biomedical Genomics (NIBMG) sequenced 1000 SARS-Cov-2 genomes in the Pan India level and 1000 SARS-Cov-2 RNA Genome was sequenced.
- ii. Centre of Innovative and Applied Bioprocessing (CIAB) has initiated under COVID Research Preparedness Initiatives and studying the potential of natural garlic essential oil for antiviral activity against COVID-19: Garlic oil samples are ready for efficacy evaluation and Polypyrrollic photosensitizer nanoformulations for COVID-19 antiviral photodynamic therapy (aVPDT): Photosensitizer nanoformulations for efficacy evaluation.
- iii. National Centre for Cell Sciences (NCCS), Pune, Maharashtra developed a magnetic beads-based viral RNA isolation kit for diagnosis of Covid-19.
- iv. National Centre for Cell Sciences (NCCS), Pune, Maharashtra has established a bio-bank of blood cells and plasma from infected and recovering COVID patients, in which Plasma and blood cells from 83 patient samples have been preserved so far. NCCS has been recognized as an ICMR-approved bio-repository as part of ICMR's network of biorepositories in India.
- v. Translational Health Science and Technology Institute (THSTI), Faridabad possess an Infectious Disease Diagnostic Lab (I-LAB), the mobile lab unit for COVID-19 testing developed by Andhra Med Tech Zone with support of DBT visited Mujesar, Dabua Colony, Sector-12, Ballabgarh, ESI-Sector-2, Nimka, and B.K. Hospital, Faridabad for testing Covid-19.

DBT-THSTI's Bioassay lab completed validation of COVID-19 RT-PCR Innovative diagnostic for The Foundation for and New Diagnostics (FIND) and Newtech Medical Devices for ICMR.

B. Services: Center for DNA fingerprinting and Diagnostics (CDFS) has received one case for DNA Fingerprinting services and 40 samples for genetic diagnostic services. 90 Basmati Rice sample for adulteration analysis was also received.

C. Patents (filed/granted):

- i. Centre of Innovative and Applied Bioprocessing (CIAB) has filed two provisional patents on "Light activatable polypyrrolic metal organic framework composites and applications thereof"; Indian patent application no: 202011028994, and "One pot, greener synthesis of agri-biomass lignin derived fluorescent metal nanoclusters and applications thereof"; Indian patent application no: 202011028996
- ii. National Institute of Plant Genome Research (NIPGR) has been granted an Indian Patent titled 'Nucleic acid sequences encoding glutathione S-transferases associated with abiotic stress responses in plants' on July 09, 2020 (Indian Patent No. 341019).
- iii. Translational Health Science and Technology Institute (THSTI), Faridabad has filed a patent for SARS-COV2 spike domain immunogenic peptide-based vaccine candidates (Provisional application 202011028760).

D. Technology(Developed/Transferred/Commercialized):

- i. National Institute of Plant Genome Research (NIPGR) has developed the following technologies -
 - a. Three high yielding chickpea varieties are undergoing field trials
 - b. A low Glucosinate mustard is in event selection trials.
 - c. A device for enhancing shelf life of fruits is being developed. This has received funding from the BIRAC Biotechnology Ignition grant.
- ii. Translational Health Science and Technology Institute (THSTI), Faridabad has developed two technologies i.e. A conventional PCR compatible-DNAzyme-based visual detection method for SARS-CoV-2 developed as an alternative to real-time PCR-based assay and a panel of aptamers specific to SARS-CoV-2 spike protein developed.
- iii. Translational Health Science and Technology Institute (THSTI), Faridabad has transferred two technologies i.e. the conventional PCR compatible-DNAzyme-based visual detection method for SARS-CoV-2 developed as an alternative to real-time PCR-based assay and transferred to Genei Labs, Bengaluru; the panel of aptamers specific to SARS-CoV-2 spike protein was transferred to Molbio Diagnostics Private Limited, Goa, through technology and licensing agreement.
- iv. Translational Health Science and Technology Institute (THSTI), Faridabad has commercialized the technologies for development of the human monoclonal antibody (mAb) against the receptor-binding domain (RBD) of SARS-CoV2.

E. In total, 14 MoU/MoA has been signed by the institutions.

F. In total, the number of publications appeared are 53. The meetings/Seminars/Lectures organized are 32.

G. Under the SAHAJ initiative – the infrastructure used by 690 users and the

revenue generated, including the CoVID-19 users, is Rs.113.78Lakh through services provided.

III. Public Sector Undertakings (PSU)

A. Biotechnology Industry Research Assistance Council (BIRAC), New Delhi

i. Webinars organized -

- a. BIRAC in association with Social Alpha and CEIIC organized a webinar to create awareness for BIRAC Innovation Challenge Award-SoCH (Solution for Community Health) 2020-21 on 6th July 2020. Panel included a representation from MECS, UK.
- b. BIRAC along with Indian STEP & Business Incubator Association (ISBA) organizing a webinar on “**Opportunities in Bio-Tech Beckon**” on 29th July with a special focus on West Zone Institutions, Incubators, Startups & Innovators.

ii. Awards/Results/Announcements:

- a. BIRAC supported Startups: Nemocare, Bagmo & Adiuvo Diagnostics Pvt. Ltd. have been shortlisted for Qualcomm Design India Challenge 2020.
- b. **Announcement of new call for Proposals under “i4” and PACE:** Challenge based call was announced to invite proposals under i4 (SBIRI and BIPP) and PACE (AIR and CRS) schemes on 15th July 2020. The challenge areas focused on development of technologies to combat COVID 19 and other areas of healthcare, agriculture, energy, environment, secondary agriculture, aquaculture, veterinary sciences and industrial biotechnology. The call will remain open till 31st August 2020.
- c. Under the new joint call (BIRAC and DBT) on “*Anti- SARS-CoV-2 /nCoV-2 Virus Studies using Botanical Ingredients and Traditional Formulations*” which closed on 3rd July 2020, 230 proposals were received. The 157 proposals having academic applicant was transferred to DBT for further evaluation. Remaining 73 proposals involving companies are being evaluated by BIRAC.

B. Bharat Immunologicals & Biologicals Corporation Ltd. (BIBCOL): BIBCOL has introduced immunity booster tablets consisting of Zinc, Vitamin C and Vitamin D3 under health supplement segment.

C. Indian Vaccine Corporation Ltd. (IVCOL): Nil