

Government of India
Ministry of Science and Technology
Department of Science and Technology
(CDN Section)

Technology Bhawan,
New Mehrauli Road
New Delhi-110016
Dated: 13.04.2021

OFFICE MEMORANDUM

Subject: Monthly Summary to the Cabinet for the month of March, 2021.

The undersigned is directed to enclose herewith a copy of the Monthly Summary of important policy decisions taken and major achievements of the Department of Science & Technology for the month ending 31.03.2021 for information.

2. This has already been approved by Secretary, DST.

(Pulok Sen Gupta)
Under Secretary to the Govt. of India

To,

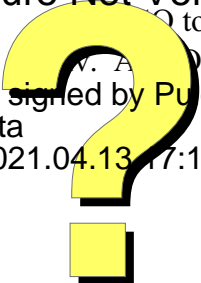
All Members of the Council of Ministers (as per Annexure-I)

Copy with enclosures, forwarded to:-

- i. Vice Chairman, NITI Aayog, NITI Bhawan, New Delhi. (vch-niti@gov.in)
- ii. The Chairman, Union Public Service Commission (chairman-upsc@gov.in)
- iii. Chief Executive Officer, NITIAayog, NITI Bhawan, New Delhi (ceo-niti@gov.in)
- iv. The Principal Secretary to the Prime Minister, Prime Minister Office, South Block, ND (pkmishra.pmo@gov.in)
- v. All members of NITI Aayog, NITI Bhawan, New Delhi. (vk.saraswat@nic.in, rc.niti@gov.in, vinodk.paul@gov.in)
- vi. Secretary to the President of India. (secy.president@rb.nic.in)
- vii. Secretary to the Vice-President of India. (secyvp@nic.in)
- viii. Principal Scientific Advisor to the Govt. of India. (vijayraghavan@gov.in)
- ix. All Secretaries to the Government of India (secy-goi@lsmgr.nic.in)
- x. The Principal Director General, Press Information Bureau, Ministry of Information and Broadcasting. (pdg-pib@nic.in)
- xi. The Director, Cabinet Secretariat, New Delhi. (cabinet@nic.in)
- xii. Shri Sanjay Kumar Mishra, Sc. 'G', DST for uploading the Monthly Summary on DST's website (sanjaykr.mishra@nic.in)
- xiii. Shri Anuj Tripathi, Sc. 'G', DST. (anuj.tripathi@nic.in)
- xiv. Shri V. A. Singh, Sc. 'G', DST for Hindi Translation (kn.singh65@gov.in)

Signature Not Verified

Digitally signed by Pulok
Sengupta
Date: 2021.04.13 17:13:51 IST



Department of Science & Technology
Monthly Report
March, 2021

I. Important policy decisions taken and major achievements during the month:

A. Science for Society

1. Under Seaweed programme launched by TIFAC, three verticals have been created by the steering committee towards addressing & supporting: a) Harmonization of seaweed cultivation technologies with respect to geo- spatial location/mapping; b) Post-harvest technology optimization & standardization of technologies for new value-added products; c) Support development of start ups with innovative technologies with seaweed culture and products.
2. Services of the National Fungal Culture Collection of India were rendered to academia, research centers and industry by Agharkar Research Institute (ARI).
3. Indian Institute of Astrophysics (IIA) is contributing actively to VigyanSamachar, to convey scientific activities to the general public in a simple manner.
4. VigyanPrasar has produced short videos(Hindi & English) on COVID-19 vaccination programmes and Covid Bulletin.
5. The on-farm trials for *Durga* (carrot) and *BLK-Balaji* (wheat) varieties were successfully undertaken by National Innovation Foundation (NIIF), at 20 farmers' field in Dahod, Panchmahal (Gujarat) and 22 farmers' field in Mehsana (Gujarat) and Nandurbar (Maharashtra) districts respectively which were found to produce quality roots yield and biomass whereas wheat variety (*BLK-Balaji*) was found to have higher yield in drought as well irrigated conditions. Similarly, during trials of mustard (*SitaraSringar*) variety which were conducted at 48 farmers' field in seven villages of Sultanpur district of Uttar Pradesh, the variety exhibited superior growth, more number of pods per plant, higher grain yield with bold sized seeds with synchronous maturity, and resistant to pod shattering.
6. NIF disseminated grassroots innovation based technologies like areca nut peeler, head load reducer and fruit nipper in North Eastern States of Meghalaya, Manipur and Arunachal Pradesh; water turbines in Meghalaya, Handpump in Bhringrajpur village of Bargarh district, Odisha.
7. MoU was signed between North East Centre for Technology Application and Reach (NECTAR), IIT, Delhi and VijnanaBharati regarding S&T based collaboration to be taken up in the North Eastern Region. MOU was also signed between NECTAR and

M/s SIMANG Collectives, Guwahati for production of eco-friendly Yoga Mat using water hyacinth.

8. Lecture/ Workshops were organized by Indian Academy of Sciences (IASc) on Partial Differential Equations, Plant Taxonomy and Bioprospection of Medicinal and Aromatic Plants, Exploring the clinical manifestation & immunization efficacy, Elements of Quantum Information, Trans-disciplinary area of research and teaching Pharmacognosy and Phytochemistry of Ethnomedicinal Plants, Recent developments in biotechnology.
9. To create awareness on vaccination in general and on Covid-19 vaccination in particular, new webinar series, GYANTEEKA were initiated, by Indian National Young Academy of Science (INYNAS) - INSA. In this series, the focus will be exclusively on various aspects of vaccines and vaccination for public awareness.
10. R&D Programme titled “**Establishment/strengthening of State Climate Change Cells (Phase II)**” was sanctioned under **National Mission for Sustainable Himalayan Ecosystem (NMSHE)** and support provided to Department of Science, Technology & Environment, Government of Tripura for a duration of 5 years with an aim to cater to the information and knowledge needs of varied stakeholders to address regional climate change challenges including assessment of vulnerability and risk in respect of climate change and its impact at district/ block/ village scales.
11. R&D Programme titled “**Establishing/Strengthening the State Climate Change Cell in the State of SIKKIM (Phase-II)**” under National Mission for Sustainable Himalayan Ecosystem (NMSHE) has provided support to Department of Science and Technology, Vigyan Bhawan, Deorali, Gangtok, Sikkim with an aim to understand the effect of climate changes on microclimate of Sikkim Himalaya while building capacity State officials on climate change adaptation through training and awareness programme
12. R&D Programme titled “**Strengthening of State Climate Change Cell of Manipur –Phase-II**” under National Mission for Sustainable Himalayan Ecosystem (NMSHE) has provided support to Directorate of Environment & Climate Change, Govt. of Manipur, Porompat, Imphal East, Manipur with an aim to develop and upgrade data base of the natural resources and socioeconomic dimensions for enhancement of knowledge about climate change and its associated risks in the region.
13. Research proposal on establishment of a R&D Programme titled “**Punjab State Climate Change Knowledge Centre (Phase-II)**” under National Mission on Strategic Knowledge for Climate Change (NMSKCC) has provided support to Punjab State Council for Science & Technology, Chandigarh, Punjab with an aim to conduct vul-

nerability assessment at Block levels, at sectoral level for Agriculture & Water sectors.

14. During the month, the financial settlement of the project entitled “Biomass carbon distribution of major forest types in the northern region of Kashmir Himalayas using field inventory remote sensing and GIS” which is supported to Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir (SKUAST-K) Benhama-Waltar, Ganderbal, J&K - 191201 (**PI: Dr.Akhlaq A Wani**) for a duration of **three years**.
15. During the month, the financial settlement of the project entitled “***Biomass carbon distribution of major forest types in the northern region of Kashmir Himalayas using field inventory remote sensing and GIS***” which was supported to Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir (SKUAST-K) Benhama-Waltar, Ganderbal, J&K - 191201 was completed. The outcome of the project reported that there exists variability in forest biomass carbon in the same geographical region having different biophysical factors. The results demonstrate that variable growth rate among different species reflect variable biomass carbon under different strata. Aspect and altitude exhibit a relation with biomass carbon inherently due to associated pattern of precipitation, insulation and temperature. Anthropogenic activities associated with geographical access to the forests have significant effects on biomass carbon in the Kashmir Himalayan region. Under the project, 3Ph.D are produced and 06 manpower trained in different areas of CO2 sequestration. Also, 06 research papers were published in peer review journals.
16. Department of Science and Technology (DST) has participated in 6th Smart City India and 28th Convergence India held during 24th-26th March, 2021 at Pragati Maidan, New Delhi. Selected startup doing business in the domain of smart city and convergence of technologies were given a platform to showcase their products and enhance their business tie-ups. 12 selected DST supported startups showcased their products in the DST pavilion installed in the programme.
17. Loan Agreement has been signed on 10th March 2021 with M/s RCC Laboratories India Private Limited, Hyderabad for a loan assistance of Rs. 1554.00 lakh against a total project cost of Rs. 3829.77 lakh for part financing the project titled “Establishment of Specific Pathogen Free (SPF) Laboratory Animal Breeding and Testing Facility”.

B. National Technology Mission

1. The 1st Mission Coordination Committee (MCC) meeting of National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS) was held on 10th March 2021

through Video Conference under the chairmanship of Prof Ashutosh Sharma, Secretary, DST, to have an interactive discussion with all the 25 Technology Innovations Hubs (TIHs) on various financial, administrative and technical issues.

2. Regarding finalization of draft EFC on National Mission on Quantum Technology & Application (NM-QTA) a followup of action points on budget sourcing was held on 12th March 2021 by the office of PSA. 'In Principal Approval' (IPA) from D/o Expenditure is awaited.

C. Technology Development

1. A Project Appraisal Committee (PAC) meeting was held to discuss on Project proposals received under NCAP Ministry of Environment, Forest and Climate Change (MOEF&CC) by CPCB.
2. Project Review and Monitoring Committee (PRMC) meeting was held to review the projects supported under the Advanced Ultra Super Critical (AUSC) programme.
3. An Interaction meeting was held with Experts from IIT Kharagpur, IIT Gandhinagar, IIT Delhi, IIT Roorkee, IIT Bhubaneswar and Dayalbagh Educational Institute - Agra to discuss on outcomes of the projects to show case in '6th Smart Cities India 2021' Exhibition organised by India Trade Promotion Organization (ITPO) during 24th March to 26th March 2021 in Pragati Maidan, New Delhi.
4. DST participated in the 28th Convergence India 2021 & 6th Smart Cities India 2021 expo organised by India Trade Promotion Organization (ITPO) during 24-26 March, 2021 at Pragati Maidan and provided a platform for seven national, bi-lateral and multi-lateral projects to showcase their technologies.
5. Patent for a cost-effective rapid method for treatment of formation water of oil industry was granted to IASST.
6. International Advanced Research Centre for Powder Metallurgy And New Materials (ARCI), transferred know-how document for "Development of high temperature compliant glass sealants for joining metal and ceramics".
7. ARCI demonstrated Technology for fabrication of Honeycomb Inserts for "Anti-Mine Boot Applications" completed towards productionization.
8. Two patents on "Ambient Condition Curable Transparent Super Hydrophobic Coating for Easy to Clean Applications and Method of Producing the Same" and "An Improved Gas Dynamic Cold Spray Device and Method of Coating a Substrate" were granted to ARCI.
9. Under Project supported by Technology Information, Forecasting, Assessment Council (TIFAC), on "Dynamic Bed Single Use Bioreactor (SUB) Technology for man-

ufacturing of Vaccines and Biologics”, manufacturing facility for 500 Nos. of 0.5L and 100 Nos. of 5L scale single-use bioreactors per month capacity has been created by M/s. OmniBRxPvt. Ltd. Ahmedabad, Gujarat.

10. A team of Scientists from Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) designed and fabricated an integrated catalytic system based on a metal-organic framework (MOF-808) comprising of a photosensitizer (molecules which absorb light and transfer the electron from the incident light into another nearby molecule) that can harness solar power and a catalytic centre that can eventually reduce CO₂.



11. SreeChitraTirunal Institute for Medical Sciences and Technology, Trivandrum (SCTIMST) has signed MoU with M/s Biogenix Inc Pvt Ltd for collaborative development of rapid diagnostic kits for Procalcitonin detection for Sepsis and Chlamydia trachomatis.
12. Technology transferred by S N Bose National Centre for Basic Sciences (SNBNCBS) on "Pyro-Breath - A system and kit for non-invasive detection of peptic ulcer diseases, non-ulcerous dyspepsia, and Helicobacter pylori infection" for commercialization under the TRC project.
13. With the support from National Innovation Foundation (NIF) the following 8 patents were granted to the grass root innovators –
 - A herbal medication to cure jaundice;
 - Herbal formulation for treating disease and complications caused by the malarial parasite;
 - Herbal composition for treatment of high blood glucose levels in metabolic diseases and process of preparing same;
 - A system for using recycled soap water in washing machine and method thereof;
 - Black pepper plucking tool;
 - Washing apparatus;
 - System and method of threshing pepper;
 - Herbal composition for therapeutic management of diseases of the respiratory tract.
14. NIF entered into a Technology Transfer agreement with Pune based start-up Bio neutra innovations Pvt. Ltd for Human Health and Nutraceutical technologies.

D. International Cooperation

1. **Meeting of the Working Group of the Member States of the Shanghai Cooperation Organization (SCO):**The Meeting of the Permanent Working Group on Scientific-Technical Cooperation of the Member States of the Shanghai Cooperation Organization (SCO) was held on 30 March 2021 through a video conference. The representatives from all eight SCO member states including SCO secretariat officials participated in the meeting. The Indian delegation was led by the Head International Cooperation, Department of Science and Technology, and joined by a representative from MEA, DBT, MoES and ICMR.

Russia presented a Draft Note on a mechanism to support and coordinate the scientific-technical cooperation of the SCO member states in a multilateral format which has been agreed to by all sides in principle. Some of the possible collaborative areas which have been discussed for research collaboration include medical technology, renewable energy, Modern Agriculture. It was also agreed to organise an online technology conference on the usage of emerging technologies for achieving Sustainable Development Goals (SDGs) in member states with identification of key areas of common interest to make it more focused.

2. **Curtain Raiser of the IUSSTF's U.S. India Artificial Intelligence Initiative (USI-AI):**Curtain Raiser of IUSSTF's U.S. India Artificial Intelligence Initiative (USI-AI) was held on 17th March 2021. This Initiative will provide a unique opportunity for the world's two largest democracies to strengthen their strategic partnership by focusing on AI cooperation in critical areas at the interface of Science, Technology, and Society. USI-AI will serve as a platform to discuss opportunities and barriers for bilateral AI R&D collaboration, share ideas for developing an AI workforce, and recommend modes and mechanisms for catalyzing partnerships to realize the true potential of these transformative and crosscutting technologies. IUSSTF will organize a series of activities to engage key stakeholders including government agencies, academic institutions, industries that are creating/adopting AI tools and technologies, think tanks, professional societies, and foundations. The activities will include Roundtables to gather input from different stakeholder communities and hear from leading experts; produce White Papers and reports identifying emerging AI research and development areas and an online repository to serve as a Resource Hub for disseminating U.S.-India specific information on the USI-AI initiatives.
3. **11th Governing Body (GB) meeting of IGSTC:**The 11th Governing Body (GB) meeting of Indo-German Science & Technology Centre (IGSTC) was conducted through the online platform on 4th March 2021 with the presence of Indian Co-Chair Head, International Cooperation, and German Co-Chair Ms. Katherine Meyer. The Committee discussed administrative & financial issues of IGSTC such as evalu-

ation of the centre, relocation of the centre to the Technology Bhawan, promotion of IGSTC staff, increasing the project support of Indian side, and provision for Director's fund. The GB also discussed the theme for Call 2021 and 2022; new activities proposed by the Director-IGSTC and decreasing the application processing time in Calls.

4. **India-Israel Industrial R&D:**A virtual meeting of DST, PSA Office, MeitY and NSF officials under the 6th Call for Proposal (CFP-6) 2020 of India-Israel Industrial R&D and Technological Innovation Fund (I4F), due diligence meeting of four projects was held on 19th March 2021 to discuss the perspective of MeitY on the proposed cooperation on AI and Smart and Connected Communities.
5. **India-Japan Webinar on "Cyber-Physical Systems" (CPS):**India-Japan Webinar on "Cyber-Physical Systems" (CPS) was held on March 28, 2021, organized by DST and Embassy of India, Tokyo, Japan and coordinated by Indian Institute of Technology, Madras. Prof. Ashutosh Sharma, Secretary, DST delivered the keynote address from the Indian side and Prof. Muralidhar Miryala, Deputy President, Shibaura Institute of Technology, Tokyo from the Japanese side. The webinar was inaugurated by Ambassador of India to Japan, GoI. It was followed by opening remarks by Head International Cooperation, DST and Director for International Policy, Coordination, Ministry of Internal Affairs and Communications (MIC), GoJ. Participants from both sides shared the CPS initiatives in their respective Institutes.
6. **BRICS Working Group Session on Research Infrastructures and Mega-Science Projects:**A special Session of BRICS Working Group on Research Infrastructures and Mega-science projects was held on the 3rd of March, 2021 to discuss and finalize the Terms of Reference (ToR) of the Task Force created under BRICS Working Group on Research Infrastructure.
7. **Announcement of India Science and Research Fellowship (ISRF) Results:**As a part of India's initiatives to engage with neighbouring countries to develop S&T partnerships, the Department of Science and Technology (DST), Govt. of India has launched India Science and Research Fellowship (ISRF) Programme for Afghanistan, Bangladesh, Bhutan, Maldives, Myanmar, Nepal, Sri Lanka and Thailand researchers to work in Indian Universities and Research Institutions. It has been implemented since 2015 and has been progressing successfully.

This year, a total of 66 applications were considered from researchers of Afghanistan, Bangladesh, Bhutan, Maldives, Myanmar, Nepal, and Sri Lanka in Life Sciences, Veterinary Science, Fisheries, Medicine, Dental Medicine Periodontology, Agriculture, Geology, Chemistry, Mathematics, Physics, Computer Science, and Engineering etc. Based on the research proposal, experience, academic merit, and publi-

cation record, 40 candidates were recommended for the award under the India Science and Research Fellowship (ISRF) Call-2019. Researchers could visit Indian institutes once travel restrictions are eased and the overall environment is conducive to doing regular laboratory research. To date, they are encouraged to have virtual interaction with their host institutes and host scientists.

8. **DST and RSF Joint call:**DST and RSF Joint call 2021 lunched on 15th March 2021 inviting active Indian and Russian scientists/ researchers to submit proposals for Joint Research Project in the areas of Smart transport and telecommunications; Smart healthcare and medicine; New Materials; Plant and Animal Biotechnology; Clean Energy; Artificial Intelligence; and Safe Food.

The meeting of the STEPAN Revival was held on 16-17 March, 2021 to finalize the road map and thrust areas for the revival of STEPAN which was coordinated by the Jakarta office of UNESCO.

9. A meeting held with officials from MI member countries to discuss on MI platform modules / activities and next steps for MI future opportunities for Mission Innovation Challenges.
10. India-UK Science and Technology cooperation stakeholder consultation meeting was held to discuss the mutual cooperation between the two countries.
11. A meeting held with officials from European Commission, Delegation of the European Union to India to discuss on ongoing activities and future plan on India-EU joint call on Integrated Local Energy Systems.
12. Mission Innovation Inter-Ministerial Consultation Meeting was held to discuss about the Mission Innovation India Activities.
13. A meeting held with Indian Experts to discuss on ongoing activities and future plans on India-EU joint call on Integrated Local Energy Systems.
14. An interaction meeting held with experts from IIT Roorkee to discuss on Mission Innovation IC7: Affordable Heating and Cooling of Buildings ongoing activities and future roadmap.
15. Attended meeting on Hydrogen Mission under Mission Innovation 2.0 on 23rd March 2021, which is being co-led by Australia, Chile, the European Commission, Germany and the UK, to accelerate innovation in clean hydrogen technologies towards tipping points that will support the establishing of a global clean hydrogen economy and unleash its potential.
16. India-Japan Webinar on "Cyber-Physical Systems" was organized on 28th March, 2021. Key note address of the webinar was given by Secretary, DST. Officials from Japan have highlighted about the probable possibilities of joint collaboration on

CPS area. Dr. Murali Mohan gave brief about the 25 Technology Innovation Hubs (TIHs) established under the National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS). Technical presentations were made by the academicians and industrialists of Indian side, as well as Japan side, on possible collaboration on CPS research areas. Way forward and closing remarks of the webinar was given by Dr. Rajeev Sharma, Scientist-F, DST and the webinar ended with a vote of thanks proposed by Dr. Usha Dixit.

E. Human Capacity Building

1. **International Women Day:** KIRAN Division organized a joint event of India and Japan to celebrate International Women's Day on 8th March 2021. Key Note Address was delivered by Secretary, DST and officials of India and Japan Government were other speakers. Eight (8) women achievers from India and Japan shared their journey. 487 participants from diverse fields including women scientists attended this event.

Under Vigyan Jyoti Dr Suphia Khan, Director/Founder, Drumlins Water Technologies Pvt. Ltd. delivered role model talk on the occasion of International Women's Day. Dr Khan talked about her passion for research and also shared her journey to become entrepreneur from academician.

2. **Vigyan Jyoti:** Student registration has been completed for this year under Vigyan Jyoti programme. NVS Headquarter organized an orientation programme on 17th March, 2021 with all the JNV Principals and Vigyan Jyoti Nodal Officers. In addition to this Student-Parent Counselling sessions have also been organized by different JNVs. A two days "Awareness Cum Career exploration program-cum skill and entrepreneur opportunities in Plastic Engineering and Technology available at CI-PET" was conducted by JNV Nalbari on March 3 and 4, 2021. A Tinkering Workshop on "ARDUINO ATAL INTRODUCTION" was organized by JNV Nagpur on March 12 and 13, 2021. Further, various online lectures have also been conducted by different JNVs.

Special Online Classes: In this month 16 online classes for Class XII students and 24 classes for Class XI students were conducted to give them more clarity of concepts and skills to face the competitive examinations. Further, 6 tests have also been conducted for JEE/NEET.

3. **Women Scientists Scheme:** Grant has been released for 81 projects under WOS-A and WOS-B programmes during March.
4. **Gender Advancement for Transforming Institutions (GATI):** Advisory Committee

Meeting was conducted under GATI on 24 March 2021. In this meeting 30 institutions were selected for GATI pilot.

5. **SATYAM:** 17 Sanctions have been issued under SATYAM-Special Call to combat with Covid-19 pandemic.
6. **INSPIRE Awards-MANAK:** Joint Steering Committee Meeting of IICEP project, IISER Pune was conducted on 11 & 30 March, 2021 in collaboration with British Council, Royal Society of Chemistry and Tata Technologies. Teachers Training Component has been finalized in under MANAK.
7. **Composite Scientific Expert Committee meeting for technical evaluation of ASEAN-India Research and Training Fellowships:**The Meeting of the Composite Scientific Expert Committee for technical evaluation of ASEAN-India Research and Training Fellowships was held in New Delhi on 12th March, 2021. The C-SEC recommended 25 applications out of a total of 30 proposals received. The AI-RTF is awarded to ASEAN young researchers/professionals below the age of 45 years for carrying out their research training/ internship at Indian Institutes/ Universities for 2-6 months duration.
8. **Scholarship For Higher Education (SHE):** 7454 Institute ModeSHE scholars received their scholarship for pursuing B.Sc./M.Sc. Degree course in basic and natural sciences.
9. **INSPIRE Fellowship:**
 - 225 INSPIRE Fellows received their 1st installment of fellowship for pursuing their doctoral degree programme.
 - 840 INSPIRE Fellows received their fellowship for pursuing their doctoral degree programme.
10. **INSPIRE Faculty Fellowship:** 109 INSPIRE Faculty Fellow's Fellowships were released for pursuing their Post-doctoral programme.
11. 39 New Projects were supported for conducting the Training Program on Innovation & Entrepreneurship i.e Women Entrepreneurship Development Programme (WEDP), Technology Based Entrepreneurship Development Programme (TEDP) & Faculty Development Programme (FDP) by Academic & Engineering Institutes.
12. Department of Science and Technology has instituted National Award for Technology Business Incubators and Emerging Technology Business Incubators. Activities related to preparation of portal for receiving application, flyers, advertisements in news papers and preparation of trophies for year 2019 and 2020 have been initiated. The award shall be given on 11th May 2021 on Technology Day.

13. Organized the following events as a part of Capacity building Activities of National GLP Compliance Monitoring Authority:
 - a) Sensitization Workshop on GLP
 - b) Interactive Session with Test Facility Managements of GLP TFs (Sensitization w.r.t. Digitization of NGCMA & Update on regulatory requirements for medical devices and stem cells)
14. Representative from National GLP Compliance Monitoring Authority participated virtually and delivered a talk in the Seminar on Good Laboratory Practice/Mutual Acceptance of Data organized in China at the request of OECD
15. Provided inputs as a Line Ministry/Department of the Government in terms of latest S&T indicators for “Monitoring of Network Readiness Index” to Department of Telecommunication in the meeting held during the month.
16. A meeting to discuss and finalize the content of Directory of R&D Institutions 2021 was held on 13th March 2021.
17. A meeting to finalize latest Publication on “Directory of Extramural R&D Projects approved for funding by selected Central Government Department Agencies for 2017-18 & 2018-19” was held during the month. The report provides insights of the extramural R&D scenario in India for evidence based policy planning and informed decision making. It is useful for scientists, funding agencies, planners and policy makers in the country.
18. A meeting to discuss and finalize the content of NSTMIS Digital Repository and website was held during the month.

F. Scientific Infrastructure Building

1. Science & Engineering Research Board (SERB) has solicited proposals under the Technology Translation Award {TETRA} Scheme, from all SERB researchers holding patent (supported by SERB R&D grants) to provide funding to enhance Technology Readiness Levels (TRLs), in cooperation with an industry (start-up or MSME) and a technology incubator. Ten (10) TETRA awards were recommended for funding in various disciplines of science and engineering.
2. Under SERB-FIRE (Fund for Industrial Research Engagement), a public-private-partnership agreement was signed by SERB with Intel India and GE India to work on industrially relevant problems of emerging interest.
3. Under SERB-SUPRA (Scientific and Useful Profound Research Advancement) Scheme, 529 proposals were evaluated through a three-level peer review system and 22 proposals under SUPRA and 5 under SUPRA SEED Grant were approved.

4. Aryabhata Research Institute of Observational Sciences (ARIES) and other collaborators from Royal Observatory Belgium have led to the development of an algorithm, to detect and track the accelerating solar eruptions in the lower corona.
5. A team of scientists from BirbalSahni Institute of Palaeosciences (BSIP) analyzed the morphological characters of fossil leaves collected from four different geological ages such as 65, 57, 54, and 25 million years from Northern India. The scientists argued that the morphological characters of plant leaves were ecologically tuned with their prevailing climatic conditions and such leaves are useful in characterising monsoon behaviour. The results indicates that fossil leaves from India were adapted to the Australian type of monsoon and not the Indian monsoon system during its voyage from Southern to Northern Hemisphere before 25 million years back.
6. Bose Institute (BI) conducted study on the spatial and temporal variations in the chemical characteristics and sources of PM_{2.5} and PM₁₀ over Indo Gangetic Plain (IGP) using observation as well as models. All the models identified that vehicular emissions, secondary aerosols, biomass burning, and soil dust were the dominant sources of PM_{2.5} and PM₁₀ over IGP, India. Hybrid receptor models revealed the presence of strong local emission sources as well as traversing of pollutants from the parts of Pakistan, Punjab, Haryana, Rajasthan, Uttar Pradesh, Bihar, and Bangladesh.
7. In an another study conducted at BI, the Coconut pollen were found to be a major contributor to the aeroallergen load in India, causing respiratory allergy in susceptible individuals. First major allergen from Coconut pollen, Coc n 1 has been identified. 7S globulins are major storage proteins and food allergens, but presence of such protein in pollen grains is reported for the first time.
8. Scientist at Institute of Advanced Study in Science and Technology (IASST) developed a classification method based on Deep Learning (DL) network to evaluate hormone status for prognosis of breast cancer. The proposed framework is a reliable alternative to manual methods for automatic grading systems used to determine scoring of estrogen receptor status for predicting progression of breast cancer.
9. IASST scientists developed a novel single-step synthesis method of gold/copper oxide nano-composites with tuned optical properties.
10. Scientists at JNCASR have found a method to mimic nature's own process of reducing carbon dioxide in the atmosphere, namely photosynthesis, to capture excess carbon dioxide in the atmosphere. This artificial photosynthesis (AP) harnesses solar energy and converts the captured carbon dioxide to carbon monoxide (CO), which has potential touse as a fuel for internal combustion engines.

11. An antenna at low frequencies that is able to provide with high fidelity the faint cosmological signal, along with foreground sky, to the receiver was developed and successfully field-tested at Raman Research Institute (RRI).
12. Recent observations of an ultraluminous X-ray source (ULX) by astronomers at the RRI has enabled them to place constraints on the accretion state, disk geometry and upper mass limit of the central compact object. The analysis revealed that the observed ULX hosts a stellar mass black hole.
13. Wadia Institute of Himalayan Geology (WIHG) established a system for measuring hydrochemical parameters in the proglacial meltwater stream emerging from the Dokriani Glacier, and inferred glacial/subglacial weathering induced ionic release in the melt water during 1994 – 2015.
14. WIHG recorded clustered seismicity in the Chiplakot Crystalline Belt, Kumaun Himalaya, and inferred widely distributed stress pattern and low frictional coefficient.
15. Introduction of a minimal model for a collection of polar self-propelled particles (SPPs) on a two-dimensional substrate has been demonstrated by S N Bose National Centre for Basic Sciences (SNBNCBS).
16. Under the project, supported by TIFAC in Srijan Programme, on “Bio Animal Repellent & Crop Yield Promoter (Herboliv)”, around 19,500 L of Herboliv has been produced with indigenous technology by M/s. Provimi Products Pvt. Ltd., Tamil Nadu. ICAR-KVK, Hanumangarh district of Rajasthan has tested very positive antifeedant efficiency of Herboliv+ from desert locust swarms without any crop damage.
17. **Fund for Improvement of S & T Infrastructure in Universities and Higher Educational Institutions (FIST)**
 - a. 25 FIST Advisory Board Meeting approved Rs 79.335 crores for 5 years duration for 86 Proposals in different subject areas from various academic institutions, Universities and PG Colleges for Scientific Infrastructure Building. The results of the FIST 2020 are uploaded in the DST Website. For maintaining the complete transparency in the selection process, the list of not recommended projects along with the reasons for rejection are also displayed in the Website. The Award letters along with the Terms and Conditions were communicated to recommended departments through electronic Project Management System. Appropriate mechanisms including use of the FIST facilities through multiple shifts have been communicated to the beneficiaries through a public notice to promote optimal utilization of these resources.

- b. Twenty-Two (22) new projects were sanctioned in different subject areas under DST FIST Program for Scientific Infrastructure Building in different academic institutions along with the release of funds in fifteen (15) ongoing projects in March 2021.
- c. As a part of monitoring and review the implementation of FIST Projects, site visit was performed at Dept of Microbiology, Biotechnology, Nanotechnology, Molecular Biosciences and Stem cell Biology at Amity University, Noida Uttar Pradesh on 19 March 2021. The research facilities were successfully installed and widely utilized. All the projects were found to be performing satisfactorily.

18. **Promotion of University Research and Scientific Excellence (PURSE)**

- a. University of Kashmir, Jammu and Kashmir was sanctioned with PURSE Grant of Rs 9.44 Crores for four years duration to carry out the research in the area of “Gastrointestinal Cancers in Kashmir Valley, Climate Change Studies and Design of Novel Materials and approaches for the abatement of Water Pollution”.
- b. The first meeting of the Well-wisher Committee of DST-PURSE program was held at Jamia Hamdard University, New Delhi. Project Implementation and Technical Review for proper functioning of PURSE Program was assessed. This committee chaired by the Vice Chancellor, faculty members from participating departments, Deans, and at one faculty member from nearby institute. Member from the Newly Constituted Programme Management Board was also present in the meeting. The utilization of Cryo- Transmission Electron Microscope Facility and Drosophilla Facility established out of DST PURSE was discussed. The minutes of the meeting were finalized.
- c. University of Allahabad supported under DST PURSE organized the Conference on “Science & Technology in the service of common Man” in association with the Indian Science Congress Association on 17-18 March 2021.
- d. Bharathiar University, Coimbatore supported under DST PURSE organized Two Day Workshop on "Awareness of I-STEM portal for the use of the R & D Resources" in association with Indian Science, Technology, Engineering Facilities Map (I-STEM), Bengaluru on March 29-30, 2021.

19. **Sophisticated Analytical and Technical Help Institutes” - (SATHI)**

- a. The 17th "SATHI Ki Baat" Meeting was organized on 18th March 2021, convened on Microsoft Teams to review the recently supported “Sophisticated Analytical and Technical Help Institutes” (SATHI) centres at three host institutes (IIT Delhi, IIT Kharagpur and BHU- Varanasi) and for discussion about the latest catalogue / brochure of SATHI facility after incorporating the logo of SATHI, web

hosting address, purchased / installed / commissioned equipment at dedicated building(s) of SATHI, updated FY papers, its carry-forward permission and Section-8 company formulation.

- b. Media write-up pertaining to SATHI program was prepared and communicated for Newspaper Coverage.

20. **Sophisticated Analytical Instrument Facilities (SAIF)**

- a. 5 SAIF centres at Kolhapur University Kolhapur, Karnataka Univeristy Dharwad, Mahatma Gandhi University Kottayam, Indian Institute of Technology (IIT) Patna and Indian Institute of Engineering Science and Technology (IEST) Shibpur, established during 2013-14, were converted to routine SAIF centres upon completion of initial tenure of 5 years. These centres were reviewed by an External Expert Committee & Steering Committee and after satisfactory performance have been recommended for conversion. Now these centres will operate in similar mode as rest of the 10 SAIF Centres.
- b. The Steering Committee has also recommended "COVID Relief Grant" to the SAIF centres to cope with the loss of revenue arising out of COVID pandemic, which was also provided to SAIF centre at MG University Kottayam, STIC Kochi, IIT Patna, Kolhapur University & IEST Shibpur.
