No.Misc.1/13/2019-CDN
Government of India
Ministry of Science and Technology
Department of Science and Technology
(CDN Section)
***

Technology Bhawan,
New Mehrauli Road
New Delhi-110016
Dated: 14.07.2020

OFFICE MEMORANDUM

Subject: Monthly Summary to the Cabinet for the month of June, 2020.

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 30.06.2020 for information.

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

(Balram Goel)
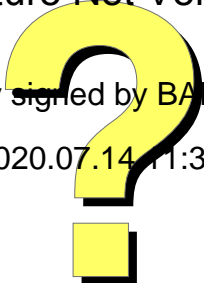Under Secretary to the Govt. of India

To,

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

Copy with enclosures, forwarded to:-

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ii.The Chairman, Union Public Service Commission (chairman-upsc@gov.in)
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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)

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xi.The Director, Cabinet Secretariat, New Delhi. (cabinet@nic.in)
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xiii.Sr. PPS to Secretary, DST. (anuj.tripathi@nic.in)
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Department of Science & Technology
Monthly Report
June, 2020

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

A. Various Measures taken by DST for COVID-19

1. Studies on optimization of filtration efficiency and pressure drop on Tribo-E Face mask was initiated by Centre for Nano and Soft Matter Sciences so that mask will have moderate filtration efficiency without compromising breathability.

2. JNCASR established a state-of-the-art diagnostic training facility to train personnel in a real-time PCR for COVID-19. The first batch has undergone training from June 16 to 22, 2020, at COVID Training Facility at JNCASR.

3. Considering emerging health care requirements to combat the COVID-19 epidemic, under the CRG-COVID Life Sciences Programe of Science and Engineering Research Board (SERB), in the second committee meeting, out of 137 proposals 25 proposals were recommended for funding.

4. Bin-19 Face mask disinfection bin and UV Spot multipurpose disinfector based on technology know how from Sree Chitra Tirunal Institute for Medical Sciences and Technology was launched by VST Mobility Ltd, Kochi.

5. National Innovation Foundation – India (NIF) demonstrated two technologies incubated under Challenge COVID-19 Competition. In collaboration with Ahmedabad Municipal Corporation (AMC), the demonstration of an Innovative Sprayer was undertaken for sanitizing public places, garden and its adjoining roads. In addition, Vehicle Disinfectant Bay was successfully implemented at STNM Hospital complex in Gangtok, Sikkim.

6. International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI) and Mekins Industries Limited (MIL), Hyderabad have co-developed UVC based Disinfection Cabinet for application in hospitals, research & academic institutes, commercial complexes and homes for disinfection of domestic articles such as cloths, laptops, cell phones etc to fight against COVID-19.

7. *CAWACH, was launched as DST's program to support startups incorporated in India and having indigenously developed products/ solutions to address COVID-19 crisis. The funding preference is for the products and solutions that are ready for manufacturing or deployment or already deployed. Out of 826 applications received, 54 startups have been selected for funding. These startups are in different domains viz. ventilators & medical devices, disinfectant, PPE kit, diagnostic and informatics.*

8. The e-Tool developed under TIDE Programme to create awareness and impart information related to health and hygiene about COVID-19 along with education and entertainment for the persons with intellectual disabilities has been submitted to DoEPwD for wider dissemination and feedback.

9. A report on 'COVID-19: Resilience & Capacity Building of Scheduled Caste and Scheduled Tribe Communities at Grassroots' has been prepared based on interventions of various Knowledge Institutions and Voluntary Organizations

10. A Brainstorming session through Video Conferencing (VC) was conducted by SEED, DST in collaboration with FICCI on 24th June, 2020. The theme **(Technology Driven Business Models around Sustainable Livelihoods: New Normal)** was motivated from the Prime Minister's roadmap of "Atma Nirbhar Bharat (Self Reliant India)" to evolve a program to mitigate the current and future effects of COVID-19 through technology driven business models for economic revival and inclusive growth at the grassroots level. Major actionable points that emerged through multi-stakeholders consultation were involvement of S&T based developmental agencies, associate industrial partners for decentralized production in rural villages. It also emphasized upon the need of standardization of processes/design, Social Stock Exchange (SSE), financial issues, need of Lab theory program/Capsule courses on technologies, virtual training as a challenge for rural people, identification of the sustainable technologies to transform rural economy to Green economy, Green jobs (self-employment, Social Enterprise creation).

11. For required data collection pertinent to COVID-19 emergency management, the SAHYOG mobile app, developed and managed by SoI has been customized to collect COVID-19 specific datasets through community engagement to augment the COVID-19 response activities by GoI. Recently, additional features such as isolation centre, designated COVID-19 hospitals, details of the migrating population etc. have been also added to the above mobile app. The NGOs of the SEED division are trained towards using of Sahyog App for data collection at the ground level so that the output can be scaled up as per the current needs of the stakeholders in the COVID-19 scenario. To facilitate

the Data integration process, APIs (Application Processing Interface) for the 28 NGOs has been created and shared with them.

12. Brochure was released for National programme on health and risk communication "Year of Awareness on Science & Health (YASH)" with Focus on COVID-19.

13. 4th upgraded version of COVID-19 dashboard has been published by NATMO with more user-friendly information.

B.   Science for Society

1. A Local Programme Advisory Committee Meeting on "Study of Impact Assessment of Women Technology Parks (WTP)" was organised on June 12, 2020. The role of WTP in gender empowerment was appreciated, many fruitful suggestions like linking the WTP beneficiaries with other government schemes like, "Aatm Nirbhar Bharat", Sustainable Development Goals (SDGs) and social empowerment was suggested.

2. In order to exchange best practices and share knowledge acquired among the S&T Councils, the 6th Annual Meet of State S&T Councils is being organized virtually by Karnataka State Council of Science and Technology (KSCST) during 18 June 2020–2 July 2020. Officials of S& T Councils from 29 States and 2 Union Territories (UTs) participated during the inaugural session addressed by Prof. Ashutosh Sharma, Secretary DST. The critical role of S&T Councils in creating scientific awareness and strengthening the S&T infrastructure at state level was discussed during the meeting.

3. An online training was conducted by Agharkar Research Institute for the farmers and agri-input dealers in wheat and soybean. Popularisation of the scientific activities were also conducted through radio talks, newspaper articles, and social media.

4. North East Centre for Technology Application and Research (NECTAR) has entered the process of setting up of bamboo based Technology Demo Centre (TDC) in collaboration with Bamboo & Cane Development Institute (BCDI), Lichubagan, P.O. Agartala secretariat, Agartala, Tripura (W), run & managed by National Centre for Design & Product Development (NCDPD), Ministry of Textiles, Govt. of India to establish a Joint Centre called as "NECTAR-BCDI Incubation cum Innovation & Technology Demonstration Centre (IITDC

5. Vigyan Prasar published monthly newsletter Dream-2047 as Annular Solar Eclipse special and e-circulated as per schedule.

6. Organized the Meeting of Programme Review and Monitoring Committee (PRMAC) for Science Channel on 16-06-2020 and followed up the Review Recommendations for Science Channel

7. Virtual Meeting on Geospatial Solutions for Restoring the Economic Growth in Post COVID-19 Scenario: Implementation plan' was held on 10.06.2020. The main aim of the meeting was to consolidate the various initiatives of the Geospatial Community of DST for providing Geospatial-based Solutions to the Stakeholders in the COVID-19 crisis.

8. R&D activities for project entitled "Addressing Drinking Water Issues in Slums in Greater Mumbai and its mapping using GIS" were supported. As an outcome, GIS based water quality maps of slum locations of Greater Mumbai were generated that may assist in addressing the area specific drinking water issues in slums.

9. Cultural Heritage Atlas of India (special publication for the IAS aspirants and other competitive examinations, for general public as well as for the concerned departments) –Dummy Atlas has been prepared.

10. 9 Maps of irrigation Atlas have been completed and under Scrutiny level.

11. Delhi: The City of Cities –A Geo-Historical Review –Dummy of the Monograph is completed.

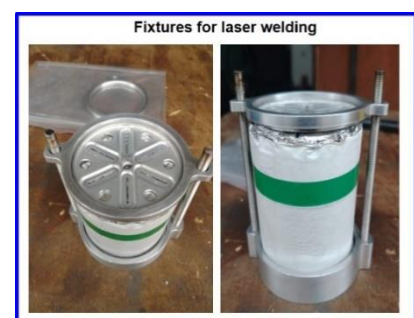## C. National Technology Mission

1. A Call for Proposals (CFP) for selection of remaining 8 Technology Innovation Hubs (TIH's) under National Mission on Interdisciplinary Cyber Physical System (NM-ICPS) has been launched. Against the CFP, a total of 30 number of proposals have been received. The meeting of Scientific Advisory Committee (SAC) to scrutinize, analyze and selection of these proposals for establishment of Technology Innovation Hubs (TIHs) under NM-ICPS was held on 20th June 2020 through Video Conferencing.

2. 3rd meeting of the **Working Group of National Mission on Interdisciplinary Cyber Physical Systems** (NM-ICPS) was held on **25th June 2020** through **Video Conferencing,** to finalise Section-8 company Bye-Laws, MoU, AoA etc. for Technology Innovation Hubs (TIHs) under NM-ICPS.

D. Technology Development

1. Promotion of value added and herbal industry-oriented cultivation of medicinal plants and their quality analysis for facilitating better industrial value for self-employment generation and sustainable development of farmers

in Bundelkhand region by Bundelkhand University and Rani Lakshmi Bai Central Agricultural University, Jhansi.

2. Activities towards development of a high-resolution Coastal Relief Model (CRM) that combines coastal topography and near shore bathymetry along a selected coastal stretch of Gulf of Khambhat by IIT Bombay have been initiated.

3. Landslide Hazard Assessment and Monitoring of the Chibo Pashyar (Kalimpong) a nine mile in Sikkim Using Wireless Sensor Network" by Department of Civil Engineering Indian Institute of Technology, Indore

4. Development of Shapley value-based compliance tables for ambulance repositioning using spatial-temporal data to improve coverage of an ambulance network by IIT Madras. An algorithm will also be developed to efficiently compute the Shapley value in dynamic settings.

5. Development of open source tool for Land Use Monitoring System using Geospatial Data by Bannari Amman Institute of Technology, Sathyamangalam, Tamil Nadu

6. As a part of Super capacitor device fabrication, laser welding of jelly rolls with guide plates and subsequent sealing process was performed at ARCI. Various tools for flattening jelly rolls and fixtures for welding of top and bottom guide plates with flattened jelly rolls was designed and fabricated in-house though additive manufacturing.

7. The Institute of Nano Science & Technology (INST), has developed a copper-oxide nano catalyst based industry-friendly and low-cost method for the production of antiepileptic drug 'Rufinamide'.

8. The Indian Institute of Astrophysics (IIA) Science Team for the Visible Emission Line Coronagraph (VELC) instrument for the Aditya-L1 Mission continued their extensive interactions with the Payload Team at IIA as well as with the teams at ISRO and at other national institutes to refine the science driven inputs for various calibration sequences for the instrument — both for ground and onboard — and for defining the data pipeline and processing. The

studies on star formation in the outer disks of galaxies using ASTROSAT UVIT observations and archival neutral hydrogen data obtained from the literature are in progress. It is found that using the high resolution of UVIT, one can study in detail star forming complexes in the outer disks of galaxies.

9. Researchers at the Raman Research Institute along with collaborators from CSIR – Central Drug Research Institute, Lucknow have developed a liquid crystal - metal nanoparticle hybrid that exhibited greater selective cytotoxicity in cancer cells while ensuring the safety of normal cells.

10. SERB, in a process to enhance industry engagement in public funded research, has signed a Letter of Intent (LoI) on June 30, 2020 with GE India Private Limited to partner and cooperate in the Program "Fund for Industrial Research Engagement (FIRE)" which intent to catalyse Research and Development through Public-Private-Partnership between academia and industry. SERB and GE India will cooperate on the themes related to next-generation gas turbines, additive manufacturing, engine services technology, electrical systems, digital and health care technologies.

11. With the approval of Secretary, DST, ICPS Division has prepared the Cyber Crisis Management Plan (CCMP) for Department of Science & Technology (DST) as per the requirement of CERT-In and MeitY. They have accepted the CCMP document and the same will be implemented in DST.

12. Review of project on Design & prototype demonstration of a CHCP system for scalable building energy use based on methanol powered fuel cell system.

13. Review of project on User friendly functional Simulation tool development through experimental validation for integration of PCM in energy efficient buildings for thermal management.

14. Review of project on Development of Solar based Humidifier-Dehumidifier linked with ground water reported notable progress on development of solar based sustainable low energy evaporative cooling system using ground water.

15. Review of project on Smart Energy Management in Buildings reported notable progress on development of smart building management system using minimum number of sensors for single/multiple buildings to monitor and control appliances remotely.

16. A Meeting held with India Smart Grid Forum (ISGF), Ministry of Power (MoP) to discuss on India- EU Joint call on Integrated Local Energy Systems.

17. Review of project on Energy Efficient Lighting with Visible Light based Communication and Power Line Communications reported notable progress on development of Energy Efficient VLC and PLC systems.

18. Review of project on Standardisation of Measurement Protocol for Overall Heat Transfer Co-Efficient (U-Value) For Building Materials & Components for Indian Subcontinent reported notable progress on development of Energy Efficiency standards and policy framework for building materials.

19. Review of project on Habitat Model for Efficiency and Comfort reported notable progress on Development of external smart shading and local energy cooling systems for thermal comfort in residential and commercial buildings.

20. Review of project on Developing energy efficient and ECBC compliant opaque wall assembly unit for warm & humid climate as well as hot & dry climate.

21. Review of project on Innovative Approach to Energy Savings in New and Existing Indian Habitats: Multilayer System for Energy Efficiency using Phase Change Materials reported notable progress on Development of multilayer PCM bead systems to reduce energy consumption in buildings.

22. Review of project on Development and performance analysis of double pane Semi-Transparent Solar Photo voltaic window/Facade system reported notable progress on Development of spectrally selective glass and semi-transparent solar photovoltaic based window systems.

23. Review of project on Energy performance of a domestic grid-tied Zero Energy buildings integrated with onsite renewable energy technologies.

24. Review of project on Indoor Environmental Quality (IEQ) Monitoring and Control System Based on Wireless Sensor-Actuator Network for Smart Indoor Environments and Development of a low energy cooling system.

25. Review of project on Test Workbench and Proof of Concept Prototype for Building Energy Efficiency Solutions.

26. Review of project on Characterization studies of Nano-enhanced Phase Change Material (NEPCM) in thermal storage devices for sustainable building designs in India reported notable progress on development of composite tile as building material incorporated with Phase Change Material (PCM).

27. Review of project on Energy Saving through IoT Based Building Automation System.

28. Review of project on Energy Efficiency in Green Buildings using Geothermal Pile for Cooling.

29. Review of project on Development of Energy Saving and Energy Generating Smart Windows.

30. Review of project on Development of Novel Phase Change Material based Cold Thermal Energy Storage System for Energy Efficiency and Thermal comfort of buildings.

31. Review of project on Translating Urban Spaces as strategic Energy and Water security measure.

32. Review of project onan Integrated Approach to Development and Environment in the Power Sector.

33. Review of project on Traffic Junction Air Pollution Abatement.

34. Review of project on Landfill Fire Control Mechanism through Integrated Approach.

35. An unconventional interaction meeting was organized with the Principal Investigators and his team to know the high level objectives and deliverables of the projects, in a way to raise the ambition of the project. 10 Proof –of-Concepts projects supported during FY 2019-20 under the call 'Optimum Water Use in Industrial Sector' were interacted during the month.

E. **International Cooperation**

1. **India-Australia Special Call for joint proposal on COVID-19:** Hon'ble Prime Minister of India Shri Narendra Modi and the Hon Scott Morrison MP, Prime Minister of Australia jointly announced a 'Special COVID-19 Collaboration Round in 2020' during an India-Australia Leaders' Virtual Summit on June 04, 2020. The Department of Science & Technology (DST), Department of Biotechnology (DBT) and Department of Industry, Science, Energy and Resources (DISER), Australia have launched a special call (AISRF Round 13) for joint research projects on COVID-19 under the Australia-India Strategic Research Fund (AISRF), a platform for bilateral collaboration in science, jointly managed and funded by the governments of India and Australia.

   The objective of the grant opportunity is to fund short collaborative research projects those would be mutually beneficial. The call closed on July 2, 2020 and projects are expected to start in October 2020.

2. **Indo-Italian Webinar:** An Indo-Italian Webinar "DIGITALYinINDIA INNOVATION FORUM 2020" was held on 23rd June 2020. The digital forum aimed at setting up a network of Indian and Italian excellences to further exploit the possibility of bilateral industrial research projects in the field of

green economy & sustainable development, health sciences, advanced manufacturing, design, aerospace.

3. **ASEAN-India collaborative R&D projects:** 10 ASEAN-India collaborative R&D projects were sanctioned for a period of two years under the ASEAN India S&T Development Fund (AISTDF). The research areas are Biomedical devices, Cyber-Physical Systems & ICT, and Food & Agricultural Sciences.

4. **71st session of the Committee of Plenipotentiary Representatives (CPR):** The 71st session of the Committee of Plenipotentiary Representatives (CPR) of the International Centre for Scientific and Technical Information (ICSTI) was attended through Video Conference. The meeting was attended by the representatives of ICSTI member states. Various administrative issues like results of ICSTI financial and economic performance, the technical programme for the year 2020-21, and budget for the year 2021 were discussed and approved the CPR.

5. **Fifth meeting of Standard Expert Panel (SEP) of CEFIPRA:** Fifth meeting of Standard Expert Panel (SEP) of CEFIPRA was held through videoconferencing. Indian & French PIs of the ongoing projects having the potential to get IP were guided by the experts on protecting and filing of IPR application during the course of implementation of joint research.

6. **India-South Africa Cooperation Joint Review meeting:** An India-South Africa S&T Cooperation Joint Review meeting was held on June 25, 2020. Both sides suggested and agreed to make the revised strategy on the ongoing program/ activities due to the current pandemic.

7. Divisional Scientists participated in the UN-Global Geospatial Information Management (UN-GGIM) virtual meetings held on 2nd June 2020 and 9th June, respectively. The main aim of the meetings was to discuss the Geospatial Integrated Geospatial Information Framework- Nine Strategic Pathways for National Leadership in Geospatial Information Management and the draft 'Future Trends in Geospatial Information Management: the Five to Ten Year Vision'. Participation will help in developing a Roadmap/ Strategy for augmenting National activities in alignment with UNGGIM priorities.

8. A meeting held with Mission Innovation Heating and Cooling Advisor, UK to discuss on strategic plan and road map for Mission Innovation 2.0 (Buildings and Cities).

9. A meeting held with General Manager, Heat Pump Center, RISE Research Institute of Sweden to discuss on Comfort Climate Box. Discussed Research

and Implementation potential in India and roadmap for developing the programme.

10. A meeting held with officials from European Commission, UK, UAE and global covenant of Mayors to discuss the scoping of Mission Innovation 2.0. India made a presentation and shared inputs in the scoping process.

11. An interaction meeting held with experts form IIT Delhi and IIT Roorkee to discuss on Mission Innovation IC1: Smart Grids & IC7: Affordable Heating and Cooling of Buildings activities and future roadmap.

12. Attended and actively participated in 5th PMC meeting of the DST-INTEL WAQM Program implemented by IUSSTF held during 25-26 June 2020 for review of 4 WAQM projects.

13. In principle approval obtained for participation of DST in ACT (Accelerating CCS Technologies) Call III programme.

F. Human Capacity Building

1. About 150 Research Students continued their research work in different mega science projects. 12 research publications and 1 Book emerged out during the month. 1 Ph.D. also emerged during the month. Dr. Raghunath Sahoo of IIT-Indore was elected as a Fellow of the Institute of Physics, UK in recognition for his research work in the ALICE experiment at CERN, Geneva.

2. **INSPIRE-MANAK:** New call for submission of innovative ideas under INSPIRE-MANAK has been open from 1st June 2020. To spread outreach of MANAK Programme at every nook and corner of the country and in order to motivate teachers and students, a series of Awareness Campaigns is being conducted with State Nodal Officers (SNOs) and District Nodal Officers (DNOs).

3. **SATYAM:** A webinar on "*Relevance of Yoga in Combating COVID-19 Pandemic*" has been organized on 21st June 2020 to celebrate 6th International Yoga Day. Dr Kavita Chandwani, The Yoga Institute, Mumbai and Dr Akshay Anand, PGIMER, Chandigarh were the speakers.

4. **Women Scientist Scheme:** Grant released to 60 Women Scientists under WOS-A & B Programmes.

5. **Vigyan Jyoti:** Several activities have been conducted at different Vigyan Jyoti Knowledge Centres (i.e. Jawahar Navodaya Vidyalayas) during this month.

6. **Vigyan Jyoti Portal:** Navodaya Vidyalaya Samiti (NVS) has launched a dedicated portal of Vigyan Jyoti Programme. This portal is accessible to all the selected JNVs and Programme Officers at DST and NVS.

7. **Special Online Classes:** In collaboration with Alumni Network, special online classes have been started for all students registered in Vigyan Jyoti. The aim of these classes is to build the academic strength and to help students with clarity in concepts and skills to face the competitive examinations. In addition, links of IIT- Professor Assisted Learning (PAL) video lectures for class XI and XII students have also been shared.

8. **ATL Activities:** Conducted virtual visit of ATL Lab for students with an online session about 3-D Printer and Arduino software under the guidance of teacher in-charge of the lab.

9. **Lectures/Webinars:** Number of online lectures and webinars conducted during June at different centres. Few are mentioned below:

   - "*Women in Science*" live talk by Dr. Mudrika Khandelwal, IIT Hyderabad.
   - "*Detecting COVID – 19 with FELUDA*" by Dr. Souvik Maiti, Sr. Principal Scientist, CSIR- IGIB
   - "*Computer Science Unplugged and Computational thinking- What's the Big Picture*" by Prof. Tim Bell, University of Canterbury , New Zealand
   - "*Introduction to Toyoda Gosei and its Operations*" organized JSS Science and Technology University, Mysuru
   - "*SI standards and infrastructure in our country*" by Dr. D.K. Aswal Director, CSIR-NPL.
   - "*Evolution and spread of Novel corona*" live talk by Prof. Partha P Majumder, President of Indian Academy of Sciences
   - "*Handling stress and anxiety in adolescents during COVID-19*" by Dr. Swati Sinha.
   - Role Model Talk by Ms. Neena Grewal, IFS, Project Director UDWDP-II and GEF-6 Ag project Government of Uttarakhand.
   - "*Markovnikov and Anti-Markonikov rule and mechanism*" by Dr. Kashnath, NIT Warangal.
   - "*Plastic waste to Fuel*" by Sh. Shirish N Phadtare, Chairman & Director Rudra Environmental Solutions Ltd.
   - "*System support of NRL Start up Fund for NER*" by Sh. Paranjal Dutta, Chief Manager NRL.
   - "*Innovation Technology & Entrepreneurship from incubators lens*" by Dr. Wankawala, CEO, Atal Incubation Center, IASST
   - "*What does a Scientist do and how can you become one?*" by Dr. HK Sardana, Chief Scientist, CSIR.

10. **Competitions:** Vidyarthi Vigyan Manthan organized "*Mind Mapping Competition*" to develop the ability to visualize interconnected concepts and

enhance self study and self learning. An online Drawing competition on the topic "*Me and My Environment: A lock Down Experience*" was conducted on World Environment Day.

11. NRDMS Division has designated schemes for human capacity building and training to strengthen the National adaptation capacity of Geospatial technologies covering National Programme for academia, government officials and industry; Geospatial Chair Professors etc. The details are as follows:

   - Support has been provided under capacity building programme for developing tools and techniques for integrated resource management and capacity building at various levels to following institutions:
   University of Science & Technology Meghalaya, Meghalaya; Aligarh Muslim University, Aligarh; Kurukshetra University, Kurukshetra; Mohanlal Sukhadia University, Udaipur; Birla Institute of Scientific Research, Jaipur; Department of Geography, Himachal Pradesh University, Shimla etc.

   - Capacity building programme supported for developing Geospatial tools and techniques for integrated resource management and capacity building at various levels with a special focus on 'Biodiversity Conservation and Management' to Institute of Environment Education and Research, Bharati Vidyapeeth, Deemed University, Pune.

12. Participated as domain expert(s) in the area of STI Indicators in the OECDs online NESTI Workshop on the "Statistical Monitoring and Analysis of Science, Technology and Innovation in time of crisis" 15-16 June 2020.

13. 2nd meeting of the Technical Advisory Committee (TAC) of the project - **India Innovation and Systems Survey 2019** being implemented by UNIDO was held at UNIDO's New Delhi office on 24th June, 2020.

14. **Innovation in Science Pursuit for Inspired Research (INSPIRE) Scheme**

   INSPIRE Internship: 27 INSPIRE Internship Science camp reports were settled.

   Scholarship For Higher Education (SHE): 177 SHE scholars received their scholarship for pursing B.Sc./M.Sc. Degree course in basic and natural sciences.

   INSPIRE Fellowship:

- 61 INSPIRE Fellows received their fellowship for pursuing their doctoral degree programme.
- 19 INSPIRE Fellows were upgraded from JRF to SRF.

INSPIRE Faculty Fellowship: 16 INSPIRE Faculty Fellow's grant was released for pursing their Post-doctoral programme.

G. Scientific Infrastructure Building

1. Different project activities in Facility for Antiproton and Ion Research (FAIR) and Thirty Meter Telescope (TMT) projects continued. 18 Power Converters were shipped to FAIR as in-kind item from India. An Indian Company bagged Order worth Rs. 4 crores from CERN, Geneva for Supply of Service Module Vacuum Vassels.

2. A webinar on NIDHI (National Initiative For Developing and Harnessing Innovations) PRAYAS (Promoting And Accelerating Young And Aspiring Innovators & Startups) Program was organized to review the progress of PRAYAS centres with the participation of 31 PRAYAS Shala. It was observed that during last 3 years, 401 PRAYASEE's were supported which includes 336 male innovators and 65 female innovators. 147 PRAYASEE's filled 173 Patents,, 135 PRAYASEE's raised RS. 78 crores, 49 PRAYASEE's started their own startups with revenue generation of 25.76 crores and 911 employments were generated.

3. Advisory Committee Meeting of Innovation and Entrepreneurship Development Centre (IEDC) / New Generation Innovation and Entrepreneurship Development Centre (New Gen IEDC) were held to review the progress of the IEDC/New Gen IEDC centres. It was observed that 40 innovative students were supported during last one year in the areas of agricultural bio technology, health sciences, electronic, solar energy and water management. The discussions are underway with the industry to refine the prototypes developed under these projects for commercialization.

4. National Centre for Geodesy)NCG (was established at Indian Institute of Technology, Kanpur for Promotion of the state-of-the-art research and development activities in Geodesy, for capacity building by imparting regular training programmes on Geodesy and Outreach activities and extension of all laboratory support for students and researchers from universities and institutions.

5. Establishment of Centre of Excellence under the National Networking Project on "Assessment of Regional Hydrological Systems using Space Borne Gravity

Observations" at NGRI, Hyderabad. As a part of the programme initiation and its sustainability, this central facility has been created to coordinate and integrate various components of the project, envisaged to evolve as a Knowledge Hub, and as solution provider to address hydrological problems at regional and smaller scale. This central facility which is a sort of virtual laboratory is expected to provide remote support to all the members of the network programme to augment data and data products from various sources.

6. Bose institute demonstrated that inosine 5'-diphosphate, a molecular decoy, rescues nucleoside diphosphate kinase from c-MYC G-Quadruplex unfolding. A survey of drug resistance associated gene mutations in Mycobacterium tuberculosis, ESKAPE and other bacterial species was conducted. Molecular and culture-based surveys of metabolically active hydrocarbon-degrading archaeal communities in Sundarban mangrove sediments were also conducted.

7. Two major astronomical events were covered by Aryabatta Research Institute of observational sciences (ARIES) i) Occultation of Pluto on 6-June-2020 which was observed with ARIES 1.3m and 3.6m telescopes in optical and near infrared bands as a part of an international campaign, ii) Annular solar eclipse on 21-June-2020 was observed with ARIES Solar telescope and telecast online with more than 1000 viewers in YouTube and FaceBook live. ISRO signed a MoU with ARIES for cooperation in Space Situational Awareness (SSA) and Astronomy & Astrophysics.

8. Survey of India, the National Mapping Agency of the country signed **MoU** with Government of Uttarakhand through Commissioner and Secretary, Board of Revenue, Dehradun on 3rd June 2020, for Drone based Large Scale Mapping under **SVAMITVA scheme** of Ministry of Panchayati Raj (MoPR) launched by Hon'ble Prime minister of India.

9. Survey of India, the National Mapping Agency of the country signed **MoU** with Board of Revenue, Govt of Uttar Pradesh on 9th June 2020,for Drone based Large Scale Mapping of the aabadi areas of all revenue villages in U.P. state under **SVAMITVA scheme** of Ministry of Panchayati Raj (MoPR) launched by Hon'ble Prime minister of India.

10. Video conferencing meeting between Surveyor General of India, Joint secretary (Ministry of civil aviation), DGCA authorities and Joint secretary (Ministry of Panchayati Raj) was held on 5th June 2020, for discussions and streamlining of Drone certification, exemption and clearance issues pertaining to **Drone based large scale mapping projects (including SVAMITVA scheme)** being carried out by Survey of India.

11. A meeting through Video Conference with Sh. Chandra Bhushan Kumar, IAS, Deputy Election Commissioner was held on 8th June 2020, on **Delimitation of Parliamentary and Assembly Constituencies** in respect of 4 States i.e. Assam, Arunachal Pradesh, Manipur and Nagaland on basis of 2001 Census data and union Territory of Jammu & Kashmir on the basis of 2011 Census data attended by three officers of SOI.

12. A meeting through Video Conference under the chairmanship of Secretary, Ministry of Panchayati Raj was held on 11th June 2020, to review the progress on **SVAMITVA Scheme.** The Surveyor General of India, DDG-NIC, SoI officers, Principal Secretary/Secretary (Panchayati Raj and Revenue Department) from states of Haryana, Karnataka, M.P. , UP, Uttarakhand, Maharashtra, Punjab and Rajasthan participated in the meeting.

13. A meeting of monitoring committee through Video Conference chaired by Dr. P.S. Acharya, NSDI, DST was held on 16th June 2020, on **jointly work with Survey of India (SoI) and International Institute of information and Technology (IIIT) towards providing professional education and research project** and to enhance knowledge and skills in the area of geospatial science by formulating and updating the course structure, syllabi and activities of Indian Institute of Survey and Mapping (IISM) ".

14. Survey of India organized training on 18th June 2020, on **Mission Planning, Drone flying etc. for IAS, Probationary Officers** at Mysuru, Karnataka.

15. A Special online training programme was organized by IISM in June 2020 on **"Feature extraction using ARCGIS software with new SDMS & GEODATABASE"** for officers/staff of Survey of India.

16. Under **SVAMITVA scheme,** Drone flying has been started in Uttar Pradesh, Madhya Pradesh and Uttarakhand states where 53622 villages in UP, 1000 villages in MP and 4000 villages in Uttarakhand are to be covered in pilot project. In pilot phase of SVAMITVA scheme a total of 117000 villages are to be covered in 06 states – Uttarakhand, Uttar Pradesh, Madhya Pradesh, Haryana, Maharashtra and Karnataka.

17. **Sophisticated Analytical and Technical Help Institutes" - (SATHI)**

    The 8th meeting of Sophisticated Analytical and Technical Help Institutes (SATHI) -"SATHI Ki Baat" held on 18 June 2020 by involving IIT Delhi, IIT Kharagpur and BHU- Varanasi to review the work progress of recently supported SATHI centres.

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