

Department of Science & Technology
Monthly Report
July, 2023

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

A. Important Milestones

Anusandhan National Research Foundation Bill, 2023

The Union Cabinet approved introduction of the Anusandhan National Research Foundation Bill, 2023 in the Parliament with an aim to establish National Research Foundation (NRF) as a Statutory body under Ministry of Science and Technology.

G 20 Research Ministers Meeting

Hon'ble Minister of Science and Technology Dr. Jitendra Singh Chaired the G20 Research Ministers Meeting which was held in Mumbai during 4-6 July 2023. 107 foreign delegates including Research Ministers from twenty-seven G20 members, invited guest countries and International Organizations (IO's) participated in the meeting. During the meeting "Outcome Document and Chair's Summary" was issued which re-affirmed the critical role of research and innovation for enabling inclusive and sustainable development and resolved to support each effort for transforming research and innovation systems to respond to the changing world of the 21st century and address the tomorrow's challenges.

Clean Energy Ministerial (CEM) Meeting

The 14th Clean Energy Ministerial (CEM) and 8th Mission Innovation (MI) meeting was held in Goa during 19th to 21st of July, 2023. Under the theme "Advancing Clean Energy Together," the event hosted high-level round table conferences, side events, and technology showcases which aimed at accelerating the deployment of clean energy. The event has encouraged the development of policies and programs that advance clean energy technology and solutions worldwide and has brought together global stakeholders, including Governments, International Organizations, Private Sector entities, Academia, Innovators, Civil Society, and Policy Makers.

International Union for Quaternary Research Congress-2027 to be held in Lucknow

The scientists of Birbal Sahni Institute of Palaeosciences (BSIP), Lucknow presented their research work in the 21st INQUA (International Union for Quaternary Research) Congress-2023 held during July 13–20, 2023 at Rome, Italy. Following a presentation by BSIP, INQUA Council at Rome, Italy, announced that India will host the 22nd Congress of International Quaternary Union in 2027 (INQUA-2027). The conference in India will be hosted for the first time in last 95 years and will create an opportunity to showcase Indian historical and cultural marvels and make the scientists understand the earth's evolution process and India's progress in Quaternary Research.

B. G-20 Activities

- During the G-20 Research Ministers Meeting held in Mumbai, the Ministers resolved to encourage research and innovation cooperation in the areas of Materials for sustainable energy; circular bio-economy; eco-innovations for energy transition; and sustainable blue economy, which were the priority topics of the G20 RIIG during India's Presidency, the Research Ministers reaffirmed their commitment to open, equitable and secure scientific collaboration in these areas for developing solutions that address social and global challenges.
- The Ministers also agreed to recommend elevation of Research Innovation Initiative Gathering (RIIG) to the status of a formal Working Group, i.e., G20 Research and Innovation Working Group (RIWG) under the Sherpa Track.

G20 Science20 Summit

- DST supported and hosted the Science20 Summit which was held in Coimbatore during 21-22 July 2023. 100 delegates (35 foreign delegates and 65 Indian) from G20 member countries, invited countries & International Organizations participated in the Summit. The primary objective of the S20 engagement group is to offer science-based advice and recommendations to policymakers, ensuring that decisions are made based on scientific consensus.

C. Science for Society

- A patent has been granted to International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Hyderabad for the application related to the **invention Transition metal-based solar selective absorber coated substrate** and method of manufacturing the same, on 20/07/2023.
- Technology Information, Forecasting & Assessment Council (TIFAC), New Delhi, has facilitated granting of **03 patents** titled 'An apparatus for detecting metallic Objects using wireless communication', 'Apparatus for nitrogen level sensing' and 'Novel Herbal Obturating material And process thereof'.
- Agharkar Research Institute (ARI), Pune **published 4 papers** in refereed journals and **one Indian patent** has been granted.
- Sree Chitra Tirunal Institute for Medical Science and Technology (SCTIMST) has been granted **three patents** in respect of technologies developed by them.
- Indian National Academy of Engineering (INAE) organised a two-Day SERB-INAE **Workshop on "Entrepreneurship and Skill Development with Special Reference to Startups"** at Ladakh.
- National Innovation Foundation (NIF), Bhubaneswar organized a two days mentorship workshop under INSPIRE Awards - MANAK 2021-22 for the State Level awardees of Odisha. During the workshop, participants discussed their projects with experts of different domains of engineering.

- **Institute of Nano Science and Technology (INST), Mohali organized its first ‘Hackathon’ challenge**, an open competition among teams of research scholars, aiming to provide industry relevant solutions through nano-science and nanotechnology.
- North East Center for Technology Application & Reach (NECTAR)’s Bamboo & Cane Development Institute (BCDI), Agartala organised 15 days **training on Bamboo Bottle making** for Meghalaya Artisans. NECTAR also organised a five days **training on Drone Data Acquisition and Processing (DDAP)**.
- Institute of Advance Study in Science and Technology (IASST), Guwahati conducted a 5-day training on production of fermented food and beverages.
- Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST) with the support of Technology Information, Forecasting and Assessment Council (TIFAC), New Delhi organized two days **Brainstorming workshop on the topic of Future Technologies of Healthcare and Medical Devices** at Trivandrum.
- Centre for Nano and Soft Matter Sciences (CeNS) organized an outreach program for college students.
- Indian National Science Academy (INSA) supported eleven Indian scientists for attending the Non-ISC (International Science Council) sponsored conferences abroad.
- Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore organized a Bio-Imaging Workshop for training the researchers on confocal and super-resolution microscopy and its applications and several other bio imaging areas.
- Vigyan Prasar brought out its monthly flagship **bi-lingual science magazine Dream 2047** July 2023 edition. Vigyan Prasar has published monthly science newsletters in Tamil (Ariviyal Palagai) and Bangla (Bigyan Katha) and two popular science books in Bangla: Vigyan Panchashat and Aalokvidyar Itikatha.

D. Technology Development

- The Mission Office, NM-ICPS has conducted site visit to review and assess the current progress of activities for the Technology Innovation Hubs (TIHs) set-up at IIIT Hyderabad, IIT Indore, IIT Ropar and IISc Bangalore. The review of TIH at IIT Kanpur was planned on 31.07.2023. Quarterly Bulletin-July, 2023 has been brought out by the Mission Office on the activities undertaken by all 25 TIHs, indicating highlights of their achievements.
- TIH at IIT Kanpur and IIT Madras participated through their Start-ups at G20 Conference on Cyber Crime and Security in the age of NFTs, AI and Metaverse held at Gurgaon.
- Raman Research Institute (RRI), Bangalore has reported that as a collaborative project between RRI & ISRO, environmental (thermo-vacuum) tests, vibration tests, and acoustic tests for XPoSat satellite which includes the RRI conceived, designed and built POLIX payload were successfully completed at URSC, ISRO.

E. Human Capacity Building

- Under **INSPIRE Awards - Million Minds Augmenting National Aspirations and Knowledge (Manak) Scheme**, 02 Mentorship workshops for the State Level awardees were organized in Kerala and Karnataka.
- Under **INSPIRE Scholarship Scheme of the Department**, an amount of Rs. 4.72 Cr was released towards scholarships for 1105 students and Rs 1.08 Cr was released towards fellowships for the scholars.
- Under **Vigyan Jyoti Scheme**, tinkering workshops, science camps, role model sessions, study visits and lectures were organised for the students of Jawahar Navodaya Vidyalayas across the States.

F. International Cooperation

India-US joint review meeting was held on 12th July, 2023 to review the progress of the project entitled “**U.S.-India collAborative for smart diStribution System wIth Storage (UI-ASSIST)**” supported under the Indo-US Joint Clean Energy Research and Development Centre (JCERDC) program.

Bilateral meeting with Argentina

- On July 24, 2023, Dr. Jitendra Singh, the Union Minister of State (Independent Charge) for Science & Technology held a meeting with the Governor of Santa Fe province in Argentina, Omar Angel Perotti. The Indian delegation included Dr Rajesh S. Gokhale, Secretary of the Department of Science & Technology (DST) & Department of Biotechnology (DBT), and Dr N. Kalaiselvi, Director-General of the Council of Scientific and Industrial Research (CSIR). The Argentine delegation included Presidents of the two major Stock Exchanges in Santa Fe, Vice-Chancellors of three Universities in the province, and the Ambassador of Argentina to India, Mr Hugo Gobby.
- During the meeting, the two countries agreed to conduct comprehensive talks involving delegations from academia, R&D institutes, and industry in the fields of Science & Technology and Biotechnology. The focus of these discussions was on enhancing collaboration and partnerships between India and Argentina.
- The Indian delegation expressed interest in collaborating in Geospatial technology, Quantum Computation, and Bio-Enzymes. India's significant Startup ecosystem was also highlighted, showcasing the potential for joint studies and collaboration at various levels, including institutional, universities, and multilateral fora.

BRICS Working Group Meeting

On the 9th and 10th of July 2023, the 7th Meeting of the BRICS Working Group on Information and Communication Technology and High-Performance Computing (WG on ICT and HPC) took place in China. Representing India, Mr Ashish Kuvelkar and Dr Manoj Khare presented India's High-Performance Computing (HPC) initiatives, particularly focusing on the National Supercomputing Mission. This flagship project, overseen by the Indian government and

implemented by the Ministry of Electronics and IT and the Department of Science and Technology, aims to establish HPC infrastructure across India, run applications of national interest, and provide training on HPC applications and system administration.

BRICS Young Scientist Forum

The BRICS Young Scientist Forum and BRICS Young Innovator Prize took place in Qheberha, Eastern Cape, South Africa, from 31st July to 2nd August 2023. The conference focused on themes like climate change and environmental sustainability, the future of education, mindset, and skillset, and the future of society. During the event, 25 young researchers and innovators from India shared their research work with participants from other BRICS nations.

India-South Africa Joint Committee Meeting

The 13th Joint Committee Meeting (JCM) on Science, Technology, and Innovation Cooperation between India and South Africa took place on July 12, 2023. During the meeting, both sides agreed to reinforce their ongoing cooperation in the fields of Astronomy, Grassroot Innovations, and Health Sciences. Furthermore, they decided to initiate cooperation in areas like Indigenous Knowledge Systems, Green Hydrogen, and Agriculture Biotechnology through focused Research & Development joint projects, workshops, and the exchange of researchers.

India-Netherland Joint Working Group meeting

On the 7th of July 2023, India and the Netherlands successfully co-chaired a Joint Working Group (JWG) meeting in New Delhi. During the meeting, both countries provided updates on their existing cooperation in the field of Science and Technology. They mutually agreed to strengthen their collaboration and establish a strategic partnership focused on the WAH! (Water, Agriculture, and Health) Agenda. The WAH! Agenda is a knowledge and innovation framework that concentrates on Water, Agriculture, and Health, with support from Key Enabling Technologies (KET).

India-Japan Cooperative Science Programme (IJCSP)

On 5th July 2023, the results of the joint selection for 15 joint project proposals and 2 workshop proposals under the India-Japan Cooperative Science Programme (IJCSP), 2022, were announced. This collaborative initiative involved the Department of Science and Technology (DST) from India and the Japan Society for the Promotion of Science (JSPS) from Japan. The selected projects covered a diverse range of fields including, Physical Sciences, Chemical Sciences, Life Sciences and Agriculture, Mathematics and Computational Science, Astronomy and Earth Science, Materials and Engineering, as well as COVID-19 related research (both pre- and post-COVID).

G. Scientific Research

- Wadia Institute of Himalayan Geology (WIHG) established **the presence of numerous shallow depth groundwater channels behind Shree Badrinath temple** using 2D and 3D Electrical resistivity tomography studies.
- Birbal Sahni Institute of Palaeosciences (BSIP), Lucknow, studied the nature of organic biomarkers found in subaerial rock varnish in the extreme conditions of Ladakh, India, resulting from mineral-microbial interactions. It throws light on the unexplored surface

hydrophobicity properties of rock surfaces and their role in microbial adhesion on the surfaces.

- Aryabhata Research Institute of Observational Sciences (ARIES) reported that a team led by their scientists has developed a novel methodology to compute emission from accreting neutron stars.

H. Scientific Infrastructure Building

- MoU between Survey of India and IIT-Roorkee signed on 05-07-2023 for academic and research collaboration in the field of Geodesy and Geo Informatic.
- A Call for Proposal (CFP) to build knowledge and adaptation capacity of geospatial technologies at various levels, was issued to invite proposals from geographically well distributed organisations capable of conducting Geo-innovation Challenge (three days) and 21 days winter/ summer schools in the fields of Geospatial Science and Technology. The last date of ONLINE receipt of the proposals is 12th August, 2023.
- An Expert Committee meeting was held with an aim to identify a suitable organization within the Government so that the infrastructure of National Geotechnical Facility (NGF) established at Survey of India can be handed over for proper and efficient utilization. NGF is a vital facility and was set-up as a State-of -art facility in Geotechnical Engineering with many advanced data acquisition instruments along with testing facility to estimate the shear strength of the materials etc.

- **Promotion of University Research and Scientific Excellence (PURSE)**

The 18th meeting of the Program Management Board (PMB) on the DST PURSE Program was held on 14th & 15th July, 2023. Eighteen Universities were invited to make a presentation before PMB. The PMB recommended support to Thirteen Universities with various quantum of funds to support under PURSE.
