

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

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Technology Bhawan,  
New Mehrauli Road  
New Delhi-110016  
Dated: 16.08.2022

**OFFICE MEMORANDUM**

Subject: Monthly Summary to the Cabinet for the month of July, 2022.

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 31.07.2022 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. Dr. Rabindra Kumar Panigrahy, Sc. 'E', DST for uploading the Monthly Summary on DST's website. (rabindra.p@gov.in)
- xiii. PSO to Secretary, DST. (anuj.tripathi@nic.in)
- xiv. AD (OL), DST for Hindi Translation (kn.singh65@gov.in)



**Department of Science & Technology**  
**Monthly Report**  
**July, 2022**

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

**A. Science for Society**

1. National Innovation Foundation (NIF), Ahmedabad facilitated granting of 10 patents on Herbal composition (a) for a beverage with anti-diabetic properties (b) for use in treating and preventing bone fractures (c) for therapeutic management of respiratory tract diseases (d) for treatment or prevention of diabetes (e) for treatment of mastitis and process of preparation thereof; (f) Cooling bed and method thereof (g) a reeling apparatus and method thereof; (h) an angularly and laterally displaceable seat for vehicles; (i) tea making machine for differently abled people; and (j) a tractor operated groundnut digger machine.
2. First Honey Testing Laboratory in Nagaland, supported by North East Centre for Technology Application & Reach, Shillong inaugurated.
3. Technology Information, Forecasting & Assessment Council (TIFAC), New Delhi had an interaction with Saffron farmers as a part of a study on “Identification of production, processing and marketing related problems in Apple and Saffron and their redressals Taking Apple and Saffron legacy forward: from Science to Society” at Pampore, Pulwama District, UT of J&K. Key problems related to Saffron cultivation, processing and marketing were discussed.
4. Under the “**Vigyan Ustav**” programme, 23 State/UT Science & Technology Councils organized the programmes on the theme “**Atmanirbharta and Industry**”. The programmes reached out to 35,000 stakeholders through various platforms.
5. As a part of “**Azadi Ka Amrit Mahotsav**”, “**Tech Neev@75**” programme was organized on 8<sup>th</sup> and 16<sup>th</sup> July in collaboration with the Ministry of Earth Sciences (MoES). Community groups, end-users, social change makers, industry & technology partners from Uttar Pradesh, Kerala, Tamil Nadu, West Bengal, and Himachal Pradesh have shared their experiences and feedback about the role of Science and Technology in their quality of life and livelihood.
6. Technology Development Board participated in the iConnect – call on Waste Management topic “Sewage, Septage and Faecal Sludge Management in Small towns and Villages” on 15th July.

## **B. Technology Development**

1. Polyaniline-WO<sub>3</sub> based electrochromic device demonstrated in lab by ARCI by using super capacitor fabricated by using recycled Li-ion battery materials.
2. ARCI Demonstrated prototype thermal energy storage system suitable for space heating and domestic solar water heating applications.

## **C. International Cooperation**

1. **India-Israel Joint Committee meeting:** India-Israel Joint Committee Meeting was held on 25th July 2022. Discussions were held on the priority areas for the next call for a joint proposal. It was decided to consider Artificial Intelligence (AI) & Data Science; Food, Energy & Agriculture, and AI related to Climate Change as themes for inviting new Industrial R&D proposals in the next call.
2. **India-Uzbekistan S&T cooperation meeting:** The meeting was held on 28th July 2022. Presently 23 joint research proposals are under implementation. Secretary, DST also mentioned that large talent pool available in India can assist in the capacity building of Uzbek researchers. He further offered incubation networking through programs of the DST and National Innovation Foundation on grassroots innovation.

Both sides further agreed to launch a fresh round of calls for proposals and organise joint workshops in each other countries.

## **D. Human Capacity Building**

1. On Site Evaluation (OSE) of National Good Laboratory Practices (GLP) Program was held during 25-29<sup>th</sup> July, 2022. The evaluation was carried out by a team constituted by the OECD Secretariat which consisted of two evaluators, one each from Malaysia (team leader) and Japan and two observers, one from OECD Secretariat and the other from Japan. The evaluation team applauded the GLP Program of India and highlighted that it is being implemented in accordance with the OECD Principles of GLP.

## 2. **VigyanJyoti:**

- Five sessions of NTSE Aspiring Scholar Series were conducted for Class IX-X scholars in July, 2022. The Series is aimed at building a strong foundation in Science, Mathematics and Mental Aptitude fields in the Preparatory Phase.
- Strategically designed short duration Crash course was conducted for Class XII Vigyan Jyoti Scholars of Phase II (100 Knowledge Centres) aspiring for JEE Mains / Advanced & NEET.
- Role Model Interaction session by Ms. Anjali Meena, Fire Fighter, Airports Authority of India organised by 'IBM India and American India Foundation' under STEM for Girls Initiative.

## E. **Scientific Research**

1. A team of Aryabhata Research Institute for Observational Sciences (ARIES), Nainital scientists used numerical simulation techniques and suggested possible acceleration mechanism for relativistic astrophysical jets.
2. SARS-CoV-2 being an RNA virus is continuously mutating to generate new variants, some of which develop features of immune escape. In a recent study, a unique mannose binding plant lectin from *Narcissus tazetta* bulb, NTL125, has been identified, which effectively inhibits SARS-CoV-2 replication in Vero-E6 cell line. In silico docking studies revealed that NTL-125 has strong affinity to viral Spike RBD protein, preventing it from attaching to hACE2 receptor, the gateway to cellular entry. Binding analyses revealed that all the mutant variants of Spike protein also have stronger affinity for NTL-125 than hACE2. The unique alpha-helical tail of NTL-125 plays most important role in binding to RBD of Spike. NTL-125 also interacts effectively with some glycan moieties of S-protein in addition to amino acid residues adding to the binding strength. **Bose Institute, Kolkata** found that, NTL-125 is a highly potential antiviral compound of natural origin against SARS-CoV-2 and may serve as an important therapeutic for management of COVID-19.
3. Scientist from Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru and collaborators from Indian Institute of Science (IISc), Bengaluru & University of Sydney, Australia discovered a novel material that can emit, detect, and modulate infrared light with high efficiency making it useful for solar and thermal energy.
4. Science and Engineering Research Board (SERB) launched "SERB Digital Gaming

Research Initiative” to achieve self-reliance in advanced Augmented Reality(AR)/ Virtual Reality (VR) technologies to create indigenous gaming platforms for a number of applications ranging from education to leisure with the backdrop of Indian Ethos for desktop and hand-held devices.

5. The story on “Scientists solve the curious case of Himalayan glaciers resisting global warming” implemented by Indian Institute of Science Education and Research (IISER) Bhopal, under the mission National Mission on Strategic Knowledge for Climate Change (NMSKCC) was published in the Social Media, DST website, and Press Information Bureau. The Researchers have taken a significant leap toward solving the mystery of why few pockets of glaciers in the Karakoram Range are resisting glacial melt due to global warming, defying the trend of glaciers losing mass across the globe, This phenomenon called ‘Karakoram Anomaly’ to recent revival of western disturbances (WDs) and the research is illustrated in the American Meteorological Society’s Journal of Climate. This recent revival of western disturbance is mainly considered as the prime reason for triggering and sustaining the Karakoram Anomaly since the advent of the 21st century.

#### **F. Scientific Infrastructure Building**

1. A virtual meeting was held on 8<sup>th</sup>July, 2022 with I-STEM team to understand the current features of the Indian Science, Technology and Engineering facilities Map (I-STEM) portal in terms of online slot booking facilities, different software availability, a database of human resources trained & different payment options integrated with the system. The division interacted to explore the I-STEM implementation/linkages options with programs like FIST, PURSE, SAIF, SATHI & STUTI.
2. **Promotion of University Research & Scientific Excellence (PURSE):** A special call for proposals was launched under the scheme “Promotion of University Research and Scientific Excellence” (PURSE-2022). This call is exclusively for the UGC-recognized State-funded Universities/Private Universities of North Eastern Region, Jammu & Kashmir, Chhattisgarh, Madhya Pradesh, Jharkhand, Bihar, Haryana, Telangana, Himachal Pradesh and Rajasthan for strengthening the research capacity of universities in these regions.
3. **Sophisticated Analytical and Technical Help Institutes” (SATHI):** The 33<sup>rd</sup>meeting of “SATHI Ki Baat” was convened through a virtual mode on 21<sup>st</sup>July, 2022, by involving ongoing SATHI centres to get the updates about progressive steps followed at recently supported “Sophisticated Analytical and Technical Help Institutes” (SATHI) centres and for sharing the common thoughts of the host institutes supported under SATHI programs.

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