

Department of Science & Technology

Monthly Report

February, 2019

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

- I. **Dr. Harsh Vardhan**, India's Union Minister of Science & Technology, Earth Sciences and Environment, Forests & Climate Change, launched the '**India Ethiopia Innovation, Science & Technology Commercialization Programme**' together with Engineer Dr. Getahun Mekuria, Ethiopia's Minister of Innovation and Technology, on the second and concluding day of the 'Global R&D Summit' held on February 21-22, 2019 in Hyderabad. Ethiopia, the biggest country in Africa with a population of more than 100 million, becomes the second country in Africa to benefit from this programme that was first piloted and started in Rwanda in 2017.

The Summit carried the theme of '**International Collaboration in Research and Development for Sustainable Growth**' with Africa as partner continent and was organized by DST, Government of India and FICCI also having Telangana State as a Summit Partner.

- II. **India-Thailand Joint Science & Technology Committee:** 5th India-Thailand Joint S&T Committee meeting was held in Bangkok, Thailand on 19th February 2019. The meeting was Co-chaired by Prof. Ashutosh Sharma, Secretary DST and Prof. Soranit Siltharm, Permanent Secretary, Ministry of Science and Technology of the Kingdom of Thailand. The committee agreed to support 10 projects in the areas of (i) Human Health sciences (ii) Renewable Energy covering solar cells and PV reliability; (iii) Photonics covering elastomeric optics and optical devices (iv) Geospatial Technologies covering creation of GIS of towns in Thailand for urban development and (v) Astronomy & Astrophysics during 2019-2021, received against the last call launched in June 2018.
- III. **20th Meeting of India-Japan Science Council on Science & Technology Collaboration:** The 20th India-Japan Science Council Meeting was held during February 28 to March 1, 2019 in Tokyo, Japan. Twenty new projects in the areas of Fundamental Sciences; Material System Engineering; Natural Systems; Astronomy,

Space, Earth System & Sciences; and Mathematics & Computational Sciences and 3 joint workshops were recommended for support.

IV. **Department of Science & Technology (DST) and Russian Science Foundation (RSF):** Department of Science & Technology (DST) and Russian Science Foundation (RSF) jointly agreed to fund 20 research proposals out of total 170 received against the joint call, advertised in June 2018 in the areas of (i) Mathematics, Computer and Systems Science; (ii) Physics and Space Science; (iii) Chemistry and Material Science; (iv) Biology and Life Science; (v) Basic Research for Medicine; (vi) Agricultural Science and (vii) Earth Science.

V. **Helmholtz-Indian Platform on Science, Technology, Education and Research (HIPSTER):** Helmholtz-Indian Platform on Science, Technology, Education and Research (HIPSTER) workshop was organised on February 13-14, 2019 in Bengaluru, India. HIPSTER results from an agreement between Dr. Harsh Vardhan, Hon'ble Minister of the Ministry of Science & Technology, Ministry of Environment, Forest and Climate Change, and Ministry of Earth Sciences, Government of India, and Prof. O. Wiestler, President of the German Helmholtz Association, the largest non-university research organization in Germany.

The overall idea of HIPSTER is to foster the bilateral collaboration with a special focus on Young Talents. It will provide the platform to discuss current developments in R&D in both countries and to work together on ideas on how to promote a cross-disciplinary exchange and on how to open new channels for research and innovation.

As a final result of the workshop, a “White Paper” will summarize the output of the discussions. It will be handed over to Helmholtz and DST as a potential agenda for future collaboration and/or further arrangements.

VI. Second International Meeting on Clean Energy Materials Innovation Challenge took place on February 21st -22nd, 2019 at IIT Delhi. Representatives of six countries (Austria, US, Korea, Norway and Italy) and European Commission attended besides International organizations such as IEA, UNIDO, WEC. Representatives of 78 Indian institutions and 18 industries also attended the 2 day event. The current status, barriers and R&D pathways for application in the area of photovoltaics, batteries, solar fuels, thermoelectric energy, wind power, energy efficient building material, power generation and power transmission were discussed.

- VII. Dr. V K Saraswat, Hon'ble Member NITI Aayog released India Country Status Report on Clean Energy Materials Innovation Challenge IC6, Technology Compendium on Materials for Energy Storage (MES) 2016 and R&D Compendium on Materials for Energy Storage (MES) 2017. He also launched energy storage four centres set up by Department of Science and Technology, Government of India nucleated at IIT Delhi, IISc Bangalore, NFTDC Hyderabad and IIT Bombay. Hon'ble Member unveiled pilot plant model of IITD- Thermax Methanol Demonstration facility marking the launch of programme on 22nd February 2019 at IIT Delhi.
- VIII. A Water Innovation Centre has been established at ICAR-Central Arid Zone Research Institute, Jodhpur for enhancing Food and Water Security in Arid Region of Jodhpur, Jaisalmer, Barmer and Bikaner through "Improved Understanding of Quantity, Quality and Management of Blue, Green and Grey Water"
- IX. A consultation of Stakeholders from Ministry of Coal, BHEL, NTPC AUSC mission was held to identify priorities for Advanced Coal Technologies under Partnership to Advance Clean Energy - Research (PACE-R) for collaborative research with US-DOE.
- X. The outcome of DST supported projects under Building Energy Efficiency has been showcased to translate research outcome to commercial applications during ACREX India 2019 held from 28th February 2019 to 2nd March 2019.
- XI. The First meeting of the Expert Committee (EC) constituted for the AWSAR-Award was held on 14 February 2019 to select the Awardees in PhD and PDF Categories along with 120 best stories (100 + 20) in both the categories.
- XII. National Science Day Function was held at Jawaharlal Nehru University, New Delhi on 28 February 2019. The focal theme was Science for the People and the People for Science. Padma Sri Prof. K. VijayRaghvan, FRS, Principal Scientific Advisor, GOI delivered an insightful lecture on the theme. National Award for Outstanding Efforts in Science & Technology Communication were conferred under the following categories –
- XIII. National Award for Outstanding Efforts in Science & Technology Communication in general: The award consists of Rs.5,00,000/- (Rupees Five Lakhs), a memento and a citation.
- XIV. National Award for Outstanding Efforts in Science & Technology Communication through Print Media including Books and Magazines: The award consists of Rs. 2,00,000/- (Rupees Two Lakh), a memento and a citation.

- XV. National Award for Outstanding Efforts in Science & Technology Popularization among Children: The award consists of Rs. 2,00,000/- (Rupees Two Lakh), a memento and a citation.
- XVI. National Award for Outstanding Efforts in Translation of Popular Science & Technology Literature in Languages Mentioned in the Eighth Schedule of Constitution of India and in English The award consists of Rs. 2,00,000/- (Rupees Two Lakh), a memento and a citation.
- XVII. National Award for Outstanding Efforts in Science & Technology Communication through Innovative and Traditional Methods: The award comprises Rs. 2,00,000/- (Rupees Two Lakh), a memento and a citation.
- XVIII. National Award for Outstanding Efforts in Science & Technology Communication in the Electronic Media: The award comprises Rs. 2,00,000/- (Rupees Two Lakh), a memento and a citation.
- XIX. Rajendra Prabhu Memorial Shield for Science Reporting 2018 was also conferred on National Science Day, 28 February 2019, in appreciation of work in Science Media & Journalism/Science Reporting.
- XX. AWSAR Awards 2018 were conferred on National Science Day, upon 1 Outstanding winner (PDF Scholars) and 1st, 2nd& 3rd winners (Ph.D. category) for a cash prize of Rs. 1,00,000, 50,000 and 25,000 respectively. Apart from these, there were Awardees for their 20 best stories under PDF category and 100 best stories under Ph.D. category for a cash prize of Rs10,000 each and Certificate of Appreciation.
- XXI. New Projects supported (Theme wise):
- Science Motivation/ Awareness/ exhibition/fair - 10 Nos
 - S&T Communication Training - 08 Nos
 - Outreach Programme - 02Nos
 - Community Radio - 02 No
 - Mission Eco Next - 08Nos
 - Mission Enlighten - 01 No

XXII. DST Participated in the 4th Science and Technology in Society Forum Japan- India Workshop on 27th February 2019 in New Delhi, attended by the Policy makers, heads of organisations, academicians, researchers, industry leaders and entrepreneurs from India and Japan. The Workshop dwelled upon two Sessions: 1: “Start UP and Innovation Ecosystem driven by Science and Technology” and 2: “Society changed by IoT and IoE”.

The Workshop recommended exploring India-Japan partnerships in Tech-based innovation, commercialization of open innovations, joint innovations in natural disaster resilience, education in entrepreneurship, and establishing market plan connecting innovations targeted around TRL7.

XXIII. India (Department of Science and Technology-DST and Department of Biotechnology-DBT) and European Commission Directorate for Research and Innovation have agreed to co-invest about 15 million euro each for supporting joint research and demonstration projects in the areas of wastewater treatment, drinking water purification and real time water quality monitoring in Indian field conditions. As a part of this initiative, a meeting of the representatives of Funders from EU and Government of India (DST & DBT) and project Consortium from India and Europe was held in New Delhi on 14-15 February 2019 to structure and execute the activities of seven water projects being jointly supported by India and EU. The meeting was represented by seven officials from Europe and five from the Indian side along with 132 consortia members equally participated from India and European Union Member States. 20 States from India and 21 Member States from EU are participating in this programme.

The deliberations have culminated in listing the major European technologies to be implemented and adopted in India and enhancement of their treatment capacities. The objectives of collaboration are centered around; adaption and demonstration of treatment of waste water and drinking water with varying capacities suitable to different climatic and geographic conditions in India with a focus on treating emerging contaminants as well as conventional ones.

XXIV. **India ASEAN S&T Collaboration:** The 12th Meeting of ASEAN-India Working Group on Science & Technology (AIWGST) and 6th Meeting of the Governing Council of ASEAN-India Science & Technology Development Fund (AISTDF) were held in Bangkok, Thailand during 18-19 February 2019. The Indian delegation for these meetings was led by Prof Ashutosh Sharma, Secretary DST where as the ASEAN delegation was led

by Dr Rowena Cristina L. Guevara, Chairman, ASEAN COSTI and Under Secretary, Department of Science & Technology of Philippines.

The Meetings reviewed the progress of on-going ASEAN-India Science, Technology and Innovation (STI) cooperation and approved the 17 new collaborative R&D projects, 7 Research & Training Fellowships and various other STI activities/ events to be organised during 2019 under the over-all aegis of ASEAN-India S&T cooperation.

The Meetings agreed to focus the priority areas of collaboration in 3 topics namely Bio-medical devices; Agriculture and Food Science & Technology; ICT and Cyber Physical systems.

XXV. **Rejuvenation of Kosi river, Uttarakhand using Geospatial technologies:** Under NRDMS programme the catchment area of kosi river has been surveyed and recharge zones demarcated using geospatial technologies. This work has helped in rejuvenation of kosi river and improvement of water flow. This work done by Prof. J.S. Rawat, Geospatial Chair Professor work was rewarded by Hon'ble Minister for Road Transport and Water Resources by giving him National Water Award – 2018 on 25.02.2019.

XXVI. A solar hot water plant was set up in tribal area of Trichy district, Tamil Nadu for use by tribal people for their domestic purposes, an environment friendly measure that saves lot of firewood, as part of SC/ST Science plan of the Government. Anna University, Chennai coordinated the project.

XXVII. **National Supercomputing Mission (NSM):** A key milestone is achieved as C-DAC has designed and built the first supercomputer “PARAM Shivay” at IIT BHU, Varanasi under “build” approach under NSM. Hon'ble Prime Minister Shri. Narendra Modiji dedicated **“PARAM Shivay”** on 19th February 2019 to the scientific and research community of the nation to strengthen the research and development in the country.

The system is equipped with applications from domains like Weather and Climate, Computational Fluid Dynamics, Bioinformatics and Material science. This state-of-the-art facility will be used by faculties, scientists and research scholars of IIT-BHU and engineering and research institutes of the region for solving socially relevant problems directly benefitting to common man like irrigation planning, traffic management, healthcare, affordable drug discovery.

XXVIII. CHORD/NSTMIS Division of Department of Science & Technology (DST) has framed a Draft Policy Document: Scientific Research Infrastructure Sharing Maintenance and Networks (SRIMAN) in the S&T sector. Series of Stakeholders Workshop were organized for Eastern (including Northern- East region) at Amity University, Kolkata and for the Northern region at IIC, New Delhi on 14th February 2019 and on 22nd February 2019 respectively for incorporation of inputs towards finalization of the Policy Document.

XXIX. Survey of India and Government of Karnataka signed MoU for resurveying land using Drone/UAT Technology on 28th February, 2019.

To begin with the Drone/UAV based survey of the rural and urban land and properties will start in five districts namely (a) Tumkur, (b) Hassan, (c) Uttar Kannada (d) Belgavi (e) Ramnagar and (f) Bengaluru City. The resurvey is expected to be completed in about 2-years. In 2019-20 another 8 districts have been decided to be taken up.

XXX. In Thirty Meter Telescope (TMT) project, design and development of Actuator, a crucial component, has completed and 15 Prototype Actuators has been shipped to Project Office, TMT at USA during the month for further tests.

XXXI. Expert Meeting was conducted on 9th Feb, 2019 at Bhubaneswar to include 8th women university i.e. Rama Devi Women's University, Bhubaneswar to provide support for state of the art infrastructure and research facilities under CURIE Programme.

XXXII. The third meeting (Sensitization Workshop) under the banner of DST's Swachhata action plan 2018-19 with the thrust area of "Urban Rural Solid Waste incl. plastics" was organized at CIPET, Chennai on 28th and 1st March, 2019.

SFC for expansion of the DST Sophisticated Analytical Instrumentation Facility

(SAIF) Program: Order for Expansion of the SAIF Program has been issued for a total outlay of Rs 495.0 crores from FY 2019-20 onwards to establish four new SAIF Centres.