

**GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
LOK SABHA
UNSTARRED QUESTION No. 3350
TO BE ANSWERED ON 13/03/2020**

RESEARCH ON ENVIRONMENT FRIENDLY PROJECTS

3350. SHRIMATI PRATIMA MONDAL:

Will the Minister of SCIENCE AND TECHNOLOGY विज्ञान और प्रौद्योगिकी मंत्री be pleased to state:

- (a) the details of important developments in the field of science and technology in the year 2019 in India; and
- (b) the funds allocated for research on environment friendly projects and solution in the last three years?

ANSWER

**MINISTER OF HEALTH AND FAMILY WELFARE; MINISTER OF SCIENCE AND TECHNOLOGY; AND MINISTER OF EARTH SCIENCES
(DR. HARSH VARDHAN)**

**स्वास्थ्य और परिवार कल्याण मंत्री, विज्ञान और प्रौद्योगिकी मंत्री और पृथ्वी विज्ञान मंत्री
(डॉ. हर्ष वर्धन)**

- (a) There have been several important developments and new initiatives in the fields of science and technology taken by Ministry of Science & Technology and Ministry of Earth Sciences during 2019. Some most important developments include the following:-

Department of Science & Technology (DST) has launched the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS) with the aim of developing technology in the areas of Artificial Intelligence, Robotics, Sensors, Big Data Analytics, geographical information systems, advanced material, etc. As part of the mission, setting up of hubs has been initiated to act as technology platforms for translational research and product development by bringing convergence between academia, Industry and Government. DST has also initiated a scheme called Sophisticated Analytical & Technical Help Institutes (SATHI) to provide shared, professionally managed services and strong Science and Technology infrastructure / facilities with efficiency, accessibility and transparency of highest order under one roof to service the demands of faculty, researchers, scientists and students of host and user institutes / organisations. The Survey of India, a subordinate office under DST has launched a programme on Generation of High Resolution National Topographic Data Base (HRNTDB) using advanced technology like Drone, Lidar and Optical sensors technology to produce digital data at high accuracy. The Science & Engineering Research Board (SERB), an autonomous organization of DST has launched a new scheme called - SUPRA to promote transformative and disruptive research proposals based on innovative and unproven hypotheses, possessing a high degree of uncertainty, yet having confidence to produce a lasting impact across discipline boundaries. A Science Channel has been launched with two components - a one-hour slot from 5 pm to 6 pm from Monday to Saturday on DD National, and a 24x7 internet-based Over-The-Top (OTT) channel called India Science. A new initiative called Scientific Social Responsibility (SSR) has been initiated to reach out to all stakeholders of science and indeed society at large with all the tools, knowledge, manpower and infrastructure of S&T in universities, R&D labs, IITs etc. A component of SSR envisaged is to build a community of scientists who contribute to publically

accessible scientific knowledge in Indian languages. DST has initiated the process of creation of Wikipedia of S&T wiki content in Hindi.

The Department of Bio-technology (DBT) has launched the first ever India Initiative on Human Genome. Indian Vaccine Development Aligned with the Global Initiative of the Coalition for Epidemic Preparedness Innovations (CEPI) has been supported to strengthen development of vaccines for the diseases of epidemic potential in India and creating one health program in the country. DBT has started Unique Methods of Management of Inherited Disorders (UMMID) initiative with the integrated approach to establish Genetic Diagnostic Units in Government Hospitals wherein the influx of patients is more, and to produce skilled clinicians in the area of Human Genetics. Ten sites have been finalized for scale up and setting up of demonstration plants for conversion of waste to value in collaboration with municipal corporations or local bodies. A mission called Atal Jai Anusandhan Biotech Mission- Undertaking Nationally Relevant Technology Innovation (UNaTI), has been launched for development of Biofortified and Protein Rich wheat - contributing to POSHAN Abhiyan. DBT has initiated new Skill Vigyan Programme for providing high-quality hands-on training in tools and techniques in multidisciplinary areas of biotechnology for entry level students (10+2 and Graduates in Biotechnology) in partnership with State Councils of Science & Technology in respective states. DBT has launched its research resources and facilities supported across the country, through a portal 'Scientific Infrastructure Access for Harnessing Academia University Research Joint Collaboration (SAHAJ).

The Council for Scientific and Industrial Research (CSIR) has developed environment-friendly green fireworks including sound emitting crackers, flowerpots, pencils, chakkar and sparklers which have the potential of reducing particulate emissions by 30 per cent. A pilot plant at National Chemical Laboratory, Pune has been set up with indigenous process technology to create a clean fuel- Dimethyl Ether (DME) from methanol. A technology for recovery of potash has been developed to find alternatives to the production of potash from sea bittern, which is at risk due to the shortage of land and vulnerability to climate. CSIR has developed an Indigenous High Temperature Proton Exchange Membrane Fuel Cell Prototype in partnership with Indian industry to help generate power in a green manner using methanol or bio-methane, with heat and water as bi-products for further use. A Next Generation Sequencing (NSG) facility has been set up with technology for high genome sequencing and also diagnostic sequencing of clinical samples with capacity of sequencing 18,000 samples in 8 minutes. CSIR has conducted Whole Genome Sequencing of 1,008 Indians from different population across the country. A IndiGenome card and accompanying IndiGen mobile application have been developed to enable participants and clinicians to access clinically actionable information in their genomes while ensuring privacy and data security, which is vital for personal genomics to be implemented at scale.

Ministry of Earth Science (MoES) provided accurate prediction of the tropical cyclone FANI which helped disaster management agencies carrying out excellent field work and saved thousands of precious lives in Odisha. MoES in partnership with Airports Authority of India (AAI) used GAGAN - GPS Aided Geo Augmented Navigation satellite system for transmitting disaster warnings to fishermen. A new desalination plant at Kalpeni in Lakshadweep Islands with a capacity of 1.5 lac litres per day started generating potable water.

(b) The total funds allocated for research on environment friendly projects in the area of Climate Change, Clean Energy, Clean Water and Air Pollution during the last three years was Rs. 715.70 Crores.
