



Year-End- Review of DST

For Prelims: ARTPARK, NIDHI Programme, SVAMITVA Scheme

For Mains: Achievements of DST, Achievements of Indians in Science & Technology

Why in News?

Recently, the year-end-review of the [Department of Science & Technology \(DST\)](#) under the Ministry of Science & Technology was released.

What are the Major Achievements of DST During 2022?

- **India's Ranking in Global S&T Indices:**
 - India is now placed at 40th position among the top innovative economies globally as per [Global Innovation Index \(GII\) 2022](#).
 - The country remains among the top 3 countries in scientific publications as per the [National Science Foundation \(NSF\) database](#) and also in terms of no of PhDs, in size of the Higher Education System, as well as in terms of number of Start-ups.
- **Creating a Robust Start-up & Innovation Ecosystem:**
 - DST has been a pioneer in establishing a network of Technology Business Incubators (TBI) and **Science & Technology Entrepreneur's Parks (STEP) across the country under the [National Initiative for Developing and Harnessing Innovations \(NIDHI\) program](#)**.
 - **New PRAYAS centres have been supported during 2022** along with support to other ongoing PRAYAS centres across the country that are **supporting young innovators to turn their ideas into prototypes**.
- **New Heights in Supercomputing Capacity:**
 - New installations of [high-performance computers](#) at five institutes (IIT Kharagpur, NIT Trichy, IIT Gandhinagar, IIT Guwahati, IIT Mandi).
- **Development in Cyberphysical Domains:**
 - The Union Cabinet approved the [National Mission on Interdisciplinary Cyber Physical Systems \(NM-ICPS\) in 2018](#) for a period of five years, to be implemented by the DST.
 - The Mission is being **implemented through 25 Technology Innovation Hubs (TIHs)** created at reputed academic institutes across the country.
 - **Some of the new innovations include:**
 - **XraySetu:** AI researchers at [ARTPARK](#) developed an AI-driven platform called XraySetu that helped Chest [X-ray](#) interpretation of images.
 - **RAKSHAK:** A team of scientists from IIT Bombay has developed a tapestry method for screening [Covid-19](#) under **Remedial Action, Knowledge Skimming, and Holistic Analysis of Covid-19 (RAKSHAK)**, an effort supported by the Technology Innovation Hub (TIH) at IIT Jodhpur.
- **India's Position on International S&T Engagement:**
 - India assumes the [G20 Presidency](#) recently and will convene the G20 Leaders' Summit **for the first time in the country in 2023**.
 - As part of the same, DST takes the responsibility of coordinating the **activities of**

Science-20 (S20) and Research Innovation Initiative Gathering (RIIG) Engagement Groups during India's G20 Presidency in 2023.

- **India joins hands with Finland to establish [Virtual Network Centre in Quantum Computing](#)** to jointly develop 20 qubits superconducting-based Quantum Computer in 1st phase and further **scale it up to 54 qubits in second phase.**
- **Geospatial Data, Infrastructure & Technology:**
 - Recently, the 2nd [United Nations World Geospatial Information Congress \(UNWGIC\)](#) on the theme "**Geo-Enabling the Global Village: No one should be left behind**" was held successfully in Hyderabad.
 - Survey of India (Sol) the [National Survey and Mapping Organisation](#) of the country **has successfully carried out drone surveys of rural abadi areas of 2,00,000+ villages as part of the [SVAMITVA](#)** (Survey of villages and mapping with improvised technology in village areas).
 - [Online maps portal](#) provides various digital geospatial products (free as well as at fair & transparent price) to the users.
 - **High-resolution mapping for [major river basins](#)** is also being carried out to provide the high resolution [GIS \(Geographic Information System\)](#) and [Digital Elevation Model \(DEM\)](#) for improved flood hazard mapping and other planning purposes.
- **Accessible Scientific Infrastructure for All Stakeholders:**
 - Four new Universities under '**Promotion of University Research and Scientific Excellence (PURSE)**' and 65 Departments in various academic organizations and universities were supported under the [Fund for Improvement of S&T Infrastructure \(FIST\)](#).
- **Solutions for Energy & Environment Challenges:**
 - A **first-of-its-kind Distributor System Operator (DSO) report has been prepared** that can help in transforming the operational and financial state of the Indian power sector and **boost private sector's confidence attracting much-needed investment and innovation in the industry.**
 - A real-time pollution monitoring photonic system, **Air Unique Quality Monitoring System (AUM)** has been developed which **is capable of real-time remote monitoring of all [air quality](#) parameters**, with high sensitivity and accuracy simultaneously, at a very high frequency of sampling.
 - The **first Indigenously Designed High Ash Coal Gasification Based [Methanol Production Plant](#)** has been opened in Hyderabad.
 - With this, Government owned engineering firm BHEL (Bharat Heavy Electricals Limited) has **successfully demonstrated a facility to create methanol from high ash Indian coal.**
- **Expansion to Newer Areas:**
 - The Department has been implementing **two National missions on Climate Change.** Four new **State Climate Change Cells (SCCCs)** have been established in the States of Goa, UT of Chandigarh and Jharkhand and Uttar Pradesh.
- **Career Opportunities for Women Scientists:**
 - DST is encouraging meritorious girls to pursue higher education and career in underrepresented [Science Technology Engineering and Mathematics \(STEM\)](#) areas, through its major initiative '[Vigyan Jyoti](#)'.
 - Women **scientists** under the **Women Scientists Scheme-A (WOS-A)** pursue research after **breaking into careers in 5 subject areas of Basic and Applied Sciences.**
 - The [SERB-POWER mobility grant](#) was introduced to provide an opportunity for **women scientists to visit leading institutions/universities** across the globe for a period of 1-3 months
- **Conserving the Heritages:**
 - Under the **Science and Heritage Research Initiative (SHRI)** programme of DST, **the soundproofing qualities of the Pattamadai mat**, a mat made by weaving or interlacing **korai grass with cotton threads**, has been explored for use in noise guarding classrooms as well as recording studios against external noise disturbances.
 - This can **increase the demand for this traditional art of Tirunelveli, Tamil Nadu.**
- **Research Capabilities in State Universities & Colleges:**
 - A dedicated scheme, **State University Research Excellence (SERB-SURE)** has been

launched by Science and Engineering Research Board (SERB) **to create a robust R&D ecosystem in state universities and colleges** including the private ones.

▪ **Good Laboratory Practice (GLP):**

- DST is implementing the **National GLP Compliance Monitoring Programme** for certification of Indian Test Facilities/laboratories, conducting non-clinical health and environment safety studies in accordance with the [Organisation for Economic Co-operation and Development \(OECD\) Principles](#).

▪ **Policy Formulation in Key Areas**

- Brought out two guidelines during the year and two major policies are in the process of finalisation.
 - [Scientific Research Infrastructure Sharing maintenance and Networks \(SRIMAN\) guidelines](#)
 - [Scientific Social Responsibility \(SSR\) Guidelines](#)
 - [Science, Technology and Innovation \(STI\) Policy](#)
 - [National Geospatial Policy](#)

UPSC Civil Services Examination Previous Year Question (PYQ)

Q. How is science interwoven deeply with our lives? What are the striking changes in agriculture triggered off by science-based technologies? **(2020)**

Source: [PIB](#)

PDF Reference URL: <https://www.drishtiias.com/printpdf/year-end-review-of-dst>

