

Current Affairs - 11 May 2025

NATIONAL TECHNOLOGY DAY 2025



- National Technology Day is observed annually on 11th May to commemorate key milestones in India's technological advancement.
- **Historical Milestones on 11th May 1998:**
 - Pokhran-II Nuclear Tests under Operation Shakti, establishing India as a nuclear weapons state.
 - First test flight of the indigenously developed “Hansa-3” aircraft at Bengaluru.
 - Successful test firing of the Trishul missile, a short-range surface-to-air missile developed by DRDO.
- The day was officially declared by then Prime Minister Atal Bihari Vajpayee in 1998, and since 1999, it has been celebrated as National Technology Day.
- **Organising body:** The event is organised by the Technology Development Board (TDB), a statutory body under DST, which promotes the commercialisation of indigenous technologies.

About YANTRA

- The word “YANTRA”, drawn from India’s ancient scientific and cultural traditions, signifies not just mechanical tools but also symbolic power representing:
 - Systems thinking
 - Synergistic innovation
 - Scalable technological solutions
- The term “Yugantar”, meaning epochal transformation, reflects India’s transition from technology adoption to global technology leadership, signalling a shift in India's innovation narrative.

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WHAT IS THE CREDIT GUARANTEE SCHEME FOR STARTUPS (CGSS)?



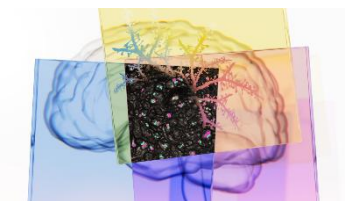
- The Government of India established the CGSS in 2022 for **providing credit guarantees to loans extended by Scheduled Commercial Banks, Non-Banking Financial Companies (NBFCs), and Securities and Exchange Board of India (SEBI)-registered Alternative Investment Funds (AIFs).**
- CGSS is aimed at providing credit guarantees up to a specified limit **against loans extended by Member Institutions (MIs) to finance eligible borrowers, viz., Startups** as defined in the Gazette Notification issued by Department for Promotion of Industry and Internal Trade (DPIIT) and amended from time to time.
- The **National Credit Guarantee Trustee Company Limited (NCGTC)** is the **implementing agency** of the Scheme.
- CGSS does not provide guarantee cover to DPIIT-recognised startups directly, but the Trustee (NCGTC), which in turn **provides guarantee cover to Member Institutions (MIs) who provide loans to startups.**
- The **instruments of assistance** would be in the **form of venture debt, working capital, subordinated debt/mezzanine debt, debentures, optionally convertible debt** and other **fund-based as well as non-fund-based facilities**, which have crystallised as debt obligations.
- The **credit guarantee cover** under the Scheme would be **transaction-based and umbrella-based.**
 - In transaction-based guarantee cover, the guarantee cover is obtained by the MIs on a single eligible borrower basis. It will promote lending by Banks/ NBFCs to eligible startups.
 - The umbrella-based guarantee cover will provide guarantee to Venture Debt Funds (VDF) registered under AIF regulations of SEBI.

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- Recent Changes:

- The revised framework has **enhanced guarantee coverage**, increasing the maximum limit from ₹10 crore to **₹20 crore per eligible borrower**.
- The **extent of guarantee** has also been **increased**. For loans up to **₹10 crore**, the **guarantee will now cover 85 percent of the amount in default**, while for loans **above ₹10 crore**, the **coverage will be 75 percent**.
- Further, the Annual Guarantee Fee (AGF) for startups in 27 Champion Sectors has been reduced to 1 percent p.a. from 2 percent p.a.

WHAT IS LICONN TECHNOLOGY?



- Light-microscopy-based Connectomics (LICONN)** is a new **method to map the brain's complex neural networks** at the nanoscale while simultaneously identifying specific molecules within those connections.
- It was developed at the Institute of Science and Technology Austria (ISTA).
- LICONN **combines conventional light microscopy technology with the properties of hydrogel** and experimental techniques, **artificial intelligence, and analytical methods**.
- It is the **first technology beyond electron microscopy (EM)** that is **capable of reconstructing brain tissue with all the synaptic connections** between neurons.
- Until now, researchers studying brain connectivity faced a challenging trade-off: they could either see the detailed physical structure of neural connections using electron microscopy (EM) or identify specific molecules using light microscopy—but not both simultaneously at the resolution needed to trace individual connections.
- LICONN **allows researchers to see structures in the brain** that are **smaller than what normal light microscopes can detect**.
- They do this by soaking brain tissue in a special gel that expands it by about 16 times its original size, then use fluorescent stains to highlight different proteins and advanced computer programs, including AI, to identify and trace the shapes of neurons.



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INDIA-PAKISTAN CEASEFIRE



- After three days of intense hostilities, India and Pakistan reached an "understanding" to stop all military action and firing.

- The announcement was made by External Affairs Minister S. Jaishankar on May 10, 2025.

- **Ceasefire Bilaterally Agreed, Punitive Measures Unaffected**

- Official sources emphasized that the decision was a bilateral agreement, not mediated by any third party.
- India clarified that the ceasefire would not impact the punitive actions taken in response to the April 22 Pahalgam terror attack.

End of the Most Intense India-Pakistan Conflict in Decades

- The recent India-Pakistan military confrontation, the most intense in 20 years, has concluded.
- However, the nature of engagement between the two countries has shifted significantly.
- **India Redefines Terms of Engagement**
 - Since 2014, India has moved to dismantle the framework that allowed Pakistan to exploit nuclear deterrence and cross-border terrorism.
 - Key steps include:
 - Crossing the LoC post-Uri (2016)
 - Striking deep into Pakistan during Balakot (2019)
 - Revoking J&K's special status
 - Attacking terror camps in West Punjab (2025)
 - Suspending the **Indus Waters Treaty**
- **Delhi Signals No More Restraint**
 - The suspension of the Indus Waters Treaty and deep strikes inside Pakistan mark a new posture: India is prepared to hit core areas if provoked by terror.

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- Talks, if they occur, will likely include demands to renegotiate the Indus treaty and revise the engagement framework set during India's weaker 1990s phase.
 - **Third-Party Mediation Diminished but Still Present**
 - U.S. National Security Adviser Marco Rubio facilitated calls between Delhi and Rawalpindi.
 - Still, India and Pakistan demonstrated the ability to manage escalation directly — a shift from the heavily mediated past.
 - **History of Missed Diplomatic Opportunities**
 - Past ceasefires and backchannel negotiations (e.g., 2004–2007, 2021) have failed due to political instability in Pakistan and internal military-civilian rifts.
 - The rise of Gen. Asim Munir in 2022 hardened Pakistan's stance and derailed earlier initiatives.
 - **Need for Defence Reform and Strategic Military Edge**
 - India's broader national power has increased, but military superiority over Pakistan remains limited.
 - Achieving operational dominance is crucial for treating terrorism as an "act of war" and deterring future provocations.
 - **Engagement Beyond the Pakistan Army**
 - India may need to build links with Pakistani civil society and political elements to reduce military dominance and promote peace.
 - Large conflicts often cause internal shifts in Pakistan — whether this latest one weakens or strengthens Gen. Munir's grip is still unclear.
 - **A Wake-Up Call for Both Nations**
 - For the first time in years, Indian cities experienced the consequences of modern warfare, including drone strikes and long-range attacks.
 - The trauma of urban warfare could prompt reflection on the long-troubled state of India-Pakistan relations, even after 75+ years of independence.
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NATIONAL SCHEME FOR UPGRADATION OF INDUSTRIAL TRAINING INSTITUTES (ITIS) AND THE ESTABLISHMENT OF FIVE NATIONAL CENTRES OF EXCELLENCE (NCOES) FOR SKILLING



- It will be implemented as a **Centrally Sponsored Scheme** with an outlay of Rs.60,000 crore (Central Share: Rs.30,000 crore, State Share: Rs.20,000 crore, and **Industry Share: Rs.10,000 crore**), with co-financing to the extent of 50% of the Central share by the Asian Development Bank and the World Bank,
- The scheme will focus on **upgradation of 1,000 Government ITIs in hub and spoke arrangement** with industry aligned revamped trades (courses) and **Capacity Augmentation of five (5) National Skill Training Institutes (NSTIs)**, including setting up of five National Centres of Excellence for Skilling in these institutes.
- The Scheme aims to **position existing ITIs as government-owned, industry-managed** aspirational institutes of skills, in collaboration with State Governments and industry.
- **Over a five-year period, 20 lakh youth will be skilled through courses** that address the human capital needs of industries.
- The scheme will focus on ensuring alignment between local workforce supply and industry demand, thereby facilitating industries, including MSMEs, in accessing employment-ready workers.
- A **need-based investment provision** has been kept under the scheme, allowing **flexibility in fund allocation** based on the specific infrastructure, capacity, and trade-related requirements of each institution.
- A unique feature of this scheme is the introduction of an **industry-led Special Purpose Vehicle (SPV) model** to oversee ITI upgradation.

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- This approach will ensure better industry participation, course alignment, and outcome-driven implementation.
- Under the scheme, **infrastructure upgradation for improved Training of Trainers (ToT) facilities** will be undertaken in **five NSTIs**, namely Bhubaneswar, Chennai, Hyderabad, Kanpur, and Ludhiana.
- Additionally, **pre-service and in-service training** will be provided to **50,000 trainers**.

PANGENOME



Scientists have created the first-ever pangenome of Asian rice (*Oryza sativa* L.) by compiling genetic data from 144 varieties of both wild and cultivated rice strains.

- A **pangenome** includes not only the **core genes shared by all varieties** but also the **unique genes found in individual strains**, offering a **comprehensive map of genetic diversity** in Asian rice.
- This project is **comparable to the Human Genome Project (2003)** in its goal to map genome-wide variations, but it is focused on **rice**, which is a **staple food for nearly two-thirds of the world population**.
- The new **pangenome database** enables the development of advanced **rice cultivars** with **enhanced traits**, such as **disease tolerance** and **resilience to climate shocks**.

Key Findings

- Researchers used **high-fidelity sequencing (PacBio HiFi)** and advanced computational tools to assemble **87 billion base pairs of novel genetic sequences**, which were **absent from the earlier reference genome** of *Oryza sativa* ssp. *japonica*.
- A total of **69,531 genes were identified**, out of which:
 - **28,907 are core genes** common to all varieties,
 - **13,728 are specific to wild rice**, and

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- About 20% of all genes were unique to wild rice species, offering potential for future improvements in rice breeding.
- Indian Council of Agricultural Research (ICAR) recently developed two genome-edited rice varieties – Samba Mahsuri and MTU 1010 – that show promise for higher yield and drought resistance, though they are not yet released for cultivation.

Threats

- Climate change is a significant threat to rice production in India. The country has seen an average temperature rise of 0.7°C since 1901, and 2024 was the hottest year recorded, with minimum temperatures 0.9°C above average.
- Rising temperatures also increase arsenic uptake in rice, posing risks to both health and crop yield stability

NONGKHYLLEM WILDLIFE SANCTUARY



- Location: Situated in Ri-Bhoi district of Meghalaya, within the Eastern Himalayan Global Biodiversity Hotspot.
- Topography: Features undulating plains, low hills, and rugged terrain shaped by the Umtrew River and its tributaries (Umran, Umling, Umtasor).
- Main river: Umtrew River, forming the western boundary of the sanctuary.
- Fauna: Home to over 400 bird species, including the endangered Rufous-necked Hornbill, and mammals like the Clouded Leopard, Elephant, and Himalayan Black Bear.
- Flora: Dominant species include Shorea robusta, Tectona grandis, Terminalia myriocarpa, and Gmelina arborea.
- Legal and Conservation Status: Established in 1981 as a protected sanctuary under the Wildlife Protection Act, 1972.
 - Rated as the best-managed protected area in Northeast India in the 2021 Management Effectiveness Evaluation (MEE) Report.

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KEY FACTS ABOUT GOMTI RIVER



- It is a **tributary of the Ganges (Ganga) River, flowing entirely through the state of Uttar Pradesh.**

- The river is also known by the names **Gumti or Gomati.**
- The Gomti River is unique in that it is **both rain- and groundwater-fed**; the other major tributaries of the Ganga in this region are snow-fed rivers originating in the Himalayas.

Course:

- It **originates from the Gomat Taal**, otherwise called Fulhaar Jheel, which is located near the Madho Tanda in the Pilibhit district in Uttar Pradesh.
- The river **drains the area between the rivers Ramganga and Sharda.**
- After flowing southwards through the districts of Lucknow, Barabhanki, Sultanpur, Faizabad, and Jaunpur, it joins with the River Ganga near Saidpur.
- The river extends to about **900 km.**
- It drains a basin of about 7,240 square miles (18,750 square km).
- **Major tributaries** of the Gomti include the **Sai River, Chowka River, Kathina River, and Saryu River.**
- **Major cities** situated on the banks of the River Gomti are **Sultanpur, Lucknow, Jaunpur, and Lakhimpur Kheri.**