

1. **Carbon Capture and Utilisation (CCU) testbeds:** Recently, the Department of Science and Technology (DST), Government of India, launched the country's first cluster of Carbon Capture and Utilisation (CCU) testbeds, with a specific focus on the cement sector.
 - **Key Highlights :** Support India's net-zero pathway by enabling decarbonisation in hard-to-abate sectors like cement, steel, and chemicals through cutting-edge CCU technologies.
 - Cement industry, one of the largest carbon emitters, now a priority area for research-based carbon mitigation solutions.
 - **Five CCU Testbeds : Testbed 1** (Ballabgarh, with JK Cement): Uses oxygen-enhanced calcination to capture 2 TPD CO₂, converting it into concrete blocks and olefins.
 - **Testbed 2** (IIT Kanpur + JSW Cement): Enables carbon-negative mineralization, locking CO₂ into solid stone.
 - **Testbed 3** (IIT Bombay + Dalmia Cement): Pilots catalyst-based CO₂ capture at a full-scale plant.
 - **Testbed 4** (CSIR-IIP, IIT Tirupati, IISc + JSW Cement): Applies VSA for gas separation, reintegrating CO₂ into construction materials.
 - **Testbed 5** (IIT Madras & BITS Pilani + Ultratech): Develops low-carbon cement through scalable innovations.
2. **Labour Force Survey (PLFS):** Recently, the National Statistical Office (NSO) under the Ministry of Statistics and Programme Implementation (MoSPI) revamped the Periodic Labour Force Survey (PLFS), to enhance the quality and reliability of India's labour market data.
 - **Key Highlights:** Monthly estimates of Labour Force Participation Rate (LFPR), Worker Population Ratio (WPR), and Unemployment Rate (UR) based on Current Weekly Status will now cover both rural and urban areas.
 - Quarterly PLFS data, **previously limited to urban areas, will include rural India from April–June 2025**, with the first combined bulletin in August.
 - Annual reports will **switch to the January–December** calendar year, aligning with global standards.
 - **Districts (or NSS regions) are now the basic strata**, enhancing geographic and demographic accuracy.

- Rural areas are stratified by proximity to district headquarters or large cities; urban strata now include million-plus cities.
- **Households will be surveyed four times**—one full visit and three follow-ups—to track short-term labour market changes with high frequency.
- 3. **National Oceanic and Atmospheric Administration (NOAA):** Recently, the NOAA announced that it will stop updating its flagship database tracking the financial costs of climate change-related weather events, including floods, wildfires, hurricanes, and heat waves.
 - **About NOAA:** A U.S. government agency established in 1970 under the Department of Commerce to study Earth's oceans, atmosphere, and coastal regions impacting the United States.
 - Headquarters is located in Washington, D.C.
 - Develops tools like the tsunami wave height model, used to map events such as the 2011 Pacific tsunami following the Sendai earthquake in Japan.
- 4. **1267 Sanctions Committee:** Recently, India has dispatched a technical team to the United Nations to push for The Resistance Front (TRF) to be officially listed as a terrorist group by the UN Security Council's 1267 Sanctions Committee.
 - **UNSC 1267 Sanctions Committee:** Under Article 41 of the UN Charter, the Security Council can enforce decisions using measures like sanctions.
 - The Council forms subsidiary bodies such as Committees and Groups of Experts to monitor and implement these sanctions.
 - The Committee consists of all permanent and non-permanent members of the Security Council.
 - The 1267 list is a globally recognized UN Security Council-sanctioned list of terrorists.
 - **Resolution 1267 (1999)** established the 1267 Committee to oversee sanctions against individuals, entities, and aircraft linked to the Taliban.
 - **Subsequent Resolutions:** 1333 (2000) and 1390 (2002) broadened sanctions to impose asset freezes, travel bans, and arms embargoes on associates of Usama bin Laden and the Taliban.
 - Resolution 2253 (2015) further extended these measures to cover supporters of the Islamic State in Iraq and the Levant (ISIL).

5. **Chandrayaan-5 Mission:** Recently, ISRO and Japan Aerospace Exploration Agency (JAXA) have entered the design phase of the Chandrayaan-5 mission, also known as LUPEX (Lunar Polar Exploration).
- **About Chandrayaan-5 Mission :** This mission is part of India's long-term goal of achieving an Indian landing on the Moon by 2040 and realising India's Space Station by 2035.
 - This mission targets detailed exploration of the Moon's south pole, focusing on detecting and studying water and water-ice in its permanently shadowed regions, which are vital for future lunar exploration and habitation.
 - **Payload and Design:** It will carry a 350 kg Japanese rover and an Indian lander.
 - **Scientific Goals:** The rover will study the Moon's surface and explore the lunar South Pole, a region of high scientific interest.
 - **Significance:** Chandrayaan-5 represents a major technological milestone and supports India's pursuit of new scientific discoveries on the Moon.
6. **Land Bank :** The Uttar Pradesh government has announced plans to establish a 50-acre land bank in every district to facilitate the setup of medium, small-scale, and agro-based industries.
- **About Land Banks:** Quasi-governmental entities set up to manage and repurpose underutilized, abandoned, or foreclosed land assets.
 - Aimed at ensuring balanced industrial and commercial development across all districts, avoiding regional concentration.
 - District Magistrates and Development Authority Vice-Chairpersons have been directed to expedite the creation of land banks.
 - The initiative is set to accelerate industrial growth by offering investors and entrepreneurs quick access to dispute-free, ready-to-use land.
7. **Bar Council of India (BCI):** The Bar Council of India (BCI) has amended its rules to allow foreign law firms to operate more freely in India, particularly in the field of international arbitration.
- **About the BCI:** A statutory body established by Parliament under the Advocates Act, 1961, following the recommendations of the All India Bar Committee.
 - It serves as the apex body to regulate the legal profession and represent advocates across India.

- Its core mission is to protect the rights, interests, and privileges of practicing lawyers nationwide.
 - **Composition of the BCI:** Includes members elected from each **State Bar Council**, along with ex officio members such as the **Attorney General of India** and **Solicitor General of India**.
 - State Bar Council members have a **five-year term**.
 - Elects its own **Chairman and Vice-Chairman**, who serve for **two years** from among its members
 - **Key Functions:** Sets the code of conduct, professional ethics, and oversees disciplinary proceedings against advocates.
 - Frames norms for legal education and accredits universities whose law degrees qualify candidates for enrolment.
 - Conducts the All India Bar Examination (AIBE), mandatory for advocates to obtain a Certificate of Practice to legally practice law in India.
- 8. Indian Yak :** Recently, Indian scientists successfully assembled the first chromosome-level genome of the Indian yak (*Bos grunniens*), a high-altitude bovine crucial to sustaining livelihoods in the Himalayan region.
- **About Indian Yak:** Inhabit high-altitude alpine tundra (5000–7000 m), meadows, steppes, and desert steppes.
 - Found across the Himalayas, Tibetan Plateau, Mongolia, and parts of South-Central Asia.
 - **In India:** Reared in Arunachal Pradesh, Sikkim, Himachal Pradesh, Uttar Pradesh, Jammu & Kashmir, and Ladakh.
 - Herbivores, feeding on grasses and alpine vegetation.
 - Domesticated yaks provide milk, meat, and serve as pack animals.
 - Used in mountain expeditions, capable of trekking up to 20,000 ft.
 - Crossbred with cattle to produce dzo or chauri gai — hardy hybrids used in agro-pastoral systems.
 - **IUCN Red List:** Vulnerable
 - **CITES:** Appendix I
 - **WPA, 2022:** Schedule I



9. **World Food Prize 2024** : Recently, Brazilian scientist Mariangela Hungria was awarded the World Food Prize 2024 for her groundbreaking work in sustainable agriculture and biological nitrogen fixation.
- **Mariangela Hungria**, a **Brazilian microbiologist**, has spent **four decades** researching **biological nitrogen fixation** to reduce dependence on chemical fertilisers.
 - She worked extensively with **Brazilian farmers** to apply **bacteria-based seed and soil treatments** that naturally enhance crop growth.
 - **About World Food Prize**: Established in **1986** by Nobel laureate Norman Borlaug, the World Food Prize is often regarded as the "Nobel Prize for Food and Agriculture."
 - It honours individuals for **exceptional achievements** that enhance human development by significantly improving the **quantity, quality, availability, or accessibility of food** through innovative contributions across the entire food system.
 - The first recipient in 1987 was Dr. **M.S. Swaminathan**, renowned as the **father of India's Green Revolution**.
10. **2D Metal** : Recently, Chinese scientists created ultra-thin 2D metal sheets of bismuth, gallium, tin, and lead using a new high-pressure technique.
- **Material dimension**: A material is described as 1D or 2D depending on how much it confines its electrons. A **quantum dot** is considered to be a **zero-dimensional material**: while its electrons can technically move in three dimensions.
 - **About 2D Metals**: Ultra-thin layers of metal atoms, typically 1–2 atoms thick, where electrons are restricted to move in two dimensions.
 - Exhibit distinct **quantum behaviors** due to quantum confinement, unlike bulk metals.
 - **Applications: Photonics & Optoelectronics**: Perfect for creating high-performance LEDs, lasers, and photodetectors.
 - **Medical Diagnostics**: Supports the advancement of ultra-sensitive biosensors and imaging tools
 - **Quantum Computing**: Offers the possibility of faster and more energy-efficient computing systems.
 - **Flexible Electronics**: Ideal for next-generation sensors, transistors, and wearable devices.