


- 1. World's First-Ever Global Carbon Tax:** India and 62 other countries voted for the world's first-ever global carbon tax on the shipping industry.
 - **About Carbon Tax:** It is a pollution fee on businesses and individuals which imposed on companies burning coal, oil, gasoline, natural gas.
 - **Effect:** Burning these fuels releases CO₂ and methane, causing global warming.
 - **Incentive:** Carbon tax makes fossil fuel use costlier, pushing firms to be energy-efficient.
 - **Consumer Impact:** Raises gasoline and electricity costs, encouraging shift to clean energy.
 - **About World's First-Ever Global Carbon Tax:** Aims to reduce greenhouse gas emissions from ships and promote cleaner technologies.
 - **Implementation:** From 2028, ships must shift to low-emission fuels or pay for pollution.
 - **Usage:** All revenue to be ring-fenced for decarbonising maritime sector, not for broader climate finance.
 - **Impact:** Carbon pricing to reduce emissions by **only 10% by 2030**, short of **IMO's 20% target**.
 - **Supporters:** Deal supported by **63 countries**, including **India, China, Brazil**.
 - **About International Maritime Organisation (IMO):** It is a specialized UN agency regulating shipping and preventing marine pollution, established in 1948, operational since 1958.
 - **Membership:** Has 175 member states, 3 associate members; headquartered in London.
 - **India:** Joined in 1959.
 - **Mandate:** Sets regulatory framework and deals with liability and maritime traffic facilitation.
- 2. Global Satellite Mapping of Precipitation (GSMaP)-ISRO:** A study examined spatial rainfall trends across India and found changes in daily rainfall amounts and timing of peak rainfall across different regions in the 2011–2020 decade compared to 2001–2010. The study used **GSMaP-ISRO** data to analyse rainfall patterns.
 - **About Global Satellite Mapping of Precipitation (GSMaP)-ISRO:** It is a precipitation product for the Indian subcontinent, developed through an agreement between ISRO and the Japan Aerospace Exploration Agency (JAXA).
 - **Algorithm Technology:** The GSMaP algorithm, designed by JAXA, uses microwave radiometers and cloud motion data from Geostationary Infrared (IR) technology.
 - **Key Study Observations (Rainfall Trends 2011–2020 vs 2001–2010):**

- **Rainfall Increase:** West-central India experienced a slight increase in rainfall (~2 mm/day) during 2011–2020.
 - ✓ Though Indo-Gangetic Plain and southernmost parts had **increased** rainfall, it was **less** than west-central India.
 - **Vegetation and Soil Moisture Linkage:** The increase in rainfall over west-central India is linked to increased vegetation cover.
 - ✓ Transpiration Role, increased vegetation causes more transpiration, releasing water vapour and influencing summer monsoon rainfall via evapotranspiration.
 - **Sea vs Land Timing:** Peak rainfall time is in the morning over the Arabian Sea and Bay of Bengal, and in the afternoon over inland areas.
 - **Aerosol Influence on Rainfall Timing:** Aerosol loading influences rainfall peak timing.
 - **Indo-Gangetic Plain:** Higher aerosol loading likely caused early peak rainfall in Indo-Gangetic Plain, while lower aerosol levels led to late peak rainfall in west-central India during 2011–2020.
- 3. Kerala - First State to achieve total digital literacy:** Kerala has become the first State in India to achieve total digital literacy.
- **About Kerala: First State to achieve total digital literacy**
 - **Digital Literacy Achievement:** Over 21 lakh digitally illiterate people were trained under the ‘Digi Kerala’ initiative.
 - **Training Content:** Beneficiaries were taught to make voice/video calls, access government services, use Internet banking, and operate social media platforms.
 - **Inspiring Examples:** C. Sarasu (67), MGNREGS worker from Pullampara, now makes video calls and watches YouTube & Krishnakumar (75) from Muvattupuzha uses WhatsApp for community mobilisation.
 - **Inclusivity:** Programme went beyond National Digital Literacy Mission guidelines by including people of all ages, not just those under 60.
 - **Digital Skills Imparted:** Training included use of calls, WhatsApp, social media, banking, and government services.
 - **About:** The Digi Kerala idea began as a pilot initiative of the Pullampara grama panchayat in the capital in 2022 to impart digital literacy to all residents.

- 4. India's seeds of traditional varieties:** At a time when extreme weather events threaten food production, India is sidelining traditional seed varieties — the very crops that can withstand droughts, floods, and replenish depleted soils.
- **About India's Seeds of Traditional Varieties:** Indigenous Varieties includes Hurlu villagers cultivate native crops like kuyan (pearl millet), dokin (sorghum), kode kanga (cowpea), arka (foxtail millet), and dangrani (pulse); paddy varieties include kanda kuli, dhangri mali, basna kuli, and bodhana.
 - **Loss of Diversity:** Traditional seeds are disappearing while farmers grow limited crops like wheat, rice, and a few vegetables.
 - **Hybrid Trade-Offs:** New hybrid seeds bring high yields but increase dependence on chemical fertilisers, water usage, vulnerability to climate shocks, and reduce food quality.
 - **Market Demand Issue:** Consumers, supermarkets, and government programmes prefer high-yield rice and wheat, leading to **reduced demand** for climate-resilient grains like **millets, pulses, and indigenous rice**.
 - **Policy Bias:** Agricultural policies historically promoted **high-yielding varieties** to boost food production, leading to **loss of biodiversity and nutritional quality**.
 - **Government Initiatives:** While efforts like the **Odisha Millet Mission** exist, **subsidies and procurement systems** remain slow to support traditional crops.
 - **Research Priorities:** R&D has **prioritised productivity** over conserving **genetic diversity** and enhancing **climate resilience**.
 - **Recent Consultation:** MSSRF's Tribal Agrobiodiversity Centre, Jeypore, Odisha, held a national consultation to foster a road map for climate-resilient seed systems.
- 5. Exercise AIKEYME:** The inaugural edition of the large-scale multilateral exercise Africa India Key Maritime Engagement (AIKEYME) began on April 13, 2025, at Dar-es-Salaam, Tanzania.
- **About Exercise AIKEYME:** It is a large-scale multilateral maritime exercise aimed at enhancing naval cooperation and interoperability between India and African nations.
 - **Host Nations:** India and Tanzania (co-hosts).
 - **Established in:** The first edition is taking place in April 2025 in Dar-es-Salaam, Tanzania.
 - **Nations Participating:** Comoros, Djibouti, Eritrea, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, India, Tanzania.

- **Aims of AIKEYME:** To strengthen maritime security in the Indian Ocean Region (IOR) → To improve coordination in tackling piracy, illegal trafficking, and unregulated fishing → To enhance information sharing and surveillance between navies.
 - **About Tanzania (Dodoma):** Located in East Africa, south of the Equator.
 - **Borders:** Kenya, Uganda, Mozambique, Malawi, Zambia, Rwanda, Burundi, DR Congo.
 - **Maritime Borders:** Comoros, Seychelles.
- 6. Mk-II (A) Laser- Directed Energy Weapon (DEW) system:** Recently, the Defence Research and Development Organisation (DRDO) announced the successful trial of the Mk-II(A) Laser-Directed Energy Weapon (DEW) system.
- **About Mk-II (A) Laser-Directed Energy Weapon (DEW) System:** Designed and developed by DRDO, specifically by CHES, Hyderabad, in collaboration with other labs, academia, and industries.
 - **Demonstrated Capabilities:** Engaged fixed-wing drones at long range, neutralised multiple drone attacks, and destroyed enemy surveillance sensors and antennae.
 - **Speed and Precision:** Delivered lightning-speed engagement, high precision, and lethality within seconds.
 - **Cost-effective Operation:** Cost of firing for few seconds equals cost of a couple of litres of petrol—a low-cost alternative for defence.
 - **Radar and EO Detection:** Targets are detected via radar or inbuilt Electro Optic (EO) system; laser engages at speed of light.
 - **Mechanism of Action:** Uses intense laser beam to cause structural failure or more impactful destruction if warhead is targeted.
 - **Future Outlook:** Expected to replace traditional kinetic weapons and missile defence systems due to ease of use and cost-efficiency.
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- 7. BatEchoMon (Bat Echolocation Monitoring):** India's first autonomous system for real-time detection and analysis of bat calls, developed under the Long-Term Urban Ecological Observatory at the Indian Institute for Human Settlements (IIHS), Bengaluru.

- **About BatEchoMon:** It enables faster and automated processing of bat echolocation data.
 - **Real-Time Analysis:** It is capable of detecting and analysing bat calls in real-time, offering major efficiency over traditional manual methods.
 - **Efficiency:** Deshpande noted that what took 11 months to process manually could now be achieved in a few hours using BatEchoMon.
 - **Device Components:** It includes a recording device, storage, processing, and real-time analysis units.
 - **Microprocessor:** Powered by a Raspberry Pi microprocessor, which processes data captured by Audiomoth, used as an ultrasonic microphone.
 - **Detection Process:** The system isolates bat calls from other ultrasounds, then analyses peak frequency and structure using pre-trained models to identify species.
 - **Technology:** Uses a convolutional neural network (CNN)-based algorithm for species identification.
 - **Identification Capacity:** Currently identifies 6–7 common Indian bat species.
 - **Collaborative Boost:** Initiatives like the 'State of India's Bats' workshop are helping improve collaboration and expand bat call databases in India.
- 8. **Ramgarh Lake:** Work has started for revival of the historic Ramgarh Lake near Jaipur, once a lifeline for water supply to Rajasthan's capital.
 - **About Ramgarh Lake:** Situated near Jamwa Ramgarh subdivision in Jaipur district, Rajasthan.
 - **Type:** A man-made water body formed by creating an embankment on forested hills.
 - **Built By:** Constructed in 1876 by Sawai Ram Singh II, the erstwhile ruler of Jaipur.
 - Served as the main source of water supply for Jaipur.
 - **Water Sources:** Fed by Roda, Banganga, Tala, and Madhoveni rivers, which are now dry due to deforestation and mining in the catchment.
 - Jamwa Mata Temple is located downstream of the lake.
 - The **Ramgarh Polo Ground**, surrounded by **Aravalli Hills**, is considered among the **best in India**.
 - **Wildlife:** Thick forests around the lake house Nilgai, Chital, and lions.
 - **Sanctuary Status:** Declared a **wildlife sanctuary in 1982** by the Government of India.