# Factly Monthly

## Compilation

2025

**For UPSC CSE Prelims Exam**

**December 2025**

# INDEX

## WorldSkills Asia Competition (WSAC) 2025

News: India has achieved an impressive 8th-place finish in its debut participation at the WorldSkills Asia Competition (WSAC) 2025.

**About WorldSkills Asia Competition (WSAC) 2025**


Source: PIB

- WSAC 2025 was the third edition of the prestigious continental skills competition.
- Participation: It brought together 500+ young competitors representing 29 Asian member and guest nations.
- The competition featured 44 skill categories spanning traditional, modern, and tech-driven disciplines.
- The event provided participants with valuable opportunities to promote local education, economic development, tourism, and international cultural exchange.
- India Performance
    - India participated in the WorldSkills Asia Competition (WSAC) 2025 for the first time.
    - Selection: The competitors were selected through the IndiaSkills National Competition 2024, a rigorous multi-stage process.
    - India Participation led by: The participation was led by the Ministry of Skill Development and Entrepreneurship (MSDE).
    - Rank: India achieved an impressive 8th rank among 29 participating nations in its debut attempt.
        - Medal tally/major achievements: India secured a total of six honours, including medals and Medallions for Excellence.

## INS Taragiri

News: INS Taragiri (Yard 12653) was delivered to the Indian Navy at MDL, Mumbai.

**About INS Taragiri**

Source: PIB

- INS Taragiri is the fourth ship of the Nilgiri-class (Project 17A) frigates of the Indian Navy.
- New version: The new Taragiri is a reincarnation of erstwhile INS Taragiri, a Leander-class frigate.
- Bulit by: It is the third P17A frigate built by Mazagon Dock Shipbuilding Ltd (MDL), Mumbai.
- Designed by: Warship Design Bureau (WDB) of the Indian Navy.
- It is designed as a versatile, multi-mission platform capable of meeting present and future maritime challenges.
- Taragiri has an impressive 75% indigenous content, showcasing India's expanding defence manufacturing ecosystem.
- Features:
    - Propulsion and Platform System: Taragiri is powered by a Combined Diesel or Gas (CODOG) propulsion configuration. The system consists of both diesel engines and a gas turbine, allowing flexibility in speed and fuel efficiency.
    - Each shaft is fitted with a Controllable Pitch Propeller (CPP) for improved manoeuvrability.
    - A state-of-the-art Integrated Platform Management System (IPMS) ensures centralised and automated control of ship systems
    - Weapons and sensor suite: The potent weapon and sensors suite comprises BrahMos SSM, MFSTAR and MRSAM complex, 76mm SRGM, and a combination of 30 mm and 12.7 mm close-in weapon systems, along with rockets and torpedoes for anti-submarine warfare.

**About Project 17A**

- Project 17A is an Indian Navy initiative to build seven advanced stealth frigates as successors to the Shivalik-class (Project 17).
- Project 17A frigates are versatile multi-mission platforms, designed to address current and future challenges in the maritime domain.
- These frigates feature superior stealth characteristics, enhanced automation, advanced sensors, and modern weapon systems.
- Built by: Of the seven ships, four – Nilgiri, Udaygiri, Taragiri, and Mahendragiri – are being built by MDL, and three by GRSE (Himgiri, Dunagiri, and Vindhyagiri).

- Project 17A demonstrates India's rising maritime strength and supports long-term security objectives in the Indo-Pacific region.
- The three frigates earlier delivered under the Project are –
    - INS Himgiri
    - INS Udaygiri
    - INS Nilgiri

## Pilot Trainer Aircraft "Hansa-3(NG)"

News: India has launched its first indigenous pilot trainer aircraft, Hansa-3(NG), marking the country's march towards self-reliant aerospace manufacturing.

**About Pilot Trainer Aircraft "Hansa-3(NG)"**


*Figure 1. Source – CSIR-NAL*

- It is India's first indigenous trainer aircraft developed for pilot training.
- Developed by: It is designed and developed by CSIR–National Aerospace Laboratories (NAL), Bengaluru, under the Council of Scientific and Industrial Research (CSIR).
- Aim
    - The aircraft provides a cost-effective alternative to foreign trainers and trains pilots for Private and Commercial Pilot Licences.
    - It supports India's aviation ecosystem by meeting the growing demand for pilots through indigenous technology.
- Key features
    - It is a two-seater, low-wing, composite airframe with a bubble canopy that gives panoramic visibility.
    - Powered by: It is powered by a fuel-efficient, digitally controlled Rotax engine with an advanced electronic fuel injection system that maintains the optimum fuel–air mixture at different altitudes.
    - The aircraft has a modern glass cockpit and electrically operated flaps.
    - Range: It offers a range of 620 nautical miles, 7 hours of endurance, and a maximum cruise speed of 98 KCAS.
    - It serves as an ideal low-cost trainer for pilot licensing, and an electric variant, E-HANSA, is under development to support sustainable aviation.

**About CSIR–National Aerospace Laboratories (NAL)**

- It is India's only civilian aerospace research and development laboratory focused on aerospace science and engineering.
- It was founded on 1 June 1959.

- Headquarter: It's headquarter is in Bengaluru, Karnataka.
- It functions under the Council of Scientific and Industrial Research, Ministry of Science and Technology, Government of India.

## Khiamniungan Tribe

News: Recently, the Prime Minister of India referred to the Khiamniungan tribe in his 'Mann Ki Baat' address, bringing attention to their culture and traditions.

**About Khiamniungan Tribe**

*Figure 2. Source: indovacations*

- The Khiamniungan are one of the major Naga tribes, inhabiting eastern Nagaland (India) and north-western Myanmar.
- Name: The name *Khiamniungan* comes from 'Khiam' (water), 'Niu' (great), and 'Ngan' (source), meaning "source of great water/river".
- Origin: Their settlements lie in mountainous and riverine regions, spreading up to the Chindwin River in Myanmar.
- Language: They speak Khiamniungan, which is a Sino-Tibetan language.
- Economy: Their primary livelihood is jhum (shifting) cultivation, growing rice, millet, and vegetables.
    - They are known for traditional cliff-honey harvesting practices that have been passed down for generations
- Festival: The major festivals of the Khiamniungan tribe are Tsokum Sumai and Khaotzao Sey Hok-ah Sumai.
- Beliefs and Values: They traditionally follow animistic, nature-centric beliefs, honouring spirits of land, water, and ancestors.
    - Rituals often include animal sacrifice and symbolic offerings.
    - The village priest (Am-pao) plays a central role in ceremonies.

## Asia Power Index 2025

News: India has secured the third rank in the Asia Power Index 2025, while the United States and China hold the 1st and 2nd positions respectively.

**About Asia Power Index 2025**


Source – NewsOnAir

- The Asia Power Index is an annual assessment that measures the ability of countries to shape and respond to their external environment and evaluates the power dynamics of countries across Asia.
- Started in: 2018 (first edition)
- 2025 edition: It is its seventh edition.
- Published by: It is compiled and published by the Lowy Institute, an Australia-based think tank.
- Features: The index evaluates the power of 27 countries and territories across Asia.
- Index components
    - The index is based on 131 indicators grouped under eight thematic measures that together capture different aspects of national power.
- Eight thematic measures

| | |
|---|---|
| Resources | Influences |
| Economic Capability | Diplomatic Influence |
| Military Capability | Economic Relationships |
| Resilience | Defence Networks |
| Future Resources | Cultural Influence |

- India's performance
    - India scored 40.0 out of 100, secured the third rank, and crossed the threshold for "major power" status for the first time.
    - India ranks third for economic capability and future resources in the 2025 edition of the index.

- India's economic and military capability have both increased.
- India's weakest area is defence networks, where it ranks 11th.

## Sanchar Saathi App

News: Sanchar Saathi is in news as DoT has ordered all smartphone makers to pre-install the app through mandatory directions.

**About Sanchar Saathi App**


*Figure 3. Source – WION*

- Sanchar Saathi is a citizen-centric initiative available as a mobile application and website.
- It empowers mobile subscribers, strengthens their security, and increases awareness about citizen-centric initiatives of the Government.
- Launched by : It was launched by the Department of Telecommunications in 2023.
- Aim: The app aims to safeguard mobile users by enabling identity management, fraud and scam reporting, device verification, and spreading awareness on telecom and cyber risks.
- Key services
  - Chakshu tool: It allows users to report fraudulent communication like spam calls, SMS, or WhatsApp messages.
  - Block lost/stolen devices: It helps users trace and block lost or stolen mobile phones so they cannot be used in India.
  - Know mobile connections: It enables users to check the number of mobile connections registered in their name.
  - Know genuineness of mobile handset: It allows users to check if a mobile phone is genuine before buying it.
  - Report incoming international calls: It enables users to report international calls that appear as local Indian numbers.

## Major Irrigation Projects in India

News: India has numerous major irrigation projects that are essential for improving agricultural output and effectively managing the nation's water resources.

**About Bhakra Dam**


Source – Tribune

- Bhakra Dam is a concrete gravity dam built across the Sutlej River, near the Punjab–Himachal Pradesh border.
- Operated and maintained by: Bhakra Beas Management Board (BBMB)
- It is the world's highest straight gravity dam and also Asia's second tallest dam.
- Nangal Dam located downstream works in tandem with Bhakra Dam.
- Benefitted states: It benefits the states of Punjab, Haryana, Himachal Pradesh, Chandigarh, Delhi, and Rajasthan.
- Uses: The Bhakra Dam provides irrigation, generates hydroelectric power, controls floods, supplies drinking water and promotes fisheries and tourism through its Gobind Sagar reservoir.

**About Pong Dam**

- Pong Dam is an earth-fill embankment dam built on the Beas River in the Shivalik foothills of Kangra district, Himachal Pradesh.
- The reservoir was created in 1975 and named in honour of Maharana Pratap.
- It was recognized as a Ramsar Wetland site in 2002.

**About Lendi Project and Babhali Barrage**

- The Lendi Project is an Inter-State Major Irrigation Project jointly undertaken by the States of Telangana and Maharashtra.
- Aim: The project aims to irrigate a total of 49,000 acres, benefiting both Telangana and Maharashtra.
- Location: The Babhali barrage is a dam being constructed 83 km from Nanded, Maharastra on the Godavari river.

**About Eastern Rajasthan Canal Project (ERCP)**

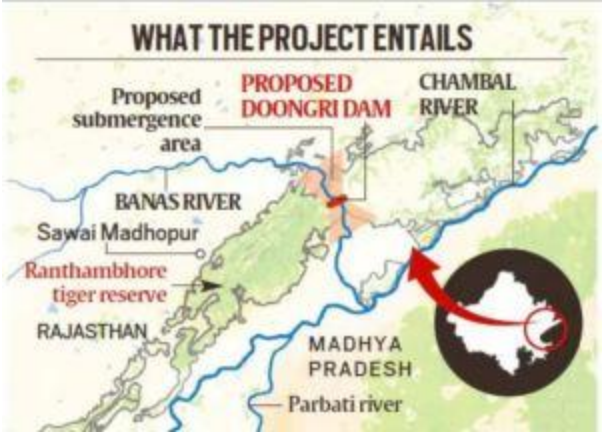


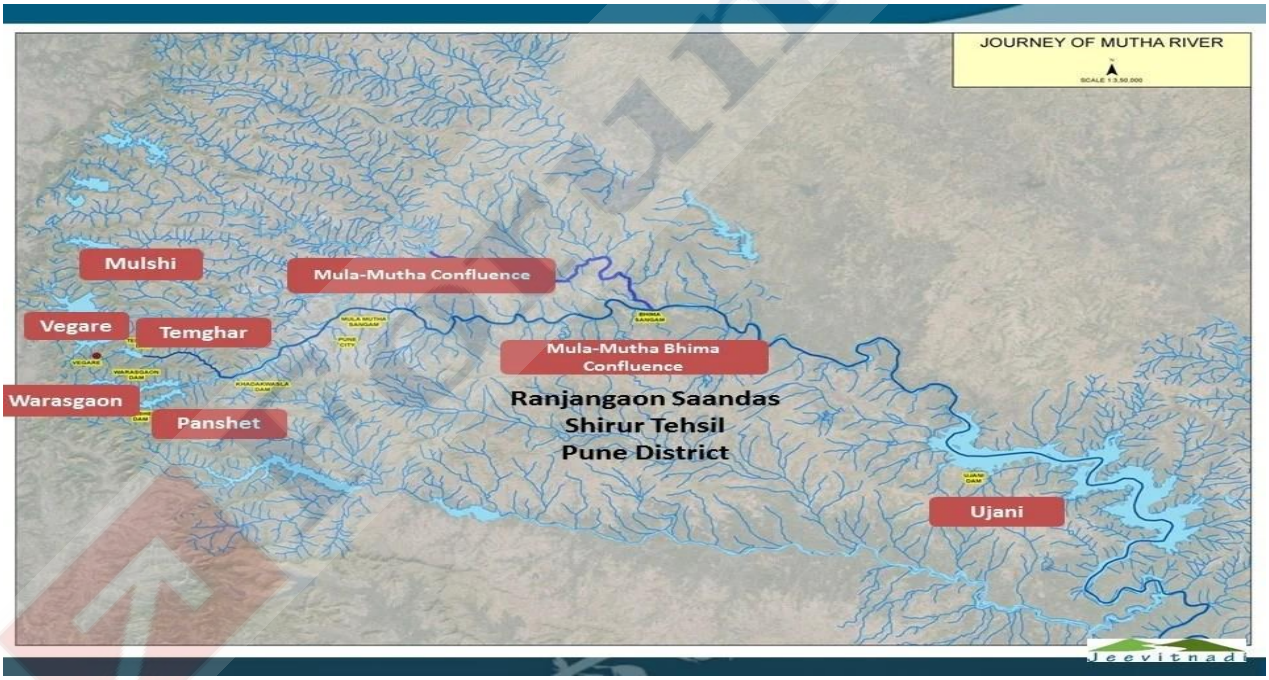

*Figure 4. Source – IE*

- The ERCP is a major multi-purpose water project designed to provide both drinking water and irrigation water to the eastern and southeastern regions of Rajasthan.
- River: The main river used for the Eastern Rajasthan Canal Project (ERCP) is the Chambal.
- Aim: To improve drinking water availability and support irrigation needs in drought-prone areas of eastern Rajasthan.
- Major Components of the Project:
  - The ERCP includes the construction of a 1,300-kilometre-long canal network that will carry water from the Chambal River to the targeted districts.

## Mula–Mutha River

**News:** Under the NRCP, the Mula–Mutha pollution control project is about 65% complete and is expected to finish by March 2026.

**About Mula–Mutha River**




**Source:** Jeevitnadi

Origin

- Mula River: It begins at Muleshwar Devrai in Mulshi (Maharashtra), where a small stream near the Shiva temple is considered its source.
- Mutha River: It is also called Muthai in Marathi and originates in the Western Ghats.
- Confluence: Both the Mula and Mutha rivers flow down from the Western Ghats and meet in Pune city at Sangam Bridge, where they merge to form the Mula–Mutha River.

Tributaries: The Mose River and Ambi River joins the Mutha River.

- The Pawna River flows into the Mula River.

Drains into: After flowing eastward, the Mula–Mutha River joins the Bhima River and eventually becomes part of the Krishna River system.

Major Dams: The Temghar Dam is one of the important dams on the Mutha River.

- The Mulshi Dam is the only major dam built on the Mula River.

## Sittannavasal Site

**News:** The historical and archaeological significance of Sittanavasal, known for its Jain heritage, Tamil-Brahmi inscriptions, ascetic stone beds, and rare early mural paintings dating to the 7th–9th century CE.

**About Sittannavasal Site**

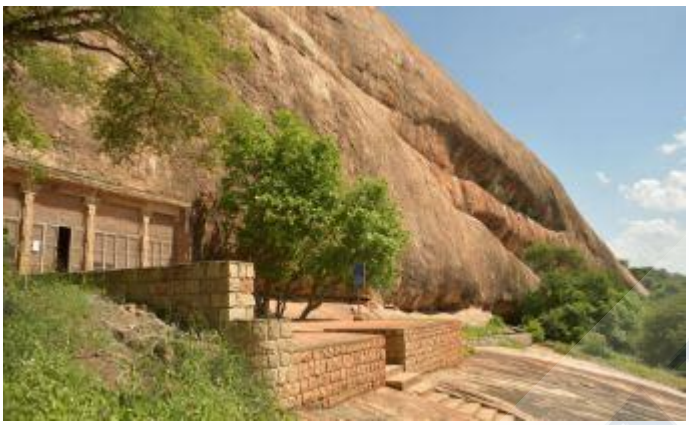


*Figure 5. Source – TH*

- Sittannavasal is located in Pudukkottai district, Tamil Nadu.
- Historical importance
  - There are presence of megalithic monuments (stone circles, cists, urn burials) proves pre-historic settlement.
  - It is a major Jain centre from 1st century BC to 10th century AD (nearly 1000 years).
  - Jain rock-cut cave was excavated between 7th–9th centuries AD.
- Major monuments at Sittannavasal:
  - Arivar-Koil (Jain Rock-Cut Cave Temple): It also shows continuous Jain presence for 1000 years.
    - It contains 9th-century AD fresco paintings with Jain themes such as – Lotus pond, Bhavyas (souls striving for moksha) and floral, animal and decorative motifs, made using long-lasting vegetable colours.
    - Architecture: The hall (mandapam) with carved pillars and a small sanctum with main deity Parshvanatha, shown in meditation with a five-hooded serpent above him.
  - Ezhadippattam: It is a natural cavern on the eastern side containing seventeen polished rock beds ('samanar padukkai'), used by Jain monks for severe penance.
  - Tamil-Brahmi inscription: It includes Tamil-Brahmi inscription (dated by Iravatham Mahadevan to 1st century BC) and many other Tamil inscriptions up to 10th century AD.
  - Megalithic Burial Sites: It consists of urn burials, stone circles, cists. It indicates the settlement of Iron Age communities before Jain occupation.
  - Navach-chunai: It is a small rock-cut shrine submerged in a natural tarn (pond) located on the northeastern slope.

## SIM Binding

**News:** The Department of Telecommunications has recently directed major app-based communication services to implement SIM binding to curb cyber-frauds and misuse.

**About SIM Binding**

Source – ET

- SIM binding is a security process that links a user's messaging or communication app to the specific SIM card used during registration.
- Authorized under: The Department of Telecommunications (DoT) has issued these directions under the Telecommunication Cybersecurity Amendment Rules, 2025.
    - Under the Rules, the DoT has introduced the concept of Telecommunication Identifier User Entity (TIUE).
        - TIUE is a non-licence entity that uses telecommunication identifiers such as mobile numbers to identify and serve its users.
- Working mechanism
    - liSIM binding nks the app to the SIM used during registration and continuously checks the same SIM identifiers stored in it.
    - If the identifiers in the device do not match those recorded at registration, the app treats it as an identity mismatch and blocks access.
- Key features
    - The app works only when the registered SIM is present and active in the handset.
    - Web or desktop instances must be logged out periodically, not later than six hours, with re-linking through a QR code.

## Paulos Mar Gregorios Award

**News:** Dr Tessy Thomas has been honoured with the prestigious Paulos Mar Gregorios Award 2025 for her significant achievements in missile development and her impactful work in promoting women's empowerment.

**About Paulos Mar Gregorios Award**


Source – Sophia Society

- Instituted by: Sophia Society of the Malankara (Indian) Orthodox Church
- Purpose: The purpose of the award is to acknowledge service that uplifts society and demonstrates a union of intellectual rigour with humane, ethical responsibility.
- Frequency: The award is presented every alternate year.
- Named after: It is established in memory of Dr Paulos Mar Gregorios, who served as the first Metropolitan of the Delhi Diocese and was also a scholar, linguist, theologian, ecumenical leader and socio-political thinker.
    - He also served as President of the World Council of Churches, adding to the global significance of his legacy.
- Award is given to: The award honours individuals whose contributions reflect the blend of scholarship, moral clarity, social commitment and spiritual depth associated with Paulos Mar Gregorios.
    - It recognises people whose work upholds human dignity and empowers disadvantaged or overlooked communities.
    - It also highlights leadership in advancing gender equality, a cause that Dr Gregorios strongly advocated.

**About Eighth Paulos Mar Gregorios Award 2025**

- Dr Tessy Thomas, known widely as India's "Missile Woman," received the 8th Paulos Mar Gregorios Award in 2025.
- Recognized for: She was recognized for her outstanding contribution to women's empowerment, space technology and missile development.
    - She played a crucial role in the development of the Agni-V missile and became the first woman to head an Indian missile project, earning the title "Agniputri."

## Dr. Rajendra Prasad – First President of India

News: Vice President C. P. Radhakrishnan paid homage to India's first President, Dr. Rajendra Prasad, on his birth anniversary.

**About Dr. Rajendra Prasad – First President of India**

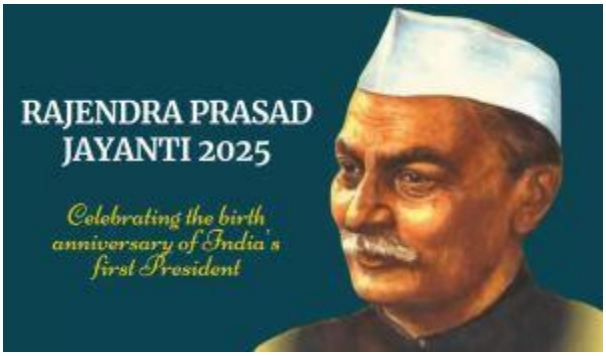



*Figure 6. Source – MoneyControl*

- Dr. Rajendra Prasad was born on December 3, 1884, in Ziradei, Bihar.
- He studied at the University of Calcutta.
- He began his career as a lawyer and was admired for his sharp legal intellect.
- Role in the Freedom Struggle: The freedom movement inspired him to leave his legal practice and join national politics.
    - He became a close associate of Mahatma Gandhi and actively participated in major movements such as Non-Cooperation and Civil Disobedience Movements.
    - In 1906, he played a key role in founding the Bihari Students Conference, which became an important platform for nurturing nationalist thought.
- Leadership in the Constituent Assembly: After Independence, he was elected President of the Constituent Assembly tasked with drafting the Constitution of India.
    - He also chaired the Assembly's committee on food and agriculture, contributing to crucial policy discussions.
    - His leadership ensured balanced debate, consensus-building, and adherence to democratic procedures.
- First President of India: On January 26, 1950, Dr. Rajendra Prasad was elected as the first President of India.
    - His presidency (1950–1962) was distinguished by humility, impartiality, and steadfast commitment to democratic values.
    - He is the only President of India to have served two full terms.
    - His 12-year tenure from 1950 to 1962 continues to be the longest presidency India has ever seen.
- Later life and legacy: After completing his tenure, he retired from active public life and lived at Sadaqat Ashram in Patna.
    - He passed away on February 28, 1963.

## Exercise EKUVERIN

**News:** Exercise EKUVERIN has commenced in Thiruvananthapuram, India.

**About Exercise EKUVERIN**


Source: moneycontrol

- EKUVERIN is a bilateral joint military exercise between the Indian Army and the Maldives National Defence Force (MNDF).
- The term "EKUVERIN" comes from the *Dhivehi* language and means "Friends", symbolising mutual trust and friendship.
- The exercise has been conducted annually since 2009, held alternately in India and the Maldives.
- This is 14th edition of the exercise, which has commenced on December 2, 2025 till December 15, 2025.
- Participation: Both sides have deployed 45 personnel each, the Indian contingent coming from a Garhwal Rifles battalion.
- Aim: To enhance interoperability, coordination, and mutual understanding between the two armies.
- Major components include: Tactical drills, Joint mission planning, Exchange of best operational practices and improving small-team coordination.
    - Training will focus on counter-insurgency (CI) and counter-terrorism (CT) operations.
    - Drills are designed to simulate operations in jungle, semi-urban, and coastal terrain.
    - EKUVERIN-14 reinforces India's Neighbourhood First policy and highlights New Delhi's commitment to defence cooperation in the Indian Ocean Region (IOR).
- Significance: The exercise underscores the shared commitment of both nations to regional peace, stability, and maritime security. It also strengthens strategic ties amidst growing security challenges in the region.

## Global Indices for Reforms and Growth (GIRG) Framework

News: The government told the Rajya Sabha that India's performance on 26 key global indices is being reviewed under GIRG.

**About Global Indices for Reforms and Growth (GIRG) Framework**


Source – NITI Aayog

- GIRG is an initiative by India to track and improve its standing on 26 selected global indices through inter-ministerial coordination.
- Aim: Its aim is to find gaps in these indices and address them through reforms that support India's growth and global standing.
- Coordinator of framework: The Development Monitoring and Evaluation Office (DMEO) of NITI Aayog serves as the knowledge partner and central coordinator for the framework.
- Nodal Ministry: Under GIRG, 26 indices are shared among 17 nodal ministries, and each ministry is responsible for improvement on its assigned indices.
- Structure of framework: The framework links 26 indices published by 16 international agencies with nodal ministries that must review them and act on the findings.
- Themes covered by indices: The indices under GIRG cover four broad themes:
    - Economy
    - Development
    - Governance
    - Industry
- Key indices to be reviewed:
    - Democracy Index by Economist Intelligence Unit (EIU)
    - Network Readiness Index by Portulans Institute (with World Bank/others)
    - Global Hunger Index by Concern Worldwide and Welthungerhilfe
    - Climate Change Performance Index by Germanwatch

## Heron Mk II

News: India plans to procure additional satellite-linked Heron Mk II UAVs from Israel under emergency procurement to strengthen unmanned capabilities after Operation Sindoor.

**About Heron Mk II**


Source – Janes

- The Heron Mk II is a medium-altitude, long-endurance (MALE) unmanned aerial vehicle (UAV) used for intelligence, surveillance and reconnaissance roles.
- Manufactured by : It is manufactured by Israel Aerospace Industries (IAI).
- Key features
    - Payload: It can carry nearly 500 kg of payload, with a maximum take-off weight of 1,430 kg.
    - Endurance: It can reach an altitude of 35,000 feet, speed of 150 knots and remain in the air for 45 consecutive hours.
    - Range: It has an operating range of more than 1,000 km.
    - Advanced sensors: It including Synthetic Aperture Radar, electro-optical systems and Signals Intelligence sensors (SIGINT) for all-weather intelligence.
    - It can carry long-range radars and electro-optical or infra-red observation systems ( EO/IR) to detect and track targets.
    - Remote Operations: Encrypted satellite communication and fully automated take-off and landing allow the drone to fly beyond line of sight.

## World Summit on Disaster Management (WSDM) 2025

**News-** The World Summit on Disaster Management 2025 in Dehradun announced stronger weather forecasting capacity for disaster-prone Uttarakhand.

### About World Summit on Disaster Management (WSDM) 2025

- WSDM 2025 is a global platform on disaster resilience that brings together scientists, policymakers, practitioners, and industry leaders to discuss strategies for disaster risk reduction in a changing climate.
- Held in: It was held in Dehradun, Uttarakhand, from 28th to 30th November 2025.
- Organising Bodies: The summit was jointly organised by the Government of Uttarakhand, the Uttarakhand Council for Science & Technology, and the Himalayan Academy of Science & Technology.
- Theme: The theme of WSDM 2025 was "Strengthening International Cooperation for Building Resilient Communities."

- Aim: The summit aimed to strengthen international cooperation, promote multi-stakeholder engagement, and develop innovative and scalable solutions to address global disaster risks and build resilient communities, especially in fragile ecosystems like the Himalayas.

Key Features

- Focus on cooperation and learning: The summit promoted knowledge-sharing, resilient community-building, cross-border collaboration, and disaster risk reduction among different stakeholders.
- Platform for climate adaptation dialogue: It discussed climate change adaptation and provided a forum for thought leaders and community representatives to share their insights and experiences.
- Strengthening early-warning systems: The summit highlighted announcements on expanded radar networks, upgraded early-warning systems, and dedicated Himalayan climate studies.
- Resilient livelihoods in the Himalayas:It discussed technological innovation, agri-startups, and CSIR value-addition models as tools for building resilient livelihoods in the Himalayan region.

## High-Speed Test of Indigenous Fighter Escape System

News- The Defence Research and Development Organisation (DRDO) has successfully conducted a high-speed rocket-sled test of a fighter aircraft escape system at controlled velocity.


Source- NDTV

**About the Test**

- The test was conducted to validate canopy severance, ejection sequencing, and complete aircrew recovery.
- It marks a major achievement in India's indigenous defence capability and places India among nations with advanced in-house escape system testing facilities.
- Test conducted by: The test was conducted by the Defence Research and Development Organisation (DRDO) in collaboration with the Aeronautical Development Agency (ADA) and Hindustan Aeronautics Limited (HAL).
- Test Conducted at: The test took place at the Rail Track Rocket Sled (RTRS) facility of the Terminal Ballistics Research Laboratory (TBRL), Chandigarh.
- Key Features
    - Controlled Velocity Test: A dual-sled system with the LCA aircraft forebody was propelled to a controlled velocity of 800 km/h using multiple solid propellant rocket motors fired in phases.

- Simulation and Measurement: The test used an instrumented Anthropomorphic Test Dummy to record loads, moments, and accelerations experienced during canopy fragilisation and ejection.
- Monitoring and Validation: The entire sequence was captured through onboard and ground-based imaging systems for detailed analysis and validation.

## New Geographical Indication (GI) Products

**News:** Recently, five products from Tamil Nadu have been granted the Geographical Indications (GI) tag.

### About New Geographical Indication (GI) Products

### About Woraiyur Cotton Sari

- The Woraiyur cotton saris is native to Tiruchi district, Tamil Nadu. They are woven in Manamedu on the banks of the Cauvery.
- The saree is traditionally woven using a 'korvai loom', a special mechanism that forms the continuous 'korvai' border and the body of the fabric in one seamless process.
- It carries traditional mango, bangle, geometric, and pearl motifs that enhance the beauty of its body and border.

### About Kavindapadi Nattu Sakkarai (Jaggery Powder)

- Kavindapadi in Erode district is a major producer of jaggery powder, supported by extensive sugarcane fields irrigated by the Lower Bhavani Project canal.
- The jaggery powder is made by mechanically crushing sugarcane and slowly evaporating the extracted juice, resulting in a pure and chemical-free product.
- This traditional method of production gives the jaggery its distinct texture, flavor, and nutritional value.

### About Thooyamalli Rice

- Thooyamalli rice is a traditional sambha-season variety that requires 135 to 140 days for cultivation.
- The name "Thooyamalli," meaning "pure jasmine," reflects its characteristic aroma and quality.

- It is commonly called 'pearl rice' because of its glossy, lustrous appearance and is highly valued for its rich nutritional properties.

**About Namakkal Makkal Pathirangal (Soapstone Cookware)**

- Namakkal's soapstone cookware, popularly known as kalchatti, has been used in South Indian households for generations.
- These vessels are valued for their natural heat retention, durability, and roots in ancient culinary traditions.

**About Ambasamudram Choppu Saman (Wooden Toys)**

- Ambasamudram choppu saman refers to handcrafted wooden miniature toys, including tiny kitchen utensils, tables, chairs, and other play items.
- This craft dates back to the 18th century and has been practiced for over two centuries in Tirunelveli district.
- Traditionally, these toys were carved from indigenous trees like the Manjal Kadamba tree (Neolamarckia cadamba), teak, and rosewood.

## Companies (Specification of Definition Details) Amendment Rules, 2025

**News-** Recently, the Ministry of Corporate Affairs, in a notification, highlighted the change in the definition of small companies under the Companies Act, 2013.

**About Companies (Specification of Definition Details) Amendment Rules, 2025**

- The Central Government has issued the Companies (Specification of Definition Details) Amendment Rules, 2025, amending the Companies (Specification of Definition Details) Rules, 2014.
- Aim: This amendment aims to bring more companies under the small company definition, which provides them with benefits like simplified compliance and reduced burdens.
- Issued by: It is issued by the Ministry of Corporate Affairs (MCA).
- Effective date: The amendment is effective from December 1, 2025.
- Key changes
    - Paid-up capital: The paid-up capital limit for classifying a company as a small company has been increased from ₹4 crore to ₹10 crore.
    - Turnover: The turnover limit for treating a company as a small company has been increased from ₹40 crore to ₹100 crore.

About the concept of a "small company"

- Companies Act, 2013 introduced the concept of a "small company" with simplified compliance for businesses.
- The Companies (Specification of Definition Details) Rules, 2014 set the financial thresholds.
- The 2025 Amendment continues efforts to revise limits and support ease of doing business by updating capital and turnover criteria.

## Charpala Wildlife Sanctuary

**News:** A rare striated grassbird was sighted in Chaprala Wildlife Sanctuary in Gadchiroli, marking a major range expansion in Maharashtra.

### About Charpala Wildlife Sanctuary

- Location: Charpala Wildlife Sanctuary is located in the Gadchiroli district of Maharashtra.
- Established: The sanctuary was established in 1986 as a protected area for wildlife conservation.
- Area: The sanctuary spans approximately 140 square kilometers.
- The Markhanda and Pedigundam hills flank the sanctuary from the northeast and south, respectively.
- River Flowing through it: The Pranhita River flows along the western boundary of the sanctuary. The sanctuary lies near the confluence of the Wardha and Wainganga rivers.
- Tribe: The sanctuary is home to the indigenous Gond tribal community.
- Vegetation: The sanctuary is dominated by southern tropical dry deciduous forests interspersed with grasslands, creating ideal conditions for varied wildlife.
- Flora: The sanctuary's flora includes teak, Arjun, salai, mahua, bel, dhawada, tendu, sissoo, and semal as major tree species.
- Fauna: Chaprala Wildlife Sanctuary is home to around 131 species of wild animals.
    - Bengal tiger, leopard, jungle cat, sloth bear, wild dogs, jackals, Sambar deer, spotted deer, barking deer, blue bull (nilgai), wild boar, Flying squirrels are found in the sanctuary.
    - The sanctuary also hosts around 131 species of birds along with seasonal migratory birds.
    - Reptiles such as Indian python, common Indian monitor, and various snake species inhabit the sanctuary.

## Operation Trident

News: Recently, the Indian Navy celebrates Navy Day to commemorate the Indian Navy's attack on Karachi Harbor during Operation Trident in the 1971 Indo-Pak War.

### About Operation Trident

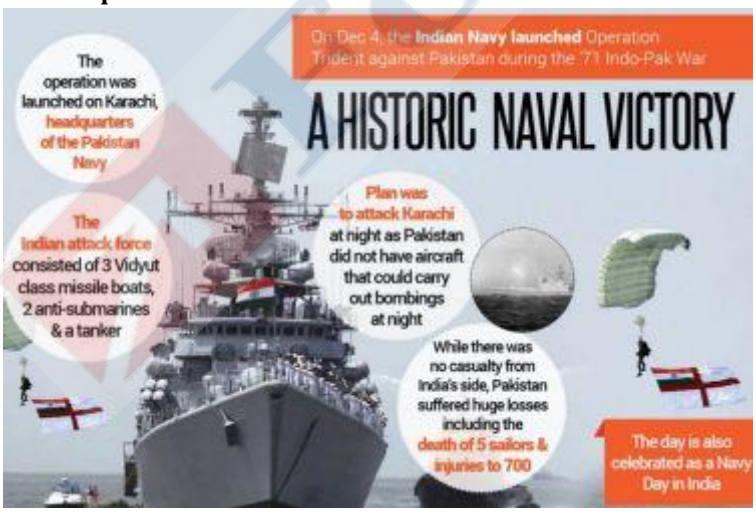



*Figure 7. Source – ToI*

- Operation Trident was a naval operation launched by the Indian Navy during the Bangladesh Liberation War of 1971.
- The operation was launched on December 4, 1971, as part of the India-Pakistan War.
- The war began when Pakistan Air Force launched pre-emptive strikes on Indian airfields on December 3, 1971. India responded by declaring war in the early hours of December 4.
- Objective: The primary goal was to inflict significant damage on Pakistani vessels in the Karachi harbour.

- Execution: INS Kiltan, Katchall, Nipat, Nighat, and Veer participated in the operation. Indian Navy used Soviet Osa missile boats equipped with SS-N-2 Styx missiles for the attack.
- Impact of the Operation: The Indian Navy sank three vessels near Karachi, including: PNS Khaibar (222 Pakistani sailors killed), PNS Muhafiz (33 Pakistani sailors killed), MV Venus Challenger, a merchant ship.
    - The Indian Air Force (IAF) also played a role by strafing Karachi's Kemari oil tanks, contributing to the operation's success.
- Innovative Tactics: The attack marked the first use of missiles in the region for naval warfare. Radio silence and ingenious communication methods were employed to avoid detection.
    - Indian Navy used coastal defence vessels in an offensive role. Russian language was used for radio communications to deceive Pakistani signals intelligence.

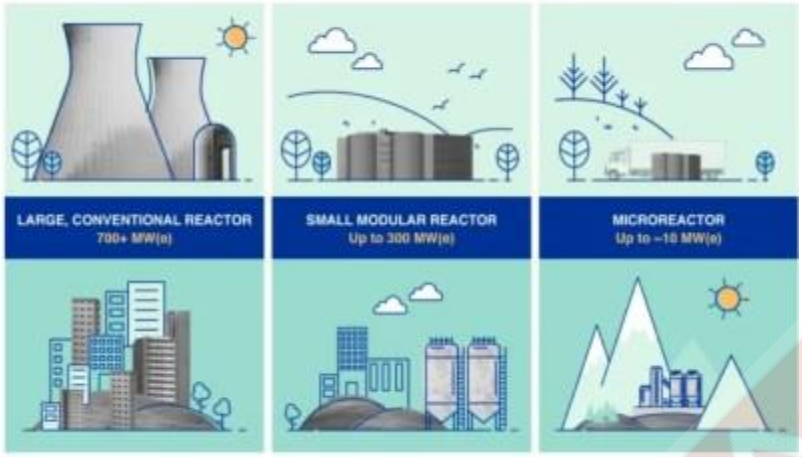
**About India's naval operations in neighboring countries**

| Operation | Year | Name of country |
|---|---|---|
| Operation Python | 1971 | Pakistan |
| Operation Talwar | 1999 | Naval support during Kargil |
| Operation Castor | 2004 | Maldives |
| Operation Sagar | 2020 | Maldives, Sri Lanka, and Mauritius |
| Operation Sagar Bandhu | 2025 | Sri Lanka |

## Small Modular Reactors (SMRs)

News: Russian nuclear company Rosatom is set to promote its small modular reactors (SMRs) for specific applications in India, while also positioning its new-generation nuclear projects as the foundation of bilateral energy cooperation.

**About Small Modular Reactors (SMRs)**




Source: iaea.org

- Small Modular Reactors (SMRs) are advanced nuclear reactors with a smaller power capacity (up to 300 MW(e) per unit) compared to traditional nuclear power reactors.
- They are designed to provide a more flexible, safe, and cost-effective solution for energy generation, with applications ranging from industrial use to providing power in remote regions.
- Features of SMRs
    - Small size: SMRs are compact and can be deployed in areas unsuitable for larger reactors.
    - Modular design: They are prefabricated and shipped as units, simplifying installation.
    - Scalability: SMRs can be deployed incrementally as energy demand increases.
    - Passive safety: They rely on natural processes like gravity and convection for safety.
    - Fuel efficiency: SMRs can operate for up to 30 years without refueling, compared to 1-2 years for conventional reactors.
- Advantages of SMRs
    - Cost-effective: SMRs are cheaper to build and maintain due to their smaller size and modular design.
    - Flexible deployment: They can be deployed in remote areas or regions with limited grid infrastructure.
    - Safety: Passive safety systems reduce the risk of accidents and radioactive releases.
    - Quick installation: The modular nature allows for faster deployment compared to traditional nuclear plants.
    - Environmental benefits: SMRs produce low-carbon energy, helping reduce greenhouse gas emissions.
    - Integration with Renewables: SMRs can complement renewable energy sources by providing stable, dispatchable power.
- Limitations of SMRs
    - Technology Choice: Numerous evolving SMR designs may lead to regulatory challenges and hinder cost optimization.
    - Finance: The SMR industry lacks large-scale fabrication facilities for serial manufacturing, requiring significant investment.
    - Licensing: New SMR technologies may struggle to fit within existing licensing frameworks.
    - Radioactive Waste: SMRs generate radioactive waste that requires storage and disposal.
    - Safeguards: A robust safeguards approach is necessary for new SMR technologies to ensure security and non-proliferation.

- Public Perception: Nuclear power faces public opposition due to fears of disasters.

**About India's Current Operational Nuclear Capacity**

- Targeted Nuclear Capacity Growth: India's nuclear power generation capacity is set to rise from 8,780 MW currently to 9,480 MW by the end of 2025-26.
- By 2029-30, the capacity will reach 13,480 MW and is expected to reach 21,880 MW by 2031-32 as ongoing and planned projects come online.
- Small Modular Reactors (SMRs) in India: Bhabha Atomic Research Centre (BARC) is developing next-generation SMRs: BSMR-200 (200 MW), SMR-55 (55 MW) and High-temperature gas-cooled reactors (up to 5 MW for hydrogen generation).
- SMRs like BSMR-200 and SMR-55 are planned for use in: Captive power plants for energy-intensive industries (e.g., aluminium, steel, and metal), repurposing retiring fossil fuel-based plants and Off-grid and remote location.

## Sakhir Declaration

**News:** The 46th GCC Summit in Manama concluded with the adoption of the Sakhir Declaration, reaffirming the commitment to deeper political, security, and economic integration.

**About Sakhir Declaration**

Source: DD News

- The Sakhir Declaration of the 46th Session of the Supreme Council of the Gulf Cooperation Council (GCC), held in Manama, Bahrain.
- It outlines several key principles and commitments aimed at enhancing the unity, security, and prosperity of the GCC member states.
- Key Commitment Under the Declaration
    - Strengthening integration among GCC states: Aiming for greater unity to promote regional stability, peace, and prosperity.
    - Respect for sovereignty and non-interference: Emphasizing non-interference in internal affairs and rejecting the use of force or threats. They highlighted the indivisibility of GCC security.

- Support for the Palestinian cause: Support for a just, lasting peace in the Middle East, particularly the two-state solution, with East Jerusalem as Palestine's capital, in line with international legitimacy.
- Economic development and technological advancement: Completing the GCC Common Market and Customs Union.
- Environmental responsibility: Commitment to addressing climate change, reducing carbon emissions, and advancing clean energy projects.
- Support for Bahrain in International Diplomacy: Support for Bahrain's role as a non-permanent member of the UN Security Council.

**About Gulf Cooperation Council (GCC)**

- It is a regional intergovernmental political and economic union established in 1981.
- Members: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and UAE
- Objective: To have coordination, integration and inter-connection between Member States in all fields, strengthening ties between their peoples, formulating similar regulations in various fields and encouraging cooperation of the private sector.
- Headquarters: Riyadh, Saudi Arabia.

## Indian Statistical Institute (ISI)

**News:** More than 1,500 academics are protesting the draft ISI Bill, 2025, which seeks to repeal the Indian Statistical Institute Act, 1959.

**About Indian Statistical Institute (ISI)**


Source – Times Now

- The Indian Statistical Institute is a national institution for statistics and related fields.
- Founded by: It was founded by Professor Prasanta Chandra Mahalanobis in 1931.
- Established as: It was established as a society under the Societies Registration Act.
- Nodal ministry: Ministry of Statistics and Programme Implementation (MoSPI)
- Headquarters: Its headquarters is in Kolkata with centres in Delhi, Bengaluru, Chennai, and Tezpur.
- Institution of National Importance: It was declared an Institution of National Importance through the Indian Statistical Institute Act, 1959.
- Aim: Its aim is to advance statistical research and provide academic training supporting national planning.

- Function: Its functions include research and training in statistics and related fields and conducting academic programmes.
- Governing structure
    - The highest decision-making body is a 33-member Council.
    - The Council includes elected members and government representatives.
    - The Director is appointed by the Council, and the institute has substantial autonomy in academics and administration.

**About Indian Statistical Institute Bill, 2025**

- Change in Status: The Bill aims to convert the ISI from its current status as a registered society into a statutory body corporate, aligning its legal and governance framework with other "Institutes of National Importance" like the IITs and IIMs.
- New Governing Body:
    - It proposes the creation of an 11-member Board of Governance (BoG) as the principal executive body, which would replace the current 33-member council.
    - The BoG would be largely composed of Central Government nominees.
    - Visitor's Role: The President of India would become the Visitor of the institute, with powers to order inquiries, review the institute's work, and remove the Director.
    - Academic Council's Role: The existing Academic Council, which currently has the final say in academic matters, would become an advisory body, with its recommendations subject to approval, modification, or rejection by the BoG.

## Reciprocal Exchange of Logistics Agreement (RELOS)

**News:** Russia has ratified the RELOS military pact with India ahead of President Putin's New Delhi visit.

**About Reciprocal Exchange of Logistics Agreement (RELOS)**


Source – Tatva News

- RELOS is an India–Russia arrangement to share logistics and support at each other's military facilities for troops, warships and aircraft during missions away from home bases.
- Scope of the Agreement
    - Military exchanges: It makes logistics easier for joint military exercises, training activities and warship visits to each other's ports.
    - Humanitarian assistance: It supports cooperation in humanitarian assistance and disaster relief (HADR) operations.

- Operational efficiency: It speeds up logistics procedures, facilitates mutual use of airspace and improves joint functioning, especially for the Indian Navy.

**India's Logistics Agreements with Various Countries**

- India and USA: India and the USA have Logistics Exchange Memorandum of Agreement (LEMOA) between them.
- India and France: India and France have a Logistics agreement covering joint exercises, port visits, humanitarian efforts and maritime intelligence sharing.
- India and Australia: India and Australia have a Comprehensive Mutual Logistics Support (MLSA), 2020.
- India and Japan: India and Japan have an Acquisition and Cross-Servicing Agreement (ACSA), 2020.

## Winter Olympics 2026

**News:** The Olympic flame was lit at Italy's presidential palace and began its nationwide relay for the 2026 Winter Games.

**About Winter Olympics 2026**


Source – IOC

- The 2026 Winter Olympics, formally the 25th edition of the Winter Olympic Games and widely referred to as Milano Cortina 2026.
- Hosted by: It is going to be held in northern Italy.
  - It will be the fourth Olympic competition hosted by Italy, after the Winter Games in Cortina d'Ampezzo in 1956 and Turin in 2006, and the Summer Games in Rome in 1960.
- Venues: The Games are co-hosted by Milan and Cortina d'Ampezzo, which are well-known winter sports locations.
- Motto: The motto of the Milano Cortina Olympics is "IT's Your Vibe." ("IT" referencing the host country)
- Mascot
  - The mascot for the 2026 Games is Tina, a white stoat.
  - Branding also includes "The Flo," six characters inspired by the snowdrop plant.
- Sports include: The Games will feature 116 events across 16 winter sports, with around 2,900 athletes from 90 countries expected to participate.
- New Events: A new sport, ski mountaineering (skimo), will make its Olympic debut.
  - It involves athletes climbing and descending mountainous terrain using specific skiing techniques.

- Status of Russian and Belarusian Athletes: Qualifying athletes from Russia and Belarus will participate under the designation "Individual Neutral Athletes," continuing a policy that began at the 2024 Paris Summer Games in response to the Russia-Ukraine War.
- India's Presence
    - Abhinav Bindra, India's first individual Olympic gold medallist, has been selected as a torchbearer.
    - Arif Khan has qualified in Slalom and may be India's sole athlete.

**About Winter Olympics**

- The Winter Olympics is a major international multi-sport event held once every four years for sports practiced on snow and ice.
- The first Winter Olympic Games were held in 1924 in Chamonix, France.
- Governing Body: The International Olympic Committee (IOC) is the governing body of this Olympic.

## Exercise Harimau Shakti-2025

**News:** Exercise Harimau Shakti-2025, the fifth India–Malaysia joint military exercise, began at Mahajan Field Firing Range in Rajasthan.

**About Exercise Harimau Shakti-2025**

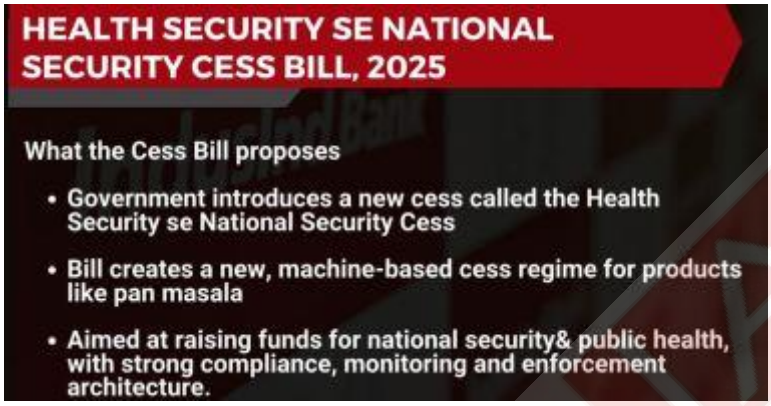

*Figure 8. Source – PIB*

- Exercise Harimau Shakti-2025 is a bilateral joint military exercise between the Indian Army and the Royal Malaysian Army.
- Origin: It has been conducted since 2012.
- Aim: The aim is to jointly rehearse sub-conventional operations under Chapter VII of the United Nations Mandate.
- 2025 Edition
    - Host: It is hosted at the Mahajan Field Firing Range in Rajasthan from 5 to 18 December 2025.
    - Participants: The Indian contingent consists of troops from the DOGRA Regiment and Malaysia is represented by the 25th Battalion Royal Malaysian Army.
    - Scope of Exercise Harimau Shakti-2025
        - Joint counter-terrorist operations: It covers joint counter-terrorist operations, including cordon-and-search, search-and-destroy missions and heliborne operations.
        - Training and tactical drills: Training includes Army Martial Arts Routine, combat reflex shooting, Yoga, securing helipads and casualty evacuation drills.
        - Interoperability and defence cooperation: The exercise improves interoperability, reduces risk to life and property, aligns with United Nations peacekeeping requirements and shares best practices and combat skills to deepen defence cooperation and bilateral relations.

# Health Security se National Security Cess Bill, 2025

**News:** Lok Sabha recently passed Health Security se National Security Cess Bill, 2025 which would levy a special cess on pan masala and use the fund for improving public health and strengthening national security.

**About Health Security se National Security Cess Bill, 2025**




Source – NDTV

- The Health Security se National Security Cess Bill, 2025 has been introduced to create a clear legal framework for a special excise cess.
- Intent: To tax pan masala based on production capacity, as it cannot be effectively included in the traditional excise system.
- Key provisions
- Cess framework: The cess will apply to machines installed or processes undertaken to manufacture specific goods (initially pan masala).
- Cess computation: The cess will be calculated based on machine capacity (e.g., pouches or tins per minute) or a flat rate for manual processes.
- Compliance Requirements:
    - Registration: Businesses must register and declare machinery or processes involved in the manufacturing.
    - Self-Declaration of Machinery / Process Parameters: Taxable person must submit self-declaration of machines/processes. Details declared may be verified or calibrated by the proper officer
    - Monthly Payments and Returns: The cess are to be paid monthly, with returns filed by the 7th of each month.
    - Abatement: If machines are inactive for 15+ days, a reduction in cess will apply.
- Monitoring and Enforcement: The Bill establishes a framework for scrutiny, audit, and inspection of manufacturing processes and machines.
- Appeals Process: A multi-tier appeal system allows businesses to challenge decisions, starting from the Appellate Authority to the Supreme Court.
- Penalties: Penalties for non-compliance include monetary fines, confiscation, imprisonment, and other enforcement actions.
- Revenue Use: The funds generated will be credited to the Consolidated Fund of India and used for activities related to national security and public health.
- GST Impact: The cess is separate from the Goods and Services Tax (GST) and will not impact GST revenues.

- Pan masala will continue to be taxed at a maximum 40% rate under GST based on consumption.

## Key Facts about Yellow Sea

**News:** Taiwan reported that China deployed warships from the Yellow Sea to the South China Sea, which Taiwan said created a regional threat.

**Key Facts about Yellow Sea**


*Figure 9. Source – World Atlas*

- The Yellow Sea is a marginal sea of the western Pacific Ocean.
- Naming: It derives its name from the yellow colour of its waters, which comes from large amounts of silt and sediment carried mainly by the Yellow River.
- Location: It is located between mainland China to the west and north, the Korean Peninsula to the east, and the Shandong Peninsula and Liaodong Peninsula to the south.
- Borders: It is bordered by China on the west, North Korea and South Korea on the east, the Bohai Sea on the north, and the East China Sea on the south.
  - It connects to the Bohai Sea through the Bohai Strait and to the open Pacific through the Korea Strait.
- Climate: The climate is marked by cold, dry winters and warm, wet summers, with seasonal winds shaped by the monsoon system.
- River inflow: Several rivers discharge into the sea, including the Yellow River, the Yangtze River, and the Yalu and Han Rivers, carrying heavy sediment and nutrients.
- Major Currents: The Yellow Sea has a warm current that forms a branch of the Kuroshio–Tsushima system.
- Important islands: The region contains many islands, including Jeju Island, the islands of the Shandong Peninsula and Ganghwa Island.
- Environmental challenges: Overfishing, pollution and coastal reclamation have damaged biodiversity, reduced intertidal zones, and affected bird migration routes and marine habitats.

## Mahad Satyagraha

**News:** Mahad was a key site of India's earliest rights movements, which helped lay the foundation for human rights discourse and influenced the development of constitutional ethics.

**About the Mahad Satyagraha**

Source: api.sci.gov.in

- The Mahad Satyagraha took place in March 1927 in Mahad, Maharashtra by Bhimrao Ramji Ambedkar.
- It was a protest against the discriminatory caste system and the denial of access to public water sources for Dalits.
- Triggering Event: The Bombay Legislative Council passed a resolution in 1923 that granted dalits the right to use public water sources, but it was not enforced due to opposition from upper-caste Hindus.
- Preparation for the Satyagraha: Ramchandra Babaji More, a Mahad-based Dalit leader, invited Ambedkar to preside over the conference.
    - Ambedkar mobilised local dalit leaders and worked to raise awareness and create a collective Dalit identity for the movement.
- Conference and March: The Mahad Conference on March 19-20, 1927 and focused on awakening the dalits and rejecting the old path of subjugation.
- Chavadar Tank Incident:
    - On March 20, Ambedkar and his followers marched to the Chavadar Tank, where dalits were prohibited from drawing water.
    - Ambedkar drank water from the tank, symbolizing the rejection of untouchability and caste-based discrimination.
- Mahad 2.0: In December 1927, Ambedkar announced another conference, which was officially called a Satyagraha.
    - A court injunction prohibited dalits from using the tank, but the satyagraha continued with nearly 4,000 participants.
    - However, Ambedkar decided to suspend the Satyagraha to avoid direct confrontation with the state, after consultations with the participants.
- Legacy of the Mahad Satyagraha
    - Foundational Event of the Dalit Movement: The Mahad Satyagraha is often referred to as the foundational event of the dalit movement.
        - It was the first organized, large-scale protest where the dalit community came together to assert their rights and demand equality.
        - This movement set the stage for further dalit struggles for justice and paved the way for a more inclusive national consciousness.

# Finfluencers

News: SEBI has directed Mumbai-based financial influencer Avadhut Sathe and his Avadhut Sathe Trading Academy to cease offering investment advice or research services, as they are not properly registered.

**About Finfluencers**


*Figure 10. Source: Forbes India*

- A finfluencer is a social media influencer who shares advice or information on financial topics such as saving, investing, budgeting, cryptocurrency, and wealth-building.
- They typically create short, engaging videos that simplify complex financial topics, but the content may lack depth or accuracy.
- Financial guidance provided by them may be influenced by sponsorships or paid promotions, which can bias their advice.
- Prominence: They have become increasingly prominent on social media platforms in recent years.
  - The global influencer market grew from $1.7 billion in 2016 to $21.1 billion in 2023, showing rapid expansion.
  - Young people are particularly influenced by finfluencers, with 25% of 18–24-year-olds using social media for financial guidance.
  - Approximately 20% of young adults in this age group make investment decisions based on social media recommendations.
- Risk associated with Finfluencers:
  - Many finfluencers lack formal financial qualifications and are not regulated to provide financial advice.
  - They may promote complex or risky financial products they do not fully understand.
  - Their income often depends on sponsored posts, referral fees, or paid promotions, which may not always be disclosed.
  - Misleading financial promotions can lead to significant financial losses and may even constitute criminal offenses.
- Regulation of Finfluencers in India:
  - SEBI is the primary regulator responsible for overseeing financial markets, intermediaries, and anyone providing investment advice including finfluencers.
  - Under recent amendments (2024), SEBI has explicitly brought unregistered finfluencers under regulatory scrutiny to prevent misleading advice and protect investors.
  - Only SEBI-registered individuals (RIAs, research analysts, investment advisers) can give financial recommendations or claim returns.

- SEBI-regulated entities (mutual funds, brokers, advisors) cannot associate with unregistered finfluencers.

## Technology Development Fund (TDF) Scheme

**News:** Defence Research and Development Organisation (DRDO) has handed over seven technologies developed under the Technology Development Fund (TDF) scheme to the three Services.

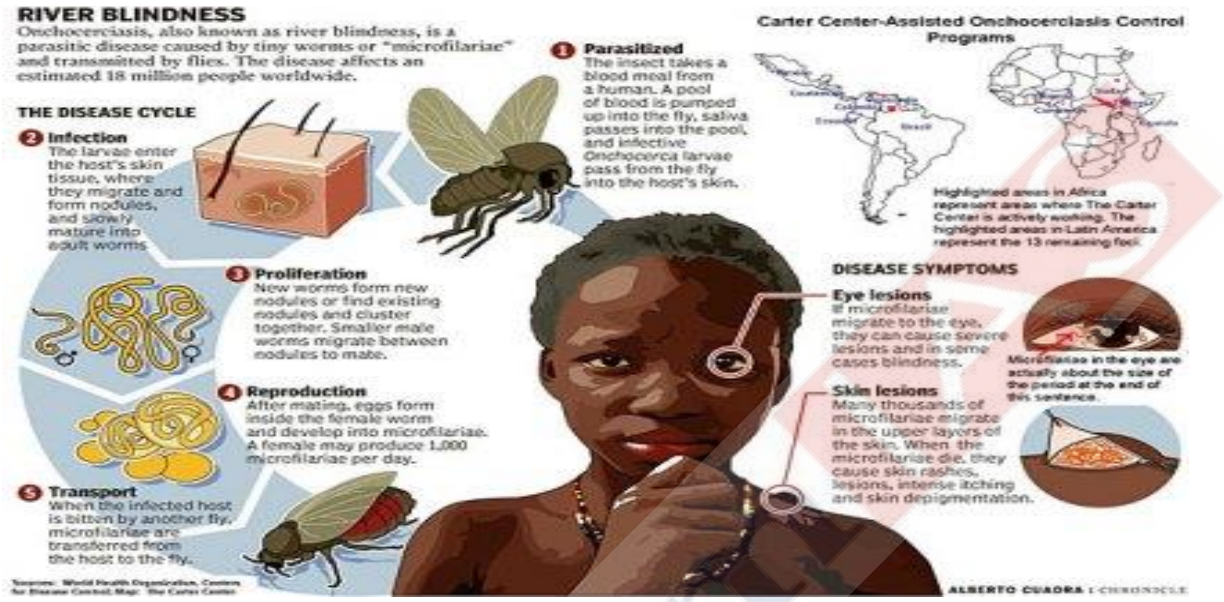
### About the Technology Development Fund (TDF) Scheme


- The Technology Development Fund (TDF) is established under the Make in India initiative to promote self-reliance in defence technology.
- Nodal Ministry: Ministry of Defence (MoD)
- Implemented by: Defence Research & Development Organisation (DRDO)
- The scheme supports the technological needs of the Tri-Services, defence production agencies, and DRDO.
- Purpose:
  - To empower Indian industry especially MSMEs and startups to innovate and develop advanced defence technologies.
  - To build a robust ecosystem that strengthens India's capability in cutting-edge defence manufacturing.
- Objective:
  - To accelerate India's path toward defence self-reliance by funding the development of indigenous technologies.
  - To offer grants-in-aid and additional benefits that help industries create modern defence solutions
- Vision: To establish an ecosystem that boosts advanced technology development for defence, aligning with the requirements of the Tri-Services, Defence Production, and DRDO.
- Mission: To foster self-reliance by enabling the creation of state-of-the-art indigenous defence systems and technologies.
- Project Duration: The maximum period allowed for completing a project under the scheme is 4 years.
- Focus Areas:
  - Major upgrades or new developments in existing defence products, processes, or applications.
  - Advancing technology readiness levels (TRL) from TRL 3 onward to full product realization.
  - Creation of futuristic or innovative technologies beneficial for defence use.
  - Development of indigenous substitutes for imported components lacking domestic technology.
  - Support is restricted to technologies or prototypes that have potential defence applications.

## Onchocerciasis

**News:** Niger becomes the first country in the African Region to eliminate onchocerciasis.

### About Onchocerciasis




Source: Midwivesrevisionuganda

- Onchocerciasis, or river blindness, is a parasitic disease caused by *Onchocerca volvulus*.
- It is the second leading infectious cause of blindness worldwide after trachoma.
- Transmission: The disease is transmitted to humans through repeated bites from infected blackflies of the *Simulium* genus, which are commonly found near fast-flowing rivers.
- Region Affected: Most affected populations live in rural areas of sub-Saharan Africa and Yemen, with smaller endemic regions in Latin America.
- Mode of transmission: Blackflies acquire microfilariae when they bite an infected person. These microfilariae develop inside the fly into infectious larvae over time.
    - When the infected blackfly bites another human, the larvae exit the fly and penetrate the skin to begin a new infection.
    - Infected individuals may present with no symptoms or may develop itchy rashes, eye disease, or palpable nodules under the skin.
    - Blindness typically occurs only after long-standing, intense infection.
- Diagnosis: Microscopic examination of skin snips is the most reliable method for diagnosing onchocerciasis.
- Prevention: There are no vaccines or medications that prevent infection with *O. volvulus*.
    - Prevention relies on avoiding blackfly bites through personal protective measures.
    - Using insect repellent, wearing long-sleeved clothing, and limiting exposure to riverside habitats can reduce the risk of infection.

## Hindu Rate of Growth

**News-** Recently, Prime Minister Narendra Modi said at the Hindustan Times Leadership Summit that the phrase "Hindu rate of growth" reflected a colonial mindset.

**About Hindu Rate of Growth**

It is a term that describes India's low economic growth rates from the 1950s to the 1980s, which averaged around 3.5%.

Term Coined By: It was coined by economist Raj Krishna in 1978.

Key Features

- It indicates low per-capita GDP growth, which also depends on population growth.

**Gross domestic product** (GDP) is the monetary value of all finished goods and services produced within a country's borders in a specific time period.

- It remained steady despite changes in governments, wars, famines and crises.

India Outgrew the Hindu Rate of Growth

- GDP growth data shows that India started exceeding the Hindu rate of 3.5% even before the 1991 crisis and reforms.
- While average GDP growth was about 3.4% between 1956 and 1975, it increased to 5.8% during the period from 1981 to 1991.

**Criticism**

- Colonial Mindset Interpretation: Prime Minister Narendra Modi said the phrase reflected a colonial mindset that linked India's slow growth to the faith and identity of its people and gave the entire civilisation a tag of unproductivity and poverty.
- Disparaging Cultural Stereotype: It was also used disparagingly, with connotations related to supposed attitudes of fatalism and contentedness.

## Right to Disconnect

**News-** The Right to Disconnect Bill 2025 was recently introduced in Lok Sabha by MP Supriya Sule to promote work–life balance.

**About Right to Disconnect**

- It is the right of workers not to engage in work-related activities or communications through digital tools (including smartphones, tablets, laptops, and desktop computers) or other communication tools outside working hours, without fear of punishment.

The right to disconnect aims to:

- Protect employee health: by addressing psychosocial risks, including stress and burnout.
- Ensure compliance with working hours: to reinforce designated working hours and necessary rest periods.
- Maintain work-life balance: helping employees safeguard their personal and family lives.

Legal framework: There is no specific law ensuring the right to disconnect in India Constitutional support: Article 38 promotes people's welfare, and Article 39(e) safeguards workers' health and strength.

Judicial view: Judgments such as Vishakha v. State of Rajasthan (1997) and Ravindra Kumar Dhariwal (2021) recognise dignity at the workplace and support reasonable accommodation for workers.

**About The Right to Disconnect Bill 2025**

- The Bill proposes company-level rules and protocols on after-hours communication.
  - It requires Employees' Welfare Committees for negotiation with staff.
  - It mandates penalties for companies violating the provisions.
  - It proposes digital detox centres and an Employees' Welfare Authority.

Right to Disconnect Around the World

- France was the first country to enact a formal right to disconnect law in 2017.
- Belgium has adopted rules requiring many employers to respect employees' right to disconnect after working hours.
- Argentina provides a legal right to disconnect for teleworkers outside agreed working hours and during leave.
- Portugal has passed protections that limit employers' after-hours digital contact with employees.
- Australia is the most recent country, adding a statutory right to disconnect through changes to the Fair Work Act in 2024.

## Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage (IGC)

News: India to host the 20th session of the UNESCO Intergovernmental Committee for Safeguarding of the Intangible Cultural Heritage from 8 to 13 December 2025 in New Delhi.

**About Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage (IGC)**

Source: PIB

- The Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage (IGC) was established under the framework of the 2003 UNESCO Convention for the Safeguarding of Intangible Cultural Heritage.
- Elections for the Committee are held during the General Assembly of the States Parties to the Convention, ensuring equitable geographical representation and rotation of members.
- The Committee consists of 24 elected representatives from the States Parties to the Convention.

- Currently, India is one of the 24 Member States, serving on the Committee.
- Term of office: States Members to the Committee are elected for a term of four years, and every two years, the General Assembly shall renew half of them.
  - A State Member of the Committee may not be elected for two consecutive terms.
- Bureau Members
  - Chairperson: Ambassador, Permanent Delegate of the Republic of India to UNESCO
  - Vice-Chairpersons: France, Slovakia, Barbados, Ethiopia, and Mauritania
  - Rapporteur: Ms. Aysha Kamali, United Arab Emirates
- Functions:
  - Promotes and Monitors the Objectives of the 2003 Convention: The committee actively works to promote the principles and objectives of the 2003 Convention for safeguarding intangible cultural heritage.
    - It monitors the effective implementation of the Convention's principles across different Member States.
  - Provides Guidance and Recommendations: The committee guides States Parties on best practices for the safeguarding of intangible cultural heritage.
  - Oversees the Intangible Cultural Heritage Fund: It prepares and submits the draft plan for the use of the Intangible Cultural Heritage Fund to the General Assembly.
  - Drafts Operational Directives: The committee drafts and proposes operational directives for the implementation of the 2003 Convention, ensuring practical application across Member States.
  - Examines Reports from States Parties: The committee examines the periodic reports submitted by States Parties, reviewing their progress in safeguarding intangible cultural heritage.
  - Evaluates Requests from States Parties: The committee evaluates various requests from States Parties related to the safeguarding of intangible cultural heritage, including: Inscription of cultural elements on the UNESCO ICH Lists (as per Articles 16, 17, and 18) and granting of international assistance to help preserve intangible cultural heritage.

## Hoolock Gibbon

News: A family of stranded Hoolock gibbons was rescued following a difficult four-day operation in Horu Pahar village, located in the Lower Dibang Valley district of Arunachal Pradesh.

**About Hoolock Gibbon**


Source – Wikipedia

- Hoolock gibbons are primates and fall under the category of apes, which are evolutionarily closest to humans.
- It is also known as the White-Browed Gibbon.
- Scientific name: *Bunopithecus hoolock*.
- They are the only ape species found in India.
- Habitat: They thrive in tropical semi-deciduous and tropical deciduous forest.
    - They prefer to live in three-tier canopies (high, middle, and low), which offer shelter, food, and suitable trees for movement.
- Distribution: The Hoolock gibbon is found in northeast India, Bangladesh, Myanmar, and southern China.
    - In India, it inhabits the regions south of the Brahmaputra River, including states such as Assam, Meghalaya, Arunachal Pradesh, Mizoram, Nagaland, Manipur, and Tripura.
    - According to Zoologists, Northeast of India houses two species of the ape — the eastern hoolock gibbon (Hoolock leuconedys) found in a specific region of Arunachal Pradesh and the western hoolock gibbon (Hoolock hoolock) distributed elsewhere in the Northeast.
- It is considered a keystone species, meaning its presence is vital for the health of the ecosystem
- Physical Characteristics
    - It exhibits sexual dichromatism: Adult males have black coats with prominent white eyebrows, while adult females have a golden, buff, or brownish coat.
    - Size and Weight: The head and body length ranges from 45.7–63.0 cm, and the weight of males is between 6.1–7.9 kg, while females weigh between 6.0–6.6 kg.
    - Hoolock gibbons are known for their territorial songs, which are loud, elaborate duets sung by both males and females.
- Diet: The Hoolock gibbon is primarily frugivorous, feeding on fruits, leaves, flowers, tender buds, and insects.
- Threats: The Hoolock gibbon faces significant threats due to habitat fragmentation, largely caused by deforestation and agricultural activities like jhuming.
    - Poaching for meat and medicinal purposes is a major threat to the species.

## National Song (Vande Mataram)

**News:** Prime Minister Narendra Modi initiated a discussion in the Lok Sabha to mark the 150th anniversary of the National Song, Vande Mataram.

**About National Song (Vande Mataram)**

Source – NewsOnAir

- Composition: Vande Mataram was originally composed in Sanskrit by *Bankimchandra Chatterjee* and included in his novel *Anand Math (1882).*
- First Sung: The song was first sung at the *1896 session of the Indian National Congress in Calcutta* by *Rabindranath Tagore.*
- Adoption: On *24 January 1950*, the Constituent Assembly officially adopted it as the National Song of India.
- Constitutional Aspect: Although *Article 51A(a)* of the Constitution enjoins citizens to respect the Constitution, its ideals and institutions, the National Flag, and the National Anthem, it does not make specific mention of the National Song.
- Difference between National Anthem and National Song
    - The National Anthem enjoys specific constitutional privileges and legal protection. According to Article 51A(a) of the Constitution of India, it is the fundamental duty of every citizen to respect the National Anthem.
    - Violations of this respect can lead to penalties, as outlined in the Prevention of Insults to National Honour Act, 1971.
    - The Orders relating to the National Anthem regulate the correct manner in which the Anthem should be played or sung.
    - The National Song, on the other hand, does not have such explicit legal protection in the Constitution.
        - While it holds national significance, it is not subject to the same detailed set of regulations and punishments as the National Anthem.

## Washington Accords for Peace and Prosperity

News: The Democratic Republic of the Congo and Rwanda recently signed the Washington Accords for Peace and Prosperity during a meeting hosted by President Donald J. Trump.

**About Washington Accords for Peace and Prosperity**

Source – US State Deptt.

- The Democratic Republic of the Congo–Rwanda peace agreement is officially known as the Washington Accords for Peace and Prosperity.
- Signed on: It was signed on December 4, 2025, in Washington, D.C.
- Facilitated by: The Accords were officially facilitated by the U.S.A.
- The Washington Accords for Peace and Prosperity is a instrument that reinforces commitments to end decades of conflict, promote cooperation, and build lasting peace between the DRC and Rwanda.
- The agreement also aims to achieve the vision of the Regional Economic Integration Framework (REIF) to create a bold roadmap for peace, security, and unprecedented economic growth.
- Background: It builds on preliminary deals from June 2025, mediated by the US, Qatar, and the African Union, aiming to end decades-long conflict in eastern DRC involving Rwandan-backed M23 rebels and Congolese-supported FDLR militia.

**About Regional Economic Integration Framework (REIF)**

- The DRC and Rwanda signed the Regional Economic Integration Framework (REIF).
- It is a bilateral initiative that unlocks the vast economic potential of the Great Lakes region and creates opportunities for the U.S. private sector.

**Key Facts about Benin**

News: Recently, Benin's President Patrice Talon addressed citizens after forces in Cotonou foiled a coup attempt by soldiers called the Military Committee for Refoundation.

**Key Facts about Benin**

Source – Britannica

- Location: Benin is a country in western Africa that extends northward from the Gulf of Guinea to the Niger River.
- Capital: The official capital is Porto-Novo, while Cotonou is the largest city, chief port, and de facto administrative capital.
- Boundaries
    - Land boundaries: Benin is bordered by Nigeria to the east, Togo to the west, Burkina Faso to the northwest, and Niger to the northeast.
    - Maritime boundary: It has a coastline on the Bight of Benin, which is part of the Gulf of Guinea in the Atlantic Ocean.
- Climate: It features tropical savanna climate.
- Important Rivers: The Niger River and its tributaries drain the northeast, while the Mono, Couffo and Ouémé are the main southern rivers.
- Relief Features
    - Barre Country: The barre country is a fertile clay plateau that includes the large swampy Lama Marsh and has mostly flat land with occasional hills rising to about 1,300 feet.
    - Benin Plateaus: The Benin plateaus consist of four plateaus ( Abomey, Kétou, Aplahoué, and Zagnanado ) made of clays over a crystalline base.
    - Atakora Mountains: The Atakora Mountains in the northwest form a continuation of the Togo Mountains.

## United Nations Environment Programme (UNEP)

News: The political battle over the UN Environment Programme's (UNEP) Medium-Term Strategy (MTS) will dominate the opening of the seventh UN Environment Assembly (UNEA-7) in Nairobi.

**About United Nations Environment Programme (UNEP)**


Source – UNEP

- UNEP is the UN's leading global authority on environmental issues, focusing on addressing the triple planetary crisis: climate change, nature, land and biodiversity loss, and pollution and waste.
- Founded in: 1972
- It serves as a neutral convener of governments, civil society, private sector, and UN agencies to address global environmental challenges.
- Mission: To provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations.
- Governed by: United Nations Environment Assembly (UNEA), the highest-level decision-making body on the environment.
- Membership: 193 Member States. UNEP collaborates with a wide range of partners, including Member States, private sector, UN agencies, NGOs, and civil society to tackle environmental challenges.
- Headquarters: Nairobi, Kenya
- Funding: UNEP relies on voluntary contributions for more than 95% of its funding, including contributions from Member States, the private sector, global funds, and UN agencies.
    - UNEP's core funding comes from the Environment Fund, which is exclusively financed by Member States.
    - It manages three Planetary Funds: UNEP Climate Fund, UNEP Nature Fund and UNEP Pollution Fund
- Function:
    - Catalyzing Global Action: UNEP promotes solutions to the triple planetary crisis (climate change, biodiversity loss, and pollution) and drives global environmental action.
    - Promoting Sustainability: UNEP encourages sustainable practices to help humanity live in harmony with nature, supporting the achievement of the Sustainable Development Goals (SDGs).
    - Scientific Research and Advocacy: UNEP conducts scientific research, provides policy advice, and advocates for environmental change to influence global decision-making.
    - Leadership in Environmental Agreements: UNEP leads global efforts on key issues such as climate change, deforestation, and ozone layer protection through international agreements.

- Partnerships and Capacity Building: UNEP fosters global partnerships, mobilizes funding, and provides technical support to countries and organizations to enhance environmental governance and sustainability.

- Reports Published by UNEP
  - Emissions Gap Report
  - Adaptation Gap Report
  - Global Environment Outlook (GEO) Report
  - Frontiers Report
  - Global Chemicals Outlook
  - Global Waste Management Outlook

## Fonio (Digitaria exilis) and Sikiya (Digitaria sanguilanis)

News: Fonio and Sikiya are discussed because both are wild millets valued by rural and tribal communities but face different levels of recognition.

**About Fonio (Digitaria exilis)**


Source – DTE

- Location: Fonio is an ancient and widely cultivated cereal in the dry savannas of West Africa (e.g., Guinea, Nigeria, Senegal).
- Properties
  - It is known as one of the world's fastest-growing cereals, maturing in as little as 6 to 8 weeks.
  - It is highly valued for its ability to grow in poor, semi-arid soils where other cereals fail.
- Nutrient Value
  - It is rich in protein, iron, zinc, magnesium, vitamin B6, fibre, calcium, copper, and folate, and contains amino acids such as methionine and cysteine.
  - It is gluten-free and has a low glycemic index.
- Significance: It has potential to improve nutrition, boost food security, and support sustainable land use in climate-vulnerable regions.

**About Sikiya (Digitaria sanguinalis)**

- Sikiya is a wild millet from the crabgrass family that grows in the Dindori district of Madhya Pradesh.

- It is also called the Polish millet, as farmers in Poland grow and eat this millet and use it as fodder, and it is also grown in Germany.
- Grain appearance: In appearance, its grains—light yellow in colour—are smaller than those of little millets. "It is more filling than rice
- Community preference: It is a favourite food of the Baiga tribe.
- Growth and cultivation pattern: Sikiya grows naturally in traditional bewar cultivation, which is a slash-and-burn farming method.
    - It re-grows from its rootstock during the monsoon because this system allows natural regeneration.
- Status in Official Promotion: It does not even feature in the list of millets being promoted by the Centre as "nutri cereals".

**Key Similarities Between Both**

- Both are wild millets from the crabgrass family and serve as preferred foods for rural and tribal communities.
- Both are climate-resilient grains that support local food security.
- Both highlight the importance of preserving indigenous food systems through local cultivation and seed conservation.

## Bankim Chandra Chattopadhyay

News: Prime Minister Narendra Modi's remarks on the 150th anniversary of Vande Mataram highlighted how Bankim Chandra Chattopadhyay's powerful song became a rallying cry for India's freedom movement against British colonial rule.

**About Bankim Chandra Chattopadhyay**


Source: news18.com

- Bankim Chandra Chattopadhyay was born on June 27, 1838, in North 24 Parganas, Bengal, into a family with strong intellectual roots.
- Early life: He became one of the first two graduates of the newly established Calcutta University in 1858, earning degrees in arts and law. Following his graduation, he joined the colonial administration as a deputy collector in Jessore.
- Literary Contribution: Bankim initially wrote in English, but he soon switched to Bengali, believing that a national awakening in India could only be achieved through a language connected to the people.

- His early novels Durgeshnandini (1865) and Kapalkundala (1866) were successful and established him as a significant voice in Bengali literature.
- In 1872, Bankim founded the literary journal Bangadarshan, which played a crucial role in the Bengal Renaissance.
- Bankim's novel Anandamath, published in 1882, was inspired by the Sanyasi–Fakir rebellion of the 18th century.
- The poem Vande Mataram, embedded in Anandamath, became a rallying cry for India's independence movement.
- It was banned by the British, but Vande Mataram spread rapidly and became a symbol of resistance.

- Role in India's National Movement
  - Vande Mataram became an anthem for the Swadeshi movement during the 1905 partition of Bengal, symbolizing unity and national pride.
  - The poem was popularized by Rabindranath Tagore, who set it to music, and was later adopted as India's national song by the Constituent Assembly in 1951.
- Cultural and Intellectual Influence
  - Bankim was a cultural critic who rejected the colonial portrayal of India's history, arguing that India's legacy could not be defined by invaders or foreign rulers.
  - He sought to revive India's indigenous traditions and believed that Eastern and Western ideas could coexist without erasing India's cultural foundations.
- Philosophical Views
  - Bankim believed that India's identity was rooted in its civilisational heritage, not just political boundaries. He emphasized the importance of a shared memory, language, and devotion to the motherland.
  - He viewed Vande Mataram as a way to unite Indians emotionally and create a collective national identity, transcending regional, caste, and class divisions.
- Legacy and Recognition
  - Bankim's contributions to Bengali literature earned him the title of Sahitya Samrat (Emperor of Bengali Literature).
  - His works, including Anandamath, continued to influence generations of writers and thinkers, and were later adapted into films and other media.
- Bankim Chandra Chattopadhyay passed away on April 8, 1894, at the age of 55.

## Indian Constituent Assembly

News: On 9 December 2025, the nation marks the 79th anniversary of the first meeting of India's Constituent Assembly, a historic moment that laid the foundation for the Indian Republic.

**About Indian Constituent Assembly**


- The Constituent Assembly was created in 1946 through the British Cabinet Mission Plan.
- It was tasked with drafting the Constitution for independent India, as part of the anti-colonial freedom movement.
- Origin: The concept of a Constituent Assembly was first proposed by M.N. Roy in 1934, long before India gained independence.
    - It gained momentum when the Indian National Congress officially demanded it in 1935.
    - The British government eventually agreed to the demand in the August Offer of 1940, and the Cabinet Mission Plan of 1946 further detailed the structure of the Assembly.
- The Constituent Assembly first convened on 9 December 1946, marking the beginning of the journey to create a free and democratic India.
- Composition: The Constituent Assembly initially had 389 members as per the Cabinet Mission Plan. 296 members were from the provinces and 93 were from the princely states.
    - Following the Partition in 1947, the Assembly's membership reduced to 299. 229 members represented the 12 British Indian provinces.
    - 70 members represented the Princely States and 6 members represented backward tribes.
- Allocation of seats in the Constituent Assembly: Seats were allocated based on population and community, ensuring representation for different groups, including Hindus, Muslims, Sikhs, and others.
- Notable Members: Dr. Rajendra Prasad was elected President of the Constituent Assembly.
    - Dr. B.R. Ambedkar played the most crucial role as Chairman of the Drafting Committee.
    - Other significant leaders included Jawaharlal Nehru, Sardar Vallabhbhai Patel, Maulana Abul Kalam Azad, K.M. Munshi, and Alladi Krishnaswami Ayyar.
    - 15 women members, including Hansa Mehta, Rajkumari Amrit Kaur, and Dakshayani Velayudhan.

- Dominated by upper-caste members, but also had significant Dalit representation, notably B.R. Ambedkar and others like S. Nagappa and Dakshayani Velayudhan (the only Dalit woman in the Assembly).
- Political Affiliation: Around 80% of members were elected on a Congress ticket.
- The Assembly had members from across the political spectrum, including socialists like K.T. Shah, conservatives like Syama Prasad Mookerjee (Hindu Mahasabha), and liberals like Minoo Masani.

- How were the members of the Constituent Assembly elected?
  - Members were indirectly elected by the Provincial Legislative Assemblies, which had been elected under the Government of India Act, 1935.
  - The election was conducted using proportional representation through the single transferable vote system.
- Duration and Sessions: The Constituent Assembly first convened on 9 December 1946. It took 2 years and 11 months to draft the Constitution, with 11 sessions and a total of 166 days of deliberations.
- Committees and Plenary Sessions: The drafting of the Constitution occurred at two levels:
  - Committees: Smaller groups tasked with drafting specific sections of the Constitution.
  - Plenary Sessions: The full Assembly met to discuss the reports of various committees, propose and vote on amendments.
- Adoption of the Constitution: The Constitution of India, 1950 was adopted after extensive deliberations and amendments.

## Charaichung Royal Bird Sanctuary

News: The Charaichung Festival was organised on Majuli Island in Assam to revive and conserve the nearly defunct Royal Bird Sanctuary and promote its global recognition.

**About Charaichung Royal Bird Sanctuary**

Source – Northeast Live

- Charaichung Royal Bird Sanctuary is Asia's first protected bird sanctuary.
- Established in: It was established in 1633 AD by Ahom king Swargadeu Pratap Singha.
- Location: It is located in Majuli, world's largest river island (inside Brahmaputra River), in state of Assam.
- Ecological Significance: It holds nearly 150 varieties of indigenous and migratory birds, making their protection and conservation extremely important.

**About Charaichung Festival**

- The festival is organised by a Majuli-based non-governmental organisation (NGO) "Majulir Sahitya" and people from the local community.
- Aim: The festival aims to place Charaichung on the global map, restore its bird habitat, and promote it as a tourism destination.

**About Majuli Island**

- Location: Majuli Island is located on the Brahmaputra River in Assam.
- It is the largest river island in the world.
- It is formed by the Subansiri River in the north and the Brahmaputra River in the south.
- Tribes: Majuli is home to three main tribes: Mishing, Deori, and Sonowal Kachari.

Note: For more information on Majuli Island read this article here

## Miyako Strait

**News:** Japan has scrambled jets to monitor Russian and Chinese air forces conducting joint patrols around the Miyako Strait, amid rising tensions between Tokyo and Beijing.

**About Miyako Strait**

Source – Strait Times

- Location: The Miyako Strait is a 250 km-wide maritime passage of international waters and airspace between Miyako Island and Okinawa Island in Japan's Ryukyu archipelago.
- It is also known as the Kerama Gap.
- It is the widest strait in the Ryukyu Islands.
- Connecting: It is connecting the East China Sea with the Pacific (Philippine Sea).
- It is vital for freedom of navigation, maritime security, and monitoring naval movements in the Indo-Pacific region.
- Geopolitical significance
    - It provides a deep, navigable route from the East China Sea to the open Pacific.
    - It is one of the few international waterways for China's People's Liberation Army Navy to access the Pacific Ocean from the East China Sea.

- In news: It has become an issue between Japan and China

## Pass-Through Tax Status

**News:** Asset reconstruction companies (ARCs) have urged the government to extend pass-through tax status to alternative investment funds (AIFs) investing in security receipts (SRs).

**About Pass-Through Tax Status**

Source – ET

- Pass-through status is a tax rule where the business or fund itself does not pay corporation tax on its income.
- Normally, the same income can be taxed twice – once as corporation tax at the firm level and again when it is received by shareholders or investors.
- Working mechanism: Under pass-through status, the income generated by the fund (Pass-Through Entities) is taxed only in the hands of the investor, and the fund (Pass-Through Entities) does not pay tax on that same income.
- Purpose: This system is used so that income is not taxed twice – it avoids tax at both the fund level and again at the investor level for the same amount.
- Examples of Pass-Through Entities: Examples include sole proprietorships, S corporations, master limited partnerships, limited liability partnerships, and limited liability companies.
- Indian Context:
    - In 2014, the Union Budget allowed Real Estate Investment Trusts (REITs), which are pooled vehicles for investing in real estate, to have pass-through status.
    - Asset Reconstruction Companies (ARCs) are currently subjected to a steep 42.74% maximum marginal tax on income from Security Receipts (SRs) at the fund level.
    - This high tax rate is viewed as a deterrent to investment in ARC trusts.

## Global Environment Outlook (GEO)

News: The UN Environment Programme (UNEP) has released the seventh edition of its flagship Global Environment Outlook (GEO).

**About Global Environment Outlook (GEO)**

Source – UNEP

- The Global Environment Outlook (GEO) evaluates the state of the global environment and identifies emerging risks and sustainability pathways.
- Released by: United Nations Environment Programme (UNEP)
- GEO synthesizes multidisciplinary scientific research from experts worldwide to provide policymakers with actionable insights for addressing climate change, biodiversity loss, pollution, and other environmental challenges.
- 2025 Edition: It is the 7th edition of GEO.
- Key Findings
    - Climate change, biodiversity loss, land degradation, pollution, and waste: These are escalating simultaneously across the planet, collectively pushing the world into "uncharted territory."
    - Unsustainable Production and Consumption are the Root Cause: These unsustainable systems undermine human well-being and result in trillions of dollars in annual economic losses.
    - Environmental Degradation Has High Economic Costs: The loss of ecosystem services, increasing climate impacts, and pollution-related health burdens significantly reduce global economic productivity.
    - Transformation Is Technically and Economically Feasible: Such a transformation could generate approximately USD 20 trillion per year by 2070 and up to USD 100 trillion per year in the long term.
    - Current Policy Actions Are Insufficient: The report concludes that incremental changes will not be enough to reverse ongoing environmental decline.
    - Global Inequalities Amplify Environmental Pressures: Access to clean energy, clean water, and sustainable food remains deeply uneven across countries and communities.
    - Need for Stronger, Integrated Action: The findings demonstrate that global environmental pressures require stronger, integrated, and coordinated action to prevent further ecological and socio-economic harm.
- Key Recommendations
    - Transform Economic and Financial Systems
    - Accelerate Circular Economy Transitions

- Rapid Decarbonization of the Energy System
- Transform Food and Land-Use Systems
- Protect and Restore Ecosystems and Biodiversity
- Advance Integrated, Whole-of-Society Approaches
- Regional Customization of Solutions

## UNESCO's inscription of Deepavali on the Intangible Cultural Heritage list

**News:** India's Deepavali festival has been added to UNESCO's Representative List of the Intangible Cultural Heritage of Humanity.

**About UNESCO's inscription of Deepavali on the Intangible Cultural Heritage list**

Source: Livemint

- UNESCO has inscribed India's nomination for Deepavali (Diwali), the "festival of light," onto the Representative List of the Intangible Cultural Heritage of Humanity for 2025.
- This decision was taken during a key meeting of UNESCO held at the Red Fort in New Delhi.
- The inscription follows earlier recognitions such as Garba from Gujarat and Durga Puja from West Bengal.
- Implications of the Inscription for Deepavali:
  - The inscription enhances the international recognition and status of Deepavali as a living cultural expression.
  - UNESCO's Intergovernmental Committee provides guidance on best practices, recommends measures for safeguarding the tradition, and mobilises resources through the Intangible Cultural Heritage Fund.
  - The recognition is expected to strengthen cultural exchanges, boost tourism, and enhance the festival's global visibility.
  - The listing also supports sustainable livelihoods, especially for artisans who help keep Diwali's traditions alive.
  - India's pitch for Diwali's inclusion also aims to reach the Indian diaspora, reinforcing cultural ties across borders.

**About Intangible Cultural Heritage**

- Intangible Cultural Heritage refers to living traditions, skills, and expressions passed down through generations.

- Unlike tangible heritage such as monuments or archaeological sites, intangible heritage comprises oral traditions, performing arts, social practices, rituals and festivals, nature-related knowledge, and traditional craftsmanship.
- These elements are valued because they strengthen cultural identity, diversity, and community continuity.
- India's Current Presence on the List
    - UNESCO's Intangible Cultural Heritage List currently contains around 700 elements from 140 countries.
    - With the addition of Deepavali, India now has 16 elements included on the list.
    - India's existing inscriptions include Kumbh Mela, Durga Puja of Kolkata, Garba of Gujarat, yoga, the Vedic chanting tradition, and Ramleela.
- Criteria for an Element to Be Listed
    - UNESCO requires intangible cultural heritage elements to be inclusive, representative, and community-based in order to qualify for listing.
    - The organisation emphasizes that such practices should express shared identity and collective memory.
    - A noted example is UNESCO's earlier inclusion of the "artisanal know-how and culture of baguette bread" as an element representing France's daily ritual and cultural conviviality.
    - UNESCO underscores the urgency of safeguarding diverse social histories in a globalised and conflict-ridden world, especially those at high risk.

Note: To know more about Intangible heritage list, click here

## Penguins

**News:** New scientific research has revealed that the overexploitation of sardines off southern Africa directly contributed to the deaths of more than 60,000 African penguins.

**About Penguins**


Source: eBird

- Penguins are flightless marine birds that belong to the order Sphenisciformes.
- They consist of approximately 18–21 species that inhabit only the Southern Hemisphere.
- Most penguin species live between 45° and 60° south latitude rather than in Antarctica.
- The Galapagos penguin is the only penguin species that lives at the Equator.
- Physical Characteristics
    - Penguins have stocky bodies and short legs that make them well adapted for swimming rather than flying.

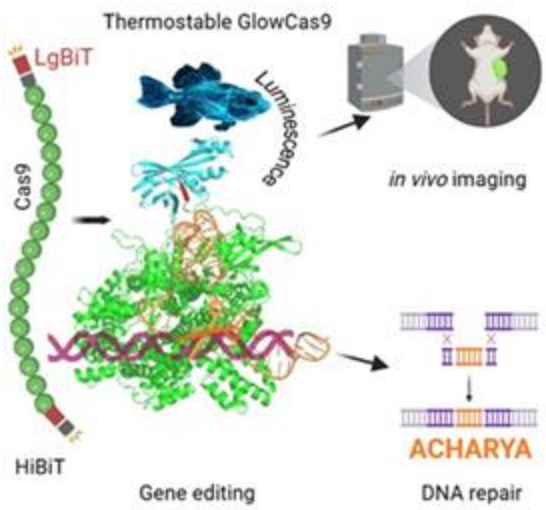
- Their height ranges from about 35 cm in the small blue penguin to 115 cm in the emperor penguin.
- Their weight ranges from about 1 kg in small species to as much as 40 kg in the emperor penguin.
- Penguins are typically black on their backs and white on their bellies, which provides effective aquatic camouflage.
- Some penguin species display additional colors such as red or yellow eyes, red feet, yellow eyebrow tufts, or orange patches.

- Adaptations:
  - Penguins use their flipper-like wings to propel themselves efficiently through the water.
  - Their dense feathers and thick layers of fat help them to maintain body heat in cold marine environments.
  - Many penguins can dive to significant depths, with emperor penguins diving as deep as 550 metres.
- Diet: They primarily feed on krill, fish, and squid found in marine ecosystems.
- Notable Species:
  - The emperor penguin is the largest penguin species and is known for breeding during Antarctica's harsh winter.
  - The king penguin has vibrant orange markings and forms large breeding colonies.
  - Rockhopper penguins are recognized by their red eyes, yellow eyebrow feathers, and distinctive head crests.
  - Royal penguins form one of the world's largest colonies on Macquarie Island but remain vulnerable due to their restricted breeding range.
- Threat: Climate change poses a major threat to penguins by altering sea ice patterns and reducing food availability.
  - Overfishing by humans can diminish the fish stocks that penguins depend on for survival.

## GlowCas9

News: Indian scientists have created a glowing CRISPR protein that can be observed in action within living cells. It is a groundbreaking development that could greatly enhance cancer treatment and other gene-based therapies.

**About GlowCas9**




- GlowCas9 is a new CRISPR protein created by scientists at the Bose Institute in Kolkata.
- It is engineered to produce light during gene editing, enabling scientists to track the process inside living cells.
- Mechanism of Action:
    - It is a bioluminescent version of the Cas9 protein, developed by fusing Cas9 with a split nano-luciferase enzyme derived from deep-sea shrimp.
    - These nano-luciferase enzyme pieces are inactive until Cas9 folds correctly.
    - When the pieces come into proximity, they reassemble, restoring enzymatic activity and producing a visible light signal, similar to the glow of fireflies.
- Advantages of GlowCas9:
    - It provides a way to observe gene editing in real-time without harming cells.
    - The bioluminescence allows tracking of the gene-editing process in living cells, tissues, and even plant leaves.
    - GlowCas9 is more stable than conventional Cas9 and can maintain its structure and activity at higher temperatures. This increased stability is important for gene therapy, ensuring effective delivery of the Cas9 protein for treatment.
- Application:
    - Gene Therapy Implications: GlowCas9 can aid in gene therapy by improving the precision of homology-directed repair (HDR), which is essential for fixing hereditary mutations linked to diseases like sickle cell anemia and muscular dystrophy.
    - Applications in Crop Improvement: The technology is also applicable to plant systems, suggesting potential non-transgenic applications in crop improvement.

## National Hub for Quantum Communication

**News:** The Indian Institute of Technology, Madras (IITM), launched the IITM C-DOT Samgnya Technologies Foundation, which will serve as India's National Hub for Quantum Communication.

**About the National Hub for Quantum Communication**

Source: Communicationstoday

- The National Hub for Quantum Communication was established under the IITM C-DOT Samgnya Technologies Foundation.
- The Foundation is located at the IIT Madras Research Park.
- Objectives: The Foundation will lead India's efforts in quantum secure communication technologies and their deployment.
- Key Focus: Its key focus areas include:
    - Quantum Cryptography and Post-Quantum Security
    - Quantum Key Distribution (QKD) Networks
    - Quantum Memory and Repeaters
    - Satellite-based Quantum Communication
- Collaboration and Partnerships: The initiative will foster collaboration between academia, industry, and global partners to advance research and implementation in quantum communication.
- Expectations and Goals: The Foundation aims to develop cutting-edge technologies and products within five years, positioning India as a leader in quantum secure communications.
    - The focus will be on practical implementations, including pilot deployments of quantum communication technologies.
    - The establishment of the National Hub for Quantum Communication underscores India's commitment to becoming a global leader in quantum technologies, particularly in secure communication systems.

**About National Quantum Mission**

- The National Quantum Mission aims to advance quantum computing, quantum communication, quantum sensing and metrology, and quantum materials.
- It seeks to build a strong national ecosystem encompassing research and development, infrastructure creation, startup enablement, and human-resource development.
- The Mission aligns with India's national goals of technological self-reliance, strategic capability building, and global leadership in critical and emerging technologies.

## Project Suncatcher

News: Google announced Project Suncatcher, which aims to launch AI chips into space via solar-powered satellites.

**About Project Suncatcher**

Source: medium.com

- Project SunCatcher is Google's initiative to move AI computation from Earth into orbit using satellite-based compute clusters.
- Aim: The project aims to address the rising energy demands of AI systems by leveraging the Sun's abundant and uninterrupted energy in space.
- Partnerships: Google will launch two prototype satellites in partnership with Planet Labs, an Earth imaging company, by early 2027.
- Features of the project:
    - The project will use satellites with advanced technology to scale AI computations.
    - Google proposes deploying satellites equipped with solar panels and Trillium TPUs to create distributed data centres in low-Earth orbit.
    - These satellites would use direct solar energy in space, eliminating the limitations caused by night cycles, weather, and atmospheric interference on Earth.
    - The system envisions approximately eighty satellites flying in a tight one-kilometre formation to maintain high-bandwidth communication links.
    - Satellite Payload: Each satellite would carry solar arrays, compute hardware, and optical laser communication systems to form a cohesive processing network.
    - Laser Communication: Communication between satellites would occur via free-space lasers using Dense Wavelength Division Multiplexing, allowing data transfer rates of up to ten terabits per second per link.
    - Formation Control: Machine-learning-based control systems may assist in keeping satellite clusters stable despite gravitational and atmospheric disturbances.
- Advantages:
    - Climate Concerns: Earth-bound data centers contribute to water depletion and high energy usage, increasing environmental impact.
    - Power Outages & Natural Disasters: Space offers more predictable climate conditions, free from issues like power outages or natural disasters.

- Data Sovereignty: Space offers a solution for data processing restrictions, with the UN's Outer Space Treaty protecting space from national ownership, allowing international data center hosting.

- Challenges:
  - High Costs: Building and maintaining space-based data centres will be expensive.
  - Data Speed: Moon-based centers will have delayed communication due to the distance from Earth, affecting real-time operations.
  - Cybersecurity: Ensuring the security of space data centres is a key concern.
  - Thermal Challenge: Significant engineering challenges remain, including dissipating heat from TPUs in a vacuum where air-based cooling is impossible.
  - Downlink Difficulty: Ground-to-space communication poses additional hurdles, as laser downlinks must overcome atmospheric effects such as clouds, turbulence, and weather variability.
  - Maintenance Limitations: Maintenance represents another difficult problem because hardware failures that are easily addressed on Earth become far more complex in orbital environments.

## UN Champions of the Earth award

**News-**Tamil Nadu IAS officer Supriya Sahu has received the UN Champions of the Earth Award for her leadership in tackling plastic pollution and promoting wildlife conservation in India.

**About UN Champions of the Earth award**


Source- NOA

- It is the United Nations' highest environmental honour.
- It was established in 2005 and awarded annually by the United Nations Environment Programme (UNEP).
- The award recognises individuals and organisations at the forefront of protecting people and the planet.
- It honours innovative and sustainable solutions addressing the triple planetary crisis:
  - Climate change
  - Nature and biodiversity loss
  - Pollution and waste

## Convention against Discrimination in Education

News– UNESCO released a report titled Right to Education: Past, Present and Future, which reviews the progress and impact of the 1960 UNESCO Convention against Discrimination in Education.

**About Convention against Discrimination in Education**

- It was adopted in 1960 under the aegis of United Nations Educational, Scientific and Cultural Organization (UNESCO).
- It is the first legally binding international treaty devoted exclusively to the right to education.
- The Convention recognises education as a fundamental human right and places clear responsibilities on States to ensure:
    - Free and compulsory primary education
    - Accessible and available secondary education for all
    - Equal access to higher education, based on individual merit and capacity
    - It prohibits discrimination in education in all its forms.
- India has not ratified this Convention.

## India's 1st Hydrogen Fuel Cell Passenger Vessel

News– India has inaugurated its first fully indigenous hydrogen fuel cell–based passenger vessel in Varanasi, signifying an important milestone in the country's push towards green maritime transportation.


Source- PIB

**About India's 1st Hydrogen Fuel Cell Passenger Vessel**

- The vessel has been constructed by Cochin Shipyard Limited and is owned by the Inland Waterways Authority of India (IWAI).
- It operates on a hydrogen fuel-cell system using Proton Exchange Membrane (PEM) technology, a critical component of India's clean energy and green mobility efforts.
    - Proton Exchange Membrane Fuel Cells (PEMFCs) produce electricity through an electrochemical reaction between hydrogen and oxygen, without any combustion, ensuring high efficiency and zero emissions.

Significance

- The initiative contributes to India's net-zero emissions target by 2070 and is in line with the Maritime India Vision 2030 and Maritime Amrit Kaal Vision 2047.

- The vessel enables silent and pollution-free transport, helps ease pressure on road networks, encourages tourism, and highlights India's capability in developing indigenous green technologies for sustainable inland waterways.

## INAS 335 (Ospreys)

News: The Indian Navy will commission its second MH-60R helicopter squadron, INAS 335, on 17 December 2025 at INS Hansa, Goa.

**About INAS 335 (Ospreys)**


Source – PIB

- INAS 335" primarily refers to the Indian Naval Air Squadron 335, nicknamed the "Ospreys" which is the Indian Navy's second squadron of MH-60R multi-role helicopters.
- Built by: The MH-60R helicopter is built by the United States company Lockheed Martin.
- Based at: The squadron will be based at INS Hansa, Goa.
- Role: The MH-60R serves as the principal ship-borne anti-submarine and multi-role maritime helicopter of the Indian Navy.
- Key Features
    - The helicopter is equipped with advanced weapons, sensors, and an avionics suite, which makes it a versatile and capable naval aviation asset.
    - These systems provide enhanced capability to address both conventional threats and asymmetric threats in the maritime domain.
    - Significance: The commissioning of INAS 335 will provide a significant boost to the Indian Navy's integral aviation capabilities and modernisation efforts.
- First Commission: The first operational MH-60R squadron, INAS 334 known as the Seahawks, was commissioned at INS Garuda, Kochi, in March 2024.

## Zambezi River

**News:** A new study suggests that the Zambezi River, Africa's fourth-longest, is 11% longer than previously thought, with its most distant source lying in Angola, not Zambia.

**About Zambezi River**

Source – Britannica

- The Zambezi River is the fourth-longest river in Africa (after Nile, Congo, Niger) and continent's longest east-flowing stream.
- Origin: It starts off in a shallow depression in Angola's southern highlands, at the source of a river called the Lungwebungu.
    - Earlier, it was believed to begin its journey from a marshy bog near Mwinilunga in northwestern Zambia at 1,500 m elevation.
- Length: It has a new total length of 3,421 km or 342 km longer than previously thought.
- Countries covered: It flows through Angola, Zambia, Namibia, Botswana, Zimbabwe, and Mozambique.
- Tributaries: The main tributaries of the Zambezi River include the Shire, Kafue, Luangwa, Kabompo, and Cuando (Kwando) rivers.
- Waterfalls: The river is known for several notable waterfalls, including Victoria Falls, one of the world's largest waterfalls, and the Chavuma Falls on the Zambia-Angola border.
- Famous Dams: Cohara Bassa and Kariba Dams
- Drains into: It drains into the Indian Ocean via a 100-km-wide delta.

## Pax Silica Initiative

**News:** The opposition parties recently criticized Prime Minister over India's exclusion from the United States–led Pax Silica initiative, attributing it to a sharp deterioration in his relationship with U.S. President.

**About Pax Silica Initiative**

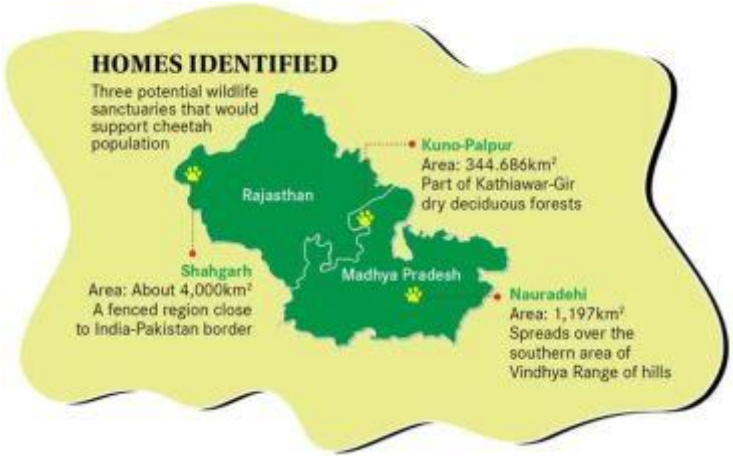
Source – BS

- Pax Silica is a United States–led strategic initiative focused on building a secure, resilient, and innovation-driven silicon and artificial intelligence supply chain.
- The initiative spans the full technology ecosystem, from critical minerals and energy inputs to advanced manufacturing, semiconductors, AI infrastructure, software platforms, and global logistics.
- Participating Countries: The inaugural Pax Silica Summit included Japan, the Republic of Korea, Singapore, the Netherlands, the United Kingdom, Israel, the United Arab Emirates, and Australia.
    - Guest contributions were provided by Taiwan, the European Union, Canada, and the OECD.
    - It is supported by leading global companies and investors across the AI and semiconductor ecosystem.
        - Representative firms include Sony, Hitachi, Fujitsu, Samsung, SK Hynix, ASML, Rio Tinto, DeepMind, Temasek, and MGX.
- Strategic Purpose: It responds to the strategic importance of artificial intelligence by reducing coercive dependencies, strengthening supply chain resilience, and promoting fair market practices to protect sensitive technologies and critical infrastructure.
- Focus Areas: Pax Silica focuses on securing key segments of the global technology stack.
    - Priority areas include software applications and platforms, frontier foundation models, and information connectivity and network infrastructure.
    - Additional focus areas include compute, semiconductors, advanced manufacturing, transportation logistics, critical minerals refining and processing, and energy grids and power generation.

## Nauradehi Wildlife Sanctuary

**News:** Nauradehi Wildlife Sanctuary will become the third home for cheetahs in Madhya Pradesh.

**About Nauradehi Wildlife Sanctuary**




Source – ToI

- Location: Nauradehi Wildlife Sanctuary is the largest wildlife sanctuary in Madhya Pradesh.
    - The entire sanctuary is situated on a plateau that forms part of the Upper Vindhyan Range.
- It was established in 1975.
- River basins: It lies within the Deccan Peninsula biogeographic region and forms part of both the Ganga and Narmada river basins.
- Connecting: It plays a crucial role as a wildlife corridor by connecting Panna Tiger Reserve and Satpura Tiger Reserve.
    - It also indirectly connects Bandhavgarh Tiger Reserve through Veerangana Rani Durgawati Wildlife Sanctuary, enabling movement of large mammals across landscapes.
- Rivers: The protected area is crossed by several rivers, including the north-flowing Kopra and the Bamner, Vyarma, and Bearma, all tributaries of the Ken River.
- The Veerangana Durgavati Tiger Reserve encompasses areas within the Nauradehi Wildlife Sanctuary and Durgavati Wildlife Sanctuary.
- Vegetation: The sanctuary is dominated by tropical dry deciduous forests, which are part of the Central Indian Monsoon Forests.
- Fauna: Teak is the dominant tree species found throughout the sanctuary.
    - Other important tree species include Saja, Dhawda, Sal, Tendu (Coromandel Ebony), Bhirra (East Indian Satinwood), and Mahua.
- Fauna:
    - Freshwater crocodiles are mainly found in natural water bodies such as Chakai Kunda Nala and the Bamner River, which provide suitable habitats for their survival.
    - Some of the highlighted bird species recorded in the sanctuary include the Dusky Eagle Owl, White-bellied Minivet, Himalayan Vulture, Eurasian Wryneck, and Verditer Flycatcher.

## Ponduru Khadi

News: Srikakulam's famed Ponduru Khadi has received the prestigious Geographical Indication (GI) tag from the Government of India.

**About Ponduru Khadi**


Source: deccanchronicle

- Ponduru Khadi is a traditional handspun and handwoven cotton fabric produced in Ponduru village of Srikakulam district, Andhra Pradesh.
- The fabric is widely known for its fine texture, durability, and natural finish and was famously preferred by Mahatma Gandhi.
- Unique Raw Material: Ponduru Khadi is made from short-staple hill variety cotton that is naturally pest-resistant.
    - The cotton is cultivated using chemical-free farming practices, making the fabric environmentally sustainable.
    - This raw material contributes to the softness, breathability, and durability of the cloth.
- Traditional Production Process: The entire production process of Ponduru Khadi is carried out using age-old techniques passed down through generations.
    - Cotton ginning is performed using the jawbone of the indigenous Valuga fish, a practice unique to the region.
    - The cotton is then cleaned, carded, and converted into slivers, which are stored in dried banana stems.
    - Hand spinning is done using a rare single-spindle charkha with 24 spokes before weaving on traditional handlooms.
    - The craft is sustained by skilled weavers from the Sali, Padmasali, Pattusali, and Devanga communities.
    - Many weavers operate looms within their homes, making the craft deeply integrated into village life and culture.
- Historical and Cultural Significance:
    - Historically, nearly every household in Ponduru had a loom and produced khadi for personal use and export.
    - Ponduru Khadi was once exported to countries such as the United States, Japan, Denmark, and Sweden.
    - The fabric symbolizes self-reliance and aligns closely with Gandhian ideals of swadeshi and sustainable living.

# ICTP Prize 2025

**News:** The ICTP announced the 2025 ICTP Prize to Indian Assistant Professor Titas Chanda of IIT-Madras and Sthitadhi Roy of ICTS Bengaluru.

**About ICTP Prize 2025**


Source – ICTP

- The ICTP Prize 2025 has been awarded for outstanding theoretical research in quantum many-body systems.
- Winners: The ICTP Prize 2025 was awarded to
    - Titas Chanda, Assistant Professor at IIT-Madras.
    - Sthitadhi Roy, Assistant Professor at the International Centre for Theoretical Sciences, Bengaluru, under the Tata Institute of Fundamental Research.
- Awarding body: The prize is awarded by the International Centre for Theoretical Physics (ICTP), which was founded in 1964 by Nobel laureate Abdus Salam.
- Prize is dedicated to: The 2025 ICTP Prize was dedicated to the memory of Italian physicist Giancarlo Ghirardi.
- Awarded for: The ICTP Prize 2025 recognizes exceptional and original contributions to the theory of quantum many-body systems at the interface of condensed matter physics and quantum information science.
    - Their work is relevant to real problems in keeping quantum devices, such as quantum computers and sensors, under control and understanding their behaviour when they are not in equilibrium.

**About ICTP Prize**

- Established: The ICTP Prize was created in 1982 by the ICTP Scientific Council.
- It is awarded annually to young scientists from developing countries for outstanding and original contributions in physics.
- Prize components: The prize includes a sculpture, a certificate, and a cash award.
- Each year, the prize is given in honour of a scientist who made outstanding contributions to the relevant field.

Note: Quantum many-body systems are complex assemblies of interacting particles where quantum mechanical effects play a crucial role, making them essential for understanding materials and fundamental physics phenomena.

## SDAT Squash World Cup 2025

News: The Indian Squash Team won its first-ever World Cup title at the SDAT Squash World Cup 2025.

**About SDAT Squash World Cup 2025**

Source: olympics.com

- Organized by: World Squash Federation (WSF) in Chennai, Tamil Nadu.
- Winner: India
- Runner up: Hong Kong, China
- India becomes the first Asian country to win the SDAT Squash World Cup.
- India is also only the fourth nation after Australia, England and Egypt to win the Squash World Cup title in its five editions.
- Notable players
    - India won the trophy under the captainship of Abhay Singh – India No. 1 and Arjuna Awardee.
- Former winners: England, Australia and Egypt

## Viksit Bharat Gramin Rozgar Bill, 2025

News: The Union government is set to introduce the Viksit Bharat Guarantee For Rozgar And Ajeevika Mission (Gramin) Bill, 2025 in the Lok Sabha. The Bill seeks to replace the Mahatma Gandhi National Rural Employment Guarantee Act, 2005 (MGNREGA).

**Viksit Bharat Guarantee For Rozgar And Ajeevika Mission (Gramin) Bill, 2025**

Source – HT

- Nodal Ministry: Ministry of Rural Development
- Aim: The Bill aims to establish a future-ready, convergence driven, saturation-oriented rural development architecture.
- It will support the accelerated pace of rural development in accordance with the vision of Viksit Bharat @2047, thereby empowering the rural households through increased employment opportunities.

Key Provisions

- Shift From Demand-Driven to Supply-Driven Model: The Bill marks a fundamental shift from a demand-driven employment guarantee to a supply-driven rural jobs scheme.
    - Employment generation under the new framework will be limited by pre-fixed budgetary allocations rather than actual demand from rural households.
    - Unlike MGNREGA, workers will no longer have an enforceable right to demand employment.
- Increase in Guaranteed Workdays: The Bill increases the number of guaranteed workdays per rural household from 100 days to 125 days per financial year. However, this increase is subject to budgetary ceilings determined by the Union government.

- Increased Financial Burden on States: The financial contribution required from States will rise significantly under the new Bill.
    - For most States and Union Territories with legislatures, the cost-sharing ratio will shift to 60:40 between the Centre and the States.
    - For north-eastern States, Himalayan States, and certain Union Territories, the cost-sharing ratio will remain at 90:10.
    - Under MGNREGA, the effective cost-sharing was approximately 90:10 for all States.
- Centralised Budget Allocation: The Bill empowers the Union government to determine State-wise normative allocations for each financial year.
    - These allocations will be based on "objective parameters" that will be prescribed by the Central government.
    - States will no longer be able to seek additional funds based on increased demand for work.
- Restricted Geographic Coverage: The Union government will have the authority to notify specific rural areas within States where the scheme will be implemented.
    - This represents a departure from the universal coverage model of MGNREGA, which applied to all rural areas.
- Control Over Timing of Work: The Bill allows the programme to be paused during peak agricultural seasons.
    - This provision is intended to ensure the availability of labour for agricultural activities but may reduce employment security for rural workers.
- Codification of Technological Measures: Technological interventions previously introduced administratively under MGNREGA are formally incorporated into the new law.
    - These include mobile app-based attendance systems, Aadhaar-based wage payments, and geotagging of worksites.

## SHANTI Bill, 2025

News: The Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Bill, 2025, was introduced in the Lok Sabha. The Bill seeks to reform India's nuclear energy framework to support the government's goal of achieving 100 gigawatt nuclear power capacity by 2047.

**SHANTI Bill, 2025**

Source – BS

- Full name: Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India Bill (SHANTI Bill), 2025

- Nodal Ministry: Department of Atomic Energy

Key Provisions

- Repeal of Existing Nuclear Laws: The Bill proposes the repeal of the Atomic Energy Act, 1962, which currently governs nuclear activities in India.
    - It also seeks to repeal the Civil Liability for Nuclear Damage Act, 2010, which regulates liability in case of nuclear accidents.
- New Legal Framework for Nuclear Energy: The Bill establishes a unified framework to govern the production, use, and regulation of nuclear energy and ionizing radiation in India.
- Entry of Private Sector in Nuclear Power: For the first time, private companies, joint ventures, and other eligible entities will be allowed to apply for licences to set up and operate nuclear power facilities.
    - Private entities will also be permitted to transport nuclear fuel, subject to regulatory approval.
    - This marks a major departure from the existing public sector monopoly in civil nuclear power.
- Activities Reserved for the Government: Sensitive activities such as uranium enrichment, spent nuclear fuel management, and heavy water production will remain under the exclusive control of the Union government.
- Licensing and Regulatory Oversight: All nuclear and radiation-related activities will require a licence from the Central government.
    - In addition, operators must obtain safety authorisation from the Atomic Energy Regulatory Board (AERB). The Bill grants statutory status to the AERB and clearly defines its regulatory powers.
- Strengthening of Nuclear Safety Regulation: The Atomic Energy Regulatory Board will be empowered to regulate radiation exposure, waste management, safety inspections, and emergency preparedness.
    - The Bill authorizes the Centre to take control of radioactive substances or radiation-generating equipment in situations involving radiation hazards.
    - The cost of safe disposal may be recovered from the entity holding the safety authorization.
- Liability in Case of Nuclear Accidents: The operator of a nuclear installation will be primarily liable for any nuclear damage caused by an accident.
    - Exceptions apply in cases of grave natural disasters of an exceptional character, armed conflict, war, civil unrest, or terrorism.
    - If compensation exceeds the operator's liability limit, the Central government will assume responsibility for additional compensation.
- Insurance and Financial Security Requirements: Nuclear operators will be required to maintain insurance or other financial security to cover potential nuclear damage.
    - The Bill provides for the establishment of a Nuclear Damage Claims Commission to adjudicate compensation claims. This replaces the existing liability framework under the Civil Liability for Nuclear Damage Act, 2010.
- Treatment of Research and Innovation Activities: Research and innovation activities in the nuclear sector will largely be exempt from licensing requirements.
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# Key Facts About Jordan

News: Prime Minister Narendra Modi arrived in Amman on a landmark Jordan visit after 37 years, coinciding with 75 years of diplomatic relations.

**Key Facts About Jordan**

Source – Britannica

- Location: It is a country in Western Asia, situated at the crossroads of the continents of Asia, Africa, and Europe.
- Naming: Jordan is named after the Jordan River.
- Capital City: Amman
- Bordered by: Jordan is bordered by Syria to the north, Iraq to the east, Saudi Arabia to the south and southeast, and Israel and Palestine to the west.
- Water Bodies: Jordan is associated with the Dead Sea, the Gulf of Aqaba, and the Sea of Galilee, with the Dead Sea along its western border.
- Main ports: Jordan is largely landlocked, with a 26-km coastline on the Gulf of Aqaba in Red Sea and Al-Aqabah is its only port.
- The Gulf of Aqaba: Jordan has a 26-kilometre-long coastline along the Gulf of Aqaba in the Red Sea.
- Climate: Jordan's climate varies greatly, with Mediterranean conditions in the highlands and arid desert conditions in the eastern regions.
- Terrain: It has an arid desert plateau in the east and a north–south geological rift along the west.
- Major River: The Jordan River flows through the country and drains into the Dead Sea and the Yarmuk River, an eastern tributary of the Jordan, forms part of Jordan's northern boundary with Syria.
- Highest Point: Jabal Umm ad Dami (1,854 m).
- Lowest Point: The Dead Sea at – 420 m from sea level, making it the lowest land point on Earth.
- Forest cover: Forests cover is less than 2% of Jordan's area.

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**Viksit Bharat Guarantee For Rozgar And Ajeevika Mission (Gramin) Bill, 2025**


*Figure 11.Source – HT*

- Nodal Ministry: Ministry of Rural Development
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**Key Facts About Jordan**

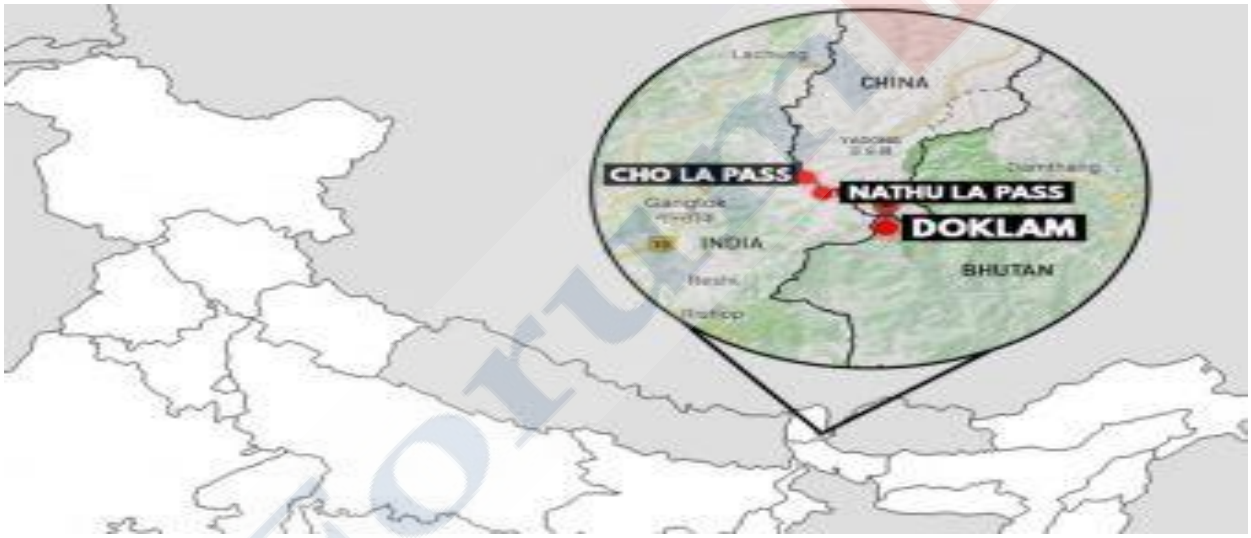

*Figure 12. Source – Britannica*

- Location: It is a country in Western Asia, situated at the crossroads of the continents of Asia, Africa, and Europe.
- Naming: Jordan is named after the Jordan River.
- Capital City: Amman
- Bordered by: Jordan is bordered by Syria to the north, Iraq to the east, Saudi Arabia to the south and southeast, and Israel and Palestine to the west.
- Water Bodies: Jordan is associated with the Dead Sea, the Gulf of Aqaba, and the Sea of Galilee, with the Dead Sea along its western border.

- Main ports: Jordan is largely landlocked, with a 26-km coastline on the Gulf of Aqaba in Red Sea and Al-Aqabah is its only port.
- The Gulf of Aqaba: Jordan has a 26-kilometre-long coastline along the Gulf of Aqaba in the Red Sea.
- Climate: Jordan's climate varies greatly, with Mediterranean conditions in the highlands and arid desert conditions in the eastern regions.
- Terrain: It has an arid desert plateau in the east and a north–south geological rift along the west.
- Major River: The Jordan River flows through the country and drains into the Dead Sea and the Yarmuk River, an eastern tributary of the Jordan, forms part of Jordan's northern boundary with Syria.
- Highest Point: Jabal Umm ad Dami (1,854 m).
- Lowest Point: The Dead Sea at – 420 m from sea level, making it the lowest land point on Earth.
- Forest cover: Forests cover is less than 2% of Jordan's area.

## Cho La and Dok La Passes

News: Cho-La and Dok-La were opened for tourists under the Bharat Rannbhoomi Darshan initiative on December 15, 2025.




Source – The Print

**About Cho La Pass**

- Location: Cho-La Pass is a high-altitude mountain pass in east Sikkim, located in the eastern Himalayas along the India–China border.
- Altitude: It is situated at an altitude of around 17,780 feet above mean sea level.
- Historical Significance: It was a major site of military skirmishes between the Indian Army and the Chinese People's Liberation Army (PLA) in 1967, which resulted in a strategic victory for India.

**About Dok La (Doklam) Pass**

- Location: Dok-La, also known as Doklam, is a high-altitude plateau located at the tri-junction of India, Bhutan, and China.
- It lies in the Chumbi Valley.
- Altitude: It is situated at an altitude of around 15,600 feet above sea level.
- The pass is about 68 km east of Gangtok.
- Historical Significance: It gained international attention in 2017 during a 73-day military standoff between Indian and Chinese troops.

- Strategic importance: The area holds strategic importance because of its proximity to the Siliguri Corridor.

## Central Information Commission(CIC)

News: The Central Information Commission has reached its full sanctioned strength of 11 members for the first time in seven years following the appointment of IAS officer Raj Kumar Goyal as the Chief Information Commissioner.

**About Central Information Commission (CIC)**


*Figure 13.Source: CEC*

- The Central Information Commission was constituted on 12 October 2005.
- It functions as a statutory body under the Right to Information Act, 2005.
- Its jurisdiction extends to all Central Public Authorities.
- Headquarters: New Delhi
- The Commission exercises powers under Sections 18, 19, 20, and 25 of the Act.

- Functions: It includes adjudicating second appeals, directing record management and suo motu disclosures, inquiring into RTI-related complaints, imposing penalties, and monitoring implementation through the preparation of an Annual Report.
- The decisions of the Commission are final and binding.
- Composition of Central Information Commission (CIC): It consists of a Chief Information Commissioner and not more than ten Information Commissioners.
    - They are appointed by the President on the recommendation of a selection Committee consisting of: Prime Minister of India, a Union Cabinet Minister nominated by the Prime Minister, and the Leader of the Opposition in the Lok Sabha.
- Chief Information Commissioner: The Chief Information Commissioner is the head of the Central Information Commission of India.
    - Role and Functions of CIC: CIC hears second and subsequent appeals filed by citizens when information is denied by public authorities.
    - The CIC is responsible for adjudicating complaints related to violations of the Right to Information Act.
    - Tenure and Service Conditions: The Chief Information Commissioner holds office until attaining the age of 65 years or for the term prescribed under law, whichever is earlier.

## United Nations Alliance of Civilizations (UNAOC)

News: India reaffirmed its commitment to the ideals of Vasudhaiva Kutumbakam and religious harmony at the 11th United Nations Alliance of Civilizations, UNAOC, forum in Riyadh.

**About United Nations Alliance of Civilizations (UNAOC)**

Source – UN

- The United Nations Alliance of Civilizations (UNAOC) is an initiative to improve understanding and cooperative relations among nations and peoples across cultures and religions and to help counter the forces that fuel polarisation and extremism.
- It was established in 2005, as the political initiative of Mr. Kofi Annan, former UN Secretary-General and co-sponsored by the Governments of Spain and Türkiye.
- It has connected governments, lawmakers, local authorities, civil society organizations, the media, and individuals devoted to promoting understanding across diverse communities.
- Secretariat: New York, USA
- Motto: Many cultures, one humanity.
- The Global Forum is UNAOC's flagship event, convening key leaders and stakeholders from across sectors.
- Fund: The Secretary-General has established a voluntary Trust Fund to support the work of the United Nations Alliance of Civilizations. The Fund is administered by the UN Secretariat in accordance with UN financial rules.
- Pillars of UNAOC: UNAOC works mainly in five priority areas to which it brings a multidisciplinary and multi-perspective approach: Youth, Education, Media, Migration, and Women as Peace Mediators.
- Functions: UNAOC's programme activities aim to promote global dialogue on diversity in an interconnected world while preventing intercultural tensions and crises.
    - The programmes seek to combat stereotypes, discrimination, and xenophobia, and to support innovative grassroots initiatives that foster intercultural dialogue, mutual respect, and cooperation across divides.

## DHRUV64

News: DHRUV64 was launched as India's first homegrown 1.0 GHz, 64-bit dual-core microprocessor, marking a key milestone in indigenous semiconductor development.

**About DHRUV64**

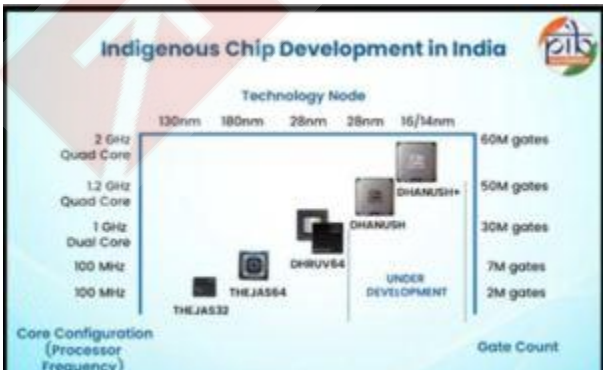



*Figure 14. Source – PIB*

- DHRUV64 is India's first homegrown 1.0 GHz, 64-bit dual-core microprocessor, strengthens the indigenous processor pipeline.
- Developer : It has been created by the Centre for Development of Advanced Computing (C-DAC) under the Microprocessor Development Programme (MDP) of Ministry of Electronics and Information Technology (MeitY).
- Supported by: It is also powered and supported by programmes including Digital India RISC-V (DIR-V),

Chips to Startup (C2S), India Semiconductor Mission (ISM), Design Linked Incentive (DLI), and Indian Nanoelectronics Users Programme- idea to innovation (INUP-i2i).

- Architecture:: It is based on the open-source RISC-V (Reduced Instruction Set Computer) architecture, which allows design flexibility without paying foreign license fees.
- Strategic Goal: It aims to achieve Atmanirbhar Bharat in the semiconductor sector by reducing dependence on imported chips, as India currently consumes about 20% of global microprocessors.
- Applications: It is designed for use in 5G infrastructure, automotive systems, the Internet of Things (IoT), industrial automation, and strategic defence equipment.
- It is builds on earlier indigenous efforts such as SHAKTI (IIT Madras), AJIT (IIT Bombay), VIKRAM (ISRO–SCL) and THEJAS64 (C-DAC).
- Significance: It is the third major chip fabricated under the Digital India RISC-V (DIR-V) programme,
    - The first chip, *THEJAS32*, fabricated at the Silterra facility in Malaysia.
    - The second chip, *THEJAS64*, manufactured domestically at Semiconductor Lab (SCL) Mohali.
- Next projects: After DHRUV64 success, the next-generation Dhanush and Dhanush+ processors are now under development.

## Param Vir Chakra Award

News: President inaugurated Param Vir Dirgha at Rashtrapati Bhavan on Vijay Diwas, displaying portraits of all 21 Param Vir Chakra awardees.

**About Param Vir Chakra Award**

*Figure 15. Source – Aaj Tak*

- The Param Vir Chakra is India's highest military decoration for the most exceptional acts of valour, courage, and self-sacrifice during war.
- Introduced on: It was introduced on January 26, 1950, with retrospective effect from August 15, 1947.
- Conferred by: It is conferred by the President of India.
- Naming: The term Param Vir Chakra literally means the "Wheel of the Ultimate Brave."
- Eligibility: It is awarded to officers, men, and women of all ranks of the Army, Navy, Air Force, Reserve Forces, Territorial Army and other lawfully constituted armed forces.
- It can be and often has been, awarded posthumously.
- Design
    - The Param Vir Chakra medal was designed by Mrs. Savitri Khanolkar.
    - The medal is cast in bronze and has a circular shape.
    - In the centre, it has the State Emblem on a raised circle.
    - Around the State Emblem, there are four replicas of Indra's Vajra, and it is flanked by the sword of Shivaji.
    - On the reverse side, the words "Param Vir Chakra" are embossed in Hindi and English, with two lotus flowersplaced between the Hindi and English text.
    - The fitting uses a swivel mounting, and the decoration is suspended from a straight swivelling suspension bar.
    - It is held by a 32 mm purple ribbon.

- First winner: Major Somnath Sharma of the Kumaon Regiment was the first recipient.
    - Till now, only 21 people had been given the Param Vir Chakra award.

**About Gallantry Awards in India**

- Gallantry awards are instituted by the Government of India to honour bravery and sacrifice of armed forces, other forces, and civilians.
- These awards are announced twice every year on Republic Day and Independence Day.
- All gallantry awards may be given posthumously.
- The Order of precedence of these awards is the Param Vir Chakra, the Ashoka Chakra, the Mahavir Chakra, the Kirti Chakra, the Vir Chakra and the Shaurya Chakra.
- The President presents gallantry awards at Defence Investiture Ceremonies at Rashtrapati Bhavan.
    - However, the Param Vir Chakra and the Ashoka Chakra are conferred by the President to the awardees on the occasion of the Republic Day Parade at the Rajpath.

## AH-64E Apache Helicopters

News: The Indian Army received the final batch of three AH-64E Apache helicopters, completing its six-unit Apache squadron at Jodhpur.

**About AH-64E Apache Helicopters**

*Figure 16.Source – India Defence News*

- The AH-64E Apache is regarded as the world's most advanced and lethal attack helicopter and is widely used for reconnaissance, precision strikes, and close air support missions.
- It is also known as the Apache Guardian.
- Version: The Indian Army inducted the AH-64E Version 6, which is the most advanced version.
- Manufactured by: It is manufactured by Boeing, United States.

- Key Features
    - Physical Features:
        - The AH-64E Apache has a length of 17.8 metres and a maximum speed of 300 kilometres per hour.
        - It has a maximum operating weight of 10,432 kilograms and can climb at a rate of more than 2,800 feet per minute.
        - It is a heavily armed, twin-engine ground attack helicopter.
    - Warhead and Weapons:
        - The helicopter carries air-to-ground Hellfire missiles, 70 mm rockets, and a 30 mm chain gun.
        - It can also fire short-range air-to-air Stinger missiles to counter aerial threats..
    - Technology: It is equipped with Longbow fire control radar, advanced sensors, and integrated infrared and night vision systems for all-weather and all-terrain operations.

# Jumping Genes

News: Polar bears in southern Greenland are 'using jumping genes to rapidly rewrite their own DNA' to survive melting sea ice.

**About Jumping Genes**

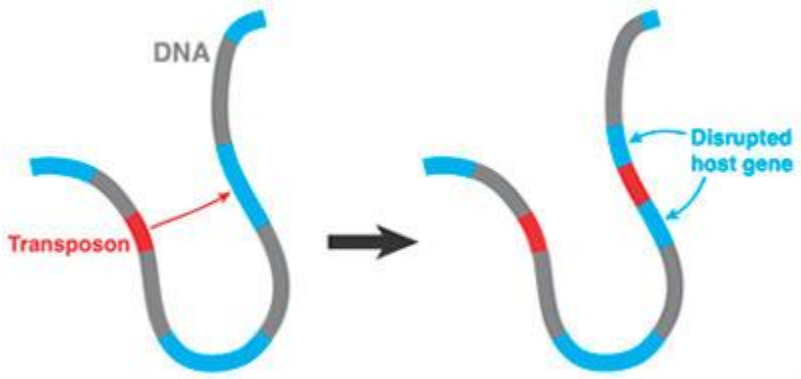



*Figure 17. Source: UC San Francisco*

Jumping genes are segments of DNA that can move from one position to another within the genome.

- They are scientifically known as transposable elements.
- They are called jumping genes because they can change their location in the DNA sequence.
  - This movement can affect how genes function.
- Discovery of Jumping Genes: Jumping genes were discovered by Barbara McClintock while studying maize plants.

- Types of Jumping Genes: There are two main types of jumping genes called DNA transposons and retrotransposons.
  - Each type moves in a different way within the genome.
- Mechanism
  - DNA transposons move by cutting themselves out of one location and inserting into another location in the DNA.
    - This process is known as the cut-and-paste mechanism.
  - Retrotransposons move by making a copy of themselves through an RNA intermediate.
  - The original remains in place while the copy inserts into a new position.
- How Jumping Genes Move: Jumping genes move with the help of special enzymes that allow them to cut, copy, or insert DNA.
  - These enzymes make the movement possible inside the genome
- Regulation of Jumping Genes: Cells control jumping genes using mechanisms such as DNA methylation and RNA-based silencing.
  - These controls help maintain genome stability.
- Presence in Living Organisms: Jumping genes are found in almost all living organisms, including plants, animals, and humans.
- Applications
  - In genetic engineering, transposons are used to introduce desired genes into plants, animals, or cells for research.
  - They are also being studied for gene therapy, where they may help deliver healthy genes to treat genetic disorders, such as through the Sleeping Beauty transposon system.
  - In addition, jumping genes are used in insertional mutagenesis to disrupt genes and study their functions.
- Effect on Genes: Jumping genes can disrupt normal genes when they insert themselves into important regions of DNA.
  - This disruption can change gene activity or stop gene function.

- Role in Genetic Diversity: Jumping genes increase genetic diversity by creating changes in the DNA sequence.
    - These changes help populations adapt to changing environments.
- Issues with Jumping Genes: Jumping genes can cause harmful mutations that lead to genetic disorders or diseases.

## India's First AI-Driven Community Screening Programme for Diabetic Retinopathy

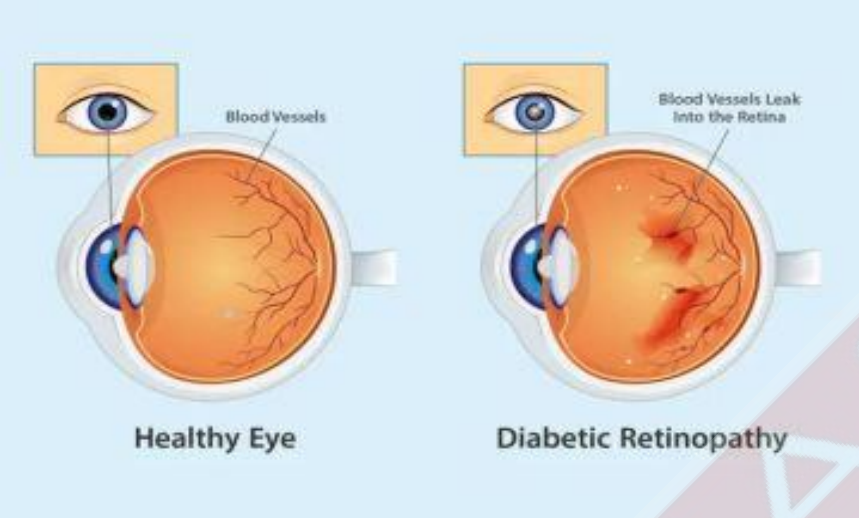
News: India launched its first AI-driven community screening programme for diabetic retinopathy to strengthen early detection and real-time health intelligence.

**About India's First AI-Driven Community Screening Programme for Diabetic Retinopathy**


Source – Tribune

- Launched by: It has been launched by The Armed Forces Medical Services (AFMS), in collaboration with the Dr. Rajendra Prasad Centre for Ophthalmic Sciences (RPC), AIIMS, and the eHealth AI Unit of the Ministry of Health & Family Welfare (MoHFW).
- Anchored by: The programme is anchored by MadhuNetrAI, a web-based Artificial Intelligence tool developed by the Dr. Rajendra Prasad Centre for Ophthalmic Sciences.
- Aim: The programme aims to strengthen early detection of diabetic retinopathy and support evidence-based planning through real-time national health intelligence.
- Key features:
    - AI platform: MadhuNetrAI facilitates automated screening, grading and triaging of retinal images.
    - Referral pathway: Identified patients are referred for optimal diabetic management, while vision-threatening cases are referred to vitreo-retina specialists at district hospitals.
    - Real-time intelligence: The system generates real-time data on prevalence and geographic distribution to support planning and policy formulation.
- As part of the pilot phase, the initiative is implemented at 7 locations (Pune, Mumbai, Bengaluru, Dharamshala, Gaya, Jorhat, and Kochi) covering metropolitan, rural, hilly, coastal, and remote regions.

**About Diabetic Retinopathy**




Source – WebMD

- Diabetic retinopathy is an eye condition that causes changes to the blood vessels in the part of your eye called the retina.
    - Retina is the lining at the back of the eye that changes light into images.
- The blood vessels can swell, leak fluid, or bleed, which often leads to vision changes or blindness.
- It usually affects both eyes.
- When left untreated, diabetic retinopathy can scar and damage the retina.
- Diabetic retinopathy is the most common cause of vision loss for people with diabetes.
    - It's the leading cause of blindness for all adults in many countries today.

## Ekam AI and the SAMBHAV

News: During Vijay Diwas, the Indian Army showcased Atmanirbharta-driven innovations, including homegrown Ekam AI and the SAMBHAV project.

**About Ekam AI**


*Figure 18. Source – EKAM-AI*

- Ekam AI is a fully indigenous and secure artificial intelligence platform designed for sensitive defence environments.
- Developed by: It is being developed by the Bengaluru-based startup Neuralix, under the iDEX ADITI 2.0 initiative, which provides grants for defense innovation.
- Aim: Its aim is to support information analysis, document management, and decision-making without foreign software or external cloud systems.
- Features

- It supports classified datasets, military terminology and operational doctrines, and can host a range of open-source and indigenous AI models within the Army Data Network.
- It offers a suite of advanced AI services, including Jigyasa (GPT with RAG), Darpan (document analyser), Manthan (document-specific agents), Lipik (correspondence generator), Rachna (PPT generator), Saar (summariser), Anuvadak (translation), Vaachak (text-to-speech), Lekhak (speech-to-text), OCR and PDF tools.
    - These tools are expected to improve staff work, analysis and multilingual communication across formations.

## About SAMBHAV


Source – MoD

- SAMBHAV (Secure Army Mobile Bharat Vision) is a portable satellite-based communication system showcased under a defence innovation initiative.
- Aim: The aim of SAMBHAV is to provide mobile connectivity in remote or disaster-affected areas.
- Features: The system can be deployed quickly in remote or disaster-affected areas, improving communication for both soldiers and civilians.

## ASPIRE Scheme

News: The Ministry of Micro, Small and Medium Enterprises (MSME) is implementing the ASPIRE (A Scheme for Promotion of Innovation, Rural Industry, and Entrepreneurship) scheme to promote entrepreneurship and livelihood opportunities in rural areas.

**About ASPIRE Scheme**


ASPIRE

A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship

Source: MoMSME

- ASPIRE scheme stands for A Scheme for Promotion of Innovation, Rural Industry, and Entrepreneurship.
- Implemented by: Ministry of Micro, Small and Medium Enterprises
- It is to promote entrepreneurship and livelihood opportunities in rural areas and focuses on creating an enabling ecosystem for innovation, skill development, and enterprise creation.
- Aim: To encourage entrepreneurship by supporting innovation and rural industrial development.
- Objective: The scheme seeks to generate employment opportunities by promoting self-employment and wage employment through micro-enterprises.
- The scheme intends to strengthen rural livelihoods by providing incubation and handholding support to aspiring entrepreneurs.
- The ASPIRE scheme complements other MSME initiatives such as the Prime Minister's Employment Generation Programme, which supports self-employment through credit-linked subsidies.
- It also aligns with the MSME Champions scheme, which focuses on enterprise modernisation, competitiveness, and innovation.
- Key Features of the Scheme
    - The scheme supports the establishment of Livelihood Business Incubators to nurture rural entrepreneurs.
    - These incubators provide training, mentoring, and business support services to beneficiaries.
    - The scheme facilitates the transformation of skills into sustainable business ventures.
    - As of now, 109 Livelihood Business Incubators have been approved across different parts of the country.
        - These incubators function as local centres for entrepreneurship development in rural and semi-urban areas.

## China Tests World-First Wireless Rail Convoy

News: Recently, China successfully tested seven fully loaded freight trains operating together as a single convoy without any physical coupling.

**About China Tests World-First Wireless Rail Convoy**

Source – BS

- China tested a wireless-controlled freight train convoy that allowed multiple heavy trains to operate together without mechanical connections.
- Developed by: It is developed by the China Shenhua Energy Company, a subsidiary of the state-owned CHN Energy group.
- The test was conducted on the Baoshen Railway in the Inner Mongolia autonomous region.
- Technology used
    - The system uses a wireless group control system based entirely on wireless communication.
    - It replaces traditional mechanical couplers with virtual coupling through continuous wireless signals.
    - It applies a two-dimensional control mode that combines relative speed control with absolute distance monitoring.
- Key features
    - Seven freight trains, each carrying 5,000 tonnes, operated as a single coordinated unit without physical attachment.
    - The trains maintained a distance of around 1,091 metres while running at a speed of 60 kmph during the trial.
    - All trains synchronised acceleration and braking through wireless signals, and no collision or separation occurred.
    - The system allowed trains to respond quickly to movement changes and operate safely at closer intervals.
- Significance: The technology can increase China's railway freight capacity by over 50 percent without building additional railway infrastructure.

## Annatto

News: The CSIR–Central Food Technological Research Institute (CSIR–CFTRI), Mysuru has undertaken four Grant-in-Aid projects on annatto, including post-harvest technologies and Vitamin-E enriched annatto oil development.

**About Annatto**

Source – Health

- Annatto is a natural food colouring and flavouring agent obtained from the seeds of the achiote tree.
- It is scientifically known as *Bixa orellana*.
- Native to: Annatto is native to the tropical regions of Central and South America and other tropical parts of the Americas.
- Colour: Annatto provides a yellow to red-orange colour to foods due to carotenoid pigments, mainly bixin and norbixin, present in the seed coating.
- Flavour: Annatto has a mild, slightly nutty, sweet, and peppery flavour, along with a nutty and floral scent when used in food.
- Uses
    - Culinary Uses: Annatto is used to colour cheese, butter, yogurt, sausages, smoked fish, ice cream, rice, and baked goods, and as annatto-infused oil in cooking.
    - Cosmetics uses: Historically used for body paint and lipstick due to its vibrant color, it is also used in modern cosmetics.
- Health benefits
    - Annatto contains carotenoid pigments such as bixin and norbixin, which act as antioxidants and help reduce cell damage.
    - It is rich in antimicrobial compounds that can limit the growth of bacteria, fungi, and parasites.
    - It contains tocotrienols, a form of vitamin E, which may support heart health and bone strength.
    - It has been linked to reduced inflammation and improved eye and skin health.

## Multi-Lane Free Flow (MLFF) Tolling System

News: The Union Road Transport Minister informed the Rajya Sabha about the nationwide rollout of the MLFF tolling system by 2026.

**About Multi-Lane Free Flow (MLFF) Tolling System**

Source – India SeaTrade News

- The Multi-Lane Free Flow tolling system is a barrier-free digital toll collection system that allows vehicles to pass toll points without stopping.
- Initiated by: The system has been initiated by the National Highways Authority of India through its subsidiary Indian Highways Management Company Limited.
- Technologies used : Each tolling point will be equipped with:
    - Automatic Number Plate Recognition (ANPR) cameras at the front and rear to capture license plates.
    - High-performance RFID readers that detect and authenticate FASTag information.
    - Artificial intelligence-enabled software for precise optical character recognition and data validation.
    - LiDAR-based sensors for accurate vehicle classification.
- Working mechanism
    - When a vehicle passes through a toll, its registration number and FASTag details are automatically identified, verified, and processed for real-time toll deduction through the NPCI network.
    - Each site will have a bank or financial entity partnered with a system integrator to manage and operate the tolling system.

**About Indian Highways Management Company Limited**

- Indian Highways Management Company Limited was incorporated jointly by NHAI, its concessionaires, and financial institutions.
- It was established on 26 December 2012.
- The shareholding pattern of stakeholders is NHAI-41.38%, Concessionaires-33.81% and Financial Institutions 24.81%.
- The company was formed under the Companies Act, 1956 to carry out electronic tolling and allied works of NHAI.
- Functions
    - IHMCL implements the FASTag-based Electronic Toll Collection system and deploys Intelligent Transport Systems, including GIS-based tracking and AI-driven traffic management, on national highways.
    - It manages the 1033 toll-free helpline and the toll clearinghouse, and has moved toward data monetisation to share insights with enforcement agencies.

# Pamir Mountains/ Pamir-Karakoram Anomaly

News: Scientists have extracted deep ice cores from the Kon-Chukurbashi ice cap in the Pamir Mountains to study why glaciers in this region have resisted melting and even slightly grown.

**About Pamir Mountains**


*Figure 19. Source – World Atlas*

- Location: The Pamir Mountains are primarily located in Tajikistan, with parts extending into Afghanistan, China, and Kyrgyzstan.
  - They are situated at a junction with other significant mountain ranges, including the Tian Shan, Karakoram, Hindu Kush, and Himalayas.
  - The Pamir Mountains are part of the greater Pamir-Alai system, which stretches from west to east for 560 miles (900 km), and from north to south for 250 miles (400 km).
- Physiographic Structure: Major ranges include the Trans-Alai, Akademii Nauk, Sarykol, Muzkol, and Alichur ranges.
- Major Peaks and Glaciers: The highest peak is Ismail Samani Peak (7,495 m), followed by Lenin (Ibn Sina) Peak.
  - Extensive glaciation occurs due to heavy snowfall, with the Fedchenko Glacier being the largest, dominating the central Pamirs and feeding several major river systems.
- Eastern and Western Pamirs: The eastern Pamirs have high plateaus, rounded mountains, and broad valleys with relatively low relief.
  - The western Pamirs are sharply dissected, with steep ridges, deep gorges, fast-flowing rivers, and narrow zones suitable for human settlement along alluvial fans.
- Pamir–Karakoram anomaly: It refers to the unusual behaviour of glaciers in the Pamir, Karakoram, and Western Kunlun ranges, where glaciers remained stable or slightly grew while most glaciers worldwide were shrinking.
  - Reason behind the anomaly: Increased winter snowfall due to Western Disturbances added more ice to glaciers, while cooler summer temperatures reduced melting.
  - The Kon-Chukurbashi ice cap in the Pamir Mountains is the only mountainous region on the earth where glaciers have not only resisted melting, but even slightly grown.
- Drainage System: Most meltwater drains into the Panj and Vakhsh rivers, forming the Amu Darya, vital for downstream irrigation.
- Geological Structure: Geologically, the Pamirs are divided into northern, central, and southern zones. They contain Precambrian metamorphic rocks, Paleozoic marine deposits, and younger sedimentary formations, shaped by intense folding, faulting, overthrusts, and frequent seismic activity.
- Climate Characteristics: The climate is cold, arid, and continental, with severe winters and mild to warm summers.

- Temperature extremes are common, snowfall is heavy at higher elevations, and Afghan winds cause summer dust storms and convectional rainfall in western valleys.

- People and Economy: Eastern Pamirs are inhabited mainly by pastoral Kyrgyz, while western valleys are home to Ismaili Mountain Tajiks.
  - Livelihoods include yak herding, agriculture, orchards, and trade.
  - Roads and historic Silk Route corridors connect the Pamirs to Central Asia and China.
- Flora: Vegetation ranges from alpine bogs and steppe grasses in the east to juniper, willow, and fruit trees in western valleys.
- Fauna: Wildlife includes Marco Polo sheep, ibex, brown bears, wolves, snow leopards, and high-altitude birds like lammergeiers.

## Key facts about Oman

News: Amid increasing trade restrictions in the US due to tariffs and the European Union on account of the carbon tax, India has signed a trade deal with Oman to expand the footprint for its exports in West Asia.

**Key facts about Oman**


Source – Britannica

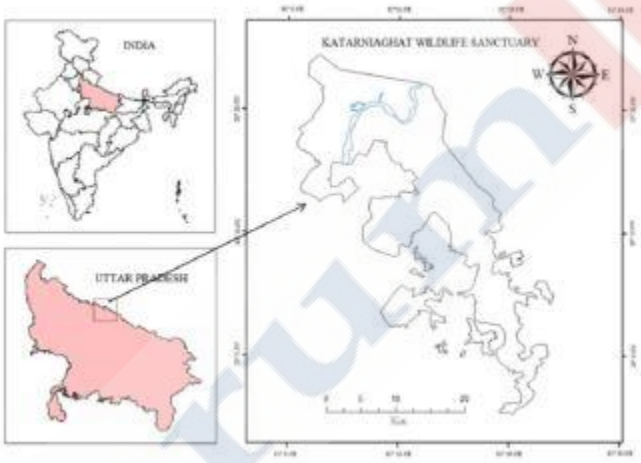
- Location: Oman is located on the southeastern coast of the Arabian Peninsula, at the junction of the Persian Gulf and the Arabian Sea.
- Sharing border: It shares borders with Yemen (southwest), Saudi Arabia (west), and the United Arab Emirates (northwest).
  - The country has a strategic frontage near the Strait of Hormuz through the Musandam Peninsula.
- Ruler: It is ruled by a hereditary monarchy under the Āl Bū Saʿīd dynasty.
- Capital: Muscat
- Physical Geography
  - Oman's interior is dominated by the Rubʿ al-Khali (Empty Quarter) desert which is shared by the Saudi Arabia and Yemen also.
  - The Ḥajar Mountains run parallel to the northern coast and include Mount Shams, the highest peak at about 2,980 m.

- The Al-Bāṭinah coastal plain is fertile and densely populated.
- Climate: Oman has a hot and arid climate, with extreme summer temperatures exceeding 43°C in coastal areas.
- Ports: The Port of Salalah is the largest port in Oman.
- Islands: It also has offshore territories such as Maşīrah Island and Al-Ḥallāniyyah Island.
- Flora: Natural vegetation is sparse, limited mainly to acacia trees and irrigated areas.
- Fauna: Oman protects endangered species such as the Arabian oryx, Arabian leopard, and loggerhead turtle. The country has rich bird diversity due to its geographical location.

## Katarniaghat Wildlife Sanctuary

News: A tiger attacked a woman in the Dharmapur Range of Katarniaghat Wildlife Sanctuary in Bahraich, according to forest officials.

**About Katarniaghat Wildlife Sanctuary**




Source – Research Gate

- Location: Katarniaghat Wildlife Sanctuary is a protected area located in the Upper Gangetic plain, falling in the Terai region of Bahraich district in Uttar Pradesh.
- Establishment: It was established in 1975.
- Border and Wildlife Corridor: The sanctuary shares an international border with Nepal and provides strategic connectivity between tiger habitats of Dudhwa and Kishanpur in India and the Bardia National Park in Nepal.
- Tiger Reserve: In 1987, the sanctuary was brought under Project Tiger and, along with Dudhwa National Park and Kishanpur Wildlife Sanctuary, forms the Dudhwa Tiger Reserve.
- River: The Girwa River flows through the sanctuary and is declared a protected stretch for gharial and mugger crocodiles.
- Flora: The vegetation mainly consists of grasslands, mixed deciduous forests, and moist deciduous forests dominated by sal trees, along with species like Asna, Asidha, Haldu, Faldu, and Gahmhar.
- Fauna: The sanctuary is home to endangered species such as tiger, gharial, Gangetic dolphin, rhino, swamp deer, hispid hare, Bengal florican, and white-backed and long-billed vultures.

# Bureau of Port Security (BoPS)

News: The Union Home Minister chaired a meeting to constitute a statutory Bureau of Port Security to strengthen port and vessel security.

**About Bureau of Port Security (BoPS)**


Source – The Morning Voice

- The Bureau of Port Security is a dedicated body proposed to strengthen security oversight of ports, ships, and maritime infrastructure.
- Legal status: The Bureau of Port Security shall be constituted as a statutory body under Section 13 of the newly promulgated Merchant Shipping Act, 2025.
- Ministry involved: The Bureau shall function under the aegis of the Ministry of Ports, Shipping and Waterways (MoPSW).
- Functions
    - The Bureau shall carry out regulatory and oversight functions relating to the security of ships and port facilities across the country.
    - It will have the legal authority to enforce compliance with the International Ship and Port Facility Security (ISPS) Code.
    - Intelligence and Cybersecurity: The Bureau shall ensure timely analysis, collection, and exchange of security-related information, with a special focus on cyber security.
        - It will include a dedicated division to protect port IT infrastructure from digital and cyber threats.
- Structure
    - Interim: The Director General of Shipping (DGS) will hold additional charge as the DG of BoPS for the initial one-year transition period.
    - Permanent: The bureau will subsequently be led by a senior IPS officer (Pay Level-15) to ensure rigorous regulatory enforcement.
    - The Central Industrial Security Force (CISF) has been officially designated as a Recognised Security Organisation (RSO).
        - This empowers the CISF to conduct mandatory security assessments, perform audits, and prepare security plans for all port facilities, including private terminals.
- "Graded security" model: The security protocols will be customized based on a port's location, trade volume, and vulnerability, rather than a "one-size-fits-all" approach.
- Includes private ports: Its regulations and CISF security audits are mandatory for all ports operating in India, including private entities like Mundra or Krishnapatnam.

## Kosi River

News: The Bheja–Bakaur Kosi Bridge project is nearing completion to improve connectivity in flood-affected regions of Madhubani and Supaul in Bihar.

**About Kosi River**


Source – ResearchGate

- Origins: The Kosi River is formed by the confluence of the Sun Kosi, Arun Kosi, and Tamur Kosi, originating in the Himalayan regions of Nepal and Tibet, and enters India in Bihar.
- Geographical boundaries Kosi river basin: The river basin is surrounded by ridges which separate the Kosi from the Yarlung Tsangpo River in the north, the Gandaki River in the west and the Mahananda River in the east.
- Length: The Kosi River is about 724 km long.
- Tributaries of Kosi: It is called *Saptakoshi* because it has seven main tributaries, namely Sun Kosi, Tama Kosi, Dudh Koshi, Indravati, Arun Kosi, Likhu Khola, and Tamur.
- Joins into: It joins the Ganges River near Kursela in the Katihar district of Bihar.
    - It is the third-largest tributary of the Ganges by water discharge after the Ghaghara and the Yamuna.
- It is known as the "Sorrow of Bihar" due to frequent floods and rapid westward shifting of its river channel.
- Its vast alluvial fan in north-east Bihar is one of the largest in the world and supports fertile agriculture.
- Cultural Significance: The Kosi River, known as Kausiki in the Mahabharata, is the lifeline of the Mithila region.

## LVM3-M6 / BlueBird Block-2 Mission

News: In a significant commercial milestone, ISRO's LVM3-M6 rocket is set to launch a communication satellite for the US-based firm AST SpaceMobile.

**About LVM3-M6 / BlueBird Block-2 Mission**


- LVM3-M6 / BlueBird Block-2 is a dedicated commercial mission of ISRO's LVM3 launch vehicle.
- The mission will launch the BlueBird Block-2 communication satellite of AST SpaceMobile, USA.
- It is the 6th operational flight of the LVM3 rocket.
- Launched by: ISRO
- In this mission, LVM3-M6 will place the BlueBird Block-2 satellite into Low Earth Orbit (LEO).
- LVM3 is a three-stage launch vehicle. It consists of two solid strap-on motors (S200), a liquid core stage (L110), and a cryogenic upper stage (C25). The rocket has a lift-off mass of 640 tonnes, a height of 43.5 m, and can carry 4,200 kg to GTO.
- It will be the largest commercial communications satellite deployed in LEO.
- It will also be the heaviest payload launched by LVM3 from Indian soil.
- The BlueBird Block-2 satellite is designed to provide direct space-based cellular broadband connectivity to standard mobile smartphones.
- Earlier missions of LVM3 include Chandrayaan-2, Chandrayaan-3, and two OneWeb missions carrying 72 satellites.

## Fast Patrol Vessel 'Amulya'

News: Indian Coast Guard (ICG) Ship 'Amulya' Fast Patrol Vessels was commissioned in Goa.

**About Fast Patrol Vessel 'Amulya'**

Source: PIB

- ICG Ship *Amulya* is a new-generation Fast Patrol Vessel of the Indian Coast Guard.
- Naming: The name *Amulya* means "priceless" and reflects India's defence self-reliance under Aatmanirbhar Bharat and Make-in-India initiatives.
- The vessel will be based at Paradip, Odisha and will operate under the Coast Guard Region (North East).
- It is the third vessel in the eight-ship Adamya-class series.
- Designed and built indigenously by: Goa Shipyard Limited (GSL).
- Features: *Amulya* is a 51-metre-long vessel with over 60% indigenous components.
    - The vessel incorporates a modern design focused on efficiency, endurance, and rapid response.
    - It is powered by two 3000 kW advanced diesel engines.
    - The ship can achieve a maximum speed of 27 knots.
    - It has an operational endurance of 1,500 nautical miles.
    - It is equipped with indigenous, state-of-the-art weapons and systems. It is capable of surveillance, interdiction, search and rescue, anti-smuggling operations, and pollution response.
- Other ships in the Adamya-class series: Adamya and Akshar, Akshay, Achal, Atal, Ajit and Aparajit.

## Udanti–Sitanadi Tiger Reserve

News: Forest authorities arrested 53 persons for attempting to encroach upon protected land within the Udanti Sitanadi Tiger Reserve, Chhattisgarh.

**About Udanti–Sitanadi Tiger Reserve**

Source: Udanti Sitanadi Tiger Reserve

- The Udanti–Sitanadi Tiger Reserve is located in the Chhattisgarh.
- The reserve includes the Udanti Wildlife Sanctuary and the Sitanadi Wildlife Sanctuary along with parts of Tourenga, Mainpur, Indagaon, Kulhadighat, Dhawalpur, and Sankara forest ranges.
- It was declared tiger reserve in the year 1984. Later, it became part of the Udanti–Sitanadi Tiger Reserve.
- It acts as a buffer for Sunabeda Wildlife Sanctuary and forms a larger Chhattisgarh–Odisha tiger conservation unit.
- The Tiger Reserve is named after the rivers Udanti and Sitanadi flowing into the Udanti Sanctuary and Sitanadi Sanctuary.
- Core Areas of the Reserve: Udanti and Sitanadi
- Vegetation: The forest type here is predominantly tropical dry and moist deciduous, with a mix of sal (Shorea robusta), bamboo, and other hardwood species.
- Flora: The Udanti Sitanadi Tiger Reserve consists mainly of sal, mixed forest and bamboo forest on hilly areas. There are natural forests of teak in some areas, in which mainly species like Bija, Sheesham, Tinsa, Saj, Khamhar, Haldu, Mudi, Kullu, Karra, Senha, Amaltas etc. are found. Various types of medicinal plants are abundant in the tiger reserve.
- Fauna: The Asiatic Wild Buffalo is the most important endangered species found in the reserve. Other notable animals include the tiger, leopard, Indian wolf, sloth bear, and mouse deer.

## Dark Eagle Long-Range Hypersonic Weapon (LRHW)

News: The US Army plans to deploy the Dark Eagle LRHW on a mobile, land-based platform, while the US Navy will field its Conventional Prompt Strike (CPS) version for launch from surface ships and submarines.

**About Dark Eagle Long-Range Hypersonic Weapon (LRHW)**

Source: eurasiantimes

- The Dark Eagle is a long-range hypersonic missile system developed by U.S.A.
- It is designed to deliver fast, precise, and hard-to-intercept conventional strikes against high-value targets.
- The US Navy will deploy a naval version called Conventional Prompt Strike (CPS), which can be launched from surface ships and submarines.
- Features:
    - Dark Eagle is an intermediate-range boost-glide hypersonic weapon.
    - It uses a booster rocket that carries a Common Hypersonic Glide Body (C-HGB) inside the nose cone.
    - Working Mechanism: After launch, the booster rocket carries the glide body to a high altitude and speed. The glide body then separates and travels toward the target by gliding at hypersonic speeds while maneuvering unpredictably.
    - Range and Speed: The missile has a reported range of about 3,500 km and travels at speeds exceeding Mach 5. Analysis suggests that its cruising speed may approach Mach 10 to reach maximum range in under 20 minutes.
    - Dark Eagle flies at low altitudes and performs unpredictable maneuvers. This reduces the reaction time available to enemy air defense systems.
    - The missile reportedly carries a small blast-fragmentation warhead with a limited explosive charge.
    - Its destructive capability mainly comes from extremely high kinetic energy and high-velocity fragmentation at impact.
    - Dark Eagle is well-suited for striking air defense systems, command-and-control centers, and military infrastructure. Its wide fragment dispersion increases effectiveness even if precision is affected by electronic warfare.
    - The missile's speed, maneuverability, and low-altitude flight make it very difficult to intercept using current air defense systems such as the S-400 or S-500.
    - The launcher is mounted on a mobile, truck-based platform, making detection and pre-emptive strikes difficult. The system can also be airlifted and rapidly deployed to forward locations.

# Candida Auris

News: Scientists have discovered a genetic process which could unlock new ways to treat Candida auris which has shut down multiple hospital intensive care units.

**About Candida Auris**


Source – Surfacide

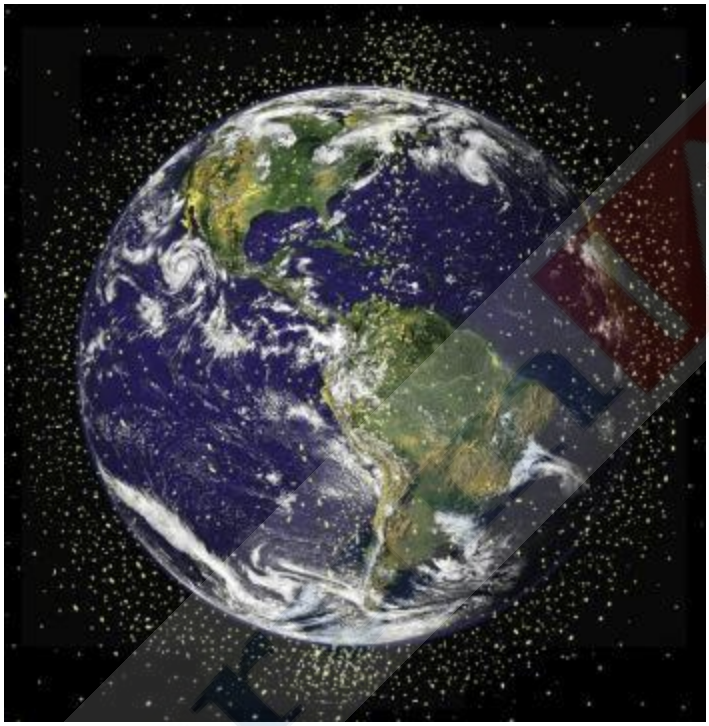
- Candida Auris (C. auris) is a fungus that can cause serious and potentially life-threatening illness.
- Some strains of Candida auris are resistant to multiple antifungal drugs, which makes infections difficult to treat.
- Candida auris most commonly spreads in hospitals and long-term care facilities.
- People usually acquire Candida auris from contaminated surfaces or from contact with infected or colonized individuals.
- Types of Infections caused: Candida auris can cause ear infections, wound infections, urinary tract infections and bloodstream infections that spread throughout the body.
- Symptoms
    - Symptoms of a Candida auris infection depend on the part of the body affected.
    - Common symptoms include fever and chills.
    - Some patients may experience lethargy or extreme tiredness.
    - It can cause low blood pressure and a high heart rate.
        - Some patients may have a low body temperature.
    - Ear infections caused by C. auris may cause pain, pressure, or a feeling of fullness in the ear.
- Transmission: Candida auris can pass from person to person.
    - Candida auris spreads through contact with infected or colonized individuals.
    - It can also spread through contact with contaminated surfaces or medical equipment.
    - The fungus can enter the body through medical devices such as central venous lines or breathing tubes.
    - It does not spread through the air.
- Diagnosis of Candida auris Infection: Candida auris infections are difficult to diagnose.
    - Special laboratory testing is required to identify the fungus accurately.
- Treatment and Management
    - Candida auris infections can usually be treated with echinocandin antifungal medications.
    - Some strains of Candida auris are resistant to available medications.

- Drug-resistant infections may require a combination of antifungal treatments.
- Early detection and appropriate therapy improve treatment outcomes.

## Micrometeoroids and Orbital Debris (MMOD)

News: The MMOD threat gained attention after space debris hit China's Shenzhou-20 crewed vehicle, causing a minor crack in its return capsule window.

**About Micrometeoroids and Orbital Debris (MMOD)**



Source – NASA

- Micrometeoroids: These are naturally occurring, extremely small particles ranging from a few micrometres to about two millimetres in size.
  - Origin: Most originate from asteroid collisions in the asteroid belt, with some coming from comets.
  - Velocity: They travel at very high velocities.
- Orbital Debris: These are human-made objects in Earth's orbit that no longer serve any useful purpose.
  - Origin: They mainly come from exploded rocket stages, defunct satellites, accidental collisions, and anti-satellite weapon tests.
- Threats Posed by MMOD
  - The extreme velocity of MMOD means that even tiny fragments carry enough kinetic energy to cause critical damage or catastrophic failure to spacecraft systems.
  - Kessler Syndrome: Increasing debris density may trigger cascading collisions, known as the Kessler Syndrome, potentially making space travel impossible in certain orbits.
- Mitigation and management strategies
  - Space agencies use engineering models, tracking data, and software tools to assess MMOD risk and protect spacecraft using physical shielding such as Whipple shields.

- Large debris is tracked, and collision avoidance manoeuvres are performed when a risk is detected.

- International cooperation
  - Inter-Agency Space Debris Coordination Committee (IADC): An international forum for governmental bodies to coordinate efforts in space debris research.
  - ESA's Zero Debris Charter: Aiming for zero new space debris by 2030.
- Indian initiatives
  - Project NETRA (ISRO): An early warning system in space to detect debris and other hazards to Indian satellites.
  - ISRO System for Safe and Sustainable Space Operations Management (IS4OM): A dedicated facility to monitor and mitigate space debris.
  - POEM (PSLV Orbital Experimental Module): ISRO's initiative to use spent rocket stages as orbital platforms, reducing "dead" junk in orbit.

## Chillai-Kalan

News: Chillai-Kalan began on December 21, 2025, bringing rain and snowfall across Kashmir after a prolonged dry spell in the Valley.

**About Chillai-Kalan**


Source – News X

- Chillai-Kalan is the forty-day period of the harshest winter cold in the Kashmir Valley.
- Naming: The term Chillai-Kalan comes from Persian and means "Major Cold".
- Duration: It generally begins on December 21 and continues until January 30.
- Climate: It is characterized by sub-zero temperatures, snowfall in higher altitude and rain in the plains, and freezing of water bodies like the Dal Lake.
- Three Phases
  - Chillai-Kalan (Big Cold): It is the main forty-day phase of extreme winter cold from December 21 to January 30.
  - Chillai-Khurd (Small Cold): It is a twenty-day period of comparatively moderate cold from January 31 to February 19.
  - Chillai-Bacha (Baby Cold): It is a ten-day phase of mild cold from February 20 to March 2.
- Significance: Expected rain and snowfall during Chillai-Kalan may end a dry spell of over two months, reduce suspended particulate matter build-up, improve air quality and ease rising respiratory problems .

- Cultural significance: The night of December 21 is observed in Persian tradition as Shab-e Yalda-"Night of Birth", or Shab-e Chelleh. – "Night of Forty".
- Ecological Significance: The heavy snowfall during this period is critical for replenishing glaciers, streams, and rivers, ensuring water security for the region during summer.

## Anjadip – Anti-Submarine Warfare Shallow Water Craft

News: INS *Anjadip'* Anti-Submarine Warfare Shallow Water Craft) was delivered to the Indian Navy.

**About INS Anjadip – Anti-Submarine Warfare Shallow Water Craft (ASW SWC)**

- INS Anjadip is the third of eight Anti-Submarine Warfare Shallow Water Craft being inducted into the Indian Navy.
- Named after: The ship derives its name from Anjadip Island located off the coast of Karwar in Karnataka.
- Constructed by: INS Anjadip has been indigenously designed and constructed by Garden Reach Shipbuilders and Engineers (GRSE), Kolkata.
- The vessel has been constructed in accordance with the Classification Rules of the Indian Register of Shipping.
- The ship is a reincarnation of the erstwhile INS Anjadip, a Petya class Corvette decommissioned in 2003.
- Features:
    - Size and propulsion: It is approximately 77 m in length, making it one of the largest shallow water combat vessels to be propelled by waterjet propulsion systems.
    - Operational role: The ship will strengthen Navy's Anti-Submarine, coastal surveillance and mine laying capabilities.
- Weapons: It is equipped with state of the art Lightweight Torpedoes, indigenously designed Anti-Submarine Rockets and shallow water SONAR, enabling effective detection and engagement of underwater threats.

## India–New Zealand FTA

News: India and New Zealand concluded discussions on a free trade agreement to provide tariff-free access, attract investments, and expand bilateral trade.

**About India–New Zealand FTA**


*Figure 20. Source – ToI*

The India–New Zealand Free Trade Agreement is India's second bilateral trade agreement in the Oceania region after the India–Australia FTA.

- Key Takeaways of India–New Zealand FTA
  - Tariff Elimination: The FTA eliminates duty on 100% of Indian exports.
  - Investment Commitment: The agreement includes a USD 20 billion investment commitment over 15 years, strengthening long-term economic and strategic cooperation.
  - Trade Target: The FTA aims to double bilateral trade to USD 5 billion within five years.
  - Trade Growth: Merchandise trade grew from USD 873 million in 2023–24 to USD 1.3 billion in 2024–25, registering a 49% increase.
  - Export Performance: Indian merchandise exports reached USD 711 million in 2024–25, while services exports grew to USD 634 million, led by travel, IT, and business services.
  - Sectoral Gains: Zero-duty access benefits labour-intensive sectors such as textiles, apparel, leather, footwear, gems and jewellery, engineering goods, and processed foods.
  - Tariff Structure: India offered market access in 70.03% of tariff lines, with 30% immediate elimination and phased reduction for 35.60% over 3 to 10 years.
  - Sensitive Protection: Key products such as dairy, select agricultural goods, sugar, fats and oils, arms, and certain metals remain in the exclusion list.
  - Services Access: New Zealand made its best-ever services offer, including an annex on Health and Traditional Medicine Services.
  - Mobility Pathways: The FTA opens new routes through 5,000 skilled professional visas and 1,000 working holiday visas, benefiting Indian students and workers.

## Swami Shraddhanand

News: Union Home Minister Amit Shah paid tribute to Swami Shraddhanand on his Balidaan Diwas, highlighting his role in Swaraj and social reform.

**About Swami Shraddhanand**

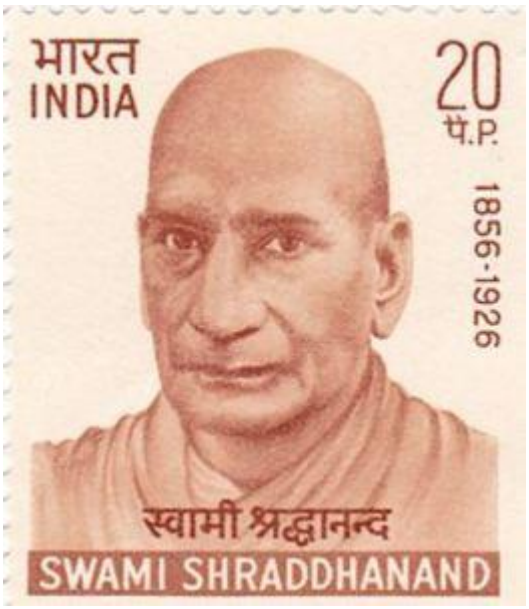



*Figure 21. Source – Indian Post*

- Swami Shraddhanand, originally named Munshi Ram, was a social reformer, educationist, religious leader, and freedom activist associated with the Arya Samaj tradition.
- Birth: He was born on February 22, 1856, in Talwan village of Jalandhar district, Punjab.
- Embraced Sanyasa : In 1917 he embraced Sanyasa and came to be known as Swami Shraddhanand.
  - He later came into contact with Swami Dayanand Saraswati in the early 1880s, which shaped his reformist outlook.
- Key Contributions
  - Educationist: He established Gurukul Kangri Vishwavidyalaya near Haridwar in 1902, promoting education based on Vedic traditions.
  - He also founded Gurukul Indraprashtha in the Aravali region near Faridabad.
  - Independence activist: He led an anti-Rowlatt act procession at Chandni Chowk in Delhi.
    - He invited the Indian National Congress to hold its 1919 session at Amritsar.
    - He joined the Non-cooperation movement but later resigned due to disagreement with Gandhi.
  - Social reformer: He strongly opposed untouchability and described it as a curse on Hindu society.
    - He also organised the Delhi Suddhar Sabha for the upliftment of the oppressed class.
    - Dr. B.R. Ambedkar called him the greatest and most sincere champion of the untouchables.
  - Religious leadership: He played a leading role in the Shuddhi movement to reconvert people to Hinduism.
    - His sympathy with the Gurdwara Sudhar agitation won the hearts of the Sikhs.
    - In 1922, he became the first Hindu sanyasi to address a gathering from the minarets of Delhi's Jama Masjid.
- Key Works
  - *Kalyan Marg Ka Pathik*: His autobiography, detailing his life and transformation.
  - *Hindu Sangathan: Saviour of the Dying Race*: An influential English work advocating for Hindu consolidation and revival.
  - *Inside Congress*: A series of articles published in *The Liberator*, offering his perspective on the Indian National Congress.
  - *Hindu Sangathan – Kyon Aur Kaise?* (Why and How to Organize Hindus?): The Hindi version of his call for Hindu unity.
  - *Aryapathik Pandit Lekhram*: A biography of martyr Pandit Lekhram, another key figure in the Arya Samaj movement.
- Other writings
  - Vedic Literature: He wrote on Vedic subjects and published works like *Presentation of Vedic Literature*.

- Social & Religious Reform: His writings, including articles on *Shuddhi*(purification) and *Sangathan* (organization), were central to his activism.
- Death: Swami Shraddhanand was assassinated on December 23, 1926, at his Delhi residence, and the day is observed as Balidaan Diwas.

## Akash-NG Missile System

News: DRDO successfully completed User Evaluation Trials of Akash-NG, clearing the way for its induction into the Indian armed forces.

**About Akash-NG Missile System**


Source – BEL

- The Akash-NG (New Generation) is a state-of-the-art, medium-range surface-to-air missile (SAM).
- Developed by: It has been indigenously developed by the Defence Research and Development Laboratory (DRDL), in collaboration with other laboratories of DRDO.
- Produced by: Bharat Electronics Limited (BEL) and Bharat Dynamics Limited (BDL) participated as production agencies.
- Key features
  - Range: It's extended range of 70-80 km compared to older Akash variants.
  - Technology: It features an AESA (Active Electronically Scanned Array) radar, indigenously developed Radio Frequency (RF) seeker.
  - It is canisterised, meaning it is stored and operated from controlled compartments that ease transport and improve shelf life.
  - Capability: It can engage multiple targets simultaneously, crucial for defense against drone swarms and cruise missiles.
  - All major systems such as radar, command and control unit, and missile launch vehicle are indigenously designed.
- Different types and comparison (Akash family)
  - Akash is primarily a Short Range SAM for air defence cover to vulnerable areas.
  - Akash Prime is an advanced version with the same range, but with an indigenous active RF seeker and better high-altitude low-temperature performance.
  - Akash-NG is a new generation SAM, designed mainly for the IAF, with extended range and a smaller ground footprint.

# Vinod Kumar Shukla

News: Vinod Kumar Shukla, the 2024 Jnanpith awardee, died in Raipur on December 23, 2025, at the age of 88.

**About Vinod Kumar Shukla**

Source – IE

- Vinod Kumar Shukla was a renowned Hindi poet and novelist, known for portraying ordinary life with deep sensitivity and poetic expression.
- Birth: He was born on 1 January 1937 in Rajnandgaon, Chhattisgarh, which was earlier part of the princely state of Nangaon.
- Education: He completed his post-graduation as M.Sc. in Agriculture from Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV), Jabalpur.
    - After completing his education, he joined as a lecturer at the Agriculture College, Raipur.
- Influenced by: He was deeply influenced by poet Gajanan Madhav Muktibodh.
- Writing style: His writing style is described as magical realism, through which he expressed the emotional depth and dignity of ordinary life.
- Works
    - His first poetry collection Lagbhag Jai Hind was published in 1971.
    - Major poetry collections include Vah Aadmi Chala Gaya Naya Garam Coat Pehankar Vichar Ki Tarah and Sab Kuch Hona Bacha Rahega.
    - Novels: His novels include Naukar Ki Kameez, Khilega To Dekhenge, and Deewar Mein Ek Khidki Rehti Thi.
- Awards & Honours
    - He become first writer from Chhattisgarh to receive the Jnanpith Award (59th).
    - He received Sahitya Akademi Award (for the novel Deewar Mein Ek Khidki Rehti Thi)
    - He become first Indian author to receive PEN/Nabokov Award for Achievement in International Literature
    - He was also honoured with the Shikhar Samman, Rashtriya Hindi Gaurav Samman, Maithilisharan Gupt Samman, Gajanan Madhav Muktibodh Fellowship, Raza Award, and the Matribhoomi Book of the Year Award for his distinguished literary contribution.
- Death: He died in Raipur on December 23, 2025, while undergoing treatment at AIIMS Raipur.

## 'SHAKTI Scholars' fellowship

News: The National Commission for Women (NCW) has introduced the 'SHAKTI Scholars: NCW Young Research Fellowship' to invite students and young researchers to undertake policy-oriented research on issues related to women across India.

**About 'SHAKTI Scholars' fellowship**


*Figure 22. Source – DD News*

- Launched by: National Commission for Women (NCW) to encourage research on women-centric issues in India.
- Aim: The fellowship focuses on supporting policy-oriented and multidisciplinary research by young scholars.
- Objective of the Fellowship
  - The primary objective of the fellowship is to generate research-based insights that can contribute to effective policymaking related to women's empowerment and protection.
  - The programme seeks to strengthen academic engagement with contemporary challenges faced by women across the country.
- Areas of Research
  - The fellowship supports research on women's safety, dignity, and prevention of gender-based violence.
  - It includes studies on legal rights of women and their access to justice mechanisms.
  - Research may be conducted on cyber safety and the implementation of the Prevention of Sexual Harassment (POSH) framework.
  - The programme also covers women's leadership, political participation, health, nutrition, education, and skill development.
  - It encourages research on economic empowerment, labour force participation, socio-cultural practices, and work-life balance.
- Eligibility Criteria
  - Applicants must be Indian citizens between the ages of 21 and 30 years.
  - Candidates must possess at least a graduation degree from a recognised institution.
  - Preference will be given to candidates who are pursuing or have completed post-graduation or higher research.
  - Independent researchers with proven research capability are also eligible to apply.
- Duration of the Fellowship: The duration of the SHAKTI Scholars fellowship is six months.
- Financial Assistance: Selected fellows will receive a research grant of ₹1 lakh to support their study.
- Selection Process
  - Applications will be evaluated by an Expert Committee constituted by the NCW.
  - Shortlisted candidates will be invited for an online interaction as part of the selection process.

## Ghost Pairing

News: WhatsApp ghost pairing has led to a recent rise in cases of cyber fraud involving unauthorised access to users' messaging accounts.

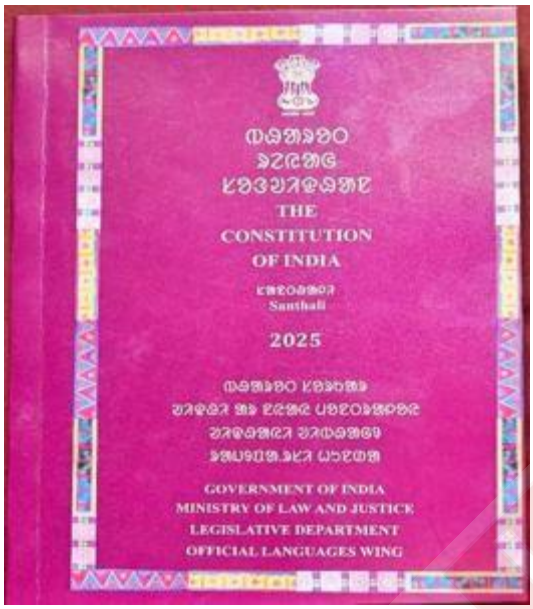
**About Ghost Pairing**

- Ghost pairing is a cyber fraud technique in which attackers gain unauthorised access to a victim's WhatsApp account.
- It occurs when fraudsters secretly link the victim's WhatsApp account to another device without the victim's knowledge.
- How Ghost Pairing Works
    - Cybercriminals use social engineering tactics to trick users into clicking malicious links or scanning QR codes.
    - These links often appear as innocent messages such as "Hi, check this photo" or urgent alerts.
    - Once the victim clicks the link or completes a verification step, the attacker pairs the victim's WhatsApp account to their own device.
    - This gives the attacker full access to chats, contacts, photos, and videos without requiring passwords or SIM swapping.
- Techniques Used by Attackers
    - Fraudsters impersonate known contacts, bank officials, or government representatives to build trust.
    - They use panic-inducing messages, such as threats of account freezing or number blocking, to force quick action.
    - The attack relies on the victim's lack of awareness rather than technical hacking.
- Risks and Consequences
    - Attackers can read private conversations and download sensitive photos and videos.
    - Victims may be blackmailed using personal data obtained from the account.
    - Financial fraud may occur if banking details, IDs, or card information are stored on the phone.
    - The attacker can also scam the victim's contacts by impersonating them.
- Government Advisory: The Ministry of Electronics and Information Technology has issued advisories warning users about ghost pairing and similar cyber threats. Citizens have been urged to remain cautious while using messaging platforms.

## Santhali language

News: The President of India released the Constitution of India in the Santhali language, written in the Ol Chiki script, at Rashtrapati Bhavan.

**About Santhali Language**




Source – PIB

- The Santhali language is one of the most ancient living languages of India and is spoken by the Santal tribal community.
- Script: Santhali is primarily written in the Ol Chiki script, which is considered its official script.
    - It is also written using Bengali, Odia, Devanagari, and Latin scripts in some regions.
- Spoken by: Santhali is spoken by a significant number of people in Jharkhand, Odisha, West Bengal, and Bihar.
    - The Santhali-speaking community is also spread across Assam, Tripura, Chhattisgarh, Bangladesh, Bhutan, and Nepal.
    - According to the 2011 Census of India, more than seventy lakh people speak the Santhali language in India.
- Official status: Santhali was included in the Eighth Schedule of the Constitution of India through the 92nd Amendment Act, 2003.
- It is recognised as a scheduled language and has official status in Jharkhand and West Bengal.
- Also known as
    - In Nepal, it is known as Satar.
    - In North Bengal, it is known as jaŋli or pahaɽia.
    - In Bihar, it is known as parsi.
- About Ol Chiki script
    - Inventor: Ol Chiki was created in 1925 by Raghunath Murmu to write the Santhali language.
    - It was developed to promote Santhali culture and identity.
    - Script type: Ol Chiki is an alphabetic script in which vowels and consonants are written as separate and independent letters.
    - Direction: It is written from left to right.
    - Character count: The script has a total of 30 letters, including 6 vowels and 24 consonants, along with 10 digits.
    - The centenary of the Ol Chiki script is being celebrated in the year 2025.

## Pollution Control Vessel (PCV) – Samudra Pratap

News: The Indian Coast Guard inducted its first indigenously built Pollution Control Vessel, Samudra Pratap, at Goa Shipyard Limited on 23 December 2025.

**About Pollution Control Vessel (PCV) – Samudra Pratap**

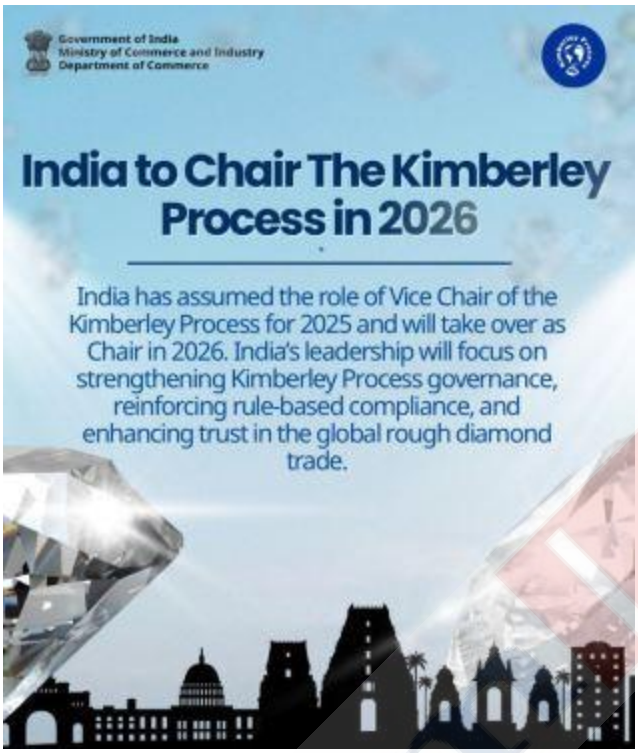

Source – DD News

- Samudra Pratap is the first indigenously designed and built Pollution Control Vessel of the Indian Coast Guard.
- Inducted by: It was inducted into service by the Indian Coast Guard.
- Built by: The vessel was designed and constructed by Goa Shipyard Limited under the Pollution Control Vessel project.
- Key features
    - Size: The vessel measures 114.5 m in length and 16.5 m in breadth, with a displacement of 4,170 tonnes.
    - Navigation system: It has Dynamic Positioning capability (DP-1), a retractable stern thruster, and an Integrated Bridge System.
    - Pollution control system: It has two side-sweeping arms, a modern radar system for detecting oil slicks, an oil finger printing machine, a Gyro stabilized Standoff Active Chemical Detector, and PC lab equipment, enabling recovery, analysis, separation, and storage of pollutants.
    - Combat system: It carries a 30mm CRN-91 gun and two 12.7mm stabilised remote-controlled guns with integrated fire control systems.
    - Indigenous system: It has over 60% indigenous content and includes indigenously developed systems like Integrated Platform Management System and Automated Power Management System.
- Significance: The vessel strengthens India's capability to control marine pollution, enforce maritime laws, and safeguard the Exclusive Economic Zone.

## India to Assume Prestigious Chairpersonship of Kimberly Process

News: The Kimberley Process (KP) Plenary has selected India to assume the chairpersonship of the Kimberley Process with effect from 1 January 2026. This will be the third occasion on which India has been entrusted with the chairpersonship of the Kimberley Process.

**About Kimberley Process and India's Role**




Source – PIB

- The Kimberley Process is a tripartite international initiative involving governments, the global diamond industry, and civil society.
- Objective: To prevent the trade in "conflict diamonds" that are used to finance armed conflicts and undermine legitimate governments
- Origin: The Kimberley Process Certification Scheme (KPCS) was established pursuant to a United Nations resolution and became operational on 1 January 2003 as a mechanism to curb the trade in conflict diamonds.
- Members: The Kimberley Process currently comprises 60 participants, with the European Union and its Member States counted collectively as a single participant.
- Together, Kimberley Process participants account for more than 99% of global rough diamond trade, making it the most comprehensive international regulatory framework governing this sector.

**India's Role**

- India was a founding participant of the Kimberley Process Certification Scheme (KPCS) in 2003.
- As the Chair in 2026, India will work closely with all Kimberley Process participants and observers to reinforce trust in the initiative.
- Key Objective during the chairmanship: Enhancing transparency through data-driven monitoring and building consumer confidence in conflict-free diamonds.
- India will aim to ensure rule-based compliance, enhance the credibility of the Kimberley Process, and contribute to making it a more inclusive, effective, and robust multilateral framework aligned with evolving global expectations.

## Humayun's Tomb

News: The immersive exhibition 'Songlines: Tracking the Seven Sisters' is on view at the Humayun's Tomb Museum till March 1.

**About Humayun's Tomb**

Source – UNESCO WHS

- It is a UNESCO World Heritage Site, known for being the first distinct example of proper Mughal style, which was inspired by Persian architecture.
- Location: It is located in Delhi.
- Commissioned by: It was commissioned by Humayun's widow Hamida Banu Begam (Haji Begam), after she commenced construction in 1569.
- Designed by: Mirak Mirza Ghiyath, a Persian architect employed by Haji Begam, designed the tomb.
- Architectural styles: It is a synthesis of Persian architecture and Indian traditions.
- Humayun's garden-tomb is also called the '*dormitory of the Mughals*' as in the cells are buried over 150 Mughal family members.
- Key Features
    - Charbagh layout: The tomb stands in the centre of a square charbagh garden with causeways and water-channels.
    - Material and finish: It uses red sandstone with marble borders and panels.
    - Overall form: It rises on a high terrace and is surmounted by a 42.5 m high double dome, with chhatris around it.
    - Interior plan: It has an octagonal central chamber containing the cenotaph, with other royal graves in surrounding chambers.
- Historical Significance: Although Sikandar Lodi's tomb was the first garden-tomb in India, Humayun's Tomb set a new vogue, later culminating in the Taj at Agra.
- UNESCO Status: It was declared a World Heritage Site in 1993.

## Tsunami Ready Programme

News: India is set to have over 100 villages certified as tsunami-ready in the Indian Ocean region. This achievement will make India the first country in the Indian Ocean region to have such a large number of tsunami-ready villages.

**About Tsunami Ready Programme**

Source: UNESCO

- It is an initiative led by UNESCO to strengthen community resilience against tsunami hazards through preparedness and awareness strategies.
- UNESCO's Intergovernmental Oceanographic Commission (IOC) has developed and published Standard Guidelines for the Tsunami Ready Recognition Programme.
- Aim: To protect lives, livelihoods, and property by improving the readiness of coastal communities exposed to tsunami risks.
- Objectives
    - The primary objective is to enhance coastal community preparedness for tsunamis and minimize potential loss of life and economic damage.
    - The programme promotes the achievement of a standard level of tsunami preparedness through the fulfilment of clearly defined and established indicators.
- Nature of the Programme
    - Tsunami Ready is a voluntary, performance-based community recognition programme rather than a regulatory or enforcement mechanism.
    - The programme emphasizes readiness as a continuous and collaborative process involving national and local warning agencies, emergency management authorities, scientists, community leaders, and the general public.
    - The tsunami-ready initiative is driven primarily by community participation and local engagement.
- Certification and Criteria
    - Tsunami-ready villages are certified based on high levels of tsunami awareness and preparedness.
    - Certification criteria include hazard mapping, public display of evacuation maps, functional 24-hour warning systems, and regular participation in mock drills.
    - The certification is awarded by UNESCO's Intergovernmental Oceanographic Commission (IOC).
- National-Level Implementation
    - In India, the Ministry of Earth Sciences has established a National Tsunami Ready Board to guide and oversee the programme's implementation.
    - It is responsible for promoting the initiative, coordinating national tsunami preparedness exercises, and linking the programme with the biennial IOWave exercise organized by the ICG/IOTWMS.
    - India is expected to soon have more than 100 villages designated as tsunami-ready across the Indian Ocean region.
        - With this achievement, India will become the first country in the region to attain such a large number of tsunami-ready villages.
- Progress Across States and Union Territories
    - At present, 24 coastal villages across six districts have already received tsunami-ready certification.
    - Odisha is preparing to add 72 more villages to the list of certified tsunami-ready communities.
    - Other states and Union Territories such as Gujarat, Kerala, Andhra Pradesh, and the Andaman and Nicobar Islands have also identified villages for the programme.
    - Kerala has proposed nine coastal villages for tsunami-ready recognition by March or April 2026.
- Role of INCOIS

- The Indian National Centre for Ocean Information Services (INCOIS), Hyderabad, plays a central role in implementing the tsunami-ready initiative in India.
- INCOIS operates the Indian Tsunami Early Warning Centre (ITEWC), which monitors earthquakes worldwide and issues tsunami warnings for the Indian Ocean region.
- INCOIS serves as the coordinating institute for the implementation of the UNESCO-IOC Tsunami Ready programme in India.

## Rabha, Mising, and Tiwa communities

News: Union Home Minister Amit Shah met delegations of Rabha, Mising, and Tiwa communities of Assam and assured action on their concerns.

**About Rabha Community**


*Figure 23. Source – AIR*

- Distribution: The Rabha community is a Tibeto-Burman tribal group primarily residing in Assam, Meghalaya, and West Bengal and Bangladesh.
- Location: They are located on the southern bank of the River Brahmaputra in the belt stretching from Guwahati to Dudhnoi.
- Origin: The Rabhas are believed to have migrated from the Tibetan region through Bhutan passes.
- Social structure
- Sub-groups: The community is divided into several groups, including the Rangdani, Maituri, Pati, Dahori, Koch, and Bitalia.
- Matrilineality: Historically, Rabha society was matrilineal, tracing descent and inheriting property through the mother's side.
- Unique Rites: *Farkanti* is a traditional mourning dance performed during death rituals.

**About Mising Community**

- Location in India: They primarily inhabit the riverside areas along the Brahmaputra and its tributaries.
- Distribution: They also has populations in the Tibet Autonomous Region of China, where Tibetans refer to them as "Lhobas" (southerners).
- Ethnicity: They are ethnically Mongoloid and belong to the Tibeto-Burman linguistic family.
- Origin: Around the 13th-14th century, they began migrating to the plains of Assam in search of a peaceful life and fertile agricultural land,
- Characteristics
  - Weaving: Weaving is an exclusive domain of the women, who create intricate designs and colorful patterns in cotton and silk (muga and eri).
  - Religion: Traditionally, they practice the animistic cult of Donyi-Polo (worship of the Sun, Donyi, and Moon, Polo).
    - Many have also assimilated aspects of Hinduism (specifically Vaishnavism) and, in some areas, Christianity.
  - Festivals: The primary festivals are Ali-Aye-Ligang ( at the beginning of sowing season )and Porag (post-harvest festival) agricultural.

**About Tiwa Community**

- Origin: The Tiwas trace their roots back to the Tibeto-Burman (Sino-Tibetan) family.
- Location: The Tiwa people are mainly concentrated in the Assam and Meghalaya, and small population in Arunachal Pradesh, Manipur, and Nagaland.
- Social structure:
    - Hill Tiwas traditionally follow a primarily matrilineal system (children belong to the mother's clan), and residence after marriage is often matrilocal (husband moves to the wife's family home).
    - Plains Tiwas have largely adopted a patrilineal system, influenced by neighboring Assamese Hindu communities, and use common Assamese surnames.
    - The Shamadi or Dekachang, a traditional youth dormitory system (for bachelors), plays a vital role in training youth in discipline and community responsibilities, especially in Hill Tiwa villages.
    - Festivals: Major festivals include Pisu (Bihu), Jonbeel Mela, Wansuwa, and Sagra Misawa.

## Tianshan Shengli Tunnel and Tianshan Mountains Range

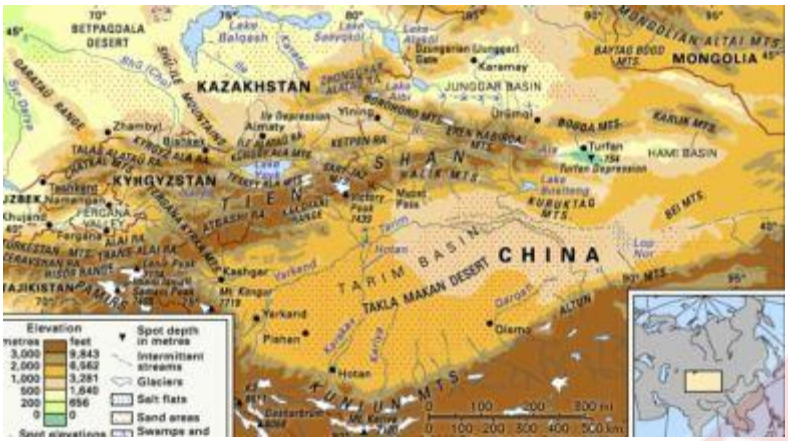
News: China opened the 22.13-kilometre-long Tianshan Shengli Tunnel to traffic in Xinjiang, claiming it to be the world's longest expressway tunnel.

**About Tianshan Shengli Tunnel**


*Figure 24. Source – The Sun*

- It is the world's longest expressway tunnel, officially opened to traffic on December 26, 2025.
- Location: It is located in the Xinjiang Uygur Autonomous Region of China.
- Total length: Its length is 22.13 km.
- Part of: The tunnel is a key part of the recently operational 325 km long G0711 Urumqi-Yuli Expressway.
- Regional connectivity: It slashes the total travel time between Ürümqi (northern Xinjiang) and Korla(southern Xinjiang) from roughly seven hours to approximately three hours.
- It features the world's deepest vertical shaft for a highway tunnel, reaching a depth of 706 m.
- Significance :The tunnel is a major milestone for the Silk Road Economic Belt, part of the Belt and Road Initiative.

**About Tianshan Mountains Range**



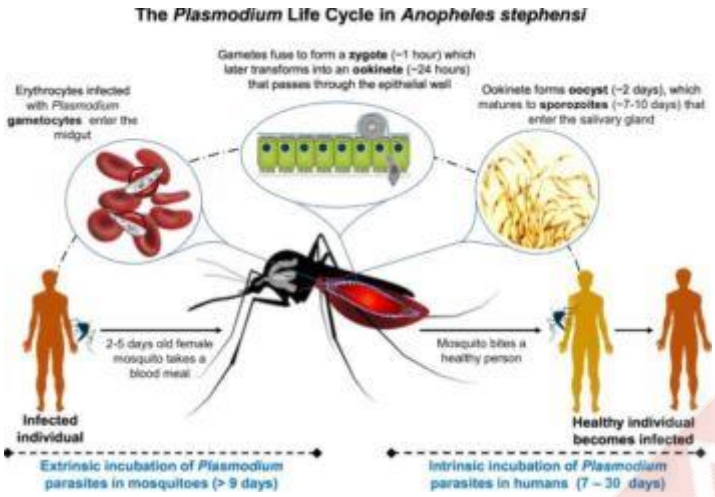

Source – Britannica

- Location: The Tianshan Mountains are located in Central Asia.
- Spread across: The mountain range stretches about 2,500 km and extends into China, Kyrgyzstan, Kazakhstan, Uzbekistan, and Tajikistan.
- Borders: It borders the western and northern ends of the Taklamakan Desert on the border of Kyrgyzstan, Kazakhstan, and Xinjiang Province of China; the Pamir Mountains to the south, and the Altai Mountains of Mongolia to the east and north.
- Separating: The Range separates the Tarim Basin/Taklamakan Desert to the south from the Dzungarian Basin to the north.
- Formation: It forms part of the Himalayan orogenic belt that was created by the collision of the Eurasian and Indian tectonic plates.
    - The eastern and northern sections underwent folding during the early Paleozoic while the western and southern potions underwent folding during the late Paleozoic.
- Highest peak: The highest peak of the Tianshan Mountains is Jengish Chokusu, which rises to 7,439 m on the China–Kyrgyzstan border.
- Important rivers: The major rivers such as the Syr Darya, Ili, and Tarim rivers rise from this Range.
- Lakes: It also contains important lakes like – Lake Issyk-Kul in Kyrgyzstan, the world's second-largest alpine lake.
- UNESCO Status: The range is designated as a World Heritage Site in two parts: Xinjiang Tianshan(China, 2013) and Western Tien-Shan (transnational, 2016).
- Terrains: The range is famous for the visual contrast between its snow-capped peaks and the adjacent vast deserts like the Taklamakan and Gobi.
- Biodiversity: It is (especially the Western Tianshan), are a vital global biodiversity hotspot, acting as a natural bridge connecting Asian ecosystems (Himalayas, Siberia, Mongolia).

## Anopheles Stephensi and Malaria in India

News: Urban malaria driven by invasive *Anopheles stephensi* threatens India's malaria elimination targets, according to the Health Ministry's Malaria Elimination Technical Report 2025.

**About Anopheles Stephensi**




Source – Science Direct

- Anopheles stephensi is a significant mosquito species now recognised as an invasive threat because it thrives in urban environments.
- Transmits: The species efficiently transmits Plasmodium falciparum and P. vivax, creating challenges for existing malaria control efforts.
- Urban Adaptability: It is a major driver of "urban malaria" due to its ability to breed in artificial containers such as overhead tanks, construction sites, and discarded tires.
- Biting Patterns: It is typically endophagic (feeds indoors) and endophilic (rests indoors).
    - In urban areas, it shows a greater preference for human blood.
- Resilience: The species is known for its high salinity tolerance and ability to survive extreme temperatures, allowing it to persist year-round.
- Distribution: Earlier confined to parts of South Asia and the Arabian Peninsula, it has since spread to several countries in Africa and Asia, prompting global concern.
- Threat: WHO considers its spread a major potential threat and has launched an initiative against its spread in Africa.

**About Malaria in India**

- Malaria: It is a disease caused by parasites that are transmitted to people through the bites of infected female Anopheles mosquitoes.
- There are five kinds of malarial parasites — Plasmodium falciparum, Plasmodium vivax (the commonest one), Plasmodium malariae, Plasmodium ovale, and Plasmodium knowlesi.
- India aims to eliminate malaria by 2030, with an intermediate goal of achieving zero indigenous cases by 2027, in line with WHO strategy.
- India has reduced malaria cases from 11.7 lakh in 2015 to about 2.27 lakh in 2024, with deaths declining by 78%.
- By 2024, 92 per cent of districts reported an annual parasite incidence below one, indicating low transmission levels.
- Limited high-burden pockets: Malaria now persists mainly in high-burden pockets, including districts in Odisha, Tripura, and Mizoram, shaped by local ecological conditions and health-system access.

**About Malaria Elimination Technical Report 2025**

- The report was released by the Health Ministry.
- It was compiled by the ICMR–National Institute of Malaria Research and the National Centre for Vector Borne Disease Control.

- The report highlights major declines in malaria cases and deaths and India's transition to the pre-elimination phase.

## "Your Money, Your Right" Initiative

News: Your Money, Your Right" is a nationwide awareness and facilitation initiative launched in 2025 to help citizens identify and reclaim unclaimed financial assets lying within the regulated financial system.

**About "Your Money, Your Right" Initiative**


Source: PIB

- This initiative is a nationwide awareness and facilitation initiative to help citizens identify and reclaim unclaimed financial assets.
- The initiative addresses unclaimed savings across banks, insurance, mutual funds, dividends, shares and retirement benefits held within the regulated financial system.
- Coordinated by: The initiative is coordinated by the Department of Financial Services in collaboration with RBI, IRDAI, SEBI, IEPFA, and PFRDA to ensure a unified and citizen-centric approach.
- The initiative combined digital platforms with district-level facilitation camps across all States and Union Territories to ensure accessibility and direct citizen support.
- Impact: Through coordinated efforts, nearly ₹2,000 crore was returned to rightful owners, while also improving awareness about nominations, KYC compliance, and financial record-keeping.

**About Unclaimed Financial Assets**


Source – PIB

- About Unclaimed Financial Assets: Unclaimed financial assets refer to funds held with financial institutions that remain unclaimed by the account holder or their legal heirs for an extended period. These includes:
    - dormant bank deposits such as savings, current, fixed and recurring accounts inactive for ten years or more;
    - unpaid insurance policy proceeds;
    - uncredited mutual fund redemption amounts or dividends due to changes or closure of bank accounts or incomplete records;
    - unclaimed dividends and shares transferred to statutory authorities and pension or retirement benefits not claimed in the normal course
    - In most cases, such assets remain unclaimed due to common life events like migration, changes in contact details, closure of old accounts, or lack of awareness among family members and legal heirs.
- Some portals started for this initiative
    - UDGAM Portal (Bank Deposits): The portal, developed by RBI, enables citizens to search for unclaimed bank deposits held for ten years or more across participating banks through a centralized platform.
    - Bima Bharosa Portal (Insurance): The IRDAI's Bima Bharosa portal helps policyholders, nominees, and legal heirs trace unclaimed insurance proceeds that remain unpaid beyond the due date.
    - MITRA Portal (Mutual Funds): The MITRA platform on MF Central assists investors in identifying unclaimed or inactive mutual fund investments and guides them towards initiating claims with the concerned AMC or RTA.
    - IEPFA Portal (Dividends and Shares): The IEPFA portal allows individuals to trace and claim unclaimed dividends and shares transferred to the Investor Education and Protection Fund after seven years.

## Key Facts About Somaliland

**News:** Israel became the first country to formally recognise the self-declared Republic of Somaliland as an independent and sovereign state.

**Key Facts About Somaliland**

Source: Ontheworldmap

- Location: Somaliland is situated in the Horn of Africa, in the northwestern part of Somalia.
    - The Horn of Africa is a region that is recognized internationally as comprising Somalia, Ethiopia, Eritrea, and Djibouti.
- Borders: It is bordered by Djibouti to the northwest, Ethiopia to the south and west, andPuntland region of Somalia to the east.
- Coastline: It has a long coastline along the Gulf of Aden.
- Terrain: The terrain ranges from coastal plains in the north to mountains in the central region, and semi-desert areas in the south.
- Political status: In 1960, Somaliland briefly gained independence for five days and was recognised by Israel and 34 other countries before voluntarily uniting with Somalia.
    - Following the collapse of the Somali state and the outbreak of civil war in 1991, Somaliland declared its separation from Somalia.

- Since then, it has functioned as a de facto independent state, exhibiting greater political stability and stronger governance compared to Somalia.
- Despite its stability, Somaliland remained internationally unrecognised for decades, with Israel being the first country to formally acknowledge it.

- Strategic Significance: Somaliland controls a key maritime chokepoint linking the Red Sea and Indian Ocean.

## Chenab River and Dulhasti Hydro-Power Project

News: As part of the Centre's push to fast-track Indus basin infrastructure, the Union Environment Ministry's expert panel has recommended environmental clearance for the 260 MW Dulhasti Stage-II hydel project on the Chenab River in Jammu and Kashmir's Kishtwar district.

**About Chenab River and Dulhasti Hydro-Power Project**


*Figure 25. Source: IE*

**About Chenab River**

- Origin: The Chenab River originates from the confluence of two rivers, the *Chandra* and *Bhaga*, at Tandi in the upper Himalayas, located in the Lahaul and Spiti districts of Himachal Pradesh.
- In its upper reaches, the river is also referred to as the Chandrabhaga.
- River course: From its origin, the river flows westward through the Union Territory of Jammu and Kashmir, cutting through steep cliffs between the Siwalik Range to the south and the Lesser Himalayas to the north.
  - It then takes a southwesterly turn, entering Pakistan and descending from the upland regions into the broad alluvial plains of Punjab province.
  - In Pakistan, the Chenab receives the waters of the Jhelum River near Trimmu, before eventually merging with the Sutlej River, which is another tributary of the Indus River.
- It is the largest river in Himachal Pradesh in terms of water volume.
- Tributaries: The main tributaries of the Chenab River include: Miyar Nalla, Sohal, Thirot, Bhut Nalla, Marusudar and Lidrari.

**About Dulhasti Hydroelectric Project**

- The Dulhasti Hydroelectric Project is located on the Chenab River in Kishtwar district of Jammu and Kashmir.
- Type: The project is being developed by NHPC Limited as a run-of-the-river hydroelectric scheme.
- The project will draw water from the Marusudar River through the Pakal Dul Hydroelectric Project.
- It has a proposed installed capacity of 260 MW.
- Dulhasti Stage-I Project: The Dulhasti Stage-I project has an installed capacity of 390 MW and was commissioned in the year 2007.

**Other Hydroelectric Projects on the Chenab River**

- The Chenab River basin currently has three operational projects, namely Dulhasti-I, Baglihar, and Salal.

- The Baglihar Hydroelectric Project is a run-of-the-river project is Ramban district with an installed capacity of 890 MW.
- The Salal Hydroelectric Project is a run-of-the-river project located in Reasi district with an installed capacity of 690 MW.
    - The beneficiary states are U.P, J&K, Punjab, Haryana, Delhi, H.P. Chandigarh & Rajasthan.
- Other projects such as Ratle, Kiru, and Kwar are presently under construction on the Chenab River.

## Isthmus of Tehuantepec

News: The Isthmus of Tehuantepec is in news after a deadly derailment of the Interoceanic Train in Oaxaca, where at least 13 people were killed when the passenger train carrying 250 people derailed near Nizanda.

**About Isthmus of Tehuantepec**


Source – World Atlas

- Location: The Isthmus of Tehuantepec is a narrow strip of land located in southern Mexico.
    - The Isthmus of Tehuantepec is shared primarily by the Mexican states of Veracruz and Oaxaca.
    - It lies between the Gulf of Tehuantepec on the Pacific Ocean to the south and the Gulf of Campeche on the Gulf of Mexico to the north.
- The isthmus provides the shortest land distance between the Pacific Ocean and the Gulf of Mexico.
- Width: At its narrowest point, the Isthmus of Tehuantepec measures approximately 200 km in width.
- It separates the southern states of Chiapas, Yucatán, Tabasco, and Campeche from the rest of Mexico. A small portion of the isthmus also extends into western Tabasco.
- Terrain: The terrain of the Isthmus is highly diverse, ranging from tropical grasslands and fertile plains to isolated mountains and arid lowlands.
- Mountain range: The Sierra Madre del Sur mountain range terminates at the isthmus and transitions into a broad, low ridge.
- Pass: The Chivela Pass represents the highest elevation within the isthmus and separates the Sierra Madre de Oaxaca from the Sierra Madre de Chiapas.

- The Chivela Pass also marks a significant geographic boundary between North and Central America.

- Vegetation: Swamps and dense tropical forests dominate the northern portion of the isthmus.
  - The Selva Zoque, one of Mexico's most important ecological regions, occupies the east-central part of the isthmus.
- Climate: The northern region of the Isthmus experiences a tropical monsoon climate.
  - The southern portion of the isthmus is characterized by a tropical savanna climate.
- Indigenous communities: The Isthmus of Tehuantepec is home to several indigenous groups, including the Zapotecs, Mixes, Zoques, Nahuas, Popolocas, Chontales, and Huaves.
- Culture: The region is widely recognized for its distinctive and colorful traditional women's attire known as "Tehuanas."
- Importance: The strategic location of the Isthmus of Tehuantepec has long made it a potential site for interoceanic routes and canal construction.

## National Test House (NTH)

News: The National Test House (NTH) has entered into an MoU with the Defence Materials and Stores Research & Development Establishment (DMSRDE) to strengthen cooperation in the areas of research, testing and training.

**About National Test House (NTH)**


*Figure 26. Source – NTH*

- NTH is India's largest multi-location multidisciplinary industrial testing laboratory dealing with almost all sorts of testing, calibration and quality evaluation related to industry, commerce, trade etc. as per international and national standards.
- Nodal Ministry: Department of Consumer Affairs within the Ministry of Consumer Affairs, Food & Public Distribution
- Established: It was established in 1912 under the Railway Board.
- Functions: The institution issues test certificates for samples that adhere to national and international standards, as well as specific customer standards and specifications, ensuring the highest quality and reliability in its assessments.
- Testing Facilities: At present National Test House is providing facilities like testing, evaluation, and calibration of raw materials as well as finished products to the end users through its branches established at Kolkata, Mumbai, Chennai, Ghaziabad, Jaipur, Guwahati, and Varanasi.

- NTH-MIS portal: NTH has developed fully digital based MIS portal which provides services for online submission of test request for a sample and issuance of test certificates.
  - It also enables customers to track the progress of their requests without the need to contact laboratory.

## INS Vaghsheer

News: The President of India, Smt Droupadi Murmu undertook a dived sortie onboard Submarine – INS Vaghsheer on Western Seaboard.

**About INS Vaghsheer**

*Figure 27. Source – PIB*

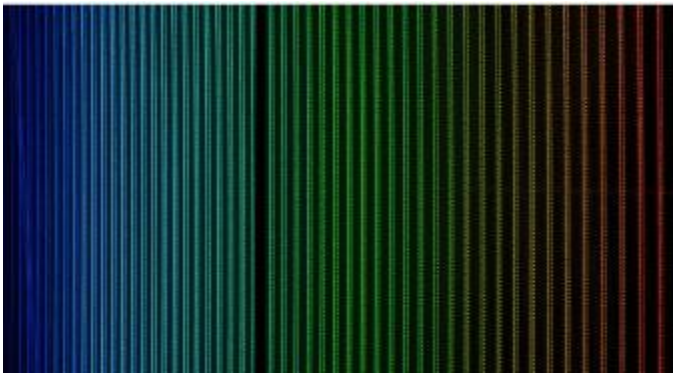
- INS Vaghsheer is the sixth and final Kalvari-class (Scorpene-class) diesel-electric attack submarine of the Indian Navy.
- Built by: It was built by Mazagon Dock Shipbuilders Limited (MDL) in Mumbai under Project 75 with technology transfer from France's Naval Group.
- Naming: Vagsheer is named after the sand fish, a deep sea predator of the Indian Ocean.
- Earlier version: The first submarine Vagsheer, from Russia, was commissioned into the Indian Navy on December 26, 1974, and was decommissioned on April 30, 1997.
- Specifications
  - Capacity: Vagsheer can take up to eight officers and 35 men.
  - Dimensions and speed: It is 67.5 m long and 12.3 m high, with a beam measuring 6.2 m Vagsheer can reach top speed of 20 knots when submerged and a top speed of 11 knots when it surfaces.
- Features
  - It is a diesel attack submarine, designed to perform sea denial as well as access denial warfare against the adversary.
  - It can do offensive operations across the spectrum of naval warfare including anti-surface warfare, anti-submarine warfare, intelligence gathering, mine laying and area surveillance.
  - Equipments: It is enabled with a C303 anti-torpedo counter measure It can carry up to 18 torpedoes or Exocet anti-ship missiles, or 30 mines in place of torpedoes.

**About Project 75**

- P 75 is one of two lines of submarines, the other being P75I, as part of a plan approved in 1999 for indigenous submarine construction with technology taken from overseas firms.
- The contract for six submarines under P75 was given to Mazgaon Dock Limited.
- Under P75, INS Kalvari, INS Khanderi, INS Karanj, INS Vela and INS Vagir have been commissioned.
- INS Vagsheer was officially commissioned into the Indian Navy on 15 January 2025.

## Frequency Comb

News- Frequency combs were in the news due to their growing use in high-precision atomic clocks and advanced optical measurements.



Source- TH

**About Frequency Comb**

- A frequency comb is a special type of laser light whose spectrum consists of a large number of evenly spaced, discrete frequencies, resembling the teeth of a comb.
- Unlike a conventional laser that emits a single frequency (colour), a frequency comb emits multiple, precisely spaced frequencies with extremely high regularity.

How is it generated?

One common method is using a mode-locked laser, which produces ultra-short pulses of light at a constant repetition rate, resulting in a comb-like frequency pattern.

Key Principle

The comb acts as a highly stable frequency ruler, allowing scientists to compare an unknown light frequency with a precise reference frequency by measuring the beat signal produced when the two overlap.

How measurement works

When light from an unknown laser and a frequency comb are detected together, small differences in frequency create a beat signal, enabling accurate determination of the unknown frequency.

Applications

- Calibration of atomic clocks with extremely high accuracy.
- Precision spectroscopy and measurement of fundamental constants.
- Detection of gravitational effects on light frequencies (gravitational redshift).
- Advanced applications in quantum optics, metrology, and space science.

## Sea of Marmara

News: Seven Turkish police officers were injured in a clash with suspected Islamic State militants in Yalova province, located on the Sea of Marmara coast.

**About Sea of Marmara**


Source – World Atlas

- Location: The Sea of Marmara is a small inland sea entirely within Turkey.
- It is also known as the Marmara Sea or Propontis.
- Naming: The sea derives its name from Marmara Island, the largest island on its southern side, which is rich in marble.
- Boundaries: The Sea of Marmara is connected to the Aegean Sea in the west through the Dardanelles Strait and in the northeast it is bounded by a line joining Cape Rumili and Cape Anatoli, while its southern coast includes the Gulfs of İzmit, Gemlik, Bandırma, and Erdek.
- Separates: It separates the European and Asian parts of Turkey.
- Straits: The Sea of Marmara is connected to the Black Sea by the Bosporus Strait and to the Aegean Sea by the Dardanelles Strait.
- River Drainage: Major rivers such as Susurluk, Biga (Granicus), and Gönen flow into the sea, mainly from the Anatolian side, contributing to reduced surface salinity.
- Unique oceanography: The sea has a two-layer system, with fresher, colder Black Sea water flowing over warmer, saltier Mediterranean water.
    - The surface salinity is lower than most oceans, while deeper water is highly saline.
    - High nutrients support phytoplankton but also cause algal blooms like mucilage.
- Important Islands: The sea includes the Princes' Islands in the north and the Marmara Islands in the south, with several inhabited and uninhabited islands.
- Strategic waterway: The Sea of Marmara lies at the centre of a critical trade and transit route and is surrounded by major cities, especially Istanbul.
- Major concerns

- The North Anatolian Fault beneath the sea causes frequent earthquakes, including the deadly Marmara Earthquake of 1999.
- Pollution from untreated waste, overpopulation, and mucilage outbreaks (2021) have harmed marine life and disrupted fishing activities.

## Shipbuilding Financial Assistance Scheme (SBFAS) and Shipbuilding Development Scheme (SbDS)

News: On December 27, 2025, operational guidelines for two shipbuilding schemes (SBFAS and SbDS) were notified to strengthen domestic capacity and improve global competitiveness.

**About Shipbuilding Financial Assistance Scheme (SBFAS) and Shipbuilding Development Scheme (SbDS)**


*Figure 28. Source – PIB*

- The government has notified two complementary schemes to revive domestic shipbuilding through financial support, infrastructure creation, and stronger institutional coordination.
- Nodal Ministry: Both schemes are implemented by the Ministry of Ports, Shipping & Waterways (MoPSW).
- Duration: Both schemes will remain valid until March 31, 2036, with extension envisaged up to 2047.
- Combined corpus: The total combined corpus of ₹44,700 crore.

**About Shipbuilding Financial Assistance Scheme (SBFAS)**

- The Shipbuilding Financial Assistance Scheme (SBFAS) aims to revive domestic shipbuilding and enhance competitiveness through direct financial assistance to shipbuilders.
- Total corpus: The total corpus of the scheme is ₹24,736 crore
- Key features
  - Financial Assistance Rates: It offers graded support for small normal, large normal, and specialised vessels with milestone-based disbursement.
    - The government provides 15% assistance for vessels valued below ₹100 crore.
    - The government provides 20% assistance for vessels valued above ₹100 crore.
    - The government provides 25% assistance for specialised vessels, including green or hybrid propulsion ships.
  - It includes incentives for series orders and requires security instruments for accountability.
  - It introduces a National Shipbuilding Mission and a Shipbreaking Credit Note linked to ship recycling.
  - Shipbreaking Credit Note: Ship owners who scrap vessels at Indian yards receive a credit note worth 40% of the scrap value, which can be applied toward the cost of constructing new vessels.
  - Domestic Value Addition: A minimum of 30% local manufacturing content is required to qualify for incentives.

**About Shipbuilding Development Scheme (SbDS)**

- Shipbuilding Development Scheme (SbDS) focuses on long-term capacity creation through infrastructure, technology, and skills development.
- Total corpus: The total corpus of the scheme is ₹19,989 crore.
- Key features:
    - Greenfield Shipbuilding Clusters: The government provides 100% capital support for common maritime and internal infrastructure in new clusters. This is implemented through a 50:50 Special Purpose Vehicle (SPV) model between the Central and State governments.
    - Brownfield Modernization: Existing shipyards are eligible for 25% capital assistance to expand or modernize critical infrastructure, such as dry docks, shiplifts, automation systems, and fabrication facilities. .
    - It establishes an India Ship Technology Centre under Indian Maritime University for research and innovation.
    - It includes a Credit Risk Coverage Framework to improve project bankability.

## ITVISMA Gene Therapy

News: Abu Dhabi's Sheikh Khalifa Medical City became the first hospital to administer ITVISMA after UAE regulatory approval in November 2025.

**About ITVISMA Gene Therapy**


*Figure 29. Source – U.A.E. Govt.*

- "Itvisma" is a brand name for the gene therapy drug onasemnogene abeparvovec-brve.
- It is a one-time gene therapy approved in late 2025 for the treatment of spinal muscular atrophy (SMA) in adults and children aged 2 years and older.
- The therapy addresses the genetic cause of the disease rather than only managing symptoms.
- Developed by: ITVISMA was developed by Novartis.
- Aim: The treatment aims to improve motor function and reduce long-term treatment dependence.
- Mechanism
    - SMN1 Gene: This is the gene that is mutated or missing in people with spinal muscular atrophy (SMA), the condition Itvisma treats.
    - The gene's role is to produce the essential SMN protein needed for motor neuron function, muscle movement, breathing, and swallowing.
    - ITVISMA's role: It is an adeno-associated virus (AAV) vector-based therapy designed to deliver a new, working copy of the SMN1 gene directly to the motor neurons in the spinal cord via a one-time intrathecal injection.
    - Result: The new gene enables continuous and sustained production of the SMN protein, addressing the genetic root cause of SMA to improve or stabilize motor function.
- Risk of Therapy

- Common Side Effects: Common side effects include fever, vomiting, headache, and upper respiratory tract infections.
- Serious Risks: Serious risks include liver toxicity, heart-related effects, and reduced platelet counts.

- Significance : ITVISMA can deliver sustained motor-function improvement with a single dose, reduce lifelong treatment dependence, and expand access beyond infant-only therapies.

## 'Green to Gold' initiative and Industrial Hemp

News: To reshape Himachal Pradesh's economy and achieve self-reliance by 2027, Chief Minister Sukhvinder Sukhu has launched the 'Green to Gold' initiative to legalise and regulate industrial hemp cultivation and position the state as a leader in the bio-economy.

**About 'Green to Gold' initiative**

*Figure 30. Source – DD News*

- The 'Green to Gold' initiative has been launched by Himachal Pradesh Government to promote self-reliance and strengthen the state's bio-economy by 2027.
- The initiative seeks to transform cannabis from a wild and illegally associated plant into a regulated and valuable industrial resource.
- The policy is described as a transition from "wild weed to Himalayan gold."
- It aims to replace the association of cannabis with illicit drug trade by highlighting its medicinal and industrial applications.
- The initiative is intended to support sustainable rural growth, start-ups, and youth employment.

**About Industrial Hemp**

- Industrial hemp is a variety of the plant *Cannabis sativa*.
- It is a non-intoxicating, multi-purpose crop with significant industrial, nutritional, and economic value.
- Uses of Industrial Hemp
  - It contains less than 0.3% tetrahydrocannabinol (THC) content.
    - It makes industrial hemp non-intoxicating and unsuitable for recreational drug use.
  - The stalk of industrial hemp is used to produce biofuel, auto parts, paper, upholstery, and fibre for textiles.
  - Hemp fibre is used in making cloth, yarns, fabrics, sail ropes, and canvas.
  - The stem can be processed into construction materials and industrial-grade paper products.
  - Hemp is also used in the manufacture of insulation materials and building reinforcements.
- Uses of Hemp Seeds
  - The seeds are a source of high-quality oil used in food, pharmaceutical, medical, and cosmetic industries.
  - Hemp seed oil is commonly used in lotions, creams, and personal care products.
  - Hemp seeds have a high protein content with a balanced amino acid profile.
  - Hemp seed cake left after oil extraction is used as a protein-rich animal feed supplement.

- Environmental and Agricultural Benefits: Industrial hemp requires nearly 50 per cent less water than cotton.
    - The crop can grow in marginal soils where traditional crops struggle.
    - These qualities make hemp a climate-resilient and eco-friendly agricultural option.
- Industrial Hemp in Global Trade: Most industrial hemp products sold in the United States are currently imported.
    - These imports come mainly from countries such as Canada, China, and several European nations.

## Chinese Pangolin

News: Researchers from the Nature Conservation Foundation (NCF) have demonstrated that local ecological knowledge of the Adi community can significantly improve scientific efforts to track the critically endangered Chinese pangolin.

**About Chinese Pangolin**

Source: Edgeofexistence

- The Chinese pangolin (*Manis pentadactyla*) is a small, nocturnal mammal known for its distinctive body covering of hard, overlapping scales.
- It is the only mammal in the world that is completely covered in protective keratin scales.
- Habitat: The Chinese pangolin inhabits subtropical, tropical, and deciduous forests.
- Distribution: Its geographic range includes southern China, Taiwan, Hong Kong, and Hainan.
  The species is also found in parts of Southeast Asia, including Myanmar, Laos, Thailand, and Vietnam.
  In South Asia, it occurs in northern parts of India, Nepal, and Bhutan.
- Physical Characteristics and Behaviour:
  Its body is covered with around 18 rows of greyish-blue scales interspersed with hair.
    - Its scales are made of keratin.

  An adult Chinese pangolin typically measures 40 to 58 cm in body length, with a tail length of 25 to 38 cm.
  The species usually weighs between 2 and 7 kg.
  The Chinese pangolin has a small, pointed head and a narrow mouth with no teeth.
  It possesses a long, sticky tongue that can extend up to 40 centimeters to capture ants and termites.
  Strong front claws enable it to dig deep burrows, sometimes reaching up to 8 feet underground.
  The species is primarily nocturnal and lives a solitary lifestyle. During the day, it rests in burrows or hollow trees and forages at night.
- Defence mechanism: When threatened, the pangolin curls into a tight ball, exposing only its hard scales.
    - It protects itself further by closing its nostrils and ears and using thick eyelids to prevent insect bites.
- Diet: The Chinese pangolin feeds almost exclusively on ants and termites. It uses its strong sense of smell to locate insect colonies. An adult pangolin can consume up to 70 million insects in a year.
- Ecological Role: By controlling insect populations, the species helps maintain ecological balance. Its burrowing activity improves soil aeration and nutrient cycling.
- Conservation Status: The Chinese pangolin has been listed as Critically Endangered on the IUCN Red List since 2014.

- Threats: Illegal poaching is the primary threat to the Chinese pangolin. The species is considered the most trafficked mammal in the world.

## Dhasan River

News: The National Green Tribunal (NGT) has dismissed an appeal challenging the cancellation of environmental clearance granted for sand mining in the river Dhasan in Jhansi district.

**About Dhasan River**

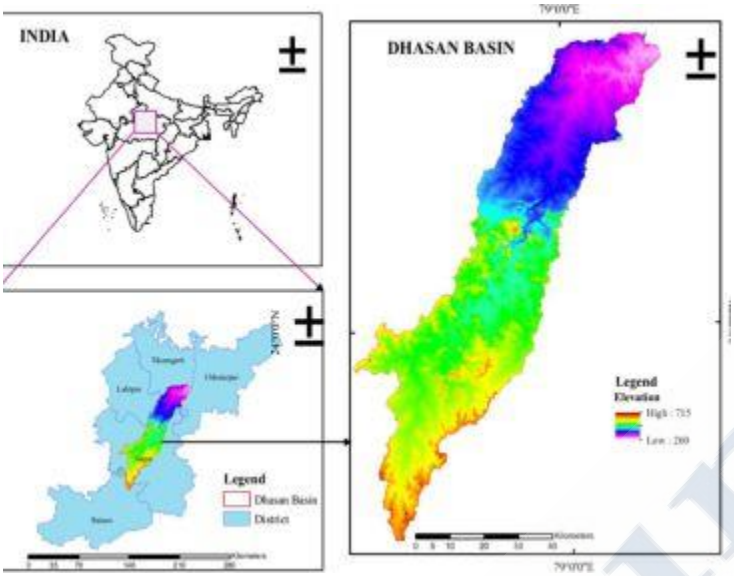


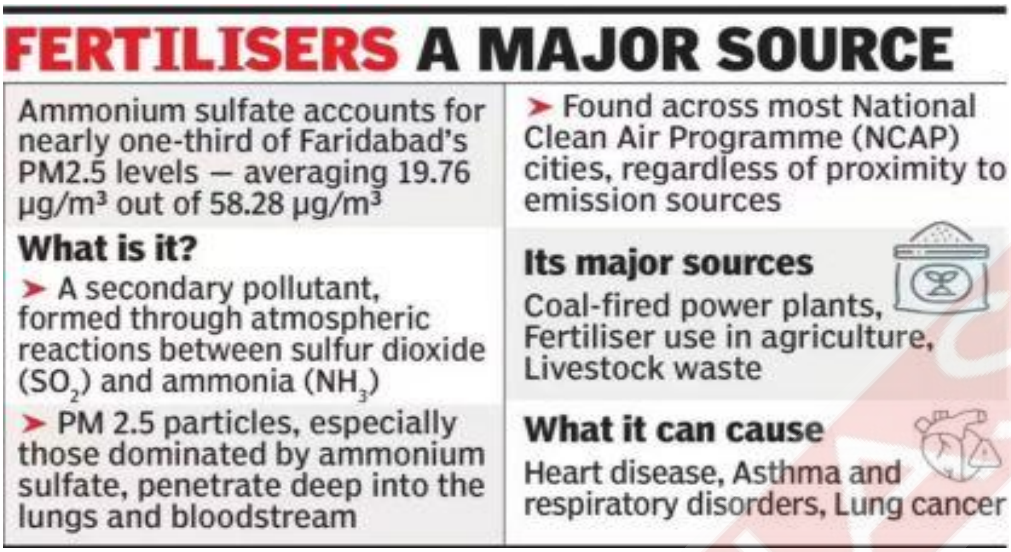

*Figure 31. Source – Research Gate*

- Origin: It originates in Begumganj tehsil of Raisen district of Madhya Pradesh.
- Tributary of: It is a right-bank tributary of the Betwa River, which itself is a tributary of Yamuna River.
- States covered: It flows through the Bundelkhand region of Madhya Pradesh and Uttar Pradesh.
- Length: It flows for a total length of 365 km.
- Course: It traverses Sagar district, forms a 54 km common boundary between Madhya Pradesh and Uttar Pradesh (southeastern edge of Lalitpur district).
  - Then it joins the Betwa near Jhansi after covering MP and UP.
- Tributaries: Major tributaries of the Dhasan River include – Jamni River, Bina River, Ur River, Birma River.
- Dams: Known anciently as Dasharna, it supports irrigation via the Lehchura Dam and Dhasan Canal System.

## Ammonium Sulfate as a Pollutant in Delhi

News: A significant portion of Delhi's fine particulate matter, about one-third of the annual PM2.5 load, is made up of secondary pollutants, including ammonium sulphate.

**About Ammonium Sulfate as a Pollutant in Delhi**




Source – Time of India

- Ammonium sulfate is a secondary inorganic aerosol, meaning it is not emitted directly but forms in the atmosphere through chemical reactions.
- Formation Process: Ammonium sulfate forms when precursor gases such as sulphur dioxide ($SO_2$) and ammonia ($NH_3$) react in the atmosphere.
    - Sulphur dioxide ($SO_2$) primarily comes from coal-fired power plants, with additional sources including oil refineries, heavy industries, brick kilns, diesel combustion, and shipping.
    - $SO_2$ gets oxidised into sulfate, which then reacts with ammonia.
    - Ammonia sources include agricultural activities, fertilizer use, livestock waste, sewage systems, landfills, biomass burning, diesel vehicles with catalytic converters, and certain industrial processes.
    - The resulting ammonium sulfate particles are microscopic, airborne for days, and can travel long distances, contributing to transboundary pollution.
- Seasonal Impacts: Humidity, fog, and low winter temperatures accelerate chemical reactions, allowing secondary aerosols to form within hours.
    - In India, ammonium sulfate contributes 49% of PM2.5 during post-monsoon, 41% in winter, and only about 21% during summer and monsoon.
    - It accounts for nearly one-third of Delhi's annual PM2.5 load, rising sharply during post-monsoon and winter months when pollution episodes are severe.
- Regional and National Implications: Delhi's ammonium sulfate problem is influenced by regional emissions from coal-heavy states such as Chhattisgarh (42%), Odisha (41%), Jharkhand (40%), Telangana (40%), as well as Bihar, Uttar Pradesh, Maharashtra, Andhra Pradesh, and West Bengal.
    - Secondary aerosols formed hundreds of kilometres away combine in the atmosphere to affect Delhi-NCR.
    - Key Drivers in Delhi: Coal power plants ($SO_2$ source), Agricultural and industrial ammonia emissions, Vehicle emissions (NOx), High humidity and low winter temperatures and stagnant atmospheric conditions that facilitate long-range transport and chemical reactions
    - India is currently the world's largest $SO_2$ emitter, mainly due to coal-based power generation.
    - In 2025, the government exempted nearly 78% of coal-fired thermal power plants from installing flue gas desulphurisation (FGD) systems, weakening $SO_2$ controls at the source.
- Health and Air Quality Concerns:

- Ammonium sulfate penetrates deep into the lungs, increasing risks of respiratory and cardiovascular diseases.
- Delhi consistently records some of the highest PM2.5 levels globally, with an annual average of 91.6 μg/$m^3$ in 2024, making it the most polluted national capital.
- Experts recommend that secondary aerosol formation should be a key focus of the National Clean Air Programme (NCAP), rather than only controlling PM10.

## Sree Narayana Guru

News: The Vice-President of India inaugurated the 93rd Sivagiri Pilgrimage at Sivagiri Mutt, describing it as a living philosophy of social awakening envisioned by Sree Narayana Guru.

**About Sree Narayana Guru**


*Figure 32. Source: PIB*

- Sree Narayana Guru (1856–1928) was one of the Hindu social and spiritual reformers of modern Kerala.
- He was born in Chempazhanthy, near present-day Thiruvananthapuram, into an Ezhava family. He was respectfully known as Gurudevan among his followers.
- Teachings and Principles
  - Sree Narayana Guru emphasized self-purification, simplicity, moral living, and universal love.
  - He propounded the famous principle of "One Caste, One Religion, One God for all human beings."
  - He taught that true liberation comes from knowledge, compassion, and ethical conduct rather than blind faith and ritualism.
  - He regarded education as the primary means for human progress and prosperity and believed education to be the supreme remedy for social evils such as superstition and unhealthy traditions.
  - He advocated equal opportunities for women and supported their education. He also initiated and inspired the establishment of many schools across Kerala to promote inclusive education.
- Temple Entry and Social Reform
  - Sree Narayana Guru launched the Aruvippuram movement to assert equal rights in temple worship. In 1888, he took a ritual plunge into the Neyyar River and consecrated a Sivalinga at Aruvippuram.
  - The consecration was done in a makeshift temple and directly challenged centuries-old caste-based restrictions on worship. This act symbolized the empowerment of marginalized communities and asserted their right to spiritual dignity.
- Upliftment of the Ezhava Community
  - In 1903, he inspired the formation of an organization later known as the Sree Narayana Dharma Paripalana (SNDP) Yogam. The organization worked for the social, educational, and economic upliftment of the Ezhava community.
  - Its ideology was based on self-respect, human dignity, and the intrinsic worth of the individual.

- It represented a protest against Brahminical values of hierarchy, purity, and pollution.
- He created parallel sources of religious and social legitimacy by establishing new institutions such as temples, priests, monks, and monasteries.

- Vaikom Satyagraha: Sree Narayana Guru extended his support to the Vaikom Satyagraha (1924–1925) in Travancore.
  - The Vaikom Satyagraha was a historic non-violent movement against untouchability and caste discrimination.
  - It was launched to protest the exclusion of lower-caste Hindus from using the roads leading to the Vaikom Mahadeva Temple.
  - Leaders such as T. K. Madhavan, K. P. Kesava Menon, and K. Kelappan played pioneering roles in this movement.
- Institutions and Ashrams: In 1913, he founded the Advaita Ashram at Aluva. The Ashram was dedicated to the ideal "Om Sahodaryam Sarvatra," meaning all human beings are equal in the eyes of God.
- Literary Contributions: Sree Narayana Guru was also a distinguished poet and philosopher. His important works include *Anukamba Dasakam*, *Brahmavidya Panchakam*, *Asramam*, *Bhadrakaliashtakam*, *Atmopadesa Satakam*, *Advaitha Deepika*, and *Daiva Dasakam*. Through his writings, he communicated spiritual wisdom, ethical values, and social reform ideas in simple yet profound language.

## National Frequency Allocation Plan 2025 (NFAP-2025)

News: The Department of Telecommunications (DoT) has released the National Frequency Allocation Plan 2025 (NFAP-2025).

**About National Frequency Allocation Plan 2025 (NFAP-2025)**


*Figure 33. Source – AIR*

- Released by: Department of Telecommunications, under the Ministry of Communications
- It is a key policy document for spectrum allocation and management in India.
- Effective Date: The new plan will come into force on Tuesday, 30 December 2025.
- Aim: To ensure efficient, high-capacity, and globally aligned spectrum management that supports present and future digital technologies and strengthens India's telecom ecosystem.
- Global Alignment: NFAP-2025 is aligned with international standards to ensure efficient, harmonised, and future-ready use of spectrum resources.
- Reference Framework: NFAP-2025 will serve as the principal reference for spectrum planners, telecom service providers, and telecom equipment manufacturers.
- Features:

- Spectrum Coverage: The plan provides detailed allocation of radio-frequency spectrum ranging from 8.3 kHz to 3000 GHz for various radio communication services.
- Support for Mobile Technologies: The plan identifies the 6425–7125 MHz band for International Mobile Telecommunications, significantly boosting mid-band spectrum availability for 5G, 5G Advanced, and future 6G networks.
- Satellite Communication Expansion: NFAP-2025 strengthens satellite communications by allocating Ka, Q, and V bands for satellite-based services, supporting high-throughput GSO satellites and large LEO and MEO constellations.
- In-Flight and Maritime Connectivity: Additional spectrum has been provided to enhance In-Flight and Maritime Connectivity, enabling seamless broadband access in aircraft and maritime vessels.
- Emerging Technologies: The plan supports emerging technologies such as Vehicle-to-Everything communication, advanced satellite services, and expanded broadband connectivity solutions.