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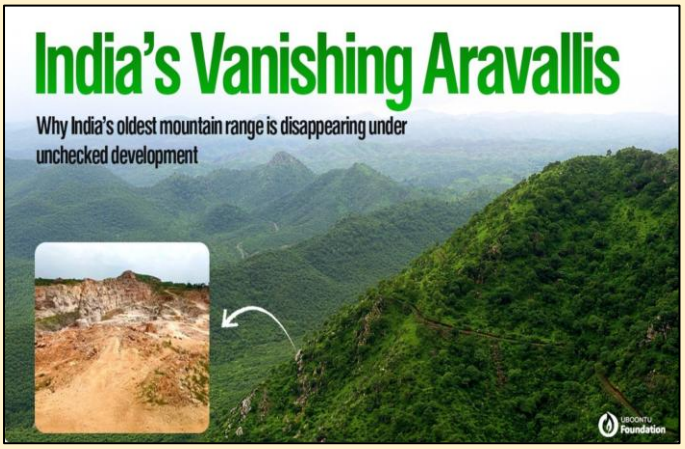
ARAVALLI CRISIS

The Aravalli range, one of the world's oldest mountain systems, faces sustained ecological degradation due to mining, urbanisation, and fragmented governance across Rajasthan, Haryana, and the National Capital Region.

Despite recent Supreme Court interventions—such as pausing height-based reclassification of hills—the crisis persists, highlighting deeper governance and environmental failures.



The **ecological principle of "thinking like a mountain", coined by Aldo Leopold**, which emphasises **long-term ecosystem integrity over short-term economic gains**. Applied to the Aravallis, this approach demands treating the **mountain range as an integrated ecological system rather than as discrete parcels** defined by administrative or legal thresholds.

Problem Diagnosis: Governance and Environmental Failures

- **Short-termism in policymaking:** Prioritisation of construction materials and real estate over ecological stability has led to quarrying, deforestation, and landscape fragmentation.
- **Reductionist legal definitions:** Height-based classification of hills **ignores ecological functions of low-lying ridges**, exposing them to mining and degradation.
- **Fragmented governance:** District-wise mining leases and State-level jurisdictions fail to reflect the **transboundary nature of the Aravalli ecosystem**.
- **Ecological disruption:** Mining and urban sprawl disturb natural drainage, accelerate soil erosion, reduce forest cover, and disrupt food webs.

Why the Aravallis Matter

- **Environmental security:** The Aravallis act **as groundwater recharge zones, biodiversity corridors, and a climatic barrier limiting desertification from the Thar**. Recognising these functions, the Supreme Court in **MC Mehta v. Union of India (Aravalli mining cases)** prohibited mining in ecologically sensitive areas, affirming that environmental protection must override commercial exploitation.
- **Climate resilience:** Forested hills **capture carbon, regulate microclimates, and influence the monsoon system** in northern India.

- **Constitutional mandate: Article 48A** directs the State to **protect and improve the environment**, while **Article 21** (as judicially interpreted) includes the **right to a healthy environment.** In **Vellore Citizens' Welfare Forum v. Union of India (1996)**, the Court embedded the doctrine of **Sustainable Development** into Indian law, holding that development cannot be pursued at the cost of irreversible environmental damage.
- **Intergenerational equity:** Irreversible ecological damage violates the principle that development must not compromise future generations.

Way Forward:

- Adopt **ecosystem-scale governance**, treating the Aravallis as a single ecological unit rather than fragmented administrative zones.
- Replace district-wise mining permissions with a **comprehensive Aravalli management plan** based on ecological carrying capacity

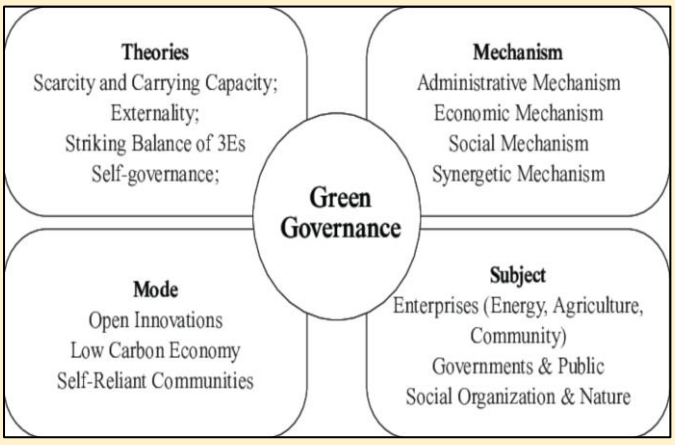
- Align judicial definitions with scientific understanding of ecological connectivity.
- Strengthen enforcement of environmental laws through coordinated Centre–State mechanisms.
- Embed long-term ecological impact assessments into all land-use and infrastructure decisions.

The Aravalli crisis illustrates the dangers of governance that values immediate economic returns over ecological permanence. **"Thinking like a mountain" is not environmental romanticism but policy realism** recognising that while forests may regrow in decades, mountain ecosystems formed over millions of years are irreplaceable. For a megadiverse country like India, ecological short-sightedness would be the costliest failure of governance.

GREEN GOVERNANCE

Over the past decade, the Supreme Court of India has **increasingly shifted from judicial review of environmental decisions to issuing forward-looking, managerial directions**.

This transformation often triggered by regulatory failure has seen the Court step into the shoes of administrators. While motivated by environmental protection, **this approach has generated uncertainty, inconsistency, and governance challenges**.



The Court's evolving role reflects a tension between its constitutional duty to protect the environment and the limits of judicial competence in policy implementation.
By substituting regulators instead of disciplining them to act within statutory frameworks, the Court risks undermining regulatory stability, predictability, and democratic accountability.

Judicial Overreach and Governance Gaps

- **Shifting and reversible directions:** Blanket rulings such as uniform Eco-Sensitive Zones (ESZs), diesel vehicle bans, and firecracker restrictions have frequently been modified or diluted, creating policy uncertainty.
- **From legality to consequence-based reasoning:** The Court has at times **prioritised immediate outcomes over doctrinal consistency**, as seen in reversals on ex post facto environmental clearances.
- **Expertise dilemma:** Reliance on committees and expert inputs has been uneven, with expert conclusions sometimes adopted, contested, or abandoned within weeks.
- **Continuing mandamus problem:** Serial interim orders, affidavits, and modifications **blur the line between adjudication and administration**.
- **Chilling effect on participation:** Early judicial entry into approval processes **discourages later public challenge** and narrows the evidentiary space.

Why It Matters

- **Rule of law and separation of powers:** Judicial governance, if unpredictable, **weakens institutional clarity and accountability**.
- **Environmental outcomes:** Regulatory uncertainty can be as **damaging as regulatory laxity, delaying effective environmental protection.**
- **Federal and administrative strain:** States and regulators face parallel decision-making pressures—statutory compliance on one side and judicial negotiation on the other.

- **Public trust:** Inconsistent **standards erode confidence in both environmental regulation and judicial neutrality**.

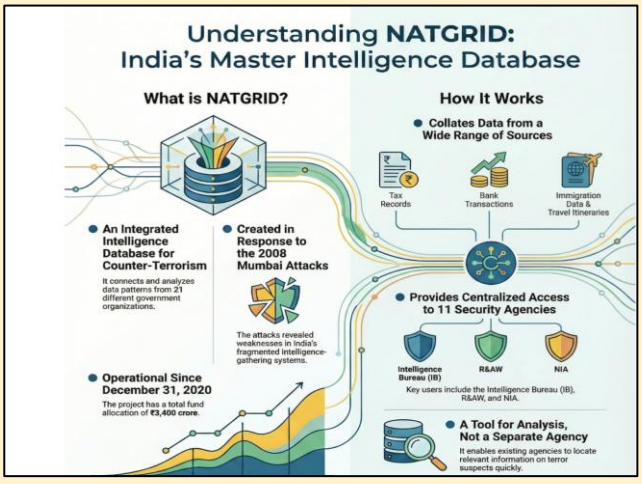
Way Forward: Towards Stable Green Adjudication

- Re-centre the Court's role on **reviewing legality and procedure**, not managing outcomes.
- Use judicial power to **discipline regulators back into action**, with time-bound, reasoned directions.
- Specify **clear thresholds** for when managerial intervention is justified
- Avoid sweeping, one-size-fits-all rules that invite exemptions and reversals.
- Preserve space for **public participation and contestation** across regulatory fora.

The Supreme Court's environmental activism has filled critical governance vacuums, but its increasing managerial role has also produced uncertainty and instability. Sustainable environmental protection requires not continuous judicial governance, but strong, accountable regulators operating within clear legal frameworks.

NATGRID

India's experience with terrorism, particularly the 26/11 Mumbai attacks, exposed serious intelligence coordination failures. In response, the National Intelligence Grid (NATGRID) was conceived as a technological solution to aggregate scattered datasets for counter-terrorism.



However, NATGRID's evolution from a limited intelligence-sharing tool into a vast analytics-driven surveillance architecture raises serious constitutional, governance, and security concerns.

NATGRID was originally envisaged as a middleware platform enabling authorised agencies to **query multiple databases to prevent intelligence failures**.

Its contemporary expansion—marked by large-scale data access, **integration with the National Population Register (NPR), and algorithmic analytics** signals a **shift from targeted intelligence to population-scale surveillance**, blurring the line between national security and everyday policing.

Problem Diagnosis: Governance and Security Risks

- **Absence of statutory backing:** NATGRID operates through **executive orders without** a dedicated parliamentary law, **weakening democratic accountability**.
- **Mass surveillance creep:** Expansion of access to police units and routine policing functions **normalises extraordinary surveillance powers**.
- **Integration with NPR:** Linking population registers with intelligence databases shifts surveillance **from event-based tracking to continuous citizen profiling**.
- **Algorithmic opacity:** Tools such as **"entity resolution"** rely on probabilistic inference, increasing risks of false positives and discriminatory outcomes.
- **Oversight deficit:** Lack of independent judicial or parliamentary supervision enables unchecked data access and mission creep.

Why It Matters

- **Constitutional implications:** The Supreme Court in ***Justice K.S. Puttaswamy v. Union of India (2017)*** recognised **privacy as a fundamental right**, requiring legality, necessity, and proportionality for state surveillance standards NATGRID currently struggles to meet.

- **Rule of law and accountability:** Intelligence failures are often institutional, not data-deficit driven; technology cannot substitute governance reform.

- **Internal security effectiveness:** Over-reliance on mass data risks **diluting actionable intelligence,** repeating the very coordination failures NATGRID sought to fix.

- **Social cohesion:** Automated suspicion **disproportionately impacts vulnerable communities**, risking alienation and long-term security blowback.

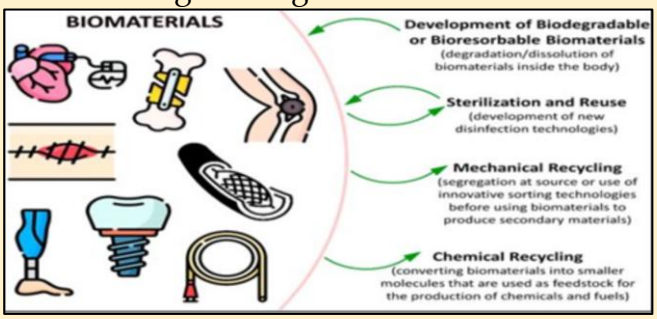
Way Forward: Rebalancing Security and Liberty

- Enact a **comprehensive statutory framework** for NATGRID with clear purpose limitation
- Establish **independent oversight mechanisms** involving Parliament and judiciary
- **Limit access** strictly to **counter-terrorism and serious national security threats**
- Mandate **algorithmic transparency, auditability, and bias safeguards**
- **Re-emphasise human intelligence and institutional coordination over data maximalism**

The trauma of 26/11 continues to shape India's security imagination, but the response risks overshooting the constitutional balance. Without statutory grounding, independent oversight, and proportional use, **NATGRID risks becoming an infrastructure of digital authoritarianism rather than a tool of effective security.** True prevention lies not in omnipresent surveillance, but in accountable intelligence systems rooted in constitutional values.

BIOMATERIALS

As countries look to shift to cleaner processes to manufacture consumer products, biomaterials will become the new frontier of materials engineering.



About Biomaterials:

- **Nature:** Biomaterials refer to materials that are derived wholly or partly from biological sources or are **engineered using biological processes** to replace or interact with conventional materials.
- **Usage:** Unlike traditional petroleum-based materials, biomaterials are designed to reduce environmental impact while supporting sustainable production systems. They are increasingly used in **sectors such as packaging, textiles, construction, and healthcare.**
- **Classification:** Broadly, biomaterials are classified into **three categories.**
  - **Drop-in biomaterials** are chemically identical to petroleum-based materials and can be used in existing manufacturing systems without major modifications. Examples include bio-PET used in packaging.
  - **Drop-out biomaterials** are chemically different and require new processing or end-of-life systems, such as polylactic acid (PLA), which needs industrial composting.
  - **Novel biomaterials** go a step further by offering entirely new properties, including self-healing materials, bioactive implants, and advanced composites with enhanced performance characteristics.

- **Significance:** The development of biomaterials is seen as the **next frontier in materials engineering** as industries attempt to reduce carbon footprints and comply with tightening environmental regulations.

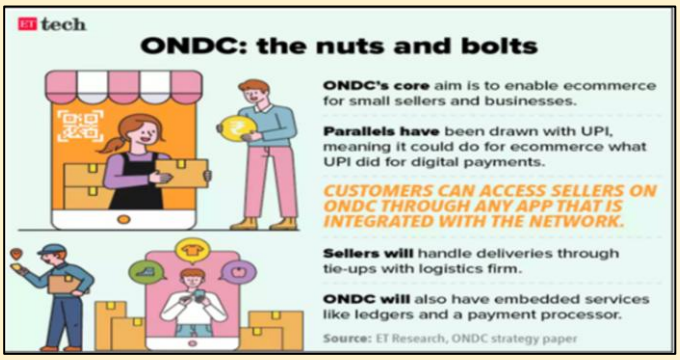
- **Global Developments:**
  - The **European Union** has introduced **binding regulations** under its Packaging and Packaging Waste Regulation, recognising the environmental benefits of compostable materials in specific applications.
  - The **United States** supports biomaterials through **government procurement policies,** particularly under programmes that prioritise bio-based products.
  - Meanwhile, countries like the **UAE** are positioning themselves as major manufacturing hubs through **large-scale investments** in PLA production.
  - These global developments underscore the **competitive urgency for India to** scale up its biomaterials ecosystem.

- **Current Status of Biomaterials in India:**
  - India's biomaterials sector, encompassing bioplastics, biopolymers, and bio-derived materials, is at an **early but rapidly emerging stage.**
  - The bioplastics market alone was **valued at around $500 million in 2024**and is expected to grow steadily through the decade. Several domestic initiatives highlight this transition.
  - Large-scale investments such as the **planned PLA plant by Balrampur Chini Mills in Uttar Pradesh** mark a significant step toward commercial-scale biomanufacturing.

- Indian start-ups are also playing a role, with enterprises converting **agricultural and floral waste into value-added biomaterials.**

OPEN NETWORK FOR DIGITAL COMMERCE

Tickets for 170 ASI protected heritage sites and museums can now also be purchased online through Open Network for Digital Commerce (ONDC).



About Open Network for Digital Commerce (ONDC):

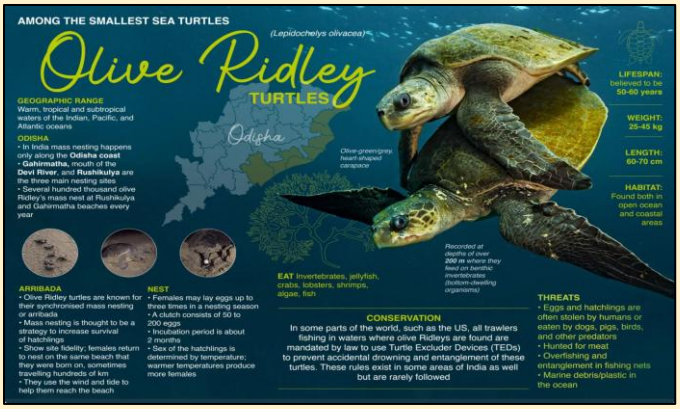
- **Nature:** Open Network for Digital Commerce (ONDC) is a **network of interconnected e-marketplaces** through which sellers, including brands, can list and sell their products directly to customers bypassing any middlemen or intermediaries.
- **Objective:** It is aimed at **promoting open networks** for all aspects of exchange of goods and services over digital or electronic networks.
- **Significance:** It allows transitioning from a **platform-centric model to an open source network** for buying and selling goods and services.
- **Launch:** It was incorporated **in 2021 with initial investment from Quality Council of India (QCI)** and Protean eGov Technologies Limited (formerly NSDL e-Governance Infrastructure Limited).
- **Nodal ministry:** It was launched under the Department for Promotion of Industry and Internal Trade (DPIIT) by the **Ministry of Commerce** as part of the Digital India initiative.
- **Similarity:** Similar to the **Unified Payments Interface (UPI),** ONDC aims to level the operational playing field among e-commerce platforms.

- **Objectives:**
  - Democratisation and **decentralisation** of e-Commerce
  - **Inclusivity and access** for sellers, especially small and medium enterprises as well as local businesses
  - Increased choices and **independency** for consumers
  - Making goods and services **cheaper**.

  Working Mechanism: It functions on the basis of an open network where it will not be a single platform similar to Amazon or Flipkart but rather in the **form of a gateway** where buyers and sellers across different platforms will be able to connect.

OLIVE RIDLEY SEA TURTLES

Ahead of the sea turtle nesting season, the forest department has intensified conservation measures along the Mangaluru coastline by setting up hatcheries.



About Olive Ridley Sea Turtles:

- **Nature:** They are the **smallest and most abundant of all sea turtles** found in the world.
- **Nomenclature:** It gets its name from the **olive green colouration of its carapace** (shell).
- **Uniqueness:** It is best known for its **unique mass nesting, called Arribada,**where thousands of females come together on the same beach to lay eggs.
- **Global spread:** They are mainly found in the warm waters of the **Pacific, Atlantic, and Indian oceans.**
- **Distribution in India:** Major nesting beaches along the **Odisha coast** (Gahirmatha, Rushikulya, Devi River mouth), solitary nesting also occurs along the **Tamil Nadu, Andhra Pradesh, and Andaman coasts.**
  - **Largest rookery: Odisha's Gahirmatha Marine Sanctuary** is known as the world's largest rookery (a colony of breeding animals) of sea turtles.
  - **Omnivorous:** They are omnivorous, meaning they **feed on both plants and animals.**
  - **Solitary:** They are solitary, preferring the open ocean. These turtles spend their entire lives in the ocean, and **migrate thousands of kilometers** between feeding and mating grounds in the course of a year.
- **Conservation Status:**
- IUCN Red List: **Vulnerable**
- Wildlife Protection Act, 1972: **Schedule 1**
- CITES: **Appendix I.**

SURYASTRA

Indian Army signed a ₹293 crore contract with private defence manufacturer NIBE Limited, for the supply of an advanced long-range rocket launcher system Suryastra.

About Suryastra Rocket Launcher System:

- **Nature:** It is an advanced **long-range rocket launcher system.**
  - **Development:** It is developed by **Pune-based NIBE** Limited in collaboration with Israel's Elbit Systems.

  - **Uniqueness:** It is **India's first** indigenous universal multi-calibre rocket launcher system.
- **Range:** It is capable of executing precision surface-to-surface striking targets at ranges of **150 and 300 kilometers.**
- **Multi-target Capability:** It is designed to engage multiple **targets simultaneously** at varying ranges.
- **Precision:** It achieves a high degree of accuracy with a circular error probable (CEP) of **less than five metres** during trials. The same launcher is also capable of firing loitering munitions up to a range of 100 km.
- **Technologies used:** The system is based on Elbit Systems' **PULS (Precise & Universal Launching System)** launcher technology. It is equipped with a modern fire control system that integrates **GPS, inertial navigation,** and digital ballistic computation.

SOMNATH TEMPLE

Prime Minister Narendra Modi extended greetings to the nation on the commencement of Somnath Swabhiman Parv.

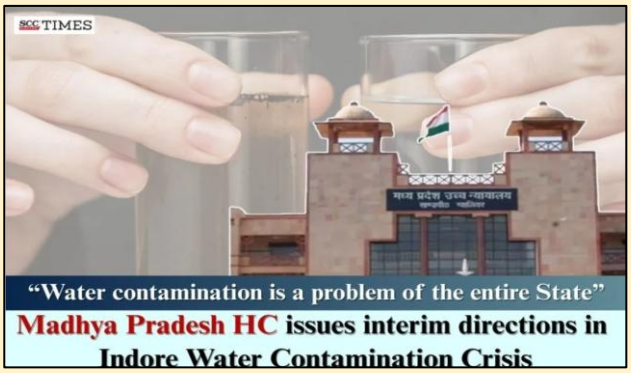
About Somnath Temple:

- **Deity:** It is a Hindu temple dedicated to **Lord Shiva.**
- **Location:** It is located in Prabhas Patan near Veraval in Saurashtra on the western coast of **Gujarat.**
- **Uniqueness:** It is the **first of the 12 jyotirlinga shrines** in India that are regarded as the manifestation of the Lord Shiva Himself.
- **Religious significance:** References to the temple are found in ancient texts like **Skandpuran, Shreemad Bhagavat, Shivpuran, and the Rig-Veda.** It is also the **Neejdham Prasthan Leela site** where Lord Shri Krishna took his last journey.
- **Geographical Significance:** Situated at the **confluence of Kapila, Hiran, and Saraswati rivers** with the Arabian Sea. Abadhit Samudra Marg (Tirth Stambh) indicates an **uninterrupted sea route to the South Pole,** with the nearest landmass ~9,936 km away, reflecting ancient Indian geographical knowledge.

- **Timeline:** The ancient temple's timeline can be **traced from 649 BC** but is believed to be older than that.
- **Construction:** According to tradition, it was **built in phases**—first in gold by Somraj (Moon God), then in silver by Ravana, later in wood by Lord Krishna. King Bhimdev I (or Bhima I) of the Solanki dynasty rebuilt the temple in stone after its destruction by Mahmud of Ghazni in 1026 CE.
- **Attacks and reconstructions:** First major attack on the temple took place **in 1026 AD by Mahmud of Ghazni** (documented by Al-Biruni). The temple was looted and destroyed multiple times, including in 1026, 1297, 1394, and 1706 CE (Aurangzeb). **2026 marks 1,000 years since the first attack**, a significant civilisational milestone.
- **Present form:** The existing temple was rebuilt post-independence as a symbol of national resurgence. **Sardar Vallabhbhai Patel initiated the reconstruction** in 1947. The **Pran-Pratistha was performed by President Dr. Rajendra Prasad** in May, 1951.

INDORE WATER CONTAMINATION

The Indore water contamination tragedy, which led to multiple deaths and illness among over 2,000 residents, exposes a critical gap in India's water governance: rapid expansion of piped water access without commensurate assurance of water quality at the consumer end.



Current Status: Water Quality and Water Stress in India

- **High coverage, low safety:** NFHS-5 shows **96% of households use "improved" drinking water sources**, yet WHO estimates that unsafe water causes **over 1.5 lakh deaths annually in India**, mainly from diarrhoeal diseases.
- **Urban vulnerability:** Even "clean" cities like Indore and campuses like VIT Bhopal (2025 jaundice outbreak) reveal that municipal supply is not inherently safe.
- **Severe water stress:** NITI Aayog's *Composite Water Management Index* warns that **600 million Indians face high-to-extreme water stress**, with 21 cities projected to run out of groundwater.
- **Chemical contamination:** Government data shows **fluoride, arsenic, iron and nitrate contamination** affecting drinking water in over **300 districts**, especially in central and eastern India.
- **Infrastructure deficit:** The Ministry of Housing and Urban Affairs notes that **over 40% of urban water is lost**through leakages, increasing contamination risks.
- **Disease burden:** India accounts for a disproportionate share of global **water-borne diseases**, with children under five most affected.

Core Issues in Water Quality Governance

- **Coverage-first approach:** Jal Jeevan Mission prioritised tap connections; however, **quality monitoring has lagged behind scale**, leading to unsafe last-mile delivery.
- **Inadequate testing frequency:** Many States test water **only periodically**, not continuously, allowing contamination to go undetected for weeks.
- **Ageing pipelines:** Old, corroded pipes often run alongside sewage lines, causing cross-contamination, as seen in Indore and earlier cases in Chennai and Bengaluru.
- **Fragmented accountability:** Water sourcing, treatment and distribution fall under different agencies, diluting responsibility when failures occur.
- **Weak enforcement:** BIS drinking water standards exist, but penalties for municipal non-compliance are rare.
- **Poor public disclosure:** Unlike air quality indices, **real-time water quality data is rarely shared with citizens**, delaying preventive action.

Government Efforts and Policy Measures

- **Jal Jeevan Mission (JJM):** Provided tap connections to over **13 crore rural households**, with a mandate for water quality testing labs, though utilisation varies widely across States.
- **Swachh Bharat Mission:** Reduced open defecation from 39% (2014) to single digits, indirectly lowering faecal contamination, but sewerage coverage remains incomplete.
- **AMRUT & AMRUT 2.0:** Target urban water supply and sewerage; however, CAG reports highlight delays and under-utilisation of funds.
- **National Water Policy:** Advocates integrated water resource management and pollution control, but implementation remains uneven.
- **Water Quality Monitoring & Surveillance Programme:** Exists on paper, yet many districts lack functional labs or trained personnel.

- **NITI Aayog alerts:** Repeatedly flagged declining groundwater quality and urged States to treat water safety as a public health priority.

Way Forward: Reforms Needed

- **From access to assurance:** Treat **potable quality at the delivery point** as a core service obligation, not an optional add-on.
- **Real-time monitoring:** Deploy sensor-based testing and community-level kits for early detection of microbial and chemical contaminants.
- **Infrastructure renewal:** Replace ageing pipelines and ensure physical separation of drinking water and sewage networks.
- **Clear accountability:** Assign a single authority at the city/district level responsible for end-to-end water safety.
- **Strict enforcement:** Mandate compliance with BIS standards, backed by financial penalties and independent audits.
- **Citizen awareness:** Publish water quality dashboards and issue timely advisories, similar to air quality alerts.

India's water challenge has moved beyond scarcity to safety. As NITI Aayog cautions, expanding access without quality assurance risks turning a welfare success into a public health crisis. Safe drinking water must shift from intent-driven policy to enforceable, transparent governance.

POPOCATÉPETL VOLCANO

Scientists recently obtained first 3D images from inside Popocatépetl Volcano, one of the world's most active volcano and whose eruption could affect millions of people.

About Popocatépetl Volcano:

- **Nomenclature:** Popocatépetl means **"Smoking Mountain"** in the Aztec Nahuatl language.
- **Location:** It is located in central **Mexico** roughly 45 miles (72 kilometers) southeast of Mexico City. It is on the border of the states of México and Puebla.
- **Mythology:** In Aztec mythology, it is linked to the twin volcano Iztaccíhuatl. The legend depicts **Popocatépetl as a warrior** and Iztaccíhuatl as a princess who died of grief.
- **National Park:** Both peaks are protected **within the Izta-Popo Zoquiapan National Park.**
- **Interaction of tectonic plates:** It lies on the Trans-Mexican Volcanic Belt, which is the result of the small **Cocos Plate subducting beneath the North American Plate.**
- **Significance:** It is one of Mexico's most **active volcanoes**, with recorded eruptions since 1519. It is one of the most dangerous volcanoes in the **Ring of Fire.**
- **Type:** It is a **stratovolcano** (also called a composite volcano), characterized by a steep, conical shape built by layers of ash, lava flows, and pyroclastic materials.
- **Elevation:** It is approximately **5,452 meters** (17,883 ft) in height, making it the second-highest peak in Mexico after Citlaltépetl (Pico de Orizaba).
- **Eruption Characteristics:** Primarily **andesitic to dacitic** in composition, it produces viscous lava flows, explosive ash clouds, and pyroclastic flows.
- **Hazard Zone:** An estimated **25 million people live within a 100 km radius** of the summit, making it one of the most high-risk volcanoes globally.

DOUBLE HUMPED BACTRIAN CAMEL

In a historic move confirmed by the Ministry of Defence, the double-humped Bactrian camels will make their official debut on the Kartavya Path on January 26.

About Double Humped Bactrian Camel:

- **Scientific name:** It is scientifically known as **Camelus bactrianus.**
  - **Distinctive feature:** They have **two humps** on the back, compared to the single hump of the Dromedary (Arabian) camel. The humps **store fat (not water)** that provides energy and metabolic water during scarcity.
  - **Global spread:** They are native to the harsh and arid regions of Central Asia. They occupy habitats **in Central Asia from Afghanistan to China**, primarily up into the Mongolian steppes and the Gobi desert.
- **Distribution in India:** Small populations of these camels are found in high altitude cold deserts of **Ladakh's Nubra Valley.**
  - **Resilient:** They possess thick, shaggy coats that fluctuate with the seasons, growing dense to withstand temperatures as low as **minus 40 degrees Celsius.**Their nostrils are sealable to **block out frozen dust,** while their broad feet act like natural snowshoes.
- **Uniqueness:** They are among the few land animals that can survive by **eating snow to meet their hydration needs.**
- **Diet:** Bactrian camels are **omnivores** but primarily herbivores and eat various types of plants.
- **Strategic significance:** They are formally inducted into the **Indian Army for logistical and patrol duties** along the Line of Actual Control (LAC) in Eastern Ladakh.
- **Conservation Status:** They are classified as **'Critically Endangered'** as per IUCN Red List.

TAIMOOR WEAPON SYSTEM

Pakistan Air Force has successfully conducted a flight test of the indigenously developed Taimoor Weapon System, capable of hitting targets at 600 kilometres.

About Taimoor Missile:

- **Origin country:** It is an air-launched cruise missile developed by **Pakistan**.
- **Objective:** It is designed to enhance Pakistan's **conventional deterrence and precision-strike capabilities** against both land and sea targets.
- **Capability:** It is capable of striking enemy **land and sea targets** with high precision.
- **Propulsion:** It uses **subsonic turbojet** propulsion for long-range efficiency.
- **Range:** It has a range of upto **600 kilometers**, carrying a conventional warhead.

- **Speed:** It is subsonic in nature and has a speed up to **0.8 Mach.**
- **Navigation:** It uses a sophisticated **mix of Inertial Navigation System** (INS), **Satellite guidance** (GPS/GNSS), and **terrain-based navigation**(DSMAC/TERCOM).
- **Launch platform:** It is primarily launched from the **Mirage-III aircraft,** though it is designed for integration across the PAF fighter fleet.
- **Stealth design:** It has a **low-observable airframe** with a box-shaped fuselage, X-type tail, and foldable wings to minimize radar cross-section. It is designed to **fly at very low altitudes,** allowing it to effectively evade hostile air and missile defence systems.

DESIGN LINKED INCENTIVE (DLI) SCHEME

The Design Linked Incentive (DLI) Scheme has become critical to anchoring India in the most strategic segment of the global semiconductor value chain—chip design.

About Design Linked Incentive Scheme:

- **Nature:** It is a key instrument in advancing India's ambition to develop a **strong fabless capability.**
- **Nodal ministry:** It comes under the **Ministry of Electronics and Information Technology (MeitY)** and is a critical component of the India Semiconductor Mission.
- **Objective:** The scheme aims to **reduce import dependence, strengthen supply chain resilience,** and enhance domestic value addition.
- **Nodal Agency: C-DAC (Centre for Development of Advanced Computing)** is responsible for implementation of the scheme.
- **Eligibility: Start-ups and MSMEs** are eligible for financial incentives and design infrastructure support for semiconductor product design & deployment. **Other domestic companies** are eligible for financial incentives for deploying semiconductor designs.

- **Support:** It provides support through **three main pillars** over a period of 5–6 years:
  - **Chip Design Infrastructure Support:** Provides startups and MSMEs with remote access to the National EDA Tool Grid, IP core repositories, and post-silicon validation services through the ChipIN Centre (implemented by C-DAC).
  - **Product Design Linked Incentive (P-DLI):** Offers reimbursement of up to 50% of eligible design expenditure, with a ceiling of ₹15 crore per application.
  - **Deployment Linked Incentive (DLI):** Provides an incentive of 4% to 6% of net sales turnover for 5 years, capped at ₹30 crore per application, once the design is successfully deployed in electronic products.

DISTRICT MINERAL FOUNDATIONS

The Allahabad High Court held that the formation of District Mineral Foundations must be construed liberally for those who are affected negatively by mining operations.

About District Mineral Foundations (DMFs):

  - **Nature:** DMFs are **statutory bodies** in India established by the state governments by notification.
- **Legal status:** They derive their legal status from Section 9B of the **Mines and Minerals (Development and Regulation) Act, 1957,** as amended on 26 March 2015 as the Mines and Minerals (Development and Regulation) **Amendment Act, 2015.**

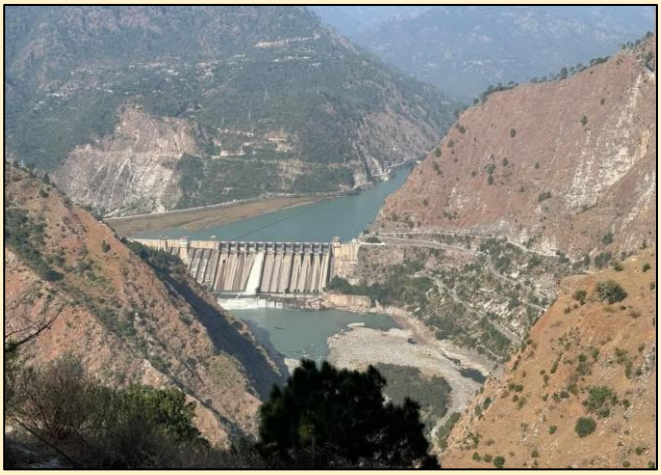
- **Establishment:** In any district affected by mining-related operations, the **State Government shall, by notification,** establish a trust, as a non-profit body, to be called the DMF.
- **Objective:** It aims to work in the interest and **benefit of persons and areas affected by mining-related operations** in a manner as may be prescribed by the respective State Government.
- **Jurisdiction:** The operation of DMFs falls under the jurisdiction of the **relevant State Government.** Further, composition and functions of the DMF are also prescribed by the State Governments.
- **Funding:** It is funded through the contributions from the **holders of major or minor mineral concessions in the district,** as may be prescribed by the Central or State Government. The Central Government has notified the rates of contribution payable by miners to the DMFs.

- **Changes after 2015:** In the case of all mining leases executed **before** 12th January, 2015, miners will have to contribute an **amount equal to 30% of the royalty** payable by them to the DMFs. If mining leases are granted **after** 12.01.2015, the rate of contribution would be **10% of the royalty payable.**
  - **Uses:** The fund available with the Trust shall be used for:
    - The **overall development of the area** affected by mining-related operations in the District in accordance with the Annual Action Plan prepared by the Trustees of the Foundation for the purpose.

- Creation of local infrastructure for **socio-economic purposes.**
  - Providing, maintaining, or upgrading **community assets and services** for the local population in the area affected by mining-related operations.
  - Organising or conducting training programmes to **skill development and capacity building** for creating employment and self-employment capabilities.

SALAL HYDROELECTRIC PROJECT

Union Minister of Power and Housing and Urban Affairs recently directed sediment removal at the Salal Power Project to ensure maximum utilisation of water resources.

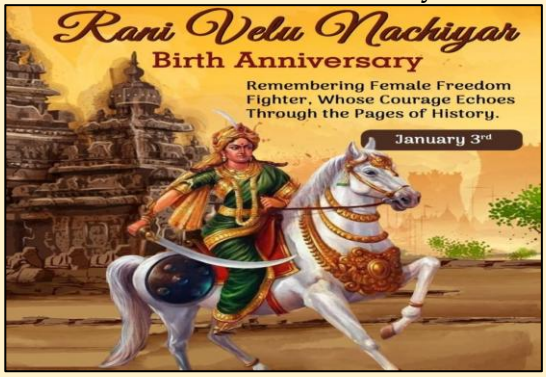


About Salal Hydroelectric Project:

- **Location:** It is located in the Reasi District of **Jammu and Kashmir**.
- **Associated river:** It is a 690 MW run-of-the-river power project on the **Chenab River.**
- **Beginning of project:** Although the plan for a water reservoir was originally conceived in pre-independent India, the **planning of the project started in the 1960s**. The project construction commenced in 1970 and subsequently entered into **commercial operation in 1987.**
- **Construction:** The project is developed and owned by **National Hydroelectric Power Corporation (NHPC).**
- **Uniqueness:** This was the **first hydropower project,** which was built by India **under the Indus Water Treaty** regime in Kashmir.
- **Structure:** Salal Dam is **130 meters high** with an elevation of 1627 feet above mean sea level.
- **Distribution of energy: Jammu and Kashmir receives 12.5 percent of the energy** generated from the project. The **rest is transmitted to the Northern Grid**, where it is distributed to the states of Punjab, Haryana, Delhi, Himachal Pradesh, Rajasthan, and Uttar Pradesh. Jammu and Kashmir also purchases additional power at regular prices.

RANI VELU NACHIYAR

Prime Minister Narendra Modi recently paid tributes to Rani Velu Nachiyar on her birth anniversary, remembering her as one of India's bravest and most visionary rulers.

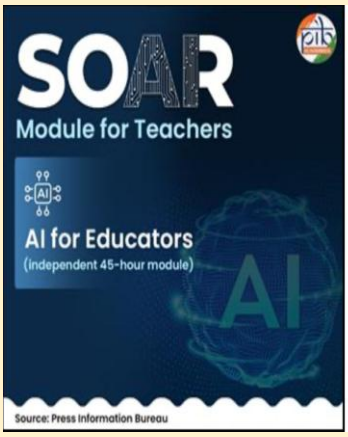


About Rani Velu Nachiyar:

- **Early life:** Rani Velu Nachiyar (1730–1796) was the princess of Ramanathapuram and the only child of Raja Chellamuthu vijayaragunatha Sethupathy and Rani Sakandhimuthal of the Ramnad kingdom.
- **Marriage:** At the age of 16, she married the prince of Sivaganga, Muthuvadugananthur Udaiyathevar. She was an 18th-century queen of Sivaganga in present-day Tamil Nadu.
- **Other names:** She is also known as Veeramangai.
- **Military skills:** She was trained in handling various weapons, horse riding, archery, and traditional martial arts such as Silambam and Valari.
- **Polyglot:** She was also a distinguished scholar. She was proficient in multiple languages, including Tamil, English, French, and Urdu.
- **Strategic alliances:** Velu Nachiyar forged strategic alliances with several powerful leaders of the time, including Hyder Ali of Mysore and Gopala Nayaker.
- **Dedicated women army:** She raised a formidable army that included a dedicated women's battalion and the queen named her women's army "Udaiyaal" in her adopted daughter's honour.
- **First human bomb:** Her commander, Kuyili, is considered the "first woman martyr" and the first suicide bomber in Indian history. In 1780, she drenched herself in ghee, set herself on fire, and walked into a British ammunition depot to destroy their weapons.
- **Uniqueness:** She was the first queen to fight for freedom from the British in India. She granted powers to the Marudu brothers to administer the country in 1780.
- **Postal Stamp:** A commemorative postage stamp was issued by the Government of India in 2008 to honour her legacy.
- **India's Joan of Arc:** Some historians refer to her as "India's Joan of Arc" for her pioneering role in the anti-colonial struggle.

SOAR PROGRAMME

- The President of India, Smt. Droupadi Murmu, recently graced a special function under SOAR Programme at the Rashtrapati Bhavan Cultural Centre (RBCC), New Delhi.

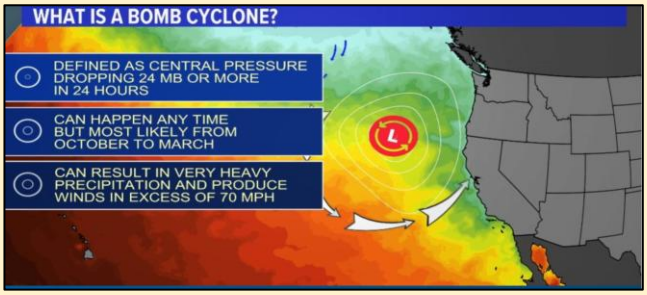


About SOAR Programme:

- **Full Form:** SOAR stands for Skilling for AI Readiness.
- **Nodal ministry:** It is an initiative of the Ministry of Skill Development and Entrepreneurship (MSDE).
- **Objective:** It aims to integrate artificial intelligence learning into India's school education and training ecosystem, preparing both students and teachers for a rapidly evolving digital world.
- **Vision:** It has a vision to position India as a global leader in AI by preparing its youth for AI-driven careers and entrepreneurial ventures. It focuses on school students from classes 6 to 12 and educators across India.
- **Course:** It offers three targeted 15-hour modules for students and a 45-hour module for teachers. These courses introduce foundational AI and machine learning concepts, along with data literacy and the ethical use of technology.
- **Funding:** To this government provided ₹500 crore to establish a Centre of Excellence in Artificial Intelligence for Education.
- **Focus areas:** The centre will focus on developing AI-based learning tools, promoting multilingual AI resources for Indian languages, and fostering innovative classroom practices.
- **Future prospects:** It will also strengthen AI curriculum development across technical institutions and complement existing efforts by IITs and AICTE-approved colleges that already offer advanced courses in machine learning, deep learning, and data analytics.

BOMB CYCLONE

Recently, a powerful "bomb cyclone" barreled across the northern United States, triggering severe winter weather in the Midwest and the East Coast.



About Bomb Cyclone:

- **Nature:** It is a large midlatitude storm resulting from explosive cyclogenesis (or, informally, bombogenesis), a type of accelerated extratropical cyclone development.
- **Classification:** To be classified as a bomb cyclone, the central atmospheric pressure must drop by at least 24 millibars within 24 hours.
- **Structure:** In structure, a bomb cyclone is indistinguishable from any other intense midlatitude storm.
- **Differentiation:** The centre of the storm is a low-pressure cell (or cyclone) that draws winds near the surface inward. However, a bomb cyclone is set apart by its rapid rate of intensification.
- **Associated phenomena:** Bomb cyclones are often associated with atmospheric rivers and typically form in winter when cold and warm air masses collide.

- **Type of precipitation:** The precipitation associated with a bomb cyclone is intense, ranging from heavy downpours to strong thunderstorms to blizzards and heavy snowfalls, along with strong winds.

- **Active regions:** The four most active regions where extra-tropical explosive cyclogenesis occurs in the world are the Northwest Pacific, the North Atlantic, the Southwest Pacific, and the South Atlantic.

VOWIFI SERVICES

Recently BSNL announced the nationwide rollout of Voice over WiFi (VoWiFi), also known as Wi-Fi Calling.

About Voice over WiFi (VoWiFi) Services:

- **Nature:** Voice over WiFi (VoWiFi) is a technology that allows users to make and receive voice calls and SMS over a Wi-Fi network instead of a mobile tower.
- **Operation:** It works using IMS (IP Multimedia Subsystem) and uses the same mobile number and phone dialer, without any third-party app.
- **Key features:**
  - IMS-based service: Uses IP Multimedia Subsystem (IMS) to manage calls, enabling smooth handover between Wi-Fi and cellular networks.
  - Existing mobile number and dialer: Users make and receive calls using their regular phone number and default dialer, without installing any additional apps.
  - No additional charges: Wi-Fi calls are treated like normal voice calls and are provided free of extra cost to subscribers.
  - Indoor and low-signal support: Ensures reliable connectivity in basements, offices, high-rise buildings, and remote areas with poor mobile coverage.
  - Wide smartphone compatibility: Supported on most modern VoWiFi-enabled smartphones, requiring only a settings toggle.
  - Network congestion reduction: Offloads voice traffic from mobile towers to Wi-Fi, improving overall network efficiency and call quality.
- **Mechanism:**
  - The smartphone uses an available home, office, or public Wi-Fi network to connect to the telecom network, instead of relying on a nearby mobile tower.
  - The user is authenticated through the SIM card, ensuring the same level of security and identity verification as regular mobile calls.
  - Voice is converted into digital data packets and transmitted over the internet, allowing calls even where mobile signals cannot reach.
  - When Wi-Fi becomes weak or unavailable, the call automatically shifts to the mobile network (VoLTE) without interruption or call drop.

- **Advantages:**
  - Reliable calling without mobile signal: Enables uninterrupted communication in signal-dark zones, particularly useful in rural and indoor environments.
  - Better call quality: Provides clearer and more stable voice calls compared to weak or fluctuating cellular networks.
  - Enhanced security: Maintains strong protection using SIM-based encryption and authentication, similar to VoLTE services.

KAIMUR WILDLIFE SANCTUARY

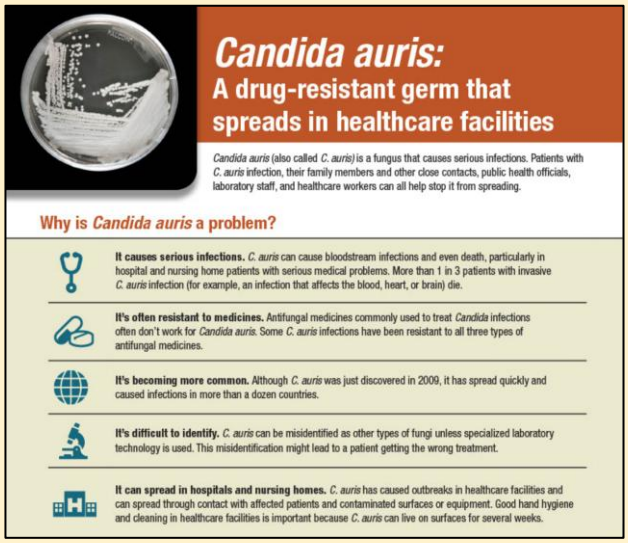
Bihar is set to get its second tiger reserve as the NTCA has given in-principle approval to declare Kaimur Wildlife Sanctuary (KWS) a tiger reserve.

About Kaimur Wildlife Sanctuary:

- **Location:** It is located in the Kaimur District of Bihar. It is located in the famous Kaimur Hills range.
- **Famous destinations:** The Kaimur Hills, known for their invincibility, are home to two forts and the ancient Mundeshwari Temple, one of the oldest Hindu temples in India.
- **Area:** It is the largest sanctuary in the state and occupies an area of about 1342 sq.km.
- **Rivers and lakes:** It is bounded by the Son River to the north and the Karmanasa River to the south. The valley part is filled with many waterfalls such as Karkat and Telhar and various lakes such as Anupam Lake.
- **Connectivity:** It is connected to the Bandhavgarh-Sanjay-Guru Ghasidas-Palamau tiger meta-population landscape through fragmented forest patches along the Son basin.
- **Historical significance:** Prehistoric rock paintings, stone inscriptions, and monuments have also been discovered here. Prehistoric murals found in the "Lakhania" and other hilly regions and the prehistoric fossils of the Pre-Cambrian times in the "Salakhan" area bear testimony to the ancient origin and existence of this region.
- **Tribes:** The Oraon tribe is believed to have originated from this region.
- **Flora:** A large variety of vegetation is found in the mixed, dry, deciduous forests that cover the area, the primary tree vegetation being Baakli, Mahua, Dhaak, and Bamboo.
- **Fauna:** The wildlife comprises of Black Bucks, Chinkaras, Four-Horned Deers, Blue-Bulls, Sambar, Cheetals, Bears, Leopards, etc. Apart from these pythons, Gharials/Crocodiles and different species of snakes are also found.

CANDIDA AURIS

- The drug-resistant fungal species Candida auris is turning more deadly and is spreading globally, according to a study led by Indian researchers.



About Candida Auris:

- **Nature:** It is a fungus that causes serious infections. Known as a "superbug," it is often resistant to multiple classes of antifungal drugs, including azoles, polyenes, and echinocandins.
- **Discovery:** It was first discovered in 2009 in Japan but an analysis of the fungus revealed that it was already identified in 1996 in South Korea.
- **Symptoms:** A person infected with this life-threatening fungus experiences symptoms like fever, sepsis, aches and fatigue.
- **Target:** It mainly affects patients who already have many medical problems or have had frequent hospital stays or live in nursing homes. It is more likely to affect patients who suffer from conditions such as blood cancer or diabetes, have received lot of antibiotics or have devices like tubes going into their body.
- **Transmission:** It can spread indirectly from patient to patient in healthcare settings such as hospitals or nursing homes as it remains on people's skin and objects such as hospital furniture and equipments like glucometers, temperature probes, blood pressure cuffs, ultrasound machines and nursing carts etc. for quite a long time.
- **Concerns:** According to health care agencies, almost half of the patients who contract Candida Auris die within 90 days. Some types of Candida Auris fungi are resistant to the first line and second line anti-fungal medications.
- **Treatment:** This fungal infection can be serious and even fatal as there is no specific treatment for it.
- **WHO Classification:** It is listed as a "Critical Priority" pathogen in the World Health Organization's first-ever list of fungal priority pathogens.

- **Precautions:**
  - Family members of patients with C Auris infection, public health officials, laboratory staff and healthcare personnel can all help in stopping its spread.
  - Once the patient is diagnosed with having C Auris, the healthcare facilities should place the patient in a separate room as soon as possible.
  - Wounds should be bandaged to prevent any fluids from seeping out and infecting others.
  - It is also important for healthcare facilities to regularly and thoroughly clean and disinfect affected patient's room with special cleaners known to work against fungi.
  - Cleaning hands with hand sanitizer or soap and water before and after touching a patient with C Auris or equipment in his/ her room.

BEED EXPERIMENT IN MAHARASHTRA

Doubling farmers' incomes has remained elusive despite policy emphasis, as conventional approaches focused on input subsidies and MSPs have delivered limited gains.

The Beed experiment in Maharashtra, offers an evidence-based pathway to income enhancement through crop diversification, institutional support, and market integration.

The Krishikul initiative under the Global Vikas Trust demonstrates that **shifting from low-value traditional crops to high-value fruit crops,** combined with scientific farming and assured market linkages, **can significantly raise farm incomes**. Independent evaluation by TISS (2024) shows per-acre incomes rising nearly ten-fold within a short transition period.

Challenges in India's Farm Income Strategy

- **Low-productivity cereal cropping: Rain-fed paddy–wheat dominance** in central and eastern India **keeps yields and incomes structurally low**.
- **Fragmented landholdings: Sub-1-hectare holdings** limit access to quality seeds, irrigation, and mechanisation.
- **Weak post-harvest systems: Poor cold chains and processing cause distress sales** and high losses in fruits and vegetables.
- **Credit and risk constraints: Inadequate formal credit pushes** farmers to avoid high-value crops due to income risk.
- **Weak market linkage: Reliance on APMC mandis exposes farmers to price crashes** in perishables like tomato and onion.

Why the Beed Model Matters

- **Income Diversification**: **Fruit crops like guava, pomegranate**, and custard apple generated **cumulative returns far higher than soybean or cotton**.
- **Human Capital & Trust**: Continuous **engagement, training, and confidence-building** were central to adoption.
- **Natural Resource Management**: **Aquashaft-based groundwater recharge** raised water tables by up to 350 feet, ensuring irrigation sustainability.
- **Institutional Synergy**: **Integration of NGOs, banks (through FLDG), and research institutions** reduced risk and enhanced scalability.
- **Economic Logic**: **Higher value realisation, stable demand, and reduced distress migration** strengthened rural economies.

Way Forward

- Promote region-**specific crop diversification aligned with agro-climatic conditions.**
- Scale **public–private–NGO partnerships** for extension and credit support.
- Invest in aggregation, grading, cold chains, and processing to capture value.
- Shift policy focus from **production targets to income and value-chain outcomes.**

The Beed experience shows that farmers' income growth is not achieved by price support alone but by restructuring agriculture around value, markets, and institutions. Replicating such integrated models can transform Indian agriculture from subsistence-oriented production to income-driven growth.

SPORTS AUTHORITY OF INDIA (SAI)

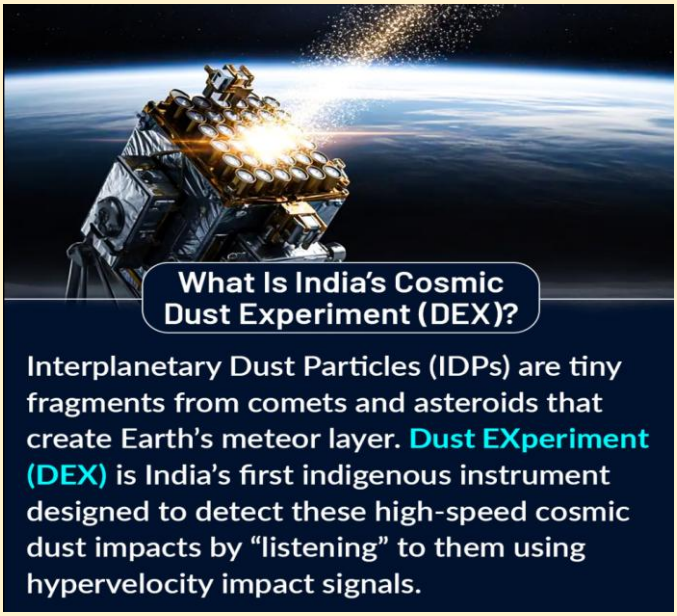
The Sports Authority of India (SAI) has launched a four-day Sports Sciences Workshop for combat sports coaches at its Sports Science Division in New Delhi.

About Sports Authority of India (SAI):

- **Nature:** It is a **registered society** fully funded by the Government of India.
- **Nodal ministry:** It is the apex national sports body of India, established by the **Ministry of Youth Affairs and Sports**, Government of India.
- **Establishment:** It was set up **in 1984** to carry forward the legacy of the IXth Asian Games held in New Delhi in 1982 under the Department of Sports.
- **Objective:** SAI has been entrusted with the twin objectives of **promoting sports and achieving sporting excellence** at the national and international level.
- **Focus areas:** SAI's primary efforts include **widespread talent scouting and training of selected individuals** by providing vital inputs like coaching, infrastructure, equipment support, sports kits, competitive exposure, etc.
- **Significance:** SAI has played a significant role in **shaping India's sports development** by providing training to elite athletes and at the same time operating a number of schemes for the identification and development of young talent.
- **Implementation of schemes:** SAI implements the following Sports Promotional Schemes across the country **to identify talented sportspersons in various age groups** and nurture them to excel at the national and international levels:
  - ○National Centres of Excellence (NCOE)
  - ○SAI Training Centre (STC)
  - ○Extension Centre of STC
  - ○National Sports Talent Contest (NSTC)
- **Other responsibilities:** SAI is also entrusted with the responsibility of **maintaining and utilizing,** on behalf of the Ministry of Youth Affairs & Sports, the following **stadiums in Delhi,** which were constructed/renovated for the IXth Asian Games.
  - ○Jawaharlal Nehru Sports Stadium
  - ○Indira Gandhi Sports Complex
  - ○Major Dhyan Chand National Stadium
    - Dr. Syama Prasad Mookherjee Swimming Pool Complex
    - Dr. Karni Singh Shooting Ranges.

DUST EXPERIMENT

ISRO used the first homegrown cosmic dust detector, the Dust EXperiment, to confirm that a cosmic dust particle hits Earth's atmosphere approx. every thousand seconds.



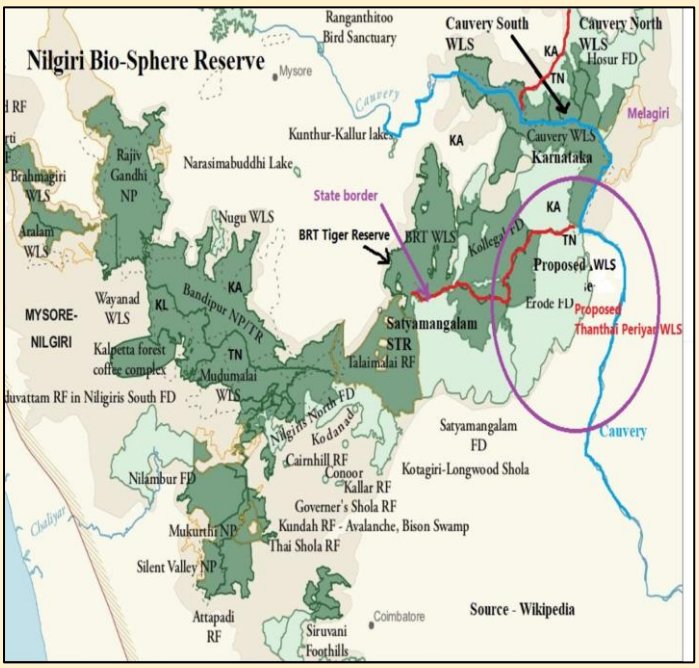
About Dust EXperiment (DEX):

- **Nature:** It is the first **Indian-made instrument to hunt** for these high speed **Interplanetary Dust Particles** (IDPs).
- **Development:** It is developed by the **Physical Research Laboratory, Ahmedabad**.
- **Associated mission:** It was flown on **PSLV Orbital Experimental Module (POEM)**of the PSLV-C58 XPoSat Mission on January 1, 2024.
- **Uniqueness:** It is the **first-of-its-kind instrument** designed to detect such high-transient particles. It is a **blueprint of the detector** which can study the cosmic dust particle at any planet having an atmosphere or no atmosphere.
- **Mechanism:** It is a compact instrument tuned to hear impacts, capturing vital data. At the core of the experiment lies a **3-kilogram dust detector** based on the cutting-edge hypervelocity principle designed to capture high-speed space dust impacts **with only 4.5 W power consumption.**

- **Positioning:** It rocketed to an **altitude of 350Km.**
- **Significance:** Its data redefines our **understanding of the universe and charts the path for safe human deep-space missions.**
- Understanding and collecting data on interplanetary dust in Earth's atmosphere will also be valuable for planning **Gaganyaan missions.**
- **About Interplanetary Dust Particles (IDPs):**
  - Interplanetary dust refers to **micrometer-scale particles** originating from the solar system.
  - These are microscopic shrapnel from comets and asteroids that form our **atmosphere's mysterious "meteor layer",** and show up as "shooting stars" at night.
- These can be analyzed to gain insights into their origins, formation mechanisms, and the processes that occurred in **early solar and presolar environments.**

THANTHAI PERIYAR WILDLIFE SANCTUARY

The first phase of the All-India Tiger Estimation-2026 (AITE-26) commenced in the Thanthai Periyar Wildlife Sanctuary under the Erode Forest Division recently.



About Thanthai Periyar Wildlife Sanctuary:

- **Location:** It is located in the Bargur Hills of the **Erode district in Tamil Nadu**, at the junction of the Eastern Ghats and the Western Ghats.
- **Status:** It was notified by the Tamil Nadu government on January 30, 2024, it became the **state's 18th wildlife sanctuary.** It is also one of the tiger corridors identified by the National Tiger Conservation Authority.
- **Area:** The sanctuary covers an area of **80,114.80 hectares** (approximately 801 sq km).

- **Tiger corridor:** It is a vital tiger corridor identified by the National Tiger Conservation Authority (NTCA), **linking the Sathyamangalam Tiger Reserve and the Male Mahadeshwara Hills Tiger Reserve.**
- **Connectivity:** The region is part of the Nilgiris Elephant Reserve and provides a crucial habitat for large herbivores, including elephants and the Indian Gaur. It **connects the Nilgiris Biosphere Reserve with the Cauvery South Wildlife Sanctuary,** facilitating the safe movement of wildlife.
- **River:** The sanctuary is the catchment area for the **Palar River, which flows into the Cauvery River** and supports agricultural activities in the region.
- **Biodiversity:** The diverse landscape, including hills, valleys, forests, and grasslands, is home to a **rich variety of flora and fauna**, including tigers, leopards, sloth bears, and various bird species.

MAN PORTABLE ANTI-TANK GUIDED MISSILE

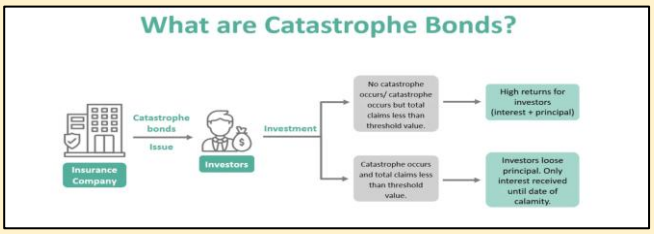
Man Portable Anti-tank Guided Missile (MPATGM) Weapon System, indigenously developed by DRDO has been field evaluated in different flight configurations.

About Man Portable Anti-Tank Guided Missile (MPATGM):

- **Development:** It is indigenously designed and developed **by Defence Research & Development Organisation (DRDO).**
  - **Partners: Bharat Dynamics Limited (BDL) and Bharat Electronics Limited (BEL)** are the development-cum-production partners (DcPP) for the MPATGM.
- **Composition:** The system consisted of the **MPATGM, Launcher, Target Acquisition System, and the Fire Control Unit.**
- **Generation:** It is the **third-generation "fire and forget" missile.**
- **Operational Range:** Its range is **minimum of 200m to a maximum of 4 km**(varies by source, commonly cited as up to 2.5–4 km).
- **Weight:** It is extremely **lightweight (approx. 14.5 kg)** to ensure portability by a single soldier.
- **Launch platforms:** The missile can be launched from a **tripod-mounted system as well as from a military vehicle-based launcher,** enhancing its operational flexibility.
- **Guidance system:** It uses a **Miniaturized Imaging Infrared (IIR) Seeker** for all-weather, day/night operations.
- **Warhead:** It is equipped with a **Tandem High Explosive Anti-Tank (HEAT) warhead,** specifically designed to defeat Explosive Reactive Armour (ERA).

'CATASTROPHE BONDS'

Having battled natural disasters in recent years, Kerala asked the Union government to consider instituting 'catastrophe bonds' as protection against disaster-linked losses.



About Catastrophe Bonds:

- **Nature:** These are **insurance-linked securities** that transfer the financial risks from natural disasters from the bond issuer to the capital market.
- **Significance:** These are a unique hybrid insurance-cum-debt financial product that **transforms insurance cover into a tradable security.**
  - **Risk bearing:** At present, the financial risk is **fully borne by the State or Central governments.** These bonds are sponsored by sovereign governments, who pay premiums.
  - **Special Purpose Vehicle (SPV):** A separate legal entity is **typically created to hold the investor's principal in safe,** liquid assets (like U.S. Treasurys) to ensure the funds are immediately available if a disaster strikes.
  - **Issuing authorities:** These are issued through intermediaries, **such as the World Bank or Asian Development Bank,** to reduce issuance risks.

- **Purchasing authorities:** These are purchased by **global investors, including pension funds, hedge funds,** and family offices, who are attracted by high returns and the diversification benefits of non-market correlated risks.
- **Coupon rates: The risk level and frequency of disaster occurrence directly influence** coupon rates. For instance, earthquake-related bonds often offer lower premiums (1-2%) compared to those covering cyclones or hurricanes.
- **Global scene: Mexico and the Philippines** have been using CAT bonds to protect themselves against disaster-linked losses.

- **Mechanism:**
  - Investors buy the bond and receive periodic **high-interest payments**(coupons).
  - If no predefined disaster occurs during the bond's **term (usually 1–3 years),** the investor gets their full principal back.
  - If a trigger event occurs, the principal is forfeited by the investor and **transferred to the sponsor** to fund relief and reconstruction.
- **Relevance for India:**
  - **Fiscal Shock Absorber:** India's high vulnerability to climate-induced disasters makes cat bonds a strategic "fiscal buffer" to protect the national budget from sudden shocks.
  - **Low Insurance Penetration:** With less than 10% of India's disaster-affected population covered by traditional insurance, cat bonds provide a macro-level safety net.
  - **Regional Leadership:** India is exploring a South Asian Cat Bond initiative to pool risks across the subcontinent (e.g., earthquakes in Nepal/Bhutan and cyclones in Bangladesh/Sri Lanka) to lower premium costs for all.

UNITED NATIONS DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS

India is expected to grow by 7.4 per cent in the current financial year, driven by consumption and public investment, the UNDESA said in a report.

About UNDESA:

- **Full form:** It stands for **United Nations Department of Economic and Social Affairs.**
- **Nature:** Rooted in the United Nations Charter and **guided by the transformative 2030 Agenda for Sustainable Development,** the UNDESA upholds the development pillar of the United Nations.
- **Objective:** Its Divisions and Offices work together towards a common goal to promote the **social, economic, and environmental dimensions** of sustainable development.
- **Establishment:** It was originally **founded in 1948** and restructured in 1997.
- **Headquarters:** It is based at UN Headquarters in **New York,** United States.

Mandate:

- UN DESA's work programme can be categorized into three areas: **norm-setting, analysis, and capacity-building.**
  - Its work addresses a range of cross-cutting issues that affect peoples' lives and livelihoods. From **poverty reduction to governance to finance to** the environment, UNDESA's work is about human progress for all, especially the most vulnerable.

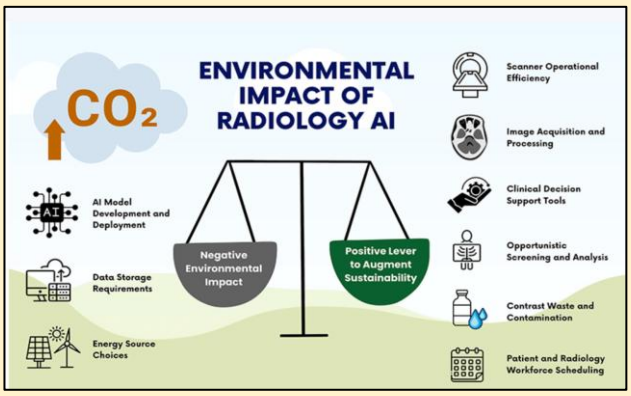
- **Focus areas:**
  - To **facilitate the negotiations** of Members States in many intergovernmental bodies to address ongoing or emerging global challenges;
  - To provide substantive **support to intergovernmental processes** on development issues in the General Assembly and the Economic and Social Council;
  - To **advise interested Governments** on the ways and means of translating policy frameworks developed in the UN conferences and summits into programmes at the country level;
  - To **collaborate closely with its partners** at regional and country levels in helping countries to formulate and implement development strategies;
  - To compiles, **generate, and analyse a wide range of economic, social, and environmental data** and information on which member states of the United Nations draw.

Reports Published:

- **World Economic Situation and Prospects Report**
- **World Social Report**
- **Sustainable Development Goals Report.**

ARTIFICIAL INTELLIGENCE (AI) & ITS ENVIRONMENTAL IMPACT

Artificial Intelligence (AI) is rapidly transforming sectors ranging from healthcare and agriculture to governance and finance. However, as highlighted in the article, **the environmental costs of developing and deploying AI systems have received far less policy attention**. With India positioning itself as a global AI hub, ignoring these impacts risks undermining climate and sustainability goals.



AI is not environmentally neutral. The development, training, and deployment of large AI models impose significant **energy, water, and carbon costs**, necessitating a policy framework that integrates AI governance with environmental regulation and sustainability metrics.

Environmental Impact of AI

- **Carbon footprint**
  - Training a single **Large Language Model (LLM)** can generate **~3,00,000 kg of CO_2 emissions**
  - Another study estimates **~6,26,000 pounds of CO_2** for training one large model
  - Comparable to the **lifetime emissions of multiple cars.**

- **Energy consumption**
  - According to **UNEP (2024)**, a single query on **ChatGPT consumes ~10 times more energy** than a Google search
  - Global **ICT sector** contributes **1.8%–2.8% of global GHG emissions** (some estimates up to **3.9%**).
- **Water stress**
  - AI servers may consume **4.2–6.6 billion cubic metres of water by 2027**, aggravating water scarcity
  - Data centres rely heavily on freshwater for cooling.

Global Regulatory Responses

- **UNESCO (2021):** *Recommendation on the Ethics of Artificial Intelligence* — recognises AI's negative impacts on environment and society

- **European Union:**
  - **AI Environmental Impacts Act, 2024**
  - Harmonised AI rules linking technology governance with sustainability
  - **Corporate Sustainability Reporting Directive (CSRD)** mandates disclosure of emissions from data centres and high-compute activities
- **United States & EU** emerging as leaders in **AI sustainability regulation.**

India's Policy Gaps and Challenges

- **Data deficit:** No standardised, verifiable data on **AI-specific carbon, energy, and water footprints.**
- **Regulatory blind spot:** Environmental Impact Assessment (EIA) framework focuses on physical infrastructure, not **digital or algorithmic projects.**
- **Narrative imbalance:** Policy discourse emphasises **AI for climate solutions**, but not **climate costs of AI.**
- **Lack of disclosure norms:** AI environmental impacts are not part of **ESG reporting standards** in India.

Way Forward

- Develop **measurement standards** for AI energy, water, and GHG footprints
- Extend **EIA Notification, 2006** to assess large-scale AI model development and data centres
- Mandate **AI-specific environmental disclosures** under ESG norms (SEBI, MCA)
- Incentivise **green AI practices**:
  - Pre-trained models
  - Renewable-powered data centres
  - Efficient algorithms
- Promote **multi-stakeholder governance** involving industry, think tanks, and civil society

As India accelerates AI adoption, **environmental sustainability must become a core pillar of AI governance**. Measuring, regulating, and disclosing AI's ecological footprint is essential to ensure that technological progress does not come at the cost of climate stability and resource security. Responsible AI is not only ethical—it is environmentally imperative.

INDIA–GERMANY PARTNERSHIP AND THE EMERGENCE OF THE INDO-EUROPE STRATEGIC GEOGRAPHY

The global order is witnessing heightened volatility due to renewed **U.S. unilateralism**, an **assertive China**, and prolonged instability in Europe following the **Russia–Ukraine war**. Against this backdrop, India and Germany are recalibrating their bilateral engagement to shape a broader **Indo-Europe strategic framework**, aimed at enhancing stability, diversification, and resilience in global geopolitics.

The article argues that **India–Germany relations are no longer merely bilateral**, but central to constructing an **Indo-Europe strategic geography** that links India's scale, demography, and market depth with Europe's industrial strength, technological sophistication, and regulatory capacity—thereby hedging against over-dependence on any single great power.

Key Drivers of India–Germany Convergence

- **European strategic rethinking:** Europe is reassessing long-term dependencies on:
  - **Russian energy**
  - **Chinese supply chains**
  - **American security guarantees**
- **Germany's defence transformation:**
  - Emergence as the **world's third-largest defence spender**
  - Planned defence expenditure of **3.5% of GDP**
  - Annual military spending may reach **$200 billion by end of the decade**
  - First time since WWII that Germany's military capacity could translate into sustained strategic power

- **India's strategic recalibration:**
  - Hedging against **China's assertiveness**
  - Moving beyond reliance on **Russia and China**
  - Deepening engagement with **Germany and the EU** to stabilise Eurasia

Why the Indo-Europe Idea Matters

- **Complementary strengths:**
  - **India:** Demography, market scale, Indo-Pacific centrality
  - **Europe/Germany:** Industry, technology, capital, regulation.

- **Not an alliance, but a geometry:**
  - Indo-Europe does **not replace NATO or the Quad**
  - Acts as a **supplementary strategic pillar** balancing Eurasian power shifts.

- **Bridging regions:**
  Initiatives such as:
  - **India–Middle East–Europe Economic Corridor (IMEC)**
  - Cooperation on **critical minerals**
  - **Green hydrogen**
  - **Maritime awareness in the western Indian Ocean**

Important Historical & Strategic Anchors

- **Deep historical links:**
  - Indo-German interactions during World War I
  - Shared legacy of **seeking strategic autonomy** under great-power dominance
- **Leadership signalling:**
  - Chancellor **Friedrich Merz's India visit**
  - Modi–Merz agreement on **defence industrial cooperation**
  - Revival of momentum after years of relative stagnation.

Challenges Ahead

- **Implementation gap:** Translating agreements into **tangible defence, trade, and technology outcomes**
- **European coherence:** Indo-Europe's success depends on wider EU buy-in, not Germany alone
- **Managing U.S. factor:** Both India and Europe still see the U.S. as indispensable, but seek **greater burden-sharing.**

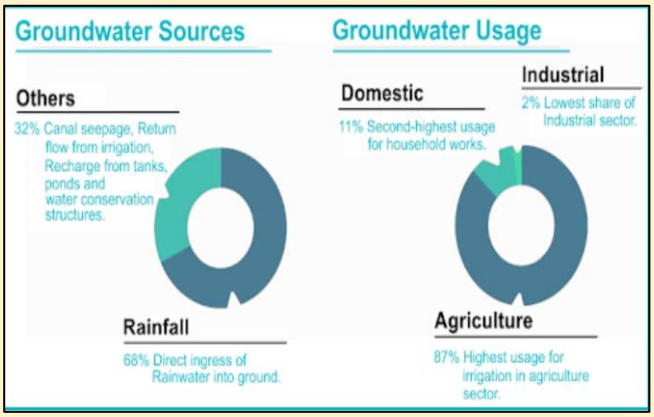
Way Forward

- Accelerate **defence co-development and co-production**
- Institutionalise **India–EU strategic consultations**
- Align Indo-Pacific and European security perspectives
- Leverage economic corridors and clean-energy partnerships
- Ensure Indo-Europe complements, rather than competes with, existing multilateral frameworks.

In an era of geopolitical churn, **India and Germany are moving beyond episodic cooperation toward strategic co-construction**. The Indo-Europe idea reflects a pragmatic response to uncertainty—anchored not in alliances, but in diversification, resilience, and shared responsibility. If effectively implemented, it can become a stabilising pillar in an increasingly fragmented global order.

CENTRAL GROUND WATER BOARD (CGWB)

The Central Ground Water Board (CGWB) has stated that Andhra Pradesh is one of the States facing widespread contamination of groundwater as per the BIS standards.



About Central Ground Water Board:

- **Nature:** It is the **National Apex Agency** entrusted with the responsibilities of providing scientific inputs for management, exploration, monitoring, assessment, augmentation, and **regulation of groundwater resources** of the country.
- **Establishment:** It was established **in 1970 by renaming the Exploratory Tube wells Organization** under the Ministry of Agriculture, Government of India. It was merged with the Ground Water Wing of the Geological Survey of India during 1972.
- **Nodal ministry:** It is a multidisciplinary scientific organization of the Department of Water Resources, River Development and Ganga Rejuvenation, **Ministry of Jal Shakti,** Government of India.
- **Mandate:** It aims to develop and disseminate technologies and **monitor and implement national policies for** the scientific and sustainable development and **management of India's groundwater resources.**
- **Organization Setup:** It is headed by the **Chairman and has five members**. It operates via 18 regional offices and 17 divisional offices across India.
- **Composition:** It is a multidisciplinary scientific organization consisting of **Hydrogeologists, Geophysicists, Chemists, Hydrologists,**Hydrometeorologists, and Engineers.
- **Wings:** It has **four main wings**, namely
  - Sustainable Management & Liaison (SML)
  - Survey, Assessment & Monitoring (SAM)
  - Exploratory Drilling & Materials Management (ED&MM)
  - Water Quality & Training and Technology Transfer (WQ&TT).
- **Headquarters:** Its headquarters is located in Bhujal Bhawan, **Faridabad**, Haryana.

- **Regulation:** The regulation and control of groundwater development is managed by Central Ground Water Authority (CGWA) **in coordination with State Government Organizations.**
- **Focus areas:**
  - Groundwater explorations to **delineate groundwater-worthy areas** and potential aquifers.
  - **Geophysical surveys** to delineate groundwater bearing zones, etc.
  - Periodic assessment of the country's groundwater resources.
  - Monitoring of groundwater levels and quality through groundwater observation wells.
  - Dissemination of **Ground Water Data** and knowledge.

HATTI TRIBE

Boda Tyohar", the biggest annual festival of the Hatti tribe in Himachal Pradesh's Sirmour commenced recently with traditional fervour.

About Hatti Tribe:

- **Nomenclature:** The Hattis are a close-knit community who take their name from their age-old professional **practice of selling their homegrown crops at small markets called 'Haat'** in nearby cities.
- **Location:** These tribal people reside in the **Himachal-Uttarakhand border** in the basin
- of the Giri and Tons rivers, both tributaries of the Yamuna.

- **Social Structure:** The community maintains a rigid caste system, primarily divided into **upper castes (Bhat and Khash) and lower castes (Badhois).**
    - **Clans:** There are two main Hatti clans: **one in the Trans-Giri area** of the Sirmaur district in Himachal Pradesh and the **other in Jaunsar Bawar of Uttarakhand**. The two Hatti clans have similar traditions, and intermarriages are common.
    - **Marriage: Jodidara is a traditional form of polyandrous marriage** practised among the Hatti tribe in Himachal Pradesh, where a woman marries two or more brothers. **Polyandry is legally recognised** in Himachal Pradesh under revenue laws.
    - **Attire:** Hatti men traditionally don **distinctive white headgear** on ceremonial occasions.
    - **Governance:** Harris is governed by a **traditional council called 'khumbli'**which decides community matters.

- **Economy:** The Hatti population **relies on agriculture** for livelihood and bare subsistence since their climate is ideal for **growing "Cash Crops."**

    - **Festival: Boda Tyohar, also called Magho ko Tyohar,** is the biggest annual festival of the Hatti tribe.
    - **Population:** According to the **2011 census,** members of the community numbered **around 2.5 lakh,** but at present the population of the Hattis is estimated at around 3 lakhs.
- **ST Status:** In 2023, the Indian government granted Scheduled Tribe (ST) status to the **Hatti community in Himachal Pradesh.**

INTERNATIONAL RENEWABLE ENERGY AGENCY (IRENA)

Union Minister for New and Renewable Energy recently delivered India's national statement at the 16th Assembly of the IRENA in Abu Dhabi, United Arab Emirates.

About International Renewable Energy Agency (IRENA):

- **Establishment:** It is an intergovernmental organisation that was **founded in 2009** to support countries in their transition to a sustainable energy future.
- **Objective:** It serves as the principal platform for international cooperation, a centre of excellence, and **a repository of policy, technology, resource and financial knowledge on renewable energy.**
- **Member countries:** It has **170 Members and the European Union**. India is also one of the founder members of IRENA.

- **Association with UN**: It is an **official United Nations observer.**
- **Secretariat:** It comprises the **Director-General and his staff**, provides administrative and technical support to the Assembly, the Council and their subsidiary bodies.
- **Headquarters:** Its headquarters is **in Abu Dhabi**, United Arab Emirates.
- **Governance: Assembly is IRENA's ultimate decision-making authority**, made up of one representative from each Member.
- **Council:** It is composed of **21 Member States elected for a two-year term** and is accountable to the Assembly. Council members serve on a rotating basis to ensure the effective participation of both developing and developed countries and a fair and equitable geographical distribution.

INDIAN GIANT SQUIRREL

During the ongoing All India Tiger Estimation 2026 survey, the Indian giant squirrel, was sighted in the Atwan region of the Pune forest division.

About Indian Giant Squirrel:

- **Scientific Name:** The scientific name of Indian Giant Squirrel is **Ratufa indica.**

- **Nature:** The Indian Giant Squirrel is a **large rodent species native to India.** More specifically, it is a type of tree squirrel. It is **one of the largest squirrels in the world.**
- **Other names:** It is also known as the **Malabar Giant Squirrel.**
  - **Distribution:** It is found primarily in the **Western Ghats, Eastern Ghats, and Satpura Range.** Their ranges include many states, including Karnataka, Andhra Pradesh, Madhya Pradesh, Gujarat, Chhattisgarh, Jharkhand, Maharashtra, Kerala, and Tamil Nadu.
  - **Significance:** It is **Maharashtra's state animal** and locally known as Shekru.
  - **Habitat:** It is **arboreal,** spending most of its time in trees. It makes its **shelter within holes in trees.** They can propel impressive distances of 20 feet.
  - **Structure:** Its total body **length varies from 254 to 457 mm.** The tail is typically longer than the length of its body. These squirrels **weigh approximately 1.5 to 2 kg.** They have short, round ears, a broadened hand with an expanded inner paw for gripping, and large, powerful claws used for gripping tree bark and branches.
  - **Difference between males and females: Females are usually larger in size than** their male counterparts by about three centimeters and have mammae for nursing their young.
- **Mating pattern:** They are **typically solitary** animals, being **seen only rarely in pairs during the breeding season.**
- **Distinguishing features:** They are distinguishable by their **striking, multi-colored hues**.
- **Colour patterns:** The colours vary between individual squirrels. There is a common pattern of two to three shades, including white or cream, brown, black, red, maroon, and sometimes dark Fuschia. The **deep shades are primarily seen along the body, while the lighter colors occur on the underside** and the long, bushy tail.
- **Conservation Status:** It is classified as **Least Concern** under the IUCN Red List.

VEHICLE-TO-VEHICLE (V2V) COMMUNICATION TECHNOLOGY

The Government of India is preparing to roll out Vehicle-to-Vehicle (V2V) communication technology by end of 2026.

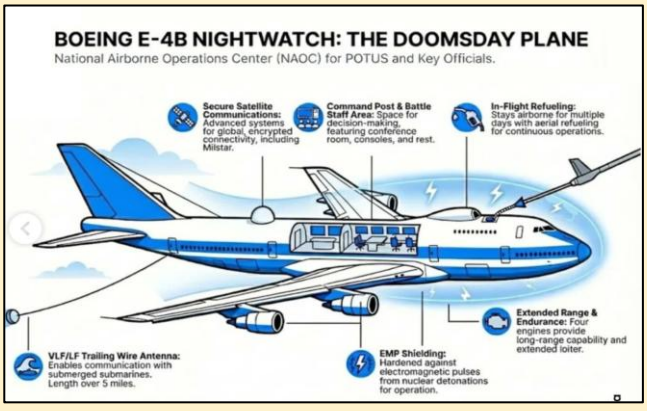
About Vehicle-to-Vehicle (V2V) Communication Technology:

- **Definition:** It is defined as a direct communication method that allows **vehicles to exchange information** with one another.
- **Objective:** The initiative aims to strengthen **road safety and reduce accidents across** the country.
- **Significance:** It enhances **driver awareness of their surroundings through wireless technologies** and allows vehicles to communicate directly with each other without the need for a network.

- **Functioning:** The system will **function through a device similar to a SIM card**, which will be installed in vehicles. The technology will provide alerts related to safe vehicle distance and will also warn drivers about nearby roadside or stationary vehicles.
- **Mechanism:** Vehicles will receive real-time alerts when another vehicle comes too close from any direction. Each vehicle equipped with V2V technology **continuously broadcasts and receives data such as speed, location, direction, acceleration** and braking status.
- **Network Independence:** It operates on a **dedicated radio frequency (the 5.9 GHz band)** authorized by the Department of Telecommunications and does not require mobile networks or internet connectivity.
- **360-Degree Awareness:** The system provides **signals from the front, rear, and sides,** alerting drivers to hazards even when they are beyond the line of sight (e.g., hidden by sharp curves or other vehicles).
- **Low Latency:** Communication happens nearly instantly **(less than 20 milliseconds),** which is critical for preventing high-speed collisions.
- **Advantage:** This feature will be extremely useful during **foggy conditions** when visibility between vehicles drops to almost zero.

BOEING E-4B NIGHTWATCH

Boeing E-4B Nightwatch, known as the 'Doomsday plane', has been sighted in Washington, days after the US captured Nicolas Maduro and his wife.



About Boeing E-4B Nightwatch:

- **Other names:** The Boeing E-4B Nightwatch is widely known as the **"Doomsday Plane."**
- **Mandate:** Its mission is to ensure the **US government can continue to function even if "doomsday" arrives.**
  - **Uniqueness:** It is the **most secretive aircraft in the US military**'s arsenal. It serves as the National Airborne Operations Center and functions as a flying command post.
  - **Significance:** It is designed to keep the US government operational during **extreme scenarios such as nuclear war, catastrophic attacks on US soil**, or the destruction of ground-based command centres.
  - **Part of NC3:** It is a core component of the military's **Nuclear Command, Control, and Communications system,** often referred to as NC3, which enables senior leaders to authorize and manage nuclear forces under all conditions.
  - **Operational planes:** There are **currently four E-4Bs** in service. At least one aircraft is kept on continuous alert at all times.
  - **Previous uses:** The E-4B has been activated in a real emergency **only once, in the aftermath of the September 11, 2001 attacks,** when it was used to ensure continuity of government.
- **Modification:** It is built on a heavily modified **Boeing 747-200 airframe.**
- **Carrying capacity:** Each E-4B has a maximum takeoff weight of **around 360,000 kilograms,** an unrefuelled endurance of roughly 12 hours, and an operating ceiling above 30,000 feet (about 9,091 metres). It can carry **up to 111 personnel,**including senior command staff, intelligence teams, and communications specialists.

- **Structure:** The main deck is divided into **six functional areas,** including command workspaces, conference and briefing rooms, an operations floor, communications hubs, and rest areas. The aircraft is hardened against electromagnetic pulse effects, **shielded against nuclear and thermal radiation,** and equipped with multiple layers of secure communications.

PANKHUDI PORTAL

The Ministry of Women and Child Development recently launched PANKHUDI portal aimed at strengthening initiatives for women and child development.

About PANKHUDI Portal:

- **Nature:** It is an **integrated Corporate Social Responsibility (CSR)** and partnership facilitation digital portal.
- **Nodal ministry:** It is launched by the **Ministry of Women and Child Development.**
- **Objective:** It is aimed at **strengthening** coordination, transparency, and structured stakeholder participation in **initiatives for women and child development.**
  - **Single-window digital platform:** It works as a single-window digital platform, Non–Resident Indians (NRIs), Non-Governmental Organisations (NGOs), Corporate Social Responsibility (CSR) **contributors, corporate entities, and government agencies.**
  - **Key Thematic Areas: Nutrition, health, Early Childhood Care and Education (ECCE),** child welfare, protection and rehabilitation, and women's safety and empowerment.
  - **Supports Flagship Missions:** It supports and strengthens the implementation of flagship missions, such as **Mission Saksham Anganwadi & Poshan 2.0,** Mission Vatsalya, and Mission Shakti.
  - **Transparency:** Contributors register on the portal, identify initiatives, submit proposals, and **track the status of their contributions** through clearly defined approval workflows.

- **Non- Cash Financial Transactions:** All contributions through the portal are accepted **only through non-cash modes.**
- **Significance:** It marks a significant step towards **leveraging digital solutions for inclusive**, collaborative, and **outcome-oriented development of women and children** across India.

WEIMAR TRIANGLE

EAM S Jaishankar recently participated in India's first-ever engagement in the Weimar Triangle, with French and Polish counterparts along with German representatives.

About Weimar Triangle:

- **Countries involved:** It is a regional **political grouping of France, Germany, and Poland.**
- **Formation:** It was formed on **29 August 1991** by a joint declaration issued in Weimar, Germany, by the Foreign Ministers of the three countries.

- **Nomenclature:** The group takes its name **from the city of Weimar, Germany,**where the initial meeting took place. The Triangle was initially the key forum for supporting **German-Polish reconciliation after World War II.**
    - **Structure:** It has **no formal institutional headquarters** or permanent secretariat; it operates through regular summit meetings of heads of state and foreign ministers.

- **Utility:** Although the Weimar Triangle still has no institutional structure, it remains a **framework of reference at the political level.**

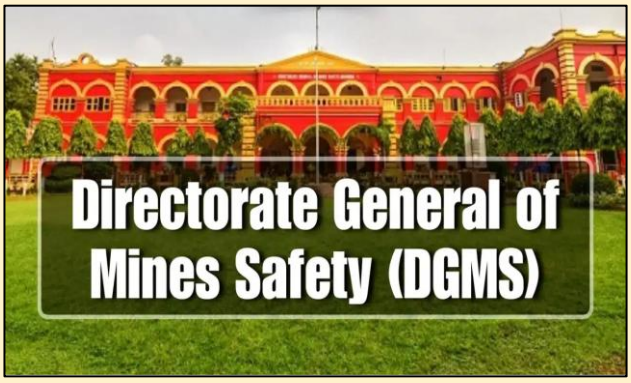
- **Objectives:** It had **three objectives:**
    - To involve France in German-Polish reconciliation by building on the Franco-German experience;
    - To strengthen dialogue and political cooperation between the three countries,
    - To support Poland in its process of integration into NATO and the European Union (EU).

- **Significance:** Regular meetings at levels including heads of government, foreign ministers, and European affairs ministers have enabled **coordination on EU policies,** with notable outcomes including **Poland's accession to NATO in 1999 and the European Union in 2004.**

- **Role beyond diplomacy:** Beyond diplomacy, it encompasses civil society efforts like **youth exchanges, academic collaborations, and business networks** to promote intercultural dialogue and mobility.

DIRECTORATE GENERAL OF MINES SAFETY (DGMS)

The Directorate General of Mines Safety (DGMS), celebrated its 125th Foundation Day today at its Headquarters in Dhanbad, Jharkhand.



About Directorate General of Mines Safety (DGMS):

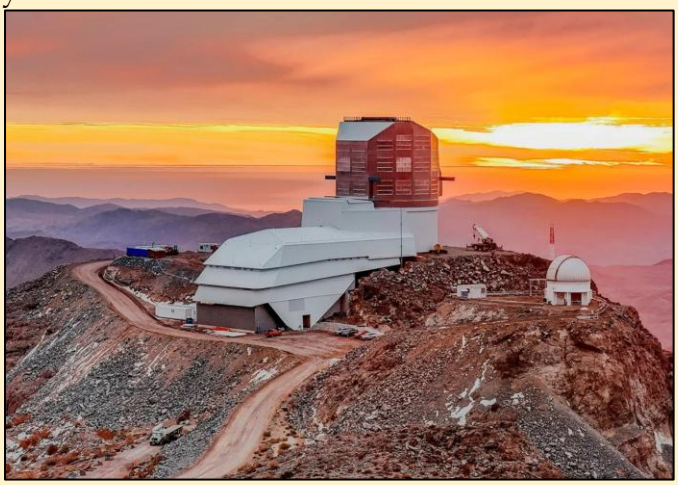
- **Nodal ministry:** It is the regulatory agency under the **Ministry of Labour & Employment,** Government of India.
- **Objective:** It dealt with matters pertaining to occupational safety, health, and **welfare of persons employed in mines.**
    - **Regulation:** The objective is regulated by the **Mines Act, 1952**, and the Rules and Regulations framed thereunder.
    - **Headquarters:** It has its headquarters at **Dhanbad (Jharkhand)** and is headed by the Director-General of Mines Safety.
- **Constitutional provision:** Under the Constitution of India, the safety, welfare, and health of workers employed in mines are the concern of the Central Government **(Entry 55-Union List-Article 246).**

- **History:** For administering the provisions of the **Indian Mines Act, 1901,** the Government of India set up a **"Bureau of Mines Inspection"** on the 7th January 1902 with headquarters at Calcutta.

- **Change in name:** The name of the organization was changed to **the Department of Mines** in 1904, and its headquarters shifted to Dhanbad in 1908. On 01.01.1960, the organization was renamed as "**Office of the Chief Inspector of Mines".** Since 01.05.1967, the office has been redesignated as the DGMS.
- **Focus areas:** The mission of the DGMS is to continually improve **safety and health standards,** practices, and performance **in the mining industry and upstream petroleum industry** by implementing:
    - proactive safety and health strategies;
    - continuous improvement of processes;
    - effective use of resources;
    - commitment and professional behaviour in its personnel.

VERA C. RUBIN OBSERVATORY

Scientists analyzing the first images from the Vera C. Rubin Observatory have discovered the fastest-spinning asteroid in its size class yet.



About Vera C. Rubin Observatory:

- **Location:** It is located 8,684 feet above sea level atop the **Cerro Pachón mountain in the Chilean Andes,** where dry air and dark skies provide one of the world's best observing locations.
- **Nomenclature:** It is named after **American astronomer Vera C. Rubin,** who provided evidence about dark matter for the first time in the 1970s.
- **Funding:** It is jointly funded by the **U.S. National Science Foundation and the U.S. Department of Energy's** Office of Science.

- **Goals:** The observatory has **four main scientific goals:**
    - Understand the nature of dark matter and dark energy.
    - Create an inventory of the asteroids, comets, and other objects in the solar system.
    - Map the Milky Way and help reconstruct its history.
    - Explore objects — like exploding stars and black holes — that change position or brightness over time.
- **Centrepiece:** The centrepiece of the observatory is the **Simonyi Survey Telescope.**
    - **Uniqueness:** The 8.4-meter telescope has the **world's largest digital camera,** which is the size of a small car, weighs 2,800 kg, and boasts a staggering resolution of 3,200 megapixels. It can capture about 45 times the area of the full moon in the sky with each exposure.
    - **Fastest-slewing telescope:** It is the fastest-slewing telescope in the world and takes **just five seconds to move and settle from one target to another.** This speed is due to the telescope's compact structure (owing to the three-mirror design) and its mount, which floats on a film of oil.
    - **Significance:** This observatory will provide comprehensive images of the night sky unlike anything astronomers have seen before. It will **constantly scan the sky of the southern hemisphere for 10 years,** creating an ultra-wide, ultra-high-definition time-lapse record of the universe.

- **Huge data:** It will produce approximately **20 terabytes of data every night.** The amount of data gathered by Rubin Observatory in its first year alone will be **greater than that collected by all other optical observatories combined.**

M-STRIPES

Forest staff who are to be involved in census of tigers and other wild animals will be using the advanced M-Stripes app at Anamalai Tiger Reserve.

About M-STrIPES:

- **Full Form:** MSTrIPES stands for **Monitoring System for Tigers: Intensive Protection and Ecological Status.**
  - **Nature:** It is a **software-based monitoring system** created to assist patrol and protect tiger habitats.
  - **Launch:** It was launched by the **National Tiger Conservation Authority (NTCA)** along with the Wildlife Institute of India in 2010.
- **Objective:** It is designed to assist wildlife protection, **monitoring, and management of Protected Areas.**
  - **Technologies used:** It uses **Global Positioning System (GPS), General Packet Radio Services (GPRS),** and remote sensing.
  - **Role of forest guards:** Under MSTrIPES protocols, forest guards are expected to **patrol their beats and record their tracks using a GPS**, in addition to recording observations in site-specific data sheets.
- **Composition:** The programme consists of **two parts:**
  - an analytical engine with a central desktop software and
  - an online analysis tool, and an Android-based mobile application that records field observations and tracks using real-time GPS.

Focus areas: It aims to

- collect **information** from the field
- create a **database** using modern Information Technology (IT)-based tools

- analyze the information using **GIS and statistical tools**
  - provide inferences that allow **tiger reserve managers** to better manage their wildlife resources.

INDIA TO HAVE 100 VILLAGES TO BE TSUNAMI-READY

Currently 24 coastal villages in Odisha have been recognized as Tsunami Ready **under Tsunami Ready Recognition Programme (TRRP) by UNESCO** based on verification by the National Tsunami Ready Recognition Board (NTRB).

- **Tsunami-ready village** is certified to the ones that **have high awareness about tsunami, hazard preparedness** and mapping, public display of evacuation maps, 24-hour warning systems, participation in mock drills etc.

About UNESCO-IOC Tsunami Ready Recognition Programme (TRRP)

- **About TRRP:** It is an **international voluntary community-based effort** by **UNESCO-IOC** to bolster risk prevention and mitigation across global coastal zones.
- **Methodology:** It has 12 preparedness indicators for a consistent evaluation, and recognition is renewable every four years.
- **Implementing agency in India:** NTRB established by the ministry of earth sciences, under the chairmanship of Director, INCOIS and members from Indian National Centre for Ocean Information Services (INCOIS), NDMA, MHA etc. implements TRRP.

India's other efforts to tackle tsunami

- **Tsunami Risk Management Guidelines: NDMA guidelines** recommend awareness generation, capacity building, education, training and R&D for better tsunami risk management.
- **Indian Tsunami Early Warning Centre (ITEWC):** Provides Tsunami advisories to Indian Ocean countries for last- mile connectivity.
- **Use of technology: e.g.** use of Bottom Pressure Recorders (BPRs) buoys, satellite communication for tsunami warning

About UNESCO's Intergovernmental Oceanographic Commission (IOC)

- **Established in:** 1960
- **Secretariat:** Paris, France
- **Aim:** Promotes international cooperation in marine sciences to improve management of the ocean, coasts, and marine resources.
- **Members:** 152 Member States (India is member).
- It is in charge of coordinating the **UN Decade of Ocean Science for Sustainable Development 2021-2030 (The Ocean Decade).**

RIGHT TO FAIR COMPENSATION AND TRANSPARENCY IN LAND ACQUISITION, REHABILITATION AND RESETTLEMENT ACT, 2013

This Report of the Standing Committee on Rural Development and Panchayati Raj evaluates implementation and effectiveness of the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 **(RFCTLARR Act, 2013)**.

Issue / Observation	Committee Recommendations
Faulty Implementation in Scheduled Areas: Violations occur despite statutory safeguards, including land undervaluation, superficial Gram Sabha consultations, and exclusion of vulnerable groups.	Strengthening Role of Gram Sabha: Make Gram Sabha **consent mandatory for all land acquisitions** and empower it to **veto proposals which are contrary to local development plans** or community interests.
Non-Compliance with PESA Rules: Provisions of the PESA Act regarding consultation are not being followed strictly in Scheduled Areas.	**Codified Consent:** Align the LARR Act with PESA to codify mandatory Gram Sabha consent for acquisitions in Scheduled Areas.
Violation of Forest Rights Act (FRA): Forest land is acquired without settling rights.	**Integration of LARR and FRA: Loss of customary forest rights must be treated as economic displacement requiring full rehabilitation.**
Superficial Assessments (SIA/EIA): Social and Environmental Impact Assessments are sometimes carried out as formalities with reports pre-designed to favor acquisition.	**Strict Guideline Adherence:** The Department of Land Resources must ensure both EIA and SIA are strictly followed to effectively mitigate adverse environmental and social impacts.
Failure of National Monitoring Committee (NMC): The NMC has failed to quell discontent in large projects like Ken-Betwa and Polavaram.	**Basin-Wide Assessment:** Projects must start with a single integrated "basin-to-basin" Social Impact Assessment. The NMC must be structurally strengthened to actively intervene, set timelines, and host a centralized grievance portal
Land Classification Manipulation: Rural or "Greenfield" land is arbitrarily reclassified as urban or "Brownfield" (e.g., in Bharatmala) to reduce compensation liabilities.	**Central Monitoring of Classification:** Establish a dedicated **Central Monitoring and Grievance Redressal Mechanism** to oversee land classification processes. Mandate detailed disclosures for boundary changes and penalize officials involved in unauthorized manipulation to lower compensation.
Failure on Part of states and UTs to establish "Land Acquisition, Rehabilitation & Resettlement Authority" mandated under RFCTLARR Act, 2013.	**Ministry of Rural Development to proactively coordinate with State Governments to ensure the timely notification and operationalization of these authorities.**

Key Issues / Observations

Faulty Implementation in Scheduled Areas

- Violations occur in **Scheduled Areas** despite statutory safeguards.
  - **Scheduled Areas** are regions with a significant tribal population requiring special protections under the Constitution.
- Issues include **undervaluation of land**.
- **Gram Sabha consultations** are often superficial.
- Vulnerable groups are frequently **excluded** from the consultation process.

Non-Compliance with PESA Rules

- The **Provisions of the PESA Act** regarding consultation are not strictly followed in Scheduled Areas.
- **PESA** refers to the **Panchayats (Extension to Scheduled Areas) Act, 1996**, which mandates local self-governance and consultation for development projects.

Violation of Forest Rights Act (FRA)

- Forest land is acquired without **settling customary forest rights**.
- The **Forest Rights Act (FRA), 2006** recognizes the rights of forest-dwelling communities over land and resources.

Superficial Assessments (SIA/EIA)

- **Social Impact Assessments (SIA)** and **Environmental Impact Assessments (EIA)** are sometimes carried out merely as formalities.
- Reports are often **pre-designed to favor land acquisition**.
- **SIA** evaluates the social consequences of a project, while **EIA** assesses environmental effects.

Failure of National Monitoring Committee (NMC)

- The **National Monitoring Committee (NMC)** has failed to quell discontent in large projects.
    - Examples include the **Ken-Betwa** and **Polavaram** projects.
- **NMC** is responsible for monitoring compliance with RFCTLARR provisions.

Land Classification Manipulation

- Rural or **Greenfield land** is sometimes reclassified as **urban or Brownfield**.
- **Greenfield land** refers to undeveloped land, while **Brownfield land** refers to previously developed or urbanized land.
- Such reclassification reduces compensation liabilities for project developers.

Failure to Establish Authorities

- Many states and union territories have failed to establish the **Land Acquisition, Rehabilitation & Resettlement Authority** mandated under the RFCTLARR Act, 2013.
- These authorities are meant to adjudicate disputes and oversee rehabilitation processes.

Committee Recommendations

Strengthening Role of Gram Sabha

- **Gram Sabha consent** should be made mandatory for all land acquisitions.
- Gram Sabha should have the power to **veto proposals** contrary to local development plans or community interests.
- This empowers local communities to influence land acquisition decisions.

Codified Consent in Scheduled Areas

- The **LARR Act** should be aligned with **PESA** to codify mandatory Gram Sabha consent in Scheduled Areas.
- This ensures statutory protection for tribal and vulnerable communities.

Integration of LARR and FRA

- Loss of customary forest rights must be treated as **economic displacement** requiring full rehabilitation.
- Economic displacement refers to the loss of livelihood or productive resources due to development projects.

Strict Guideline Adherence

- The **Department of Land Resources** must ensure both **EIA and SIA** are strictly followed.
- This is necessary to effectively mitigate adverse environmental and social impacts.

Basin-Wide Assessment

- Projects should begin with a **single integrated "basin-to-basin" SIA**.
- The NMC must be structurally strengthened to **actively intervene, set timelines, and host a centralized grievance portal**.

Central Monitoring of Land Classification

- A dedicated **Central Monitoring and Grievance Redressal Mechanism** should oversee land classification processes.
- Detailed disclosures must be mandated for **boundary changes**.
- Officials involved in unauthorized land classification manipulations should be penalized.

Proactive State Coordination

- The **Ministry of Rural Development** should coordinate proactively with state governments.
- This ensures **timely notification and operationalization** of Land Acquisition, Rehabilitation & Resettlement authorities.

LVM 3 LAUNCH VEHICLE

LVM3-M6 is the **Sixth Operational Flight** of LVM3 and the **third dedicated commercial mission** to launch the **BlueBird Block-2 satellite** of AST SpaceMobile, USA.

- Launched from **Satish Dhawan Space Centre, Sriharikota**, the mission is a part of commercial agreement between **NewSpace India Limited (NSIL)**and **AST,** a US based Company.
  - Incorporated in 2019, as a **wholly owned Government Company** under **Department of Space,** NSIL serves as the **commercial arm of ISRO.**

About Blue Bird Block -2

- **Part of a global LEO constellation:** Provides **direct-to-mobile connectivity**through satellite; Enable 4G and 5G voice and video calls, texts, streaming, and data, etc.
  - LEO is an orbit **relatively close to Earth's surface** with an altitude around 160-1000 km, useful for **satellite imaging** and is the site of **International Space Station (ISS).**
- **Key Features:** 223m² phased array, making it **largest commercial communications satellite** ever deployed into LEO.
  - It is also the **heaviest payload (6,100 kg)** to be **launched by LVM3.**

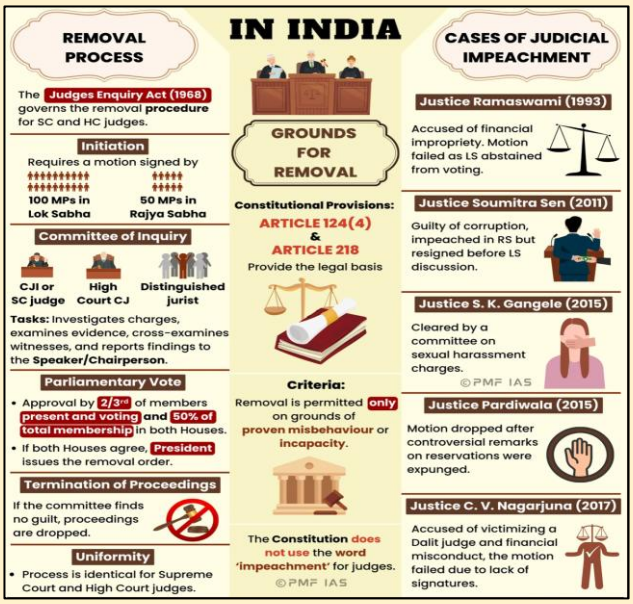
About ISRO's LVM3 Launch Vehicle

- **Three Stages:** Comprising **two solid strap-on motors (S200), a liquid core stage (L110), and a cryogenic upper stage (C25).**
- **Key Features:** Lift-off mass of 640 tonnes, payload capability of 4,200 kg to **Geosynchronous Transfer Orbit (GTO).**
  - GTO is an **elliptical orbit** with an altitude **around 37,000 km**, for transferring spacecraft to **geosynchronous (and also geostationary) Earth orbits.**

Previous Missions: Chandrayaan-2, Chandrayaan-3, and two OneWeb missions carrying 72 satellites.

IMPEACHMENT OF JUDGES

In December 2025, **107 Lok Sabha MPs** submitted a notice for removal of a sitting **Madras High Court judge**, reviving debate on the **impeachment (removal) mechanism of judges** under the Constitution. While India's removal law is among the most stringent globally, recent events highlight a **procedural vulnerability at the admission stage**.



Core Idea / Constitutional Framework

- **Judicial removal** is provided under:
  - **Article 124(4) & (5)** – Supreme Court judges
  - **Articles 217(1)(b) & 218** – High Court judges

- Grounds: **"Proved misbehaviour or incapacity"**
- Procedure regulated by:
  - **Judges (Inquiry) Act, 1968**
  - **Judges (Inquiry) Rules**
- Removal requires:
  - Address by **each House of Parliament**
  - **Special majority**: majority of total membership + **2/3rd of members present and voting**
- Purpose: **Maximum protection of judicial independence**

Where the Problem Lies?

The **critical flaw** is at the **threshold stage**:

- The **Speaker (Lok Sabha)** or **Chairman (Rajya Sabha)** has discretion to:
  - **Admit or disallow** a motion for judicial removal
- If the motion is **not admitted**, the process **ends immediately**
- **Article 124(5)** does **not prescribe any grounds** on which the Presiding Officer may refuse admission
- Disallowance can occur **without reasons**, even if:
  - The motion is signed by **100 MPs (LS)** or **50 MPs (RS)**

Resulting in a serious constitutional mechanism can be neutralised before inquiry begins

Judicial Interpretation of "Misbehaviour"

Though **undefined in the Constitution**, courts have clarified its scope:

- **K. Veeraswami v. Union of India (1991)**
  - Judges are held to **exceptionally high standards of integrity**
- **M. Krishna Swami v. Union of India (1992)**
  - Misbehaviour is **not mere error of judgment**
  - Includes:
    - Wilful abuse of office
    - Corruption
    - Lack of integrity
    - Moral turpitude

Why This Matters

1. **Judicial Independence vs Accountability**
   - Excessive discretion at admission stage undermines accountability
   - Yet weakening removal safeguards risks judicial intimidation
2. **Rule of Law Concerns**
   - A constitutional process becoming **government-contingent**
   - Creates perception of **selective accountability**
3. **Separation of Powers**
   - Presiding Officers act as **statutory authorities**, not constitutional ones
   - Their decision is **open to judicial review**, raising institutional friction
4. **Public Trust in Judiciary**
   - Failure to even inquire into serious allegations damages credibility

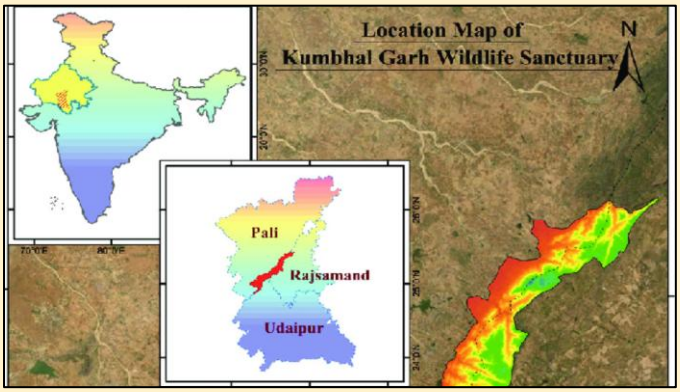
Way Forward (Reforms Without Diluting Independence)

1. **Statutory Clarification**
   - Amend the **Judges (Inquiry) Act, 1968** to:
     - Specify **objective conditions** for admission/disallowance
     - Mandate **written reasons** for rejection
2. **Automatic Inquiry Trigger**
   - Once numerical threshold is met, **mandatory constitution of inquiry committee**
3. **Time-bound Preliminary Scrutiny**
   - Limited procedural scrutiny, not substantive veto, at admission stage
4. **Transparency Safeguards**
   - Public disclosure of reasons (except sensitive material)

India's judicial removal framework is **substantively robust but procedurally fragile**. While the Constitution rightly prioritises **judicial independence**, allowing a **statutory gatekeeping veto** to stall inquiry undermines accountability and public confidence. **Reforming the admission stage—without lowering the removal threshold—is essential** to preserve both **judicial dignity and constitutional balance**.

KUMBHALGARH WILDLIFE SANCTUARY

Centre designated 0–1 km buffer around Rajasthan's Kumbhalgarh Wildlife Sanctuary in the Aravalli Range as an eco-sensitive zone to protect its fragile biodiversity.



About Kumbhalgarh Wildlife Sanctuary:

- **Location:** It is situated in the Rajsamand district of **Rajasthan.**
  - **Area:** It spreads in an area of **610.5 sq.km.** stretching across the Aravalli ranges.
- **Coverage:** It covers four hill and mountain ranges of the Aravallis – the **Kumbhalgarh Range, the Sadri Range, the Desuri Range, and the Bokhada Range.**
- **Establishment:** Once the hunting grounds of royals, this area was declared a **wildlife sanctuary in 1971.**
- **Nomenclature:** It encompasses the **historic Kumbhalgarh Fort** and is also named after the fort.
- **Landscape:** The sanctuary's landscape is varied. The **eastern part** has hills ranging from 500 to 1300 meters high, while the **western part** borders the Marwar plains.
- **Drainage:** The eastern section is the starting point for the **Banas River**, which flows into the Bay of Bengal. Meanwhile, rainwater from the western slopes forms small rivers like **Sukdi, Sumer, Mithdi, and Kot, all of which are tributaries of the Luni River** that eventually flow into the Arabian Sea.
- **Flora:** The flora of the sanctuary is mainly herbs. The species of **Churel, Dhok, Khair, and Salar** grow abundantly. among others.
- **Fauna:** The sanctuary provides a natural abode to many creatures like **Wolf, Leopards, Sloth bear, Hyena, jackal, Jungle cat, Sambhar, Nilgai, Chausingha** (the four horned antelope), Chinkara and Hare.

PARBATI GIRI

The Prime Minister of India recently paid homage to freedom fighter Parbati Giri on the occasion of her birth centenary.

About Parbati Giri:

- **Birth:** Born on **19 January 1926** to mother Srimati and father Dhananjay Giri of Samleipadar village near Bijepur of the present Bargarh district and **undivided Sambalpur district of Odisha,** she was filled with patriotism since childhood.
- **Entry into freedom struggle:** In 1938, she left home to dedicate herself fully to the freedom struggle **through the Indian National Congress,** embracing Gandhian ideals such as khadi, self-reliance, and constructive social work as a way of life.

- **Contribution in independence movement:** In 1942, she was just 16 when she was in the **forefront of agitation following Mahatma Gandhi's 'Quit India' movement.** She had also staged an **agitation at Bargarh Court** to persuade the lawyers to boycott the erstwhile court in defiance of the British.

- **Influence of Mahtama Gandhi:** She was inspired by Gandhian philosophy. She had even come in contact with Mahatma Gandhi. She had taken **tutelage at the famous Ashrams in Bari, Wardha, and Delhi Gandhi Sebashram.**
- **Life after independence:** While she fought for the Independence of India, after independence she dedicated her life as a **social worker.** Parbati Giri led **famine relief operations during the 1951 Odisha famine.** She worked extensively on **prison reforms, leprosy eradication**, and the welfare of the destitute and marginalized.
- **Other names:** Also known as the **Mother Teresa of Western Odisha, and epithet as 'Banhi-kanya' (daughter of fire),** Giri was a prominent freedom fighter from Odisha.
- **Legacy:** Dearly known as **Badamaa (Big mother) to the inmates of her Ashrams,**the legendary woman from the Western Odishan district Bargarh worked for the poor and downtrodden till her death.

Recently, the government has increased the Central Silk Board's financial approval limit to ₹1 crore from ₹50 lakh by amending Rule 22 of the Central Silk Board Rules, 1955.

About Central Silk Board:

- **Nature:** It is a **statutory body established in 1948** by an Act of Parliament.
- **Nodal ministry:** It is working under the administrative control of **Ministry of Textiles,** Government of India.
- **Headquarters:** Its headquarters is located in **Bengaluru.**

- **Major functions:**
  - To **advise the central Government** on all matters relating to the development of silk industry including import and export of raw silk
  - To prepare and **furnish such other reports** relating to the silk industry as may be required by the Central Government from time to time.
  - To create greater opportunities for **gainful employment** and improved levels of income in sericulture through spread of scientific sericulture practices.

About Silk Production in India:

- **Global Standing:** India is the **2nd largest producer** of silk globally (after China) and the **largest consumer.**
  - **Variety:** India is the **only country producing all five commercial varieties:**Mulberry, Tropical Tasar, Oak Tasar, Eri, and Muga.
  - **Top Producers: Karnataka leads** the chart, followed by Andhra Pradesh and Tamil Nadu.

- **Major Schemes:**
  - **Silk Samagra:** An integrated scheme for the development of the silk industry focusing on R&D, seed organization, and quality certification.
  - **SAMARTH:** A capacity-building and training initiative in the textile sector.

RESPONSIBLE NATIONS INDEX (RNI)

Recently, India launched the Responsible Nations Index (RNI) at the Dr. Ambedkar International Centre, New Delhi.

About Responsible Nations Index:

- **Development:** It is developed by the **World Intellectual Foundation (WIF)** in collaboration with **Jawaharlal Nehru University (JNU), IIM Mumbai,** and the **Dr. Ambedkar International Centre.**

- **Uniqueness:** It is **India's first globally anchored index.**
  - **Objective:** It is designed **to assess countries on the basis of responsible governance, social well-being, environmental stewardship,** and global responsibility, moving beyond conventional power- and GDP-based measures.
  - **Coverage:** The Index covers **154 countries** and is built on transparent, globally sourced data to ensure credibility and comparability.
  - **Significance:** It seeks to promote a **global dialogue on ethics, responsibility, global food security, and sustainable leadership** in international affairs. It is also expected to contribute to a more balanced and value-based understanding of national performance on the global stage.
  - **Dimensions:** It is structured around **three core dimensions**, namely
    - **Internal responsibility:** It focuses on dignity, justice, and the well-being of citizens;
    - **Environmental responsibility:** It is covering stewardship of natural resources and climate action.
    - **External responsibility:** It measures a country's contribution to peace, cooperation, and global stability.

- **Key highlights of Responsible Nations Index 2026:**
  - **Top 3 countries:** Singapore (Rank 1), Switzerland (Rank 2), Denmark (Rank 3)
  - India is the top-ranked Asian nation. **India ranks 16th globally,** ahead of South Korea (21), Thailand (24) and Kyrgyzstan (22).
  - 9 of the top 10 countries are European, underscoring Europe's strength in institutional ethics.

PRATAS ISLANDS

A Chinese reconnaissance drone briefly entered airspace over Taiwan-controlled Pratas Islands, prompting Taiwan to label the act provocative and irresponsible.

About Pratas Islands:

- **Nature:** The Pratas Islands are a **small group of three islands** located in the northern part of the South China Sea.
- **Location:** It lies approximately 445 km **southwest of Kaohsiung, Taiwan**, and 320 km southeast of Hong Kong.

- **Other names:** They are also known as the **Dongsha Islands.**
    - **Characterisation:** These islands are characterized by a **circular atoll structure**, with Dongsha Island being the only island above sea level, while the other two are submerged.
    - **Composition:** They are composed primarily of **clastic coral and reef flats**approximately 15 miles (24 kilometers) in diameter, enclosing a lagoon about 10 miles (16 kilometers) in diameter.
    - **Significance:** Once discovered during the ancient Han Dynasty, Dongsha Island became an important point along **trade and fishing routes** through the Taiwan Strait, which separates Taiwan from mainland China, and the Bashi Channel between Y'Ami Island of the Philippines and Orchid Island of Taiwan.

- **Connectivity:** They are strategically important positions along the major sea route **connecting the Pacific and Indian ocean.**

- **Controversy:** The People's Republic of **China claims them, but Taiwan controls them** and has declared them part of the Dongsha Atoll National Park. There are no permanent residents. But Taiwanese marines are stationed there.

- **Biodiversity:** The region is notable for its rich biodiversity, **supporting a variety of flora and fauna,** including numerous fish species, coral, and migratory birds like the Chinese Egret.

INS SUDARSHINI

The Indian Navy's Sail Training Ship INS Sudarshini will embark on the flagship voyage of Lokayan 26, a 10-month transoceanic expedition.

About INS Sudarshini:

- **Nature:** It is an indigenously built **Sail Training Ship (STS).**
    - **Construction:** It was built by **Goa Shipyard Limited** and based at Kochi, Kerala under the Southern Naval Command of the Indian Navy.
- **Commissioning:** It was successfully built and was commissioned in **January 2012.**
    - **Objective:** The aim of using such ships is to **make sailors sea-friendly**, as they are taught how to survive alone at sea, **understand rough weather conditions and** train themselves to become good sailors.
    - **Class:** It is a **three-masted barque** and the sister ship of INS Tarangini.
- **Propulsion:** It is capable of operating under **both sail and diesel power.**
- **Capacity:** It has a very high endurance and can be deployed at sea continuously for a **period of twenty days**.

About Lokayan 26:

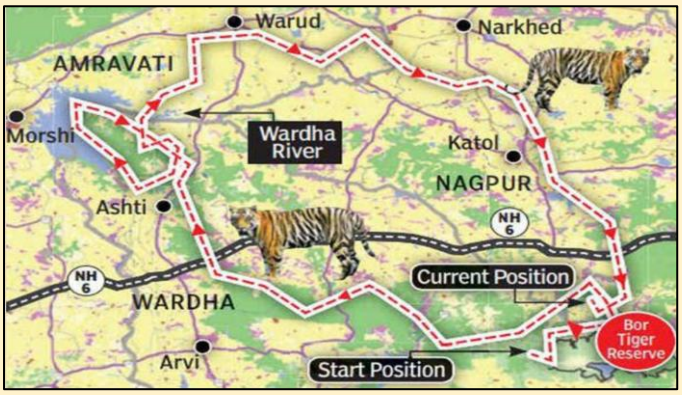
- **Nature:** It is a **10-month transoceanic expedition** covering over 22,000 nautical miles.

- **Ship used:** It will be executed by **INS Sudarshini,** an indigenously built three-masted sail training ship based at the Southern Naval Command in Kochi.

- **Global reach:** The voyage will visit **18 ports across 13 countries.**
- **Objective:** Over 200 **trainees from the Indian Navy and Coast Guard will undergo intensive sail training** to master ocean navigation and eco-friendly maritime practices.
- **Key events:** The ship is scheduled to participate in prestigious international "tall-ship" events, viz. **Escale à Sète in France** and **SAIL 250 in New York City**, USA.
- **Strategic vision:** The mission aligns with **India's MAHASAGAR initiative** (Maritime Heritage and Security and Growth for All in the Region) and the philosophy of **Vasudhaiva Kutumbakam** ("The World is One Family").

BOR TIGER RESERVE

- Two new safari gates at the Bor Tiger reserve were inaugurated recently in the Bangdapur and Hingni ranges.



About Bor Tiger Reserve:

- **Location:** It is located in the Wardha District of **Maharashtra.**
- **Establishment:** Originally notified as a wildlife sanctuary in 1970, it was officially declared **India's 47th tiger reserve in July 2014.**
- **Drainage:** The reserve includes the drainage basin of the Bor Dam and is traversed by the **Bor River, a tributary of the Wardha River.**
- **Area:** It covers an area of **138.12 sq.km.**
- **Uniqueness:** It is the **smallest tiger reserve in India by area.**
- **Significance:** It is centrally located among several other **Bengal tiger habitats.**
  - **Boundaries:** Towards the northeast lies the **Pench Tiger Reserve**, towards the east is the **Nagzira Navegaon Tiger Reserve**. The **Tadoba Andhari Tiger Reserve** is located to the southeast, the **Melghat Tiger Reserve** stands to the west, and the **Satpura Tiger Reserve** lies to the northwest.
- **Vegetation:** The area is populated by the **Dry Deciduous Forest type.**
  - **Flora: Teak, tendu, bamboo, tarot, and gokhru** are some of the abundant species here.
  - **Fauna:** Apart from tigers, the reserve is home to several other mammals like **leopards, sloth bears, sambar deer, Indian bison (gaur), chital, wild boars,**and more.
- **Avian species:** It has recorded diversity of just under 200 avian species, with migratory waterfowl such as the tufted duck, northern shovelers, as well as the elegant fish specialist, the osprey. Commonly seen resident species include the **Indian peafowl, black-hooded oriole, and Indian paradise flycatcher.**

SOFT MATTER

Every morning, as you use either your toothpaste or shampoo, you engage with soft matter, materials that flow like liquids under force but hold their shape at rest.

About Soft Matter:

- **Definition:** Soft matter, or soft materials, is a **sub-field of "condensed matter",**referring to a variety of materials that can be **easily deformed or structurally altered by thermal fluctuations** or nominal external stress.
- **Ubiquity:** They exhibit many useful and appealing properties, which account for their ubiquity in everyday life, finding use in a **diverse range of applications** in industry including, food, medical, automotive, construction, transportation, electronics, and manufacturing.

- **Scale:** One of the important characteristics of soft matter is their physical structures in the **mesoscopic scale.**
  - **Behaviour:** It is the properties and **interactions of these structures** that determine the overall behaviour of the material.
- **Weak intermolecular forces:** Unlike "hard" materials (metals, ceramics) held together by strong bonds, soft matter building blocks are **linked by weak forces.**
  -
  - **Viscoelasticity:** These materials exhibit a **"borderline" behaviour between solids and liquids**—they can show both viscosity (liquid-like resistance) and elasticity (solid-like springiness).
  - **High sensitivity:** Small **changes in temperature or pressure** can drastically alter their physical properties.
- **Common Examples**
  - **Food items:** Curd, ice cream, butter, and ketchup.
  - **Personal care:** Shampoo, toothpaste, and soap bubbles.
  - **Biological systems:** Living cells, blood, proteins, and cell membranes.
  - **Industrial materials:** Polymers, colloids, liquid crystals, gels, and foams.

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INDIAN COAST GUARD SHIP (ICGS) SANKALP

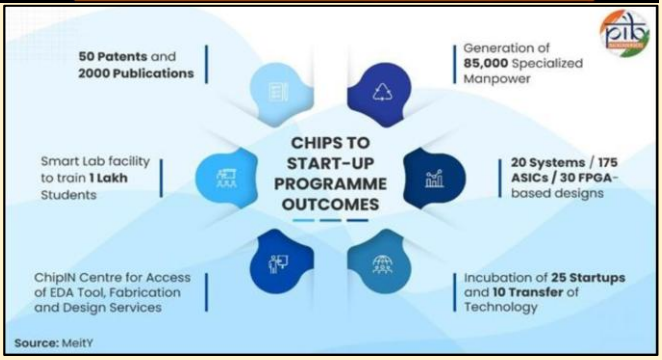
Recently, Indian Coast Guard Ship (ICGS) Sankalp visited Port Louis in Mauritius as part of overseas deployment in the Indian Ocean Region.

About ICGS Sankalp:

- **Nature:** ICGS Sankalp is a **5th generation Advanced Offshore Patrol Vessel**(AOPV).
- **Construction:** The vessel is indigenously built by the **Goa Shipyard Limited.**
- **Commissioning:** It was commissioned on May 20, **2008, in Goa.**
    - **Motto:** Its motto is **"Extending the Horizon".**
    - **Functions:** It is designed primarily for **extended maritime surveillance, exclusive economic zone (EEZ) protection,** search and rescue operations, and enforcement of maritime laws within India's vast oceanic domains.
    - Structure: The ship is **105-meter-long** with an endurance of 6,500 nautical miles.
- **Capacity:** It has displacement capacity of approximately **2,325 tonnes at full load.**
- **Surveillance:** It consists of HAL Chetak **rotary-wing aircraft** for enhanced aerial surveillance and SAR.
- **Armaments:** It is equipped with primary armament consisting of two 30 mm CRN-91 **twin-barrel naval guns,** designed for surface engagement and controlled by an **integrated fire control system.**
- **Navigation:** It is equipped with **state-of-the-art navigation and communication equipment.** It is also fitted with davits to deploy up to five high-speed interceptor boats.

CHIPS TO START-UP PROGRAMME

The Chips to Start-up Programme has delivered measurable outcomes across capacity building, infrastructure access, and hands-on chip design enablement.



About Chips to Start-Up Programme:

- **Nodal ministry:** It is an umbrella capacity-building initiative launched by the **Ministry of Electronics and Information Technology (MeitY)** in 2022.
- **Objective:** It aims **to catalyse the incubation of 25 start-ups** and enable 10 technology transfers.
- **Funding and tenure:** The total outlay of the scheme is **Rs. 250 crore over five years.**
- **Institutional framework:** The **Centre for Development of Advanced Computing** (C-DAC) is the nodal implementing agency.

- **Focus areas:**
  - It targets the development of 85,000 **industry-ready professionals** across undergraduate, postgraduate, and doctoral levels.
  - It seeks to provide access to **SMART lab facilities**, train one lakh students, generate 50 patents, and support at least 2,000 focused research publications.
  - It supports innovation, enhances **employability,** and enables academic institutions to play a more active role in India's semiconductor value chain.
- **Programme approach:**
  - The C2S Programme adopts a comprehensive approach, **providing students with hands-on experience** in chip design, fabrication, and testing.
  - It is achieved through **regular training sessions** in collaboration with industry partners, combined with mentorship and practical support.
  - Students gain **access to advanced chip design tools**, fabrication facilities, and testing resources, including state-of-the-art EDA software and semiconductor foundries.
  - These opportunities also include **implementing R&D projects** under the C2S Programme to develop working prototypes of Application-Specific Integrated Circuit (ASICs), Systems-on-Chip (SoCs), and Intellectual Property (IP) Core designs.

BAGURUMBA DANCE

Recently, the Prime Minister of India witnessed a performance of the traditional Bagurumba dance of the Bodo community in Assam.

About Bagurumba Dance:

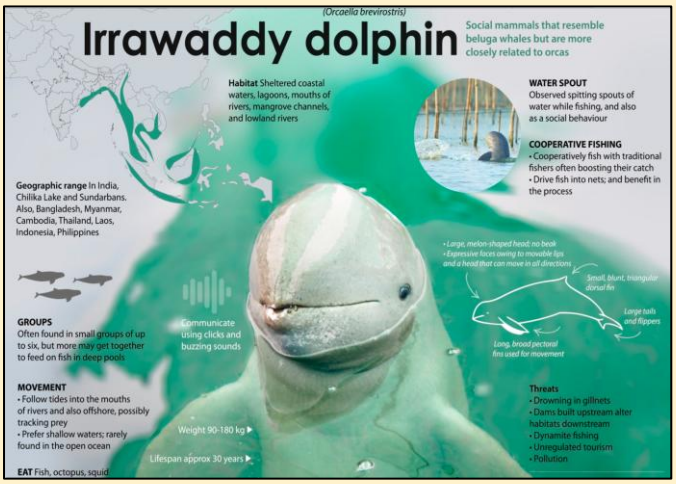
- **Nature:** It is one of the **folk dances** of the Bodo community, deeply inspired by nature.
- **Location:** It is performed by indigenous **Bodo Tribe of Assam and Northeast India.**
  - **Other names:** It is often called the **"Butterfly Dance"** because its gentle, flowing hand movements mimic the fluttering of butterflies.
  - **Significance:** It represents **peace, fertility, joy and collective harmony**, and is closely associated with **festivals such as Bwisagu,** the Bodo New Year, and Domasi.
  - **Formation of geometric shapes:** Performances are usually organised in groups, forming **circles or lines** that enhance its visual elegance.
  - **Performance:** It is traditionally performed **only by women** of the Bodo community, with the musical instruments being played by their male counterparts.

- **Dance attire:** The dancers dress in handwoven, bright red, yellow, and green **dokhna, jwmgra, and aronai,** dancing to the beautiful beats of the handmade percussion instruments.

- **Musical instruments used:** The musical instruments include the **traditional kham** (a drum made of wood and goatskin), including **sifung** (a bamboo flute), and other wooden instruments like **jota, gongwna and tharkha.**

IRRAWADDY DOLPHIN

The Union Environment Ministry launched the second nationwide dolphin estimation under Project Dolphin, including the Irrawaddy dolphin for the first time.



About Irrawaddy Dolphin:

- **Nature:** It is a **euryhaline species** of oceanic dolphin found in discontinuous subpopulations near sea coasts and in estuaries and rivers in parts of the Bay of Bengal and Southeast Asia.

- **Scientific Name:** Its scientific name is **Orcaella brevirostris.**
  - **Habitat:** Irrawaddy dolphins prefer **coastal areas, particularly muddy, brackish waters** at river mouths and deltas, and do not appear to venture far offshore.
  - **Global distribution:** It is found in three rivers in **South and Southeast Asia**– the Irrawaddy (Myanmar), the Mahakam (Kalimatan, Indonesia), and the Mekong (Cambodia).

- **Distribution in India:** They occur mainly in **Chilika Lake (Odisha);** but they are also reported in the **Sundarbans region.**

- **Uniqueness:** It has an instantly recognisable, **charismatic rounded face** and head with no beak; they look like baby belugas, only with a dorsal fin. They have expressive faces thanks to their **moveable lips and have creases around their necks** as they are able to move their heads in all directions.

- **Appearance:** They are **grey all over but lighter on the belly.** The dorsal fin is small; their flippers are long and large, with curved leading edges and rounded tips, and their tails are also large.

- **Teeth:** Irrawaddy dolphins have **narrow, pointed, peg-like teeth** about 1 cm in length in both the upper and lower jaws.

- **Ecology:** It is considered an **edge species** as it thrives in ecotones (transition zones between marine and freshwater ecosystems).

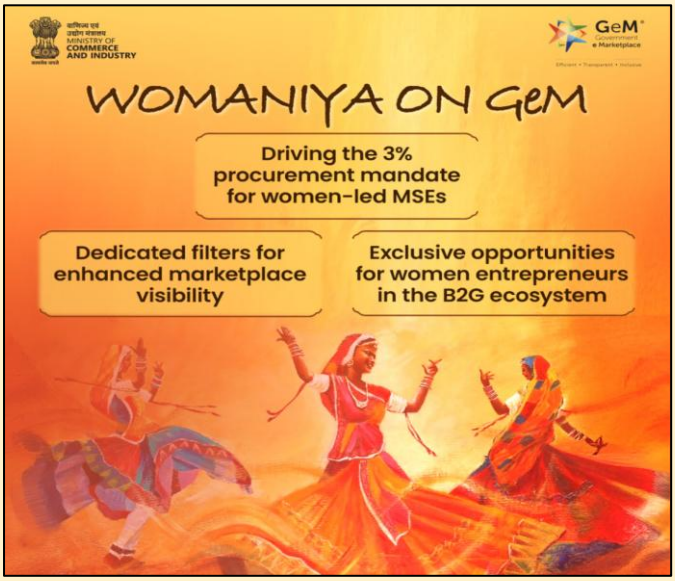
- **Cooperative Fishing: In Myanmar,** they are famous for "cooperative fishing" where they help local fishermen herd fish into nets.

- **Spy-hopping:** They often **rise vertically out of the water** to observe their surroundings

- **Conservation status:** It is classified as **'Endangered'** under the IUCN Red List.

WOMANIYA INITIATIVE

Recently, the Government e-Marketplace (GeM) marked seven years of the Womaniya initiative.



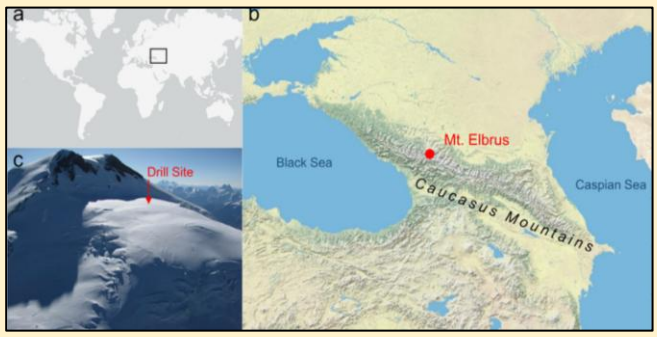
About Womaniya Initiative:

- **Launch:** It was launched on 14 January **2019**.
- **Nature:** It is a flagship programme aimed at strengthening the **participation of women-led Micro and Small Enterprises (MSEs)** in public procurement.

- **Objective:** The initiative seeks to develop women entrepreneurship to achieve **gender-inclusive economic growth.**
- **Market access:** It allows women to **sell products like handicrafts, handlooms, jute, and home décor directly to various government ministries** and departments without intermediaries.
- **Milestone:** In January 2026, the initiative **celebrated seven years**, reporting that women-led MSEs have fulfilled orders worth over ₹80,000 crore on the GeM Portal.
- **Procurement targets:** It helps fulfil the mandatory government norm requiring **at least 3% of total annual procurement by central ministries/PSUs** to be from women-owned enterprises.
- **GeM & UN Women Partnership:** A recent MoU between GeM and UN Women India aims to enhance gender-responsive procurement and align with **Sustainable Development Goal 5** (Gender Equality).
- **Digital inclusivity:** The platform currently hosts **over 2 lakh registered women-led MSEs,** accounting for roughly 4.7% of the total order value on GeM.
- **Significance:** It **addresses the "triple challenge" of access to markets, finance, and value addition.** It also aligns with national missions like Aatmanirbhar Bharat and Make in India by integrating local value chains.

MOUNT ELBRUS

Recently, an artificially-triggered avalanche was filmed cascading down Russia's highest mountain, Mount Elbrus.



About Mt Elbrus:

- **Location:** It is located in southwest **Russia** and is part of the Caucasus Mountains.
- **Formation:** It is believed that the Caucasus Mountains were formed due to the **northward collision of the Arabian Plate with the Eurasian Plate.** Geological studies have revealed that Mount Elbrus was formed over 2.5 million years ago and the volcano had been most active during the Holocene Epoch.

- **Elevation:** It has an elevation of **18,510 feet** (5,642 meters). It makes up part of the Prielbrusye National Park. It is the highest point in Russia as well as the highest point in all of Europe.
- **Uniqueness:** It is **one of the Seven Summits of the world**, which are the tallest mountains on each of the seven continents.
- **Volcano:** Mount Elbrus is an **inactive volcano** that consists of two principal summits, both of which are dormant volcanic domes.

- **Climate:** The climate of Elbrus is generally cold. Even during summer, nighttime temperatures are **around -8°C (18°F).**
- **Major glaciers:** These include **Bolshoi Azaou and Irik Glacier.**
- **Major rivers:** Many Russian rivers like the **Baksan, Malka, and Kuban** rivers originate from Bolshoi Azaou and Irik Glacier glaciers.

JAMMA BANE LANDS

The Karnataka government has amended its land revenue law to modernise an age-old system of land records (Jamma Bane) in the scenic Coorg region.

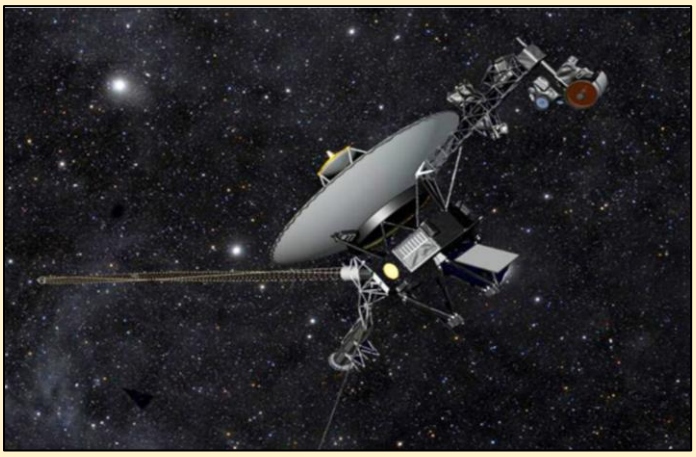
About Jamma Bane Lands:

- **Location:** Jamma Bane refers to a unique hereditary land tenure system found exclusively in the **Kodagu (Coorg) district of Karnataka.**
  - **Distinctiveness:** The word Jamma means **hereditary**. It is distinctly different from other classes of land holdings in the state.
- **History:** These Jamma lands were originally granted **by erstwhile kings of Coorg and the British** — between 1600 and 1800 — to local communities **in return for military service.**
  - **Types of lands:** These lands comprise **both wetlands**, used for paddy cultivation, **and forested highlands,** which have transformed into the now-famous coffee estates of Coorg.
  - **Ownership:** The Jamma Bane land ownership was historically recorded in the name of the original grantee (the Pattedar). **Even after generations, records often remained in the ancestor's name**, leading to modern legal hurdles.
- **Relevant Acts:** The Coorg Land Revenue and Regulations Act, 1899 was in place to govern land ownership in the region till the introduction of the **Karnataka Land Revenue Act, 1964.**
- **Recent legal developments:**
- **Modernisation Act:** In January 2025, the Karnataka government passed the **Karnataka Land Revenue (Second Amendment) Act, 2025.**
  - **Purpose:** The amendment aims to modernise land records, **allowing current joint family members to be officially recognised as owners.** This simplifies bank loan approvals, land sales, and inheritance processes.

- **Judicial rulings:**
- The ownership rights of the people of Kodagu over the Jamma Bane lands in the region was recognised by a full bench of the Karnataka HC in 1993 in **Chekkera Poovaiah vs State of Karnataka.**
    - **In 2024, the Karnataka HC upheld** the Karnataka Land Revenue (Third Amendment) Act, 2011 which gave full ownership rights over Jamma Bane lands in Kodagu to Kodava families.

VOYAGER 1

Nearly 50 years after launch in 2026, Voyager 1 will mark yet another first by reaching a distance where Earth is a full day away at the speed of light.



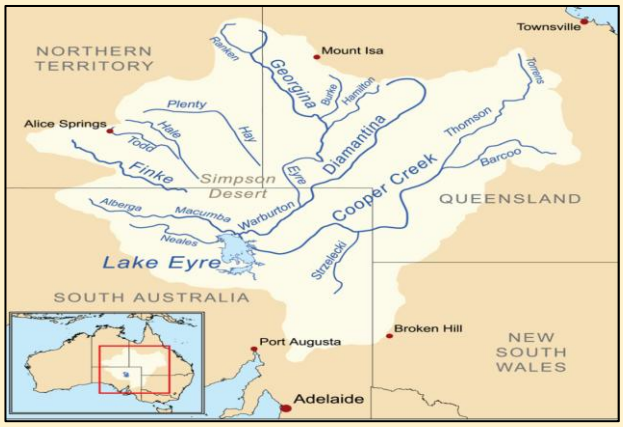
About Voyager 1:

- **Launching agency:** It is a space probe launched by **NASA (National Aeronautics and Space Administration)** in 1977.
- **Objective:** It aims to explore the **outer planets** in our solar system, **specifically Jupiter and Saturn.**
    - **Milestone:** In August 2012, it became the **first human-made object to enter interstellar space after crossing the heliopause –** the boundary where the Sun's solar wind meets the interstellar medium.
    - **Uniqueness:** It is the first spacecraft to travel beyond the solar system and reach interstellar space. It is currently the **most distant human-made object from Earth, located over 15 billion miles away.** Signals take approximately 22.5 hours one-way to reach the probe.
    - **Instruments:** The instruments of Voyager 1 included **Cosmic Ray Subsystem, Plasma Wave Subsystem,** Infrared Interferometer Spectrometer and Radiometer (IRIS) etc.

- **Significant Discoveries:**
- **Jupiter:** Discovered active volcanoes on the moon Io and identified a thin ring around the planet along with two **new moons, Thebe and Metis.**
- **Saturn:** Identified five new moons and the **G-ring.**
    - **Golden Record:** Carries a 12-inch gold-plated copper disk containing sounds and images **representing life and culture on Earth** as a message to extraterrestrial life.

FINKE RIVER

The Finke River, known to the Arrernte people as Larapinta, is believed to be the world's oldest river system, even older than the dinosaurs.



About Finke River:

- **Location:** It is a major but intermittent river of central **Australia**.
- **Course:** It **starts in the MacDonnell Ranges** in the Northern Territory. It forms where two smaller creeks, Davenport and Ormiston, meet. It **flows for about 600 kilometers** (370 miles) towards the Simpson Desert in South Australia.
- **Uniqueness:** It is often called **"the oldest river in the world."**

- **Origin:** A combination of geological records, weathering profiles, and radionuclide measurements in the surrounding sediments and rocks has enabled scientists to date this river system to the **Devonian (419 million to 359 million) or Carboniferous (359 million to 299 million) period.**
- **Antecedent River:** It is believed to be an antecedent river, meaning its course predates the uplift of the MacDonnell Ranges. As the mountains rose, the **river maintained its path by cutting through them, creating deep gorges like Palm Valley.**
  - **Unique biodiversity:** Palm Valley along the river is home to the **Red Cabbage Palm**, a relic species from a much wetter prehistoric climate.
  - **Appearance:** Most of the time, the Finke River **looks like a series of waterholes.** But after heavy rains, it can turn into a powerful, fast-flowing river. During big floods, its water can even reach the Macumba River and eventually Lake Eyre.
- **Cultural significance:** Known as Larapinta by the Indigenous Arrernte people, it holds **deep spiritual value in Aboriginal "Dreaming" stories.**

NPS VATSALYA SCHEME

Recently, the Pension Fund Regulatory and Development Authority (PFRDA) has issued the NPS Vatsalya Scheme Guidelines 2025.

About NPS Vatsalya Scheme:

- **Nature:** It is a contributory savings and **long-term financial security scheme designed** exclusively **for minors.**
- **Regulatory Body:** It is regulated and administered by the Pension Fund Regulatory and Development Authority **(PFRDA).**
- **Eligibility:** It is open to all Indian citizens, including NRI/OCI, **below 18 years of age.**
- **Account Operation:** Account is opened in the name of the minor and is operated **by the guardian.**
  - **Contribution: Minimum** initial and annual contribution is **₹250 and there is no maximum limit** on contribution. The contribution can also be gifted by relatives and friends.
  - **Pension Fund Selection:** Guardian can choose any one Pension Fund **registered with PFRDA** for this purpose.
- **Withdrawal Provisions:**
  - **Partial Withdrawal:** It is allowed after 3 years for specific purposes like education, medical treatment, or disability (up to 25% of own contributions).
  - **Exit at 18:** If the subscriber exits at 18, at least 80% of the corpus must be used to purchase an annuity, while 20% can be a lump sum (if the total corpus is ≤ ₹2.5 lakh, a full lump sum is allowed).

- **Significance:**
  - **Financial Inclusion:** Expands the pension net to the younger population, ensuring "Viksit Bharat@2047" goals of a pensioned society.
  - **Intergenerational Equity:** Promotes wealth accumulation through the power of compounding over decades.
  - **Social Security:** Addresses long-term financial risks for minors, providing a cushion for retirement long before they enter the workforce.

KAZIRANGA ELEVATED CORRIDOR PROJECT

Recently, the Prime Minister, during his Assam visit, laid the foundational stone of the Kaziranga Elevated Corridor of worth over 6,950 Crore in Kaliabor, Assam. During the Programme, two new Amrit Bharat Express trains were also flagged off.

About the Kaziranga Elevated Corridor Project

Kaziranga Elevated Corridor Project is a four-lane 86 km long environment-friendly highway project that will pass through the Kaziranga National Park and widen the existing NH-715 from two to four lanes. It will enhance the connectivity and people's movement while protecting the biodiversity and the environment.

Vision: To enhance the connectivity across upper Assam, while protecting the rich biodiversity of the region.
Location: The project will connect the Nagaon, Kharbi Anglong and Golaghat districts of Upper Assam.

The project will ensure uninterrupted movements of the animals, lessen the human-wildlife conflicts and will enhance the road safety.

The project will features 35km of Elevated corridor that will pass through the Kazirang Park, 21 km of Bypass section and 30 km of further widening of the two lane highway section of NH-715 to four lanes.

Kaziranga Elevated Corridor Project Objectives

The objectives of the Kaziranga Elevated Corridor Project is given below:

Ensure free flow of people and wildlife, and material.
Reduce the human-wildlife conflicts.

Strengthen road safety and reduce travel and accident rates.

Improve the connectivity of the upper Assam, specifically Dibrugarh and Tinsukia.
It will support growing passenger and freight traffic.

The bypasses will decongest the towns, improve urban mobility and enhance the quality of rural and local residents.

The project will be developed on an Engineering Procurement and Construction (EPC) mode.

Kaziranga Elevated Corridor Project Significance

Protect the UNESCO world heritage site while also ensuring the development of the region.

Promote tourism with sustainable development principles and will also generate employment opportunities for the local and the youths.
It will further protect the one-horned Rhino, the flagship specie of Kaziranga National Park.
During the monsoon the park gets flooded, which force the wildlife movement through the highway leading to congestion and mostly the human-animal conflict, thus the project will ensure a safer movement for both the wildlife and the people.

ABOUT KAZIRANGA NATIONAL PARK

Kaziranga National Park is located between the Brahmaputra River and the Karbi Hills of Assam, spread over an area of 42,996 Hectares.

In 1985, it was designated as a UNESCO World Heritage site.
It is the home of the world's most one-horned rhinos.

It is the single largest undisturbed area in the Brahmaputra valley floodplains.
Covered with tall and dense elephant grasses and inhabitates the Gangetic River dolphin, Tigers, Eastern swamp deer, Elephant, Hoolock gibbon etc.

The River Diffalu, a tributary of the Brahmaputra flows through the Park.

Kaziranga is known for successful anti-poaching measures, rhino census programs, and strict protection strategies that have significantly increased wildlife populations.
Annual floods of the Brahmaputra enrich the soil, maintain wetlands, and help in seed dispersal, playing a critical role in the park's ecological balance.

The park and surrounding areas are culturally important, with indigenous communities historically relying on the landscape for sustenance and integrating traditional ecological knowledge in conservation practices.

THE CHIEF OF DEFENCE STAFF (CDS) RELEASED THE 'MILITARY QUANTUM MISSION POLICY FRAMEWORK'

- **Vision:** It aims for jointness and integration among the Tri-Services to achieve **technological dominance** in future battlefields and **prepare for technology-centric warfare.**
- **Civil-Military Fusion:** Aligned with **National Quantum Mission (NQM)** to ensure collaboration between civilian research and military applications through **dedicated governing bodies**.
- **Core Domains:** Prioritises **four critical quantum pillars:**
    - Quantum Communication,
    - Quantum Computing,
    - Quantum Sensing & Metrology and
    - Quantum Materials and Devices.

Applications of Quantum Technology in Defence

- **Secure Communications:** Quantum Key Distribution (**QKD**) uses the principle of **entanglement** to create **keys** that are theoretically **unhackable**.
- **Quantum Sensing & Metrology: Quantum Radar and Imaging** can detect stealth aircraft and submarines invisible to traditional radar.

- **Quantum Navigation:** Quantum sensors can enable **high-accuracy navigation** in environments where GPS is jammed.
- **Intelligence & Logistics:** Quantum algorithms can optimize **battlefield logistics,** analyze vast **"SIGINT" (Signals Intelligence)** datasets, and power autonomous robotic systems through **Quantum AI.**
- **Quantum Materials:** Development of materials with **adaptive** properties (e.g., changing camouflage) or **extreme durability** for aerospace applications.
- **Cyber Defence**: Transitioning to **Post-Quantum Cryptography (PQC)**(resisting attacks by quantum computers) to safeguard critical infrastructure against future **quantum-enabled cyberattacks**.

About Quantum Technology

- It is the field of physics and engineering that applies the principles of **quantum mechanics** such as, **superposition and entanglement.**
    - **Quantum mechanics** explains how **extremely small** objects **simultaneously** have the characteristics of **both particles** and **waves.**
- **Key Principles:**
    - **Superposition:** Unlike classical bits (which are either 0 or 1), **quantum bits (qubits)** can exist in a state of **0, 1, or both simultaneously.**
    - **Entanglement:** A phenomenon where two particles become linked; **a change in the state of one instantly affects the other, regardless of distance.**

NETAJI SUBHAS CHANDRA BOSE (1897–1945)

- Government celebrates Parakram Diwas (23 January) to commemorate 129th Birth Anniversary of Netaji Subhas Chandra Bose.
- Indian **nationalist leader**; advocated for **complete independence** from British rule.

Key Contributions

- **President** of the **Indian National Congress in 1938 and 1939** but resigned due to differences**.**
- He wrote for Chittaranjan Das's newspaper, **Forward**, and started a paper titled **Swaraj** to promote independence.
- He escaped British house arrest in 1941; sought international support from **Germany and Japan** during World War II.
- Led the **Indian National Army (INA or Azad Hind Fauj)** from **1943**.
- Under his leadership, the **INA** fought alongside Japanese forces against the British in the **northeast of India and Burma.**
- He established the **Provisional Government of Free India** in Imphal, Manipur to mobilize Indians for an anti-British revolt.

Values

- **Patriotism, Courage, Leadership, Sacrifice, Determination**

INDIA-EUROPEAN UNION FREE TRADE AGREEMENT

Recently, the India-European Union Free Trade Agreement (India-EU FTA) was concluded at the **16th India-EU Summit**. The conclusion of this FTA positions India and the European Union as trusted partners committed to ***open markets, predictability, and inclusive growth***.

Key Statistics

1. The European Union is India's one of the largest trading partners. In 2024-25, India's bilateral trade in goods with the EU stood at INR **11.5 Lakh Crore (USD 136.54 billion)** with exports worth **INR 6.4 Lakh Crore (USD 75.85 billion)** and imports amounting to INR **5.1 Lakh Crore (USD 60.68 billion)**.
2. India-EU trade in services reached **INR 7.2 Lakh Crore (USD 83.10 billion)** in 2024.
3. India and EU **are 4th and 2nd largest economies**, comprising 25% of Global GDP and account for one third of global trade.

What is the India-EU FTA?

1. The India-EU FTA is a comprehensive trade and investment pact designed to liberalize trade in goods and services, enhance market access, streamline customs, and deepen economic cooperation between India and the EU's 27 member states.
2. It is often described as the "***mother of all deals***" in recent Indian trade diplomacy due to its scale and ambition.

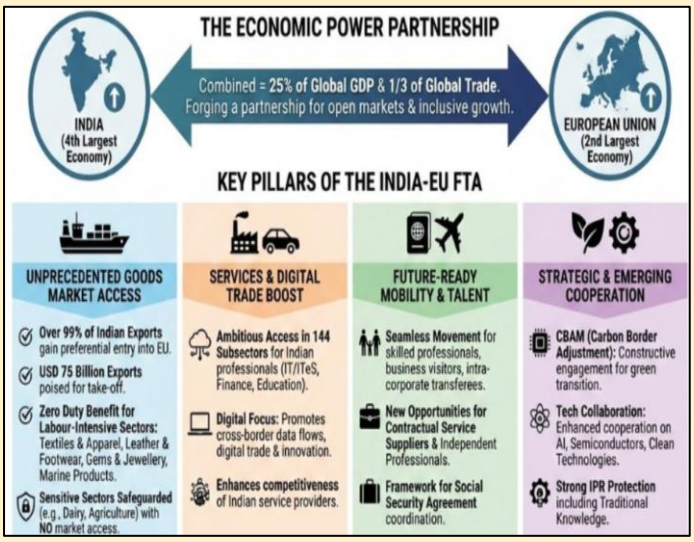
Why is this FTA historic?

1. **Two-decade effort completed:** Talks originally began in 2007, stalled in 2013, and were revived in 2022 before concluding in January 2026.
2. **Massive economic coverage:** Encompasses goods, services, investment, customs, rules of origin, digital trade, and SMEs.
3. **Covers about a quarter of global GDP** and opens trade between two large markets representing ~2 billion people.

Key provisions & benefits

1. **India Secures Strategic Access to European Markets:** India has gained preferential access to the European markets across 97% of tariff lines, covering 99.5% of trade value
    1. **EU gains**: Up to €4 billion per year in tariff savings on EU exports like **machinery, optical, medical equipment.**
    2. **India gains:** Preferential access for labour-intensive sectors such as textiles, leather, marine products, gems & jewellery, making ~99% of Indian exports duty-free.
2. **India's offer to the European Union:** Overall, India is offering 92.1% of its tariff lines which covers 97.5% of the EU exports, in particular:
    1. 49.6% of tariff lines will have immediate duty elimination
    2. 39.5% of tariffs lines are subject to phased elimination over 5, 7, and 10 years
    3. 3% of products are under phased tariff reductions and few products are subject to TRQs for Apples, Pears, Peaches, Kiwi Fruit.
3. **Services-the key growth driver of trade in future:** Under the FTA, broader and deeper commitments have been secured from the EU across 144 services subsectors, including IT/ITeS, professional services, education, and other business services.

- **Product Specific Rules aligned with existing Supply Chains:** Balance **origin compliance** with global input flexibility, enable **self-certification**, **lower export compliance costs**, support MSMEs through quotas, and incentivise Make in India via phased sectoral transitions.
- **Driving Agricultural Growth and Farmer Livelihoods, with adequate Safeguards:** Preferential Market Access for agricultural products like ***tea, coffee, spices, grapes, gherkins and cucumbers, dried onion, fresh vegetables and fruits*** as well as for processed food products will make them more competitive in the EU.



Why is the EU's regulatory regime India's biggest challenge?

1. **Expanding standards:** EU sustainability, labour, environmental and due-diligence rules, including **EUDR** and **corporate sustainability norms**, significantly increase compliance costs for Indian exporters.
2. **Non-tariff barriers:** Regulations now operate as market-access barriers through traceability and disclosure requirements rather than product safety alone.
3. **MSME stress:** Smaller exporters face higher relative costs in documentation, certification and traceability, limiting gains from tariff liberalisation.

How does CBAM shape the India-EU trade equation?

1. **Carbon cost exposure**: CBAM imposes a carbon price on imports of steel, aluminium, cement, fertilisers, and electricity.
2. **Competitiveness risk**: Indian producers face higher compliance costs due to coal-based energy.
3. **FTA as a buffer**: The agreement offers India leverage to negotiate flexibility, transition timelines, and mutual recognition mechanisms.

What is the Most-Favoured-Nation (MFN)-Forward Clause on Climate-Linked Trade Measures?

MFN-forward clause: Under this any future relaxations, exemptions, transition periods, or flexibilities that the EU may grant to other trading partners on climate-linked trade measures, including instruments like CBAM, would automatically extend to India.

Why this matters

1. **No immediate CBAM relief**: The clause does not dilute or suspend CBAM for India.
2. **Future-proofing mechanism**: Ensures India is not placed at a relative disadvantage if the EU later moderates CBAM implementation for others.
3. **Indirect safeguard**: Functions as the only CBAM-related protection within the FTA by preserving competitive parity, not preferential treatment.
4. **Strategic value**: Provides negotiating leverage as EU climate policies evolve under global pressure and WTO scrutiny.
5. **Conditional, not guaranteed**: The clause activates only if the EU offers concessions to another partner; it does not create an independent exemption for India.

Why did India-EU negotiations gain urgency now?

1. **US tariff uncertainty**: Accelerating US tariff threats created trade diversion risks for both India and the EU, prompting faster convergence.

2. **Geo-economic shifts**: Fragmentation of global value chains after the Ukraine war forced the EU to diversify partners.
3. **Regulatory overreach concerns**: Expanding EU regulations raised fears of market exclusion for Indian exporters.

What makes the EU a critical trade partner for India?

1. **Trade volume dominance**: The EU accounts for India's largest share of goods trade among partners.
2. **Sectoral depth**: Strong Indian exports in **engineering goods, chemicals, pharmaceuticals, textiles, and refined petroleum**.
3. **Services linkage**: High potential in IT, professional services, and skilled mobility, though sensitive in negotiations.

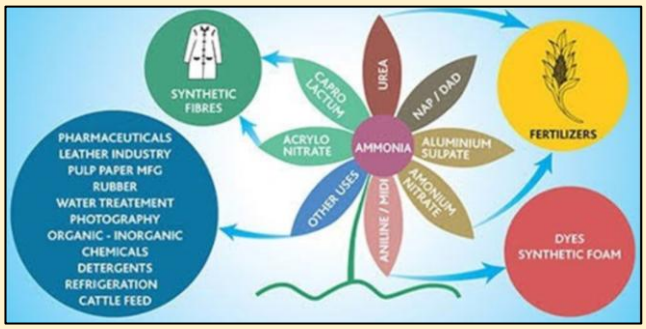
Risks and Limitations of the India-EU FTA

1. **Regulatory asymmetry:** EU retains greater rule-setting power in sustainability, labour, and climate standards.
2. **CBAM cost shock:** Carbon-linked charges can offset tariff gains for steel, aluminium, cement, and fertilisers.
3. **MSME exclusion risk:** Compliance-heavy norms may restrict smaller exporters' effective market access.
4. **Limited mobility gains:** Skilled movement and mutual recognition remain politically sensitive and constrained.
5. **Implementation lag:** Phased tariff reductions delay short-term export gains for some sectors.
6. **Compliance substitution:** Shift from tariff barriers to regulatory barriers reduces predictability of trade benefits.

The India-EU FTA marks a significant expansion of market access and services engagement, but its economic outcomes will be shaped as much by regulatory and climate-linked constraints as by tariff liberalisation. The agreement underscores a structural shift in global trade from tariffs to standards, requiring India to complement external trade gains with domestic regulatory preparedness and export competitiveness.

AMMONIA SPIKES IN YAMUNA RIVER

Officials explained that ammonia spikes in the Yamuna are a chronic winter issue, generally occurring between 15 and 22 times a year.



About Ammonia:

- **Composition:** It is a **colourless, pungent gas** composed of **nitrogen and hydrogen** with the formula NH3.
- **Nature:** It is the **simplest stable compound of these elements** and serves as a starting material for the production of many commercially important nitrogen compounds.
- **Solubility:** It is **highly soluble in water,** forming ammonium hydroxide, an alkaline solution.

- **Density:** It is **lighter than air.**
  - **Existence:** It exists naturally **in humans and in the environment**. In the environment, ammonia is part of the nitrogen cycle and is produced in soil from bacterial processes.
  - **Natural production:** Ammonia is also produced naturally **from decomposition of organic matter,** including plants and animals.
  - **Industrial production:** It is manufactured mainly by the **Haber–Bosch process**(from nitrogen and hydrogen).

- **Liquid ammonia:** Ammonia gas can be dissolved in water. This kind of ammonia is called liquid ammonia or aqueous ammonia. Once **exposed to open air**, liquid ammonia **quickly turns into a gas.**

- **Toxicity:** Exposure to high levels of ammonia in air may be **irritating to a person's skin, eyes, throat, and lungs** and cause coughing and burns. To prevent the release of toxic fumes, ammonia should **not be mixed with other chemicals** (like chlorine bleach).

- **Key applications:**
  - Ammonia is a basic building block for ammonium nitrate **fertilizer**, which releases nitrogen, an essential nutrient for growing plants. About 90 percent of ammonia produced worldwide is used in fertilizer.
  - Additional uses include as a **refrigerant, stabilizer, neutralizer, and purifier** — particularly in food transport and water treatment applications.
  - It can also be used in the manufacture of **plastics, explosives, fabrics, dyes**, and pharmaceuticals.
  - It has **9 times the energy density of Li-ion batteries** and 3 times that of compressed hydrogen, making it a promising carbon-free energy carrier.

- **Types:**
  - **Grey Ammonia:** Produced from natural gas (methane); highly carbon-intensive.
  - **Blue Ammonia:** Produced from fossil fuels but coupled with Carbon Capture and Storage (CCS) to reduce emissions.
  - **Green Ammonia:** Produced using renewable energy (solar/wind) to power water electrolysis for hydrogen; 100% carbon-free.

PANGOLAKHA WILDLIFE SANCTUARY

Recently, a forest fire continued to rage inside Sikkim's Pangolakha Wildlife Sanctuary along the Indo-China border at an altitude of 13,000 feet.

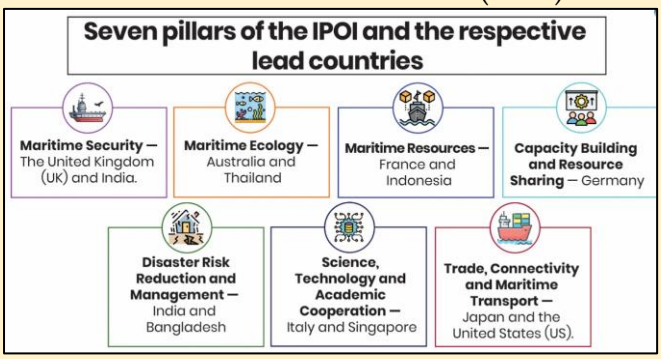
About Pangolakha Wildlife Sanctuary:

- **Location:** It is located in the state of **Sikkim.** It is the largest wildlife sanctuary in the state, with the Pangolakha range separating Sikkim from Bhutan to the east.
- **Connectivity:** It forms an important transboundary wildlife corridor, linked to the **Neora Valley National Park in West Bengal and the forests of Samtse and Haa districts in Bhutan.**
  - **Lakes:** High-altitude lakes, including **Lake Tsongmo (Changu Lake),** are located within the sanctuary and serve as biodiversity hotspots.
  - **Rivers:** The **Rangpo River and Jaldhaka River** originate from nearby lakes in the area.
  - **Significance:** It serves as a **natural water regulator** and a crucial habitat for **endangered Himalayan species.**

- **Altitude:** The sanctuary features a wide altitudinal variation from approximately **1,300m to over 4,000m.**
- **Biomes:** It supports diverse biomes including **subtropical, temperate, and alpine ecosystems.** It falls at the junction of the Palearctic and Indomalayan realms.
- **Flora:** Key vegetation here includes **Rhododendron, Silver Fir, Juniper, and moss-filled oak forests,** which provide an ideal habitat for the Red Panda.
- **Fauna:** It is home to diverse species, including the **Red Panda (Sikkim's state animal), Tiger, Leopard, Takin, Musk Deer, Goral, and Asiatic Black Bear.** It is also a designated Important Bird Area (IBA), known for migratory birds and species like the Himalayan Monal and the vulnerable Wood Snipe.

INDO-PACIFIC OCEANS INITIATIVE (IPOI)

Recently, India has welcomed Spain joining the Indo-Pacific Oceans Initiative (IPOI).



About Indo Pacific Oceans Initiative:

- **Launch:** It was launched by India in **November 2019** at the ASEAN-led East Asia Summit (EAS) **in Bangkok.**
  - **Objective:** It aims to promote cooperation for a **free and open Indo-Pacific** and the rules-based regional order.
- **Nature:** It is a **non-treaty-based voluntary arrangement.**
- **Focus:** It **leans heavily on the EAS mechanism**, which includes ASEAN member states and its eight dialogue partners.
- **Philosophy:** It builds upon India's **SAGAR (Security and Growth for All in the Region)** vision (2015) and integrates with the "Act East" and "Act West" policies.
- **Pillars:** It has **outlined 7 pillars,** and it was indicated that one or two countries could take the lead for a pillar with others joining in voluntarily. These pillars are:
  - **Maritime Security:** The United Kingdom (UK) and India
  - **Maritime Ecology:** Australia and Thailand
  - **Maritime Resources:** France and Indonesia
  - **Capacity Building and Resource Sharing:** Germany
  - **Disaster Risk Reduction and Management:** India and Bangladesh
  - **Science, Technology, and Academic Cooperation:** Italy and Singapore
  - **Trade, Connectivity, and Maritime Transport:** Japan and the United States (US).

AI IMPACT SUMMIT (2026)

India is preparing to host the **AI Impact Summit (2026)** at a time when **Artificial Intelligence is rapidly entering public governance, welfare delivery, policing, healthcare, and finance**. However, **AI ethics in India risks remaining rhetorical unless translated into enforceable, context-sensitive, people-centred standards**.

Core Idea

AI Ethics refers to the application of **human rights–based principles**—*privacy, equality, non-discrimination, dignity, accountability, and transparency*—to the **design, deployment, and governance of AI systems**, especially when used by the State.

The **ethical AI must move beyond abstract principles to enforceable, auditable, and grievance-enabled frameworks**, grounded in **India's social realities**.

Key Ethical Concerns

1. **Abstract ethics vs enforceable ethics**

- AI ethics discussions are often **"blue-sky" ideas**, lacking **precision, accountability, and remedies**.
- International frameworks (UNESCO AI Ethics Principles, UNDP Human Development Report 2025) emphasise **rights-based AI**, but implementation remains weak.

2. **Intersectional harm and algorithmic bias**

- AI systems often replicate **existing social hierarchies**.
- Indian datasets invisibilise **intersectional identities** (caste × gender × class × disability).
- Result: **Disproportionate harms** to Dalit women, Adivasi communities, migrant workers, linguistic minorities.

3. **Opacity and lack of transparency**

- AI systems deployed in public systems often operate as **black boxes**.
- There is a need for:
  - **Publicly accessible model cards**
  - Disclosure of **training data, known biases, limitations, and appropriate use cases**

4. **Data extraction without consent or benefit**
   - AI development relies on **community data** that is often:
- **Extracted without consent**
  - **Monetised** without benefit-sharing

There is a need for **community data trusts**, akin to forest or mineral commons.

5. **Absence of accountability and remedies**

- When AI systems cause harm (e.g., denial of welfare, wrongful surveillance, facial recognition failures), responsibility is **diffused**.
- There is a need for:
  - **Clear liability rules**
  - **Primary liability on deploying government departments**
  - Secondary liability on vendors for flawed or misrepresented systems

6. **Need for human oversight in high-risk domains**
- In sectors like **policing, healthcare, welfare, education**, algorithmic outputs must not be final.
- **Mandated human oversight** is essential to override automated decisions.

Why This Matters

Governance and Technology

- AI is reshaping **state capacity**, service delivery and decision-making.
- Without ethical guardrails, AI can **amplify exclusion rather than efficiency**.

Ethics and Human Values

- Ethical governance demands:
  - **Justice over convenience**
  - **Dignity over efficiency**
  - **Accountability over opacity**

- Ethical AI is not about slowing innovation but **aligning technology with constitutional morality**.

Way Forward:

1. **Human rights–anchored AI governance**
- Anchor AI ethics in **constitutional values** (Articles 14, 15, 21).
- Treat AI harms as **rights violations**, not technical glitches.
2. **Mandatory intersectional audits**
- Regular **algorithmic audits** to identify overlapping harms across caste, gender, class.
- Move ethics from **Western abstractions to Indian social contexts**.
3. **Transparency by design**
- Mandatory **model cards and impact disclosures** for all public-sector AI systems.
- Citizen-readable explanations, not just technical documentation.
4. **Community data governance**
- Establish **community data trusts**.
- Ensure **benefit-sharing** where community data generates economic value.
5. **Clear liability and grievance redress**
- Fix **primary accountability on the State**.
- Create **independent grievance redress mechanisms** with time-bound remedies.
6. **Human oversight in high-risk applications**
- Statutory requirement for **human review** in welfare, policing, healthcare, education.
- Automated decisions must be **contestable**.

As India positions itself as a global AI leader and hosts the AI Impact Summit, **ethical AI cannot remain aspirational**. The article underscores that **AI ethics must be enforceable, intersectional, and rooted in lived realities**.

By anchoring AI governance in **human rights, accountability, and community control**, India can demonstrate that **technological leadership and ethical leadership are not contradictory but complementary** and offer a globally relevant model of **people-centred AI governance**.

NATIONAL VOTERS' DAY

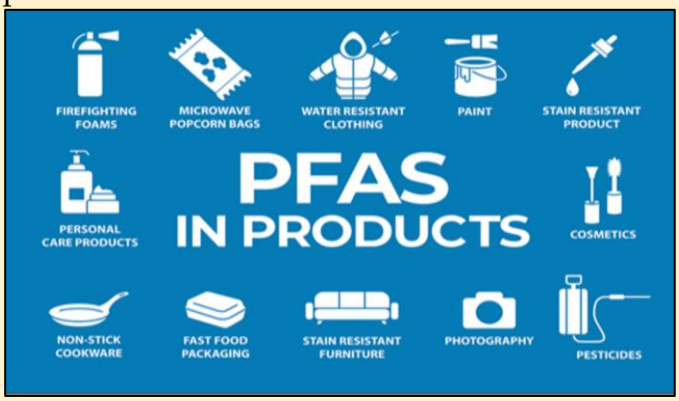
Recently, the Prime Minister of India extended greetings to citizens on the occasion of National Voters' Day.

About National Voters' Day (NVD):

- **Commemoration:** It is observed on **January 25th** across India every year **since 2011**to commemorate the **foundation day of the Election Commission of India.**
  - **Objective:** It is celebrated **to honour voters, strengthen democratic values,**encourage youth participation, and promote universal adult suffrage. It celebrates democracy and empowers every citizen to take part in the electoral process.
  - **Theme:** The theme for National Voters' Day 2026 is **"My India, My Vote"** with a tagline of "Citizen at the Heart of Indian Democracy.
  - **Celebrations:** It is celebrated at the **level of national, state, district, constituency, and polling booth** and NVD stands as one of the country's most widespread and significant celebrations.
  - **Focus on young voters:** It is dedicated to the voters of the nation, National Voters' Day also promotes the **enrolment of new voters, particularly young individuals** who have recently become eligible.
  - **Historical milestone:** In **2025,** the **ECI celebrated its 75th year of service** to the nation (it was established on Jan 25, 1950).
- **Significance of NVD:**
- **Electoral reforms:** NVD highlights initiatives like **SVEEP (Systematic Voters' Education and Electoral Participation)** and digital tools like the Voter Helpline App and **e-EPIC.**
  - **Democratic values:** It reinforces the concept that **voting is not just a right but a civic responsibility** essential for the accountability of representatives.
  - **Inclusivity:** Efforts are made to include **Persons with Disabilities (PwDs), senior citizens, and marginalised groups** through the principle of "No Voter to be Left Behind."

FOREVER CHEMICALS

New filtration technology developed by Rice University may absorb some Pfas "forever chemicals" at 100 times the rate previously possible.



About Forever Chemicals:

- **Nature:** Forever chemicals, are a large chemical family of thousands of **highly persistent, toxic, man-made, hazardous chemicals.**
  - **Nomenclature:** The name 'forever chemicals' comes from the fact that they **remain in the environment without breaking down for generations**.
- **Other names:** They are also known as **PFAS (per- and poly- fluoroalkyl substances).**
  - **Uniqueness:** PFAS molecules have a chain of linked carbon and fluorine atoms. Because the **carbon-fluorine bond is one of the strongest,** these chemicals do not degrade easily in the environment.
- **Durability:** In manufacturing, PFAS are favoured for their durability and useful properties such as **non-stick, water repellence, and anti-grease.**
- **Uses:** PFAS are used in the manufacture of many **domestic products, including- skin creams and cosmetics, car and floor polish, rinse aid for dishwashers,** textile and fabric treatments, food packaging and microwave popcorn bags, baking equipment, frying pans, outdoor clothing and shoes, firefighting foam, etc.

- **Concerns:** Over time, PFAS **may leak into the soil, water, and air.**
- **Exposure:** People are most likely **exposed to these chemicals by consuming PFAS-contaminated water or food, using products made with PFAS,** or breathing air containing PFAS. Because PFAS breaks down slowly, if at all, people and animals are repeatedly exposed to them, and blood levels of some PFAS can build up over time.
- **Impacts of PFAS on human health:** Forever chemicals have been linked to multiple health problems, including **compromised immune systems, liver damage, thyroid diseases, increased cholesterol levels, hypertension,** developmental delays in infants, and increased certain cancers such as kidney and testicular.
- **Regulation:** The **Stockholm Convention** has listed some PFAS, such as Perfluorooctane sulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA), as persistent organic pollutants (POPs).

GANDAK RIVER

The Gandak River has emerged as the second major river after the Chambal with the highest number of gharials, also known as fish-eating crocodiles.

About Gandak River:

- **Location:** Gandak is one of the **major rivers in Nepal** and a **left-bank tributary of the Ganges in India.**
- **Other names:** The Gandak River is also known as the **Narayani and Gandaki.**
- **Mentioned in Epics:** It is mentioned in the ancient **Sanskrit epic Mahabharata.**
- **Length:** The total length of the river is 700 km. **In India,** it covers a course of **more than 300 km.**
    - **Boundaries:** It is bounded on the north by the **Himalayas**, south by the **River Ganga**, east by the **Burhi Gandak** Basin and on the west by the **Ghagra** Basin.
    - **Origin:** It originates at an altitude of 7620 m above msl to the **north of Dhaulagiri Mountain in Tibet near the Nepal border.** After flowing through Tibet, it crosses Nepal, where it is also known as Narayani, to enter the Indian Territory.
    - **Course in India:** The river **enters India from Valmikinagar in the West Champaran district of Bihar.** The entry point of the river is at the Indo–Nepal border and is known as Triveni. In India, it flows southeast, across the upper Gangetic plain in eastern Uttar Pradesh and northwestern Bihar.
- **Shifting of course:** Due to the steep slope and loose soil in the upper catchment, it **carries a lot of silt and other deposits** to the Indian side, resulting in a continuous shifting course of the river.
- **Formation of gorge:** While flowing through the Nepal Himalayas, it forms the **Kali Gandaki gorge,** one of the deepest river gorges in the world.
    - **Glaciers:** There are about **1,710 glaciers and over 300 lakes** in the upper catchment of Gandaki.

- **Major tributaries:** These include **Daraudi, Seti, Madi, Marsyandi, and Budhi Gandaki.**
- **Protected areas:** Two important protected areas, **Chitwan National Park in Nepal.**

CHATERGALA PASS

Recently, the Border Roads Organisation (BRO) successfully carried out a high-altitude rescue and road restoration operation under Project Sampark at Chatergala Pass.

About Chattergala Pass:

- **Location:** It falls on the boundary of the Doda and Kathua districts in Jammu region of **Union Territory of Jammu and Kashmir.**
- **Connectivity:** It **connects Bhaderwah** (Neeru river valley) in Doda district **with Basohli** (Shiwalik hills) in Kathua district.
- **Mountain range:** It is situated at an elevation of approximately **10,500 feet in the Middle Himalayas.** It is tucked in the Chamba-doda ranges of the greater Himalayas.
- **Terrain:** It is surrounded by **alpine meadows, snow-covered peaks,** and dense forest.
- **Fauna: Himalayan monals, ibex, and musk deer** are found here.
- **Strategic significance:** The pass is critical **for border security and regional connectivity,** often used by the Border Roads Organisation (BRO) to ensure the movement of troops and supplies.
- **Gateway:** It serves as a gateway between the Jammu and Kashmir divisions, specifically **bypassing the traditional NH-44 route.**
- **Chattergala Tunnel Project:** To overcome the challenges of heavy snowfall (which can reach up to 5-6 feet in winters), the government is constructing a **tunnel beneath the pass.** It is a **6.8 km long** road tunnel, which will be constructed at an estimated cost of Rs. 4,000 crore.

JEEVAN RAKSHA PADAK AWARDS

Recently, the President of India has conferred the Jeevan Raksha Padak Series of Awards-2025 to 30 persons.

About Jeevan Raksha Padak Awards:

- **Nature:** The Jeevan Raksha Padak awards are a **series of civilian life-saving honours** presented by the Government of India for meritorious acts of courage in saving a person's life.
- **Establishment:** Originally **instituted in 1961 as an offshoot of the Ashoka Chakra series,** these awards are traditionally announced on Republic Day.
- **Categories:** The Jeevan Raksha Padak Award is given in **three categories,**namely,
  - **Sarvottam Jeevan Raksha Padak:** It is awarded for conspicuous courage in saving life under circumstances of very great danger to the life of the rescuer.

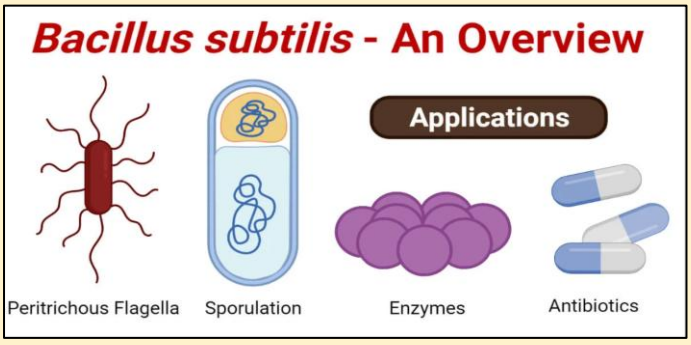
- **Uttam Jeevan Raksha Padam:** It is awarded for courage and promptitude in saving life under circumstances of great danger to the life of the rescuer.
- **Jeevan Raksha Padak:** It is awarded for courage and promptitude in saving life under circumstances of grave bodily injury to the rescuer.

- **Eligibility: Persons of all walks** of life are eligible for these awards. The award can **also be conferred posthumously.**
- **Presentation:** It is presented to the awardees **by the respective Union Ministries/Organizations/State Government** to which the awardee belongs.
- **Nomination and approval:** Its **nominations are invited annually from States/UTs**and Union Ministries. The recommendations of the award are considered by the Awards Committee within a period of two calendar years from the date of performance of the act. **Final approval is given by the Prime Minister and the President** of India.
- **Award:** The decoration of the award consists of a **Medal, Certificate, along with a one-time monetary allowance:** Sarvottam Jeevan Raksha Padak (₹2 lakh), Uttam Jeevan Raksha Padam (₹1.5 lakh) and Jeevan Raksha (₹1 lakh).

BACILLUS SUBTILIS

Recently, Kerala officially declared Bacillus subtilis as 'State microbe'.

About Bacillus Subtilis:



- **Classification:** It is a rod-shaped, **Gram-positive bacterium.**
- **Metabolism:** It is a facultative anaerobe, meaning it **can grow in both oxygen-rich and oxygen-poor environments.**
  - **Nature:** Bacillus subtilis (B. subtilis) is a **type of probiotic** ("good" bacteria) found **naturally in the human gut.** It's also found in fermented foods.
  - **Habitat:** It is mostly found **in soil and vegetation** with an optimal growth temperature from 25-35 degrees Celsius.
- **Significance:** B. subtilis has the ability to **produce and secrete antibiotics**. The genomic structure of this microorganism contains five signal peptidase genes that are important for the secretion of these antibiotics. It has shown to be capable of secreting **polymyxin, difficidin, subtilin, and mycobacillin.**
  - **Resilience:** A major feature is its ability to form tough, protective endospores. These allow it **to survive extreme conditions like heat, UV radiation,** and drought for decades.
  - **Transmission and disease:** B.subtilis is **non-pathogenic but can contaminate food** and be considered an opportunistic pathogen among the immuno-compromised.
- **Applications:**
  - **Agriculture (Bio-control):** It is widely used as a bio-fungicide (e.g., the product ENTAZIA) to protect crops from diseases like Bacterial Leaf Blight by colonising root systems and producing antibiotics.
  - **Probiotics:** It supports gut health and immunity in humans and animals. It is even used to enhance performance in poultry.
  - **Fermentation:** It is essential for traditional fermented foods like Natto (Japan), Kinema (Sikkim), and Akhuni (Nagaland).

- **Biotechnology:** It is used on an industrial scale to produce enzymes like amylases and proteases, as well as vitamins.
- **Environmental utility:** It plays a role in bioremediation by cleaning heavy metals and hydrocarbons from contaminated sites and can even be used to degrade certain plastics.

PYGMY HOG

India's pygmy hog is vanishing from its grasslands, just as it is needed the most.

About Pygmy Hog:

- **Scientific Name:** Its scientific name is **Porcula salvania** (It is the sole member of its genus).
- **Uniqueness:** It is the **smallest and rarest species of wild pig in the world.** It is one of the very few mammals that **build its own home**, or nest, complete **with a 'roof'.**
- **Endemic:** It is currently found **only in Assam,** India. Its primary strongholds are grasslands of **Manas National Park and Orang National Park.**
- **Reintroduction:** Captive-bred hogs have been successfully reintroduced into **Sonai-Rupai Wildlife Sanctuary and Barnadi Wildlife Sanctuary**
- **Significance:** It is an **indicator species** as its presence reflects the health of its primary habitat ,which is the **Terai-Duar ecosystem.**
- **Habitat:** It prefers **undisturbed patches of grassland dominated by early succession riverine communities,** typically comprising dense tall grass intermixed with a wide variety of herbs, shrubs and young trees.
- **Ecological role:** Using its snout, it **digs for roots, tubers, wild fruits, termites,**earthworms, eggs and other food sources found in the grasslands. This digging **aerates the soil and enhances its quality.** It also helps disperse seeds through its dietary and foraging habits.

- **Conservation Status:**
  - **IUCN:** Critically Endangered
  - **The Wildlife Protection Act, 1972:** Schedule I.

INDIAN OCEAN NAVAL SYMPOSIUM

Boosting maritime engagement with Indonesia and advancing the vision of MAHASAGAR, Indian Navy's First Training Squadron departed Belawan recently.

About Indian Ocean Naval Symposium (IONS):

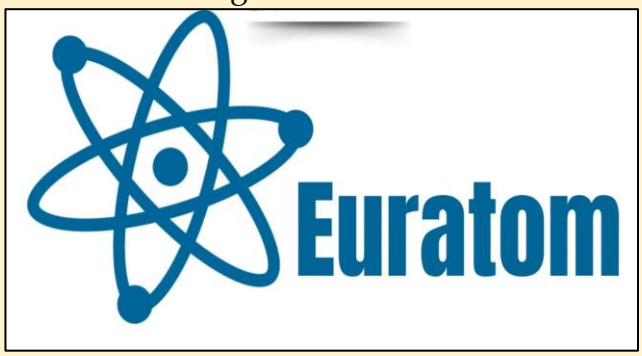
- **Nature:** It is a **voluntary initiative** that seeks to increase maritime cooperation **among navies of the littoral states of the Indian Ocean Region** by providing an open and inclusive forum for discussion of regionally relevant maritime issues.

- **Origin:** It was **conceived by the Indian Navy in 2008.** The inaugural edition of IONS was held in Feb 2008 at New Delhi, with the Indian Navy as the Chair for two years (2008–2010).
- **Objective:** It endeavours to generate a **flow of information between naval professionals** that would lead to common understanding and possibly cooperative solutions on the way ahead.

- **Significance:** It promotes maritime cooperation, mutual understanding, and collaboration on issues such as **maritime security and humanitarian assistance and disaster relief (HADR).**
- **Governance:** IONS is structured around a **rotating chairmanship, biennial conclaves of chiefs, and working groups.**
  - **Membership:** It includes **34 members (25 full members and 9 observers)** from Indian Ocean littoral states. The full members are:
    - **South Asian Littorals:** Bangladesh, India, Maldives, Pakistan, Seychelles, Sri Lanka.
    - **West Asian Littorals:** Iran, Oman, Saudi Arabia, United Arab Emirates (UAE).
    - **East African Littorals:** Kenya, Mauritius, Mozambique, South Africa, Tanzania, Eritrea.
    - **Southeast Asian & Australian Littorals:** Australia, France (via Reunion), Indonesia, Malaysia, Myanmar, Singapore, Thailand, Timor-Leste.
    - **Other:** United Kingdom (British Indian Ocean Territory).
  - **Focus areas:**
    - **Maritime cooperation:** Enhancing naval collaboration for regional security.
    - **Information sharing:** Exchanging best practices on maritime issues.
    - **Disaster response:** Developing effective mechanisms for Humanitarian Assistance & Disaster Relief (HADR).

EURATOM

The European Union (EU) and India recently committed to promoting collaboration on the peaceful uses of nuclear energy under the India-Euratom agreement.



About Euratom:

- **Full Form:** Euratom stands for **European Atomic Energy Community.**
- **Establishment:** Euratom is an international organization established **under the Treaty of Rome in 1957.**
- **Objective:** It aims to form a common market for the development of the **peaceful uses of atomic energy.**
  - **Association with nuclear materials:** A major incentive for the creation of Euratom was the desire to facilitate the establishment of a **nuclear-energy industry on a European rather than a national scale.** Euratom's control was not extended to nuclear materials intended for military use.

- **Membership:** The original members were Belgium, France, West Germany, Italy, Luxembourg, and the Netherlands. It subsequently came to **include all members of the European Union (EU).**

- **Regulation:** Euratom regulates the **European civil nuclear industry, which produces almost 30% of energy in the EU.** Euratom's work safeguards nuclear materials and technology, facilitates investment, research, and development, and ensures equal access to nuclear supplies, as well as the correct disposal of nuclear waste.

- **Governance:** It is governed by the **Commission and Council, operating under the jurisdiction of the European Court of Justice.** Its main instruments are the Euratom Supply Agency and its research and nuclear safeguard activities.
- **Research:** The EU has its own **Joint Research Centre (JRC)** in the nuclear field. Euratom is involved in developing **atomic fusion technology,** which has the potential of delivering abundant sustainable energy in the future.

PANCHAM – PANCHAYAT ASSISTANCE AND MESSAGING

Recently, the Union Minister of State for Panchayati Raj launched the PANCHAM – Panchayat Assistance and Messaging Chatbot.

About PANCHAM:

- **Full form:** PANCHAM stands for **Panchayat Assistance and Messaging Chatbot.**
- **Development:** It is a digital tool developed in collaboration **with UNICEF.**
- **Objective:** It is a flagship digital initiative aimed at **empowering Panchayat Elected Representatives** and Functionaries.
- **Focus areas:** It is designed as a digital companion for Panchayats, providing **timely and contextual guidance, simplified workflows, and easy access to information** to support day-to-day governance and service delivery functions.
- **Direct connect:** It enables, for the first time, a direct digital-connect **between the Government of India and Elected Panchayat Functionaries** across the country.
- **Language support:** It is **integrated with BHASHINI** and will support 22 Indian languages, enabling Panchayat representatives to interact with the platform in their preferred local language.
- **Citizen access:** Citizens would be able to access PANCHAM **through a QR-code-based entry mechanism.** It will facilitate quicker decision-making, and stronger feedback loops between the grassroots and decision-making centres.
- **Two-way communications:** It facilitates two-way communication and officials can **send feedback, ask questions, and flag local problems** directly to the ministry.
- **Information dissemination:** The Ministry would be able to directly disseminate **circulars, advisories, key messages, and updates** to Panchayat Elected Representatives and Functionaries.

QUALITY COUNCIL OF INDIA (QCI)

Recently, Quality Council of India (QCI) announced a set of next-generation quality reforms on the eve of Sushasan Divas 2025.

QUALITY COUNCIL OF INDIA
QCI
Creating an Ecosystem for Quality
Disclaimer: Copyright infringement not intended.

About Quality Council of India (QCI):

- **Nature:** It is a non-profit autonomous organisation registered under Societies Registration Act XXI of 1860.
- **Establishment:** It was set up in 1997 jointly by the Government of India and the Indian Industry, represented by the three premier industry associations, i.e., Associated Chambers of Commerce and Industry of India (ASSOCHAM), Confederation of Indian Industry (CII) and Federation of Indian Chambers of Commerce and Industry (FICCI).

- **Nodal ministry:** It is under the administrative control of the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry.
- **Objective:** It has been established to create a mechanism for independent third-party assessment of products, services, and processes.
- **Significance:** It works as the national accreditation body. It also plays a pivotal role at the national level in propagating, adoption, and adherence to quality standards in all important spheres of activities.
- **Composition:** The council comprises 38 members, with equal representation from the government, industries, and other stakeholders.
- **Accreditation services:** It also promotes the adoption of quality standards relating to Quality Management Systems, Food Safety Management Systems, and Product Certification and Inspection Bodies through the accreditation services provided by the National Accreditation Board for Certification Bodies (NABCB).

Boards under QCI:

- National Accreditation Board for Testing & Calibration Laboratories (NABL)
- National Accreditation Board for Hospitals & Healthcare Providers (NABH)
- National Accreditation Board for Education & Training (NABET)
- National Accreditation Board for Certification Bodies (NABCB)
- National Board for Quality Promotion (NBQP).

VALMIKI TIGER RESERVE (VTR)

The tiger population in the Valmiki Tiger Reserve (VTR) has increased more than sevenfold, rising from eight in 2010 to 54 in the last census conducted in 2022.

About Valmiki Tiger Reserve:

- **Location:** It is located at the India-Nepal border in the northern part of the West Champaran District of Bihar.
- **Establishment:** It was established as the 18th Tiger Reserve of India under Project Tiger in 1994.
- **Uniqueness:** It is the only tiger reserve of Bihar and forms the easternmost limit of the Himalayan Terai forests in India.
- **Landscape:** Situated in the Gangetic Plains bio-geographic zone of the country, the forest has a combination of Bhabar and Terai tracts.
- **Bordered by:** It is surrounded by the Royal Chitwan National Park of Nepal in the north and the river Gandak on the western side, with the Himalayan mountains as a backdrop.
- **Tribal Presence:** The Tharu tribe is the dominant indigenous community in the region.
- **Rivers:** The rivers Gandak, Pandai, Manor, Harha, Masan, and Bhapsa flow through various parts of the reserve.
- **Vegetation:** The reserve boasts a variety of vegetation types, including tropical wet deciduous forests, grasslands, savannas, and riverine forests.
- **Flora:** Sal trees dominate the forests, but the region also features species like teak, bamboo, semal, and khair.

Fauna: Tiger, leopard, fishing cat, leopard cat, sambar, hog deer, spotted deer, black buck, gaur, sloth bear, langur, rhesus monkey, etc.

KERALA STATE CIVIL SERVICE ACADEMY

Established under Centre for Continuing Education Kerala (CCEK)

NURTURING YOUNG MINDS TOWARDS TOMORROW'S CIVIL SERVICE

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Course Fee: : ₹ 49,200 (₹ 40,000 + 18% GST ₹ 7,200 + Caution Deposit ₹ 2,000)

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For the Working Professionals & students who are doing their UG/PG

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ESILIENCE
EKINDLE
EPHRASE

REHEARSE- Prelims Test Series

38 Test papers including 3 exclusive current affairs tests and 5 CSAT papers

RESILIENCE- Mains Test Series

17 Tests including compulsory papers

REKINDLE- PCM REPEATERS BATCH

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REPHRASE- Mains Answer Writing Programme

This answer writing exercise will cover Essay, General Studies - I, General Studies - II, General Studies -III & General Studies -IV papers

KEY HIGHLIGHTS

- Prelims & Mains test series with All Kerala rank list.
- Expert faculties.
- Library facility across the centres.
- Instalment facility for fee payment available to BPL category students.

Optional Subjects

Geography, History, Malayalam, Political Science & International Relations, Public Administration and Sociology

Course Fees : Rs. 11,800/– (Fees Rs 10,000/- + GST Rs.1,800/-).

KERALA STATE CIVIL SERVICE ACADEMY

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