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JULY 2025

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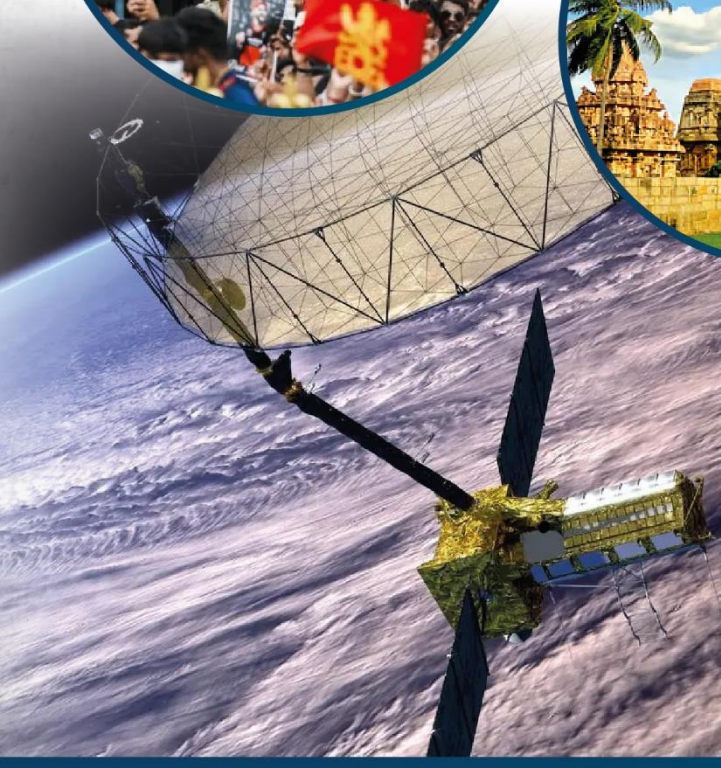

INCLUDES

PRACTICE QUESTIONS (PRELIMS + MAINS)

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GENERAL STUDIES - I

1. Art And Culture
2. Modern History
3. World History
4. Indian Society
5. Geography

GS1

Gangaikonda Cholapuram

Why in News?

- PM Narendra Modi offered prayers at Gangaikonda Cholapuram temple (UNESCO World Heritage Site).
- Released a commemorative coin in honour of Rajendra Chola I.
- Event coincided with Aadi Thiruvathirai Festival & 1000th anniversary of Rajendra Chola's maritime expedition to Southeast Asia.
- Announced statues of Rajaraja Chola & Rajendra Chola I in Tamil Nadu.

Rajendra Chola I

Who was Rajendra Chola I?

Aspect	Details
Reign	1014–1044 CE
Father	Rajaraja Chola I
Capital Shift	From Thanjavur to **Gangaikondacholapuram**
Key Titles	*Gangaikonda Cholan* (Bringer of the Ganges), *Kadaram Kondan* (Conqueror of Kedah)
Religion	Primarily **Shaivism**, with **tolerance towards Buddhism**

Military and Naval Achievements

Northern Campaigns

- Defeated **Mahipala**, the Pala ruler of Bengal.
- Brought **Ganges water** to the south, symbolizing pan-Indian sovereignty.

Southern & Overseas Expeditions

- **Conquered Kadaram** (modern-day Kedah, Malaysia).
- Defeated rulers in **Srivijaya, Java, Sumatra, Cambodia**.
- Extended reach to **Burma, Maldives, Lakshadweep, Thailand**.
- Established **India's first major blue-water navy**, the largest of its era.

Cultural and Administrative Legacy

- **Built Gangaikonda choleshwaram Temple**, mirroring Brihadeeswarar Temple.
- **Founded Gangaikonda cholapuram** as an administrative and cultural centre.
- Promoted **village self-governance** through sabhas and temple assemblies.
- Patron of **art, literature, architecture**, and **maritime trade**.
- Diplomatic ties with **Song China** and **Arab merchants**.

Global Impact

- **First Indian king to undertake overseas conquests**.
- Projected **soft power** through temples, trade, and Buddhism.
- Promoted **Buddhism abroad**, commissioning **stupas in Java and Cambodia**.
- Enhanced **India's prestige in Southeast Asia**, centuries before European naval powers emerged.

Gangaikonda Cholapuram Temple (c. 1030 CE)

- Purpose: Built to outshine Brihadeeswara Temple (Thanjavur).
- Capital of Cholas: 1025–1279 CE.
- **Architecture:**

- Softer, curved style vs. Brihadeeswara's vertical lines.
- Intricate carvings, majestic vimana.
- Unique Jalasthambam (*Chola Gangam*).

- Described by K.A. Nilakanta Sastri as reflecting affluence & aesthetic sophistication of Cholas.

Festivals & Cultural Significance

- Aadi Thiruvathirai Festival: (23–27 July 2025)
- Linked to Lord Shiva & Rajendra's birth star.
  - Features therukoothu (street plays) & ceremonial honouring of Rajendra Chola.
- Marks 1,000 years of Rajendra's maritime expedition.

Epigraphic Evidence

- Copper plates: *Tiruvalangadu* & *Karanthai plates*.
- Literary works: *Kalingattuparani* & *Muvar Ula*.
- Inscriptions of Vira Rajendra: Refer to the palace as Chola-Keralan Thirumaaligai.

Conclusion

Gangaikonda Cholapuram is not just an architectural marvel but a symbol of the Chola Empire's political power, maritime supremacy, and cultural sophistication. Rajendra Chola I's vision in establishing this capital and his far-reaching naval expeditions demonstrate how medieval South India actively engaged with the wider world. Celebrating his legacy through commemorative events and monuments reinforces India's civilisational pride while reminding us of the importance of preserving and studying our UNESCO heritage sites for future generations.

Paika Rebellion Row: NCERT Sparks Uproar in Odisha

Why in News:

- NCERT's omission of the 1817 Paika Rebellion from the new Class 8 history textbook drew sharp criticism from former Odisha CM Naveen Patnaik, calling it a "huge dishonour." NCERT clarified it will be included in the upcoming volume.Who were the Paikas

Who were the Paikas?

Traditional warrior-farmers of Odisha, loyal to the Gajapati kings and granted tax-free lands for military service. British land policies stripped them of these rights.

Roots of Rebellion:

British betrayal of Khurda's king, harsh revenue demands, and salt trade control led to deep economic and political resentment.

The 1817 Revolt:

Led by Bakshi Jagabandhu, the Paikas and Kondh tribes revolted—attacking police stations and British offices. The revolt spread but was eventually crushed.

Legacy & Politics:

Odisha has demanded it be declared India's "first war of independence," predating the 1857 Revolt. While the Centre hasn't accepted that, the rebellion is now a strong symbol of Odia pride.

A tectonic shift in thinking to build seismic resilience

India's Seismic Risk: Need for Urgent Resilience and Structural Reform

Context

The **4.4 magnitude tremor in Delhi on July 10, 2025**, though minor, is a stark reminder of India's **deep seismic vulnerability**. Over 80% of Delhi's infrastructure remains non-compliant with seismic safety norms, especially buildings constructed before 2000.

India's Tectonic Setting

- India lies on the **colliding Indian-Eurasian plate boundary**, moving **4–5 cm/year**.
- This motion is responsible for the **formation of the Himalayas**, the world's most seismically volatile region.
- The region is **overdue for a "Great Himalayan Earthquake"** (≥8 magnitude), threatening **300+ million people** across **India, Nepal, and Bhutan**.

Vulnerability Zones

Zone	Risk Level	Example Areas
V	Very High	NE states, Andaman & Nicobar, Bhuj
IV	High	Delhi, parts of North India
II-III	Moderate	Rest of peninsular India

- **Delhi**: Seismic Zone IV, with **liquefaction-prone soils**, 5,000+ high-rises, many flouting **IS 1893:2016 code** (for earthquake-resistant design).
- **Northeast**: Frequent tremors due to proximity to **Myanmar fault zones**.
- **Kutch, Gujarat**: Still vulnerable post-Bhuj earthquake (2001).

Challenges

1. **Urbanisation without Seismic Planning**:
    - Rapid, unregulated construction in high-risk zones.
    - Poor adherence to seismic codes, especially in older buildings.
2. **Inadequate Enforcement and Awareness**:
    - IS 1893:2016 standards are often ignored.
    - **National Center for Seismology (NCS)** has early warning apps (like *IndiaQuake*), but public preparedness is low.
3. **Global Context Ignored**:
    - A global surge in seismic activity (e.g., **Myanmar, Tibet, Greece, Indonesia**) warns of increased tectonic unrest.
    - India's response remains **reactive**, not **preventive**.

Solutions and Strategies

Structural Measures:

- **Retrofitting** with **steel jacketing**, especially for older buildings in Delhi.
- **Deep pile foundations** in soft soil areas.
- **Base isolation systems** for critical infrastructure (e.g., hospitals, bridges).
- **Avoiding construction** on **floodplains** and **soft basins**.

Institutional and Policy Reforms:

- **Strict enforcement** of IS codes by local bodies like **Delhi Development Authority**.
- **Annual investment** of ₹50,000 crore recommended for national retrofitting.
- Expand **early warning systems** to rural and high-risk areas (e.g., NE India).

Global Best Practices:

- **Bangkok**: Seismic codes updated in 2007; use of high-strength concrete (30–40 MPa).
- **Myanmar**: High casualty toll in 2025 due to **non-enforcement** of seismic regulations.

Sakharov-like Ethical Imperative

Just as Sakharov framed principles for understanding the cosmos, the author urges India to treat seismic preparedness as a **"technical and moral duty"** — especially after tragedies like **Bhuj (2001)** and **Nepal (2015)**.

Conclusion

The July 2025 Delhi tremor is not just a seismic event but a **civilizational alert**. It exposes the fragility of India's urban ecosystems and calls for a **tectonic shift in policy, engineering practice, and public awareness**. Without immediate action, **millions of lives and livelihoods** are at risk. The **window for preparation is closing fast**.

Evidence of a Matrilineal Society in Neolithic China

Introduction

Recent archaeological and genetic research on Neolithic sites in China has challenged the earlier belief that ancient East Asian societies were mainly patrilineal. New evidence suggests some communities followed a matrilineal system, where family lineage and inheritance were traced through the mother.

Key Evidence

1. Genetic Studies from Burial Sites

- Mitochondrial DNA (mtDNA):
  - ❖ Individuals buried together often shared identical mtDNA, which is always inherited from the mother.
  - ❖ This shows that clan ties were based on the maternal line.
- Y-Chromosome DNA:
  - ❖ Y-chromosome markers were diverse among males, suggesting men came from different paternal backgrounds.
  - ❖ This hints that males married into the community, rather than being born there.
- Nuclear DNA Findings:
  - ❖ There was evidence of intermarriage between different clans, mostly among distant relatives (like second or third cousins).

2. Inheritance Patterns

- mtDNA:
  - ❖ Passed only from mother to both sons and daughters.
- Y-chromosome:
  - ❖ Passed only from father to son.
- These inheritance patterns help trace family and clan relations.

3. Isotopic Evidence: Migration and Diet

- Strontium Isotope Analysis ($^{87}Sr/^{86}Sr$):
  - ❖ Isotope ratios in teeth and bones matched those of local plants and soil.
  - ❖ Indicates people were mostly local and did not migrate.
- Carbon Isotope Analysis ($^{13}C/^{12}C$):
  - ❖ Showed a diet based mainly on millet and similar crops.
  - ❖ Confirms agriculture was the main way of life.

4. Dietary Practices and Gender Parity

- Main foods: Millet, corn, sorghum; pigs were domesticated and eaten.
- Equal Diet: Both men and women ate the same foods, showing there was no gender-based food discrimination.

Conclusion

Combined genetic, isotopic, and dietary data provide strong evidence for matrilineal social organization in some Neolithic Chinese communities. Maternal lineage was central to clan identity and inheritance, while men married into these clans. Equal food distribution among genders further suggests a relatively egalitarian society.

Helgoland: A Momentous Island

Geographical Context

- Location: A small German island located in the North Sea, about 50 km off the German coast.
- Size: Less than 1 square kilometre.
- Physical Features: Known for its striking red sandstone cliffs and rugged terrain.

Historical Background

- Strategic Significance: Once served as a naval fortress, playing a key role in military defence.
- Transformation: Later transformed into a seaside holiday retreat.
- Legacy Shift: Today, Helgoland is better known for its scientific legacy than its military past.

Scientific Significance: Birthplace of Quantum Theory

Heisenberg's Visit (June 1925)

- Werner Heisenberg, then 23 years old and suffering from hay fever in Göttingen, retreated to Helgoland for fresh air and isolation.
- Amidst the island's solitude, he spent sleepless nights pacing the cliffs, intensely working in his notebook.

Birth of Matrix Mechanics

- Heisenberg abandoned classical physics notions, especially the idea of electrons orbiting a nucleus.
- Instead, he focused only on observable quantities, particularly:
  - Absorption and emission frequencies of atoms.
- He organized this atomic data using mathematical matrices (grids of numbers).
- Breakthrough: He discovered that matrix multiplication is non-commutative:
  - e., Position × Momentum ≠ Momentum × Position.
- This non-commutativity was essential to explain the hydrogen atom's spectrum, a long-standing problem.

Impact and Legacy

- Heisenberg's work laid the foundation of quantum mechanics, specifically matrix mechanics.
- Collaborations and Advancements:
  - Max Born and Pascual Jordan formalized Heisenberg's ideas into a robust mathematical theory.
  - Erwin Schrödinger soon introduced wave mechanics, a complementary formulation.
- These innovations culminated in:
  - Heisenberg's Uncertainty Principle.
  - Quantum statistics.
  - A revolution in modern science and technology.

Technological Impact of Quantum Mechanics

- Foundations for:
  - Lasers
  - Semiconductors

- Quantum computing
- Medical imaging (MRI)
- Modern electronics

Conclusion

Helgoland, once known for its strategic naval past, gained a timeless legacy as the cradle of quantum mechanics. Heisenberg's lonely retreat on this remote island sparked a scientific revolution that redefined our understanding of the physical world and laid the groundwork for 21st-century technology.

Baitarani River

Location: Flows primarily through **Odisha** and partially through **Jharkhand**.

Type: **East-flowing** river; part of the **Baitarani–Brahmani–Mahanadi delta** system.

Origin & Course

- **Source**: **Gonasika Hills**, Keonjhar district, Odisha (900 m elevation).
- Initially flows **underground** (Guptaganga stream) — a **sacred site**.
- Changes direction from **northward to eastward**.
- Forms part of the **Odisha–Jharkhand boundary**.
- **Length**: **~360 km**; **Empties into Bay of Bengal**.

Basin Details

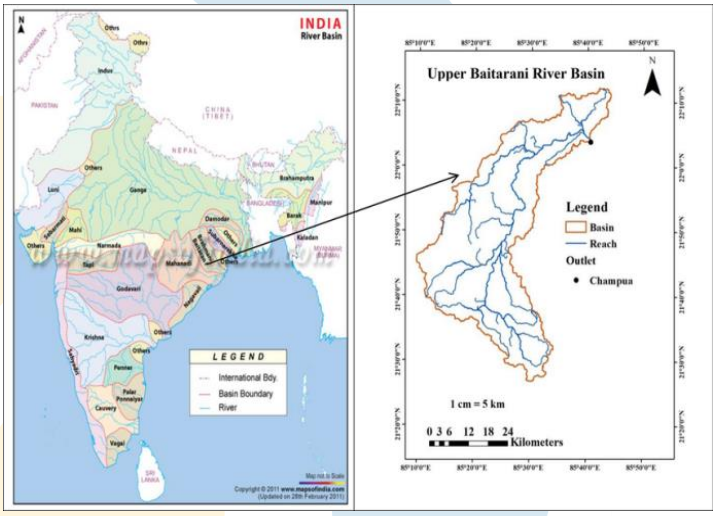
- **Total basin area**: Approx. **12,790 sq. km**.
- **Bounded by**:
  - **South & West**: Brahmani basin
  - **North**: Subarnarekha basin
  - **East**: Burhabalang River & Bay of Bengal

Tributaries

- **Total**: 65 (35 left-bank, 30 right-bank).
- **Major ones**: **Salandi, Kusei, Deo, Gahira, Kanjhari, Musal, Remal**.

Significance

- **Fertile delta** supports agriculture.
- Basin rich in **minerals** — ideal for **industrial development**.
- Recent floods in **Bhadrak district** due to river crossing **danger mark**.



A Special Climate Visa: The Case of Tuvalu Islands

Context:

Tuvalu, a small island nation in the Pacific Ocean, is among the countries most vulnerable to **climate change-induced sea-level rise**. In response, Tuvalu and Australia signed a historic agreement in 2023 offering **climate migration support** through a **"special climate visa"** mechanism.

About the Climate Visa Agreement:

- **Part of the Falepili Union Treaty** signed between **Tuvalu and Australia**.

- Australia will offer **residency to up to 280 Tuvaluans per year**.
- It acknowledges the **existential threat** posed to Tuvalu due to rising seas and climate disasters.
- Tuvaluan citizens will gain access to:
    - **Education**
    - **Employment**
    - **Healthcare**
    - **Pathway to permanent residency in Australia**

Key Points:

- **Location:** Central Pacific Ocean, midway between **Hawaii and Australia**.
- **Region:** Part of **Polynesia**, in the **Oceania**
- **Capital: Funafuti**
- **Total Islands:** 9 small islands and atolls (e.g., Nanumea, Nukufetau, Nui, Vaitupu)

National Workshop on Jain Manuscriptology

Organised by:

- **Ministry of Minority Affairs**
- Hosted at **Gujarat University**
- Department: *Validation of Indic Knowledge through Advanced Research*
- **Funded under**: Pradhan Mantri Jan Vikas Karyakram (PMJVK)

Objectives:

- Promote **academic research** and **manuscriptology** related to Jainism.
- Conserve and revive **traditional knowledge systems**.
- Recognise the **spiritual and intellectual heritage** of the Jain community.
- Encourage **inclusivity** by uplifting minority cultures.

Key Highlights:

- Participation from **scholars, monks, and academicians**.
- Discussed themes like **heritage conservation**, Jain literature, and **Indic epistemology**.
- **Parallel initiative** at **Mumbai University**: Preservation of **Avesta and Pahlavi**, sacred languages of Parsis.
- Reflects a **pan-Indian and inclusive cultural policy**.

Pradhan Mantri Jan Vikas Karyakram (PMJVK)

Background:

- Earlier known as **Multi-sectoral Development Programme (MsDP)**.
- Renamed and restructured into **PMJVK** by the Union Government.

Aim:

- Development of **socio-economic and basic infrastructure** in minority areas.
- Focus on:
    - Schools, Colleges
    - Girls' Hostels
    - ITIs & Skill Development Centres
    - Healthcare and sanitation
- Targets **6 notified minority communities**:
  Muslims, Christians, Sikhs, Buddhists, Parsis, and Jains

Jainism – Key Facts

Origins:

- Emerged around **6th century BCE**.

- Propounded by **Lord Mahavira**, the 24th **Tirthankara**.

Core Teachings:

- Moksha through non-violence, truth, and asceticism.
- **Tirthankaras**: Enlightened teachers (24 in number)
  - **1st Tirthankara**: Rishabnatha
  - **24th Tirthankara**: Lord Mahavira

Jain Literature

1. **Agam Literature** – Canonical Texts
   - Based on Lord Mahavira's **teachings**.
   - Compiled by his **disciples**.
   - **Divided into:**
     - **Ang-Agamas** (Primary)
     - **Ang-Bahya Agamas** (Secondary)
2. **Non-Agam Literature**
   - Includes **commentaries** and **independent works**.
   - Written by **monks, nuns, and scholars**.

Languages Used:

- **Prakrit**, **Sanskrit**, **Gujarati**, **Hindi**, **Tamil**, **Kannada**, **Old Marathi**
- Also translated into **German** and **English**

India's Preparedness Against Glacial Lake Outburst Floods (GLOFs)

GLOFs

Definition: GLOF is the sudden release of water retained in a glacial lake due to failure of moraine or ice dams.

Features

- Rapid and high-volume floods
- Can last from hours to days
- Cause extensive downstream damage

Glacial Lakes:

- Formed by melting glaciers accumulating in depressions
- **Types of Glacial Lakes:**
  1. **Moraine-dammed** (most dangerous – weak, unconsolidated debris)
  2. **Ice-dammed**
  3. **Erosion lakes**
  4. **Others**

Major Causes of GLOFs

- **Natural Causes:**
  - Ice/rock avalanches
  - Excessive glacial melt (due to warming)
  - Seismic activity/earthquakes
  - Glacial surging (e.g., Gilkey Glacier, Alaska)
- **Anthropogenic Causes:**
  - Unregulated urbanization
  - Hydropower construction
  - Deforestation
  - Mining
  - GHG emissions → rising temperatures

GLOF Risk in India

- **28,000 glacial lakes** in the Indian Himalayan Region (IHR)

- ~7,500 in India, mostly above 4,500m

- **High-risk types**:
  - **Supraglacial lakes** (prone to summer melt)
  - **Moraine-dammed lakes** (prone to breach)

Climate Risk:

- 2023 and 2024 were **Earth's hottest years**, accelerating glacial melt

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Notable GLOF Events

- **India:**
  - 🧊 *2023 – Sikkim (South Lhonak Lake)*:
    Destroyed Teesta III Dam at Chungthang (~$2 billion loss)
  - 🧊 *2013 – Uttarakhand (Chorabari Lake)*:
    Catastrophic floods in Kedarnath; major casualties and infrastructure loss
- **Neighbourhood:**
  - 🧊 *July 8, 2025 – Lende River (Tibet–Nepal border)*:
    - Destroyed China-built bridge
    - Damaged 4 hydropower plants (~8% of Nepal's power supply)
    - No early warning from China → Exposed **transboundary vulnerabilities**

India's GLOF Mitigation Strategy

National GLOF Risk Mitigation Programme

Led by: NDMA + Coalition for Disaster Resilient Infrastructure (CoDRR)
Budget: ₹170 crore (~$20 million)

Target: 195 high-risk glacial lakes (4-tier risk classification)

Five Key Objectives

1. **Hazard assessment** of glacial lakes
2. **Install AWWS** (Automated Weather & Water Stations)
3. **Establish Early Warning Systems** for downstream regions
4. **Risk mitigation structures** (lake drainage, embankments)
5. **Community engagement** for awareness and response

Scientific & Technological Measures

Technology	Purpose
SAR Interferometry	Detects slope stability shifts (up to 1 cm)
ERT (Electrical Resistivity Tomography)	Detects buried ice-cores under moraine dams
UAV Surveys + Bathymetry	Lake volume & terrain mapping
Real-time monitoring (e.g., in Sikkim)	Sends data & images every 10 minutes

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Gaps & Challenges

- **No real-time early warning** in most GLOF-prone areas
- **Difficult accessibility & short survey seasons**
- **Scientific & Institutional Needs**:
  - Expand **weather & water monitoring networks**
  - Strengthen **technical & human capacity**

    - Encourage **private sector innovation**
- **Cultural Barriers**:
    - Community restrictions on lake access → **Need trust-building & awareness**

Transboundary Dimension

- **2025 Lende GLOF** exposed lack of:
    - **Data-sharing mechanisms** between China, Nepal, India
    - **Regional Early Warning Systems**
- Rising supra-glacial lakes on **Tibetan side** pose threat to **Nepal and Indian rivers**
- Need for **regional disaster diplomacy**

Conclusion

India is proactively working through a **multi-pronged strategy** combining **technology, policy, and community engagement** to address the growing threat of GLOFs. However, challenges like **data-sharing gaps, climate intensification**, and **terrain inaccessibility** must be tackled with **international cooperation** and **local participation**.

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GENERAL STUDIES - II

1. Constitution
2. Polity
3. Governance
4. Social Justice
5. International Relations

GS 2

Bihar's Dark Side — the Hub of Girl Child Trafficking

Core Issue

- Hundreds of minor girls (some as young as 12) are trafficked into orchestra groups and flesh trade in Bihar.
- Girls are lured with false promises of employment, love, or dance training; later subjected to rape, abuse, and captivity.
- 271 girls rescued in 2025 (Jan–June); Saran district alone saw 162 rescues.

Why Bihar?

- Porous Nepal border and strong rail links to trafficking-prone states (WB, Jharkhand, Odisha, etc.).
- Cultural aspirations in states like West Bengal are exploited.
- Orchestra hubs like Saran, Gopalganj, West Champaran act as trafficking epicenters.

Systemic Failures

- Laws (POCSO, JJ Act, ITPA, etc.) exist but are poorly enforced.
- Most cases misfiled; conviction rates low.
- AHTUs under-resourced; girls often sent back to abusive families.

Judicial & NGO Action

- Just Rights for Children (JRC) petitioned Patna HC for a ban on minors in orchestras.
- HC acknowledged trafficking as a "serious issue"; directed urgent State action.

Way Forward – 'PICKET' Strategy

1. Policy – Enforce bans on child exploitation.
2. Institutions – Strengthen monitoring & rehab.
3. Convergence – Agency coordination + tech.
4. Knowledge – Community & survivor inputs.
5. Economics – Make trafficking unprofitable.
6. Technology – Use AI, heat maps, and tracking.

What did the ICJ say on climate obligations?

Context

- In **July 2025**, the **International Court of Justice (ICJ)** issued an **advisory opinion** on **states' obligations under international climate law**, following a request from the UN General Assembly (2023).
- The opinion affirms **multilateral climate law** but raises concerns over **equity, enforceability, and developmental needs of the Global South**.

Affirmation of the Global South's Case

- **Validates the entire climate regime**: **UNFCCC**, **Kyoto Protocol**, and **Paris Agreement**, rejecting attempts to sideline older agreements.
- **Reaffirms Annex-I & Annex-II responsibilities**:
  - **Annex-I:** Developed nations must take **binding emission reduction targets** & report actions.
  - **Annex-II:** Provide **finance, technology transfer, and capacity-building** to developing nations.
- **CBDR-RC (Common But Differentiated Responsibilities & Respective Capabilities):**

- Declared the **core guiding principle** for climate treaty implementation.
- Extended its **relevance beyond climate** to **other environmental treaties**.

Paris Agreement Temperature Goal Controversy

- **Reinterpreted temperature goal:**
  - Declares **1.5°C as the binding target** (not 2°C with "efforts" toward 1.5°C under Art. 2.1(a)).
  - Based on **COP-26 & COP-28 decisions**—controversially **elevating COP decisions above treaty text**.
- **Criticism:**
  - **Ignores feasibility** & **equity concerns** for developing nations.
  - **Risks imposing unrealistic obligations** on low-emission, low-income states.

Enforcement of Obligations

- **Differentiates obligations:**
  - **Obligations of Conduct:** Effort-based (e.g., climate policies).
  - **Obligations of Result:** Outcome-based (e.g., submitting NDCs).
- **Enforcement gaps:**
  - Only **procedural duties** treated as obligations of result.
  - **No new enforcement mechanism** introduced—relies on **national/regional courts** for accountability.

Critical Gaps in the Opinion

- **Neglect of Global South's development needs:**
  - **Energy access & poverty eradication** require **equitable carbon space**.
  - **Low-carbon development** still hindered by **inadequate finance & technology access**.
- **Missed opportunity:** No binding accountability for major emitters.

Scope for Future Litigation

- **Enables climate litigation** at **national/regional courts** (e.g., compensation for climate damages).
- But **high bar for success**: Plaintiffs must prove **attribution, causation, and wrongfulness**.
- **Global impact limited:** Unlikely to shift power dynamics in negotiations.

Conclusion

The **ICJ's advisory opinion** strengthens the **legal authority of the global climate regime** and affirms **CBDR-RC**, offering a moral boost to the **Global South**. However, by **elevating 1.5°C as a binding obligation** without addressing **developmental equity, finance, and enforceability**, the opinion risks being **aspirational rather than transformative**. A **balanced approach**—ensuring **climate justice, carbon space for developing nations, and binding support from the Global North**—remains essential for an effective and equitable global climate framework.

Judicial Pendency in India: "Justice on Hold"

Why in News?

- **Over 5 crore cases** are pending in Indian courts.
- Structural delays, **30% vacancy in higher judiciary**, and inadequate infrastructure have created a **"justice crisis."**
- **ADR mechanisms** like **Lok Adalats** are being pushed as viable alternatives.

Why is Timely Justice Essential?

- **Faith in Rule of Law:** Delays erode trust in courts (e.g., *Jessica Lal* case).
- **Crime Deterrence:** Swift justice prevents recurrence (e.g., *Nirbhaya* fast-track courts).
- **Victim Relief:** Delays prolong trauma (e.g., *2002 Gujarat riot* survivors).
- **Prevent Manipulation:** Long delays aid **witness intimidation** and **evidence tampering** (e.g., *Bhopal Gas Tragedy*).

Structural Reasons for Pendency

Factor	Example
Vacant Judgeships	30% HC posts vacant (2024)
Procedural Delays	Order XVII CPC misused for adjournments
Poor Infrastructure	Lack of IT/digital tools in rural courts
Govt as Litigant	Nearly **50%** of pending cases
Weak Case Management	No structured timelines for trials

Why Are District Civil Cases Slow?

- **Repeated Adjournments:** Property cases in UP – 20+ adjournments in 5 years.
- **Overloaded Judges:** MP judges handling **2,000+ cases each**.
- **Delayed Submissions:** Municipal bodies taking **18 months** to file replies.

Role of ADR in Reducing Backlog

- **Reduces Court Load:** *Tis Hazari Mediation Centre* disposed **2L+ cases**.
- **Faster Resolution:** Commercial arbitration settles disputes in **12–18 months**.
- **Cost-Effective:** Saves litigants time & expenses.

Lok Adalats – A Success Story

- **27.5 crore cases disposed** (2021–Mar 2025).
- **1 crore cases resolved** in Nov 2023 National Lok Adalat.
- **No appeal:** Awards are final & binding.
- **Pre-litigation focus:** Prevents cases from entering courts.

ADR vs Lok Adalat

Feature	ADR	Lok Adalat
Scope	Arbitration, mediation, conciliation	Specific ADR under LSA Act, 1987
Binding	Arbitration binding; mediation may not	Binding like a court decree
Formality/Cost	Can involve fees & formalities	Informal, free-of-cost
Case Types	Civil & commercial	Civil + compoundable criminal

Way Forward

- **Strengthen Judicial Capacity:** Fill vacancies, add support staff, upgrade infrastructure.
- **Expand ADR Ecosystem:** Promote arbitration & mediation across sectors.
- **Boost Legal Literacy:** Public awareness on ADR & Lok Adalats.
- **Tech Adoption: E-Lok Adalats**, Online Dispute Resolution (ODR).

- **Case Management:** Enforce **structured timelines** & digitised cause lists.

Conclusion

India's **judicial pendency crisis** is a **ticking time bomb** undermining public trust in democracy and the **rule of law**. While ADR and **Lok Adalats** have shown promise, systemic reforms—**filling vacancies, digitising courts, enforcing timelines, and making ADR mainstream**—are essential. Justice in India must shift from being a **distant ideal to a lived reality**—swift, affordable, and accessible to every citizen.

Justice on Hold: India's Courts are Clogged

Context

India's judiciary is facing a **severe pendency crisis**, with over **5 crore cases pending** across all levels of courts. This reflects **structural inefficiencies**, **judge shortages**, and **poor case management**, demanding **urgent institutional reforms** and the promotion of **Alternative Dispute Resolution (ADR)**.

Data Source: National Judicial Data Grid; Lok Sabha; India Justice Report

Scale of the Crisis

- **Pending Cases:**
  - **Supreme Court:** 86,700+
  - **High Courts:** 63.3 lakh+
  - **District/Subordinate Courts:** 4.6 crore+
- **Public Trust Issue:** President Murmu described the fear of judicial delays as **"black coat syndrome"**, reflecting people's hesitation in seeking justice.

Systemic Constraints in Judicial Process

- **Inadequate infrastructure & staff**
- **Frequent adjournments** and **absence of strict timelines**
- **Poor case management** & lack of **digital tracking**
- **Complex facts** and poor **coordination among stakeholders**

Resolution Timelines – A Stark Disparity

- **Criminal Case Disposal:**
  - **High Courts:** 85.3%
  - **Supreme Court:** 79.5%
  - **District Courts:** 70.6%
- **Civil Cases (District Courts):**
  - Only **38.7%** resolved within a year
  - **20%** drag beyond **5 years**.

Judicial Vacancies – A Core Problem

- Judiciary functions at **79% capacity**.
- **5,665 vacancies** out of **26,927 sanctioned judges**.
- **Judge-Population Ratio:**
  - **District courts: 18 judges per 10 lakh** population (recommended: 50 by Law Commission, 1987).
  - Even at full strength, **India reaches only 19 judges per 10 lakh**.

Alternative Dispute Resolution (ADR) – A Way Forward

- **What is ADR?**
  - A **non-adversarial mechanism** for dispute resolution through **collaboration** and **mutually acceptable solutions**.
  - Reduces **pendency burden** and provides **faster, cost-effective justice**.
- **Impact:**
  - **National Lok Adalats:** Resolved **27.5 crore cases** (2021–March

2025), including **22.21 crore pre-litigation matters**.

- **Types of ADR:**
  - **Arbitration:** Binding decision by arbitral tribunal; minimal judicial intervention.
  - **Conciliation:** Non-binding; conciliator assists parties to reach settlement.
  - **Mediation:** Mediator facilitates communication for a mutual settlement; Supreme Court stipulates **40-hour training** for mediators.
  - **Negotiation:** Direct party-to-party settlement without third-party involvement.

Conclusion

India's **judicial backlog** threatens **access to timely justice**, eroding public faith in the system. **Increasing judge strength**, **investing in infrastructure**, **digitization**, and **scaling up ADR mechanisms** like **Lok Adalats and mediation** can transform the justice delivery system. A **human-centric, time-bound, and tech-driven approach** is essential to ensure that **"justice delayed does not become justice denied."**

India has the highest number of slum clusters in flood-prone areas

Context

A **study published in *Nature Cities*** has revealed that **India has the world's largest number of slum dwellers living in flood-prone areas** – over **158 million people**, primarily concentrated in the **Ganga delta region**.

Key Findings of the Study

- **Global Context:**
  - **445 million people** in the Global South live in flood-exposed informal settlements across **67,568 clusters**.
  - Slum dwellers are **32% more likely** to reside in floodplains than non-slum populations.
- **India-Specific Findings:**
  - India has the **highest number of such clusters**, followed by **Indonesia, Bangladesh, Pakistan, Rwanda, northern Morocco, and coastal Brazil**.
  - **40% of slum dwellers** in India live in **urban/suburban flood-prone areas**, often for **proximity to jobs** and **affordable living options**.

Why Floodplains?

- **Affordability:** Floodplains are **less attractive to formal developers**, making them accessible for low-income groups.
- **Contrast with Developed Countries:**
  - In high-income countries, **subsidized insurance** and **protective infrastructure** make floodplains **desirable for formal housing**.
- **Real Estate Pressure:** Rapid **urbanization and real estate expansion** often push **vulnerable communities** to settle in **high-risk zones**.

Settlement Patterns

- Houses are **temporary/semi-permanent** – using **tin sheets, tarps, tents**, etc.
- Linked to **land contractors** and **informal networks**.
- **Cities like Bengaluru & Mumbai** show a high prevalence of informal housing in areas unattractive to formal builders, **exacerbating flood risks**.

Socioeconomic Dimensions of Vulnerability

- **Poverty & Low Incomes** – limited relocation options.
- **Low Education Levels** – reduced awareness of climate risks.
- **No Insurance Coverage** – higher financial vulnerability post-disasters.
- **Inadequate Infrastructure** – poor drainage, lack of basic services, worsening flood impacts.
- **Indirect Impacts:** Job loss, displacement, health hazards, and service disruption.

Global & National Implications

- **SDGs Linkage (2030 Deadline):**
  - **SDG 1** – No Poverty
  - **SDG 6** – Clean Water & Sanitation
  - **SDG 11** – Sustainable Cities & Communities
  - **SDG 13** – Climate Action
- **AI & Innovation:** The study used **AI & ML tools** with **satellite imagery** to map flood-exposed populations.
- **Future Plans:** Mapping **slum expansion**, **climate-induced migration**, and **predictive modeling** for better planning.

Conclusion

Flood-prone informal settlements reflect the **intersection of poverty, urban planning failures, and climate vulnerability**. India's **158 million flood-exposed slum dwellers** represent a **pressing urban governance challenge**. Achieving **SDG 11** and **SDG 13** requires a **human-centric, community-driven approach** backed by **technology, resilient infrastructure, and inclusive policies**.

Internal Complaints Committees (ICCs)

How Do Internal Complaints Committees (ICCs) Work?

Legal Framework Behind ICCs

a) **Vishaka Guidelines (1997)**

- Issued by the **Supreme Court** in the **Bhanwari Devi case**.
- Established foundational norms for preventing sexual harassment at the workplace.
- Key principles:
  - **Time-bound redressal**,
  - **Woman-led committee**,
  - Inclusion of **independent third-party member** for fairness.

b) **POSH Act, 2013** *(Prevention of Sexual Harassment of Women at Workplace Act)*

- Enacted post-**Nirbhaya case** to codify the Vishaka Guidelines.
- Made ICCs **mandatory** in all workplaces with **10 or more employees**.
- For others: **Local Committees (LCs)** at district level under the **District Officer**.
- Superseded the Vishaka Guidelines.

Structure and Powers of ICC

- **Composition:**
  - Chaired by a **senior woman employee**.
  - Must include at least **50% women**.
  - One **external member** from NGO/legal/social work background.
- **Key Functions:**

1. **Receive written complaints** within **3 months** of incident.

2. **Attempt conciliation**, if the complainant desires.

3. **Conduct inquiry** within **90 days** if no settlement.

4. **Submit report** with recommendations within **10 days** of completion.

5. Recommend **disciplinary action** or **file criminal complaint**.

- **Legal Status:**
  - ICC enjoys **powers of a civil court** (under CrPC):
    - Can summon witnesses,
    - Examine under oath,
    - Collect documentary evidence.
- **Confidentiality Clause:**
  - Identity of complainant, respondent, and witnesses,
  - Contents of complaint,
  - Proceedings and outcomes – all must be kept **strictly confidential**.

Implementation Challenges & Recent Developments

a) **Supreme Court Criticism (Dec 2024)**

- Noted **"serious lapses"** in ICC implementation across institutions.
- Directed the **central government** to conduct **compliance surveys**.
- Urged Ministries of **WCD, Labour, and Industries** to ensure enforcement.

b) **Ground-Level Issues: Balasore Student Suicide Case (Odisha)**

- ICC members were **untrained and biased**.
- **Unsafe environment** for filing complaints.
- **Breach of confidentiality**, leading to trauma and eventual suicide.
- Illustrates **failure of institutional sensitivity and legal compliance**.

Significance for Mains Answer Writing

Governance & Women's Safety:

"Despite robust legal frameworks like the POSH Act, the gap in institutional compliance—especially in educational institutions and private sectors—undermines women's safety and justice delivery."

Example of Policy Lapses:

"The Balasore case reveals systemic issues—lack of ICC training, absence of safe grievance redressal spaces, and violation of confidentiality—that continue to plague implementation."

Way Forward:

- **Mandatory training** for ICC members.
- **Independent audits** and periodic **compliance reviews**.
- Stronger role for **Ministry of Women and Child Development**.
- **Whistleblower protection** for complainants and witnesses.

Conclusion

The Internal Complaints Committee is a **crucial institutional mechanism** to uphold women's right to **safe and dignified workplaces**. However, as evident from the Odisha case and SC observations, its **effectiveness is often undermined by poor implementation, bias, and insensitivity**. Bridging the gap between **law and practice** is essential for advancing **gender justice and workplace equity** in India.

Rejection of widely held documents in SIR 'inconsistent, arbitrary': ADR

Context

The Association for Democratic Reforms (ADR) has filed a legal challenge against the Election Commission of India's (ECI) decision to reject Aadhaar, Voter ID, and Ration Card as valid **standalone documents** for electoral roll inclusion during the **Special Intensive Revision (SIR)**.

Background of the Dispute

- **ECI's Stand:**
  - Documents like Aadhaar, Voter ID, and Ration Card are not accepted as standalone proof due to risks of **forgery**.
- **ADR's Argument:**
  - The rejection is **arbitrary and illogical**, since **EC-approved documents** like residence and caste certificates are equally prone to fraud.
  - Over **13.89 crore residence certificates** accepted by ECI – a figure exceeding the actual voter population – indicates questionable document reliability.

Supreme Court Intervention (July 10, 2025)

- The Supreme Court asked the ECI to reconsider its stance, noting that Aadhaar, Voter ID, and Ration Card are **foundational documents** used to obtain other identity proofs.
- In response, ECI filed a counter-affidavit citing its **plenary powers** to determine verification processes during SIR.
- **Plenary Powers**: Absolute authority granted to an institution to act on a subject without requiring external approval.

ADR's Core Counter-Arguments

1. **Arbitrariness & Inconsistency**:
   - Rejection of Aadhaar is illogical when it's used to obtain many accepted identity proofs.
   - Creates unequal treatment of documents with similar verification reliability.
2. **Misrepresentation of Political Consensus**:
   - ECI falsely claimed political parties supported SIR.
   - ADR pointed out that party concerns were about **post-poll deletions** and **not a fresh verification** exercise.
3. **Timing & Exclusion Concerns**:
   - In Bihar, several voters excluded from draft rolls may not have sufficient time to appeal, prove citizenship, and re-register before the **Assembly elections**.

Significance for Mains (GS Paper II)

1. Electoral Reforms & Democratic Inclusion

- The ADR's case highlights flaws in current voter verification methods.
- Demonstrates need for **transparent**, **standardized**, and **inclusive** electoral practices.

2. Role of Civil Society

- ADR's legal challenge showcases how **NGOs act as watchdogs**, safeguarding democratic institutions and voter rights.

3. Judiciary's Oversight Role

- SC's intervention underscores the role of **judicial review** in checking executive actions that may violate **citizenship or voting rights**.

4. Strengthening Electoral Democracy

- NGOs like ADR contribute to democracy by raising public awareness, engaging in policy critique, and **holding institutions accountable**.

Conclusion:
This issue provides a rich case study to examine electoral governance, constitutional powers of institutions like ECI, and the balancing role played by civil society and judiciary in ensuring free and fair elections in India.

Consensual Sex Between Adolescents (16–18) and the Need for Legal Reform

The criminalisation of consensual sexual activity between adolescents aged **16 to 18** under the **Protection of Children from Sexual Offences (POCSO) Act, 2012** has sparked significant debate on child rights, legal overreach, and the balance between **protection and autonomy**. The issue now forms part of an ongoing **constitutional challenge (Nipun Saxena case)** before the Supreme Court.

Issue at Stake

- **Current Legal Framework:**
  - Under POCSO Act, 2012 and **Section 375 IPC / Section 63 of BNS**, all individuals under 18 are deemed children.
  - **Any sexual act with them—regardless of consent—is considered statutory rape**.
- **Consequences:**
  - Adolescent consensual relationships are criminalised.
  - Adolescents risk being labelled sex offenders, facing jail, social stigma, and trauma.

Key Arguments in Favour of Reform

1. Consent vs. Exploitation

- The law currently fails to differentiate between:
  - **Consensual romantic relationships** between peers, and marriage practices
  - **Actual sexual abuse or exploitation** by adults or in coercive situations.

2. Demand for a "Close-in-Age" Exception (Romeo & Juliet Clause)

- Advocates propose that **consensual sex between minors aged 16–18** with small age gaps **should not be punishable**.
- Such a clause is designed to **protect adolescents from criminal prosecution**, while maintaining safeguards against exploitative relationships.

3. Challenge to Age of Consent at 18

- Historically, India maintained **16 as the age of consent for 80 years**.
- The increase to **18 years in 2013** lacked **empirical or data-backed justification**.
- The age of majority (18) shouldn't automatically determine **emotional or sexual maturity**.

Legal and Constitutional Dimensions

Aspect	Relevance
POCSO Act, 2012	Section 2(d) defines all individuals under 18 as "children" – no exception.
Section 63 BNS	Defines statutory rape; ignores the question of consent if victim is under 18.
Article 14, 19, 21	Petitioners argue that criminalising consensual sex violates the **Right to Equality**, **Right to Expression**, and **Right to Privacy**.

Romeo and Juliet Clause – Global Precedent

- Common in countries like **USA, Canada, Australia**, where consensual sex between adolescents is legally protected if:
    - Both parties are above a certain age (e.g. 16).
    - The age gap is within a permissible limit (usually 2–4 years).
- **Objective:** Prevent the **unjust criminalisation of teenagers** in genuine relationships.

Way Forward

- **Legislative Clarity:** Introduce a **"Romeo & Juliet Clause"** via amendment or judicial reading to exclude consensual acts between 16–18-year-olds from criminal prosecution.
- **Judicial Guidance:** Supreme Court should **read down** Section 2(d) of POCSO to allow judicial discretion in consensual adolescent cases.
- **Comprehensive Adolescent Policy:** Align child protection with **sexual and reproductive rights**, mental health, and education.
- **Sensitization of Law Enforcement:** Avoid misuse of POCSO in consensual cases, especially those driven by **parental or caste/community pressure**.

Conclusion

India's child protection laws must evolve to reflect the **realities of adolescent development**, ensuring that well-meaning legislation like POCSO **does not end up criminalising children it seeks to protect**. A close-in-age exception would strike the **right balance between protection, rights, and justice**, affirming both **constitutional values and social realities**.

Ministry Blocks 25 OTT Platforms Over 'Obscene Content'

In a major crackdown on digital content regulation, the **Ministry of Information & Broadcasting (I&B)** ordered the blocking of **25 OTT platforms** accused of publishing obscene, sexually explicit, and morally degrading content. The action underscores the growing challenge of balancing **freedom of expression** with **public morality, child protection, and cyber governance** in India's rapidly expanding digital ecosystem.

Nature of the Objectionable Content

- Explicit **sexual innuendos**, nudity, and pornographic scenes.
- Absence of storyline, thematic value, or artistic/social message.
- Deemed **harmful to societal values**, especially to **women and children**.
- Viewed as violating **public decency** and **digital ethics**.

Stakeholders Involved

- **Ministries:** Home Affairs, Women & Child Development, Electronics & IT, Legal Affairs.
- **Consulted Bodies:** FICCI, CII (industry representatives), legal experts, women and child rights activists.

Legal and Regulatory Framework

Law / Policy	Relevance
IT Act, 2000	Provides legal foundation for digital content regulation (esp. Section 69A).
IT Rules, 2021	Empowers government to regulate OTTs, ensure accountability, redress grievances.

Regulatory Framework for OTT Platforms in India

1. Classification under IT Rules, 2021

OTT platforms are treated as **publishers of online curated content**, not broadcasters or film producers.

2. Three-Tier Grievance Redressal Mechanism

Level	Function
Level I	Self-regulation by the platform (content ratings, grievance officer).
Level II	Industry-level self-regulation (registered bodies like DCCC, IAMAI).
Level III	Government oversight through **Inter-Departmental Committee (IDC)** under I&B.

3. Content Classification Requirements

- Mandatory display of age ratings: **U, U/A 7+, U/A 13+, U/A 16+, A**.
- Parental controls and **age verification** for adult content.
- Platforms must **self-classify** content (no CBFC-like pre-certification).

4. Due Diligence Obligations

- Publish **terms of use**, privacy policies, and content warnings.
- Appoint **grievance officers** and comply with Indian laws.
- Prevent content related to **obscenity, defamation, hate speech**, or **national security threats**.

Gaps and Concerns in the Regulatory Framework

Issue	Explanation
No Independent Regulator	Unlike **TRAI** (telecom) or **CBFC** (cinema), OTTs lack a statutory regulator.
No Pre-Certification	OTTs can release content without prior government clearance or review.
Overreach vs Free Speech	Concerns over censorship and arbitrary blocking under **Section 69A**.
Enforcement Gaps	Many small or foreign OTTs evade compliance with Indian laws and guidelines.

Way Forward

- Establish a **statutory OTT Regulatory Authority** to ensure transparency and accountability.
- Encourage **co-regulation**: Combine self-regulation with legally enforceable codes.
- Expand **digital media literacy** for users, especially regarding parental controls.
- Build capacity in law enforcement and regulatory agencies to handle tech-intensive violations.
- Strengthen **international cooperation** for content hosted on foreign servers.

Conclusion

The blocking of 25 OTT platforms marks a significant moment in India's attempt to govern its fast-growing digital media space. While protecting children and public morality is crucial, regulation must be **balanced, transparent**, and in harmony with **constitutional freedoms**, especially Article 19(1)(a) – **freedom of speech and expression**.

National Cooperative Policy 2025

Context

- The Union Ministry of Cooperation unveiled the **National Cooperation Policy – 2025**, marking a transformative moment in the history of India's cooperative movement.

About

- **First Policy:** India's first National Cooperation Policy was introduced in **2002**.
- **Second Policy:** The **2025 Policy** represents a renewed commitment to making cooperatives **competitive, inclusive, and future-ready**.

Pillars of the Policy:

1. **Strengthening the Foundation**
2. **Promoting Vibrancy**
3. **Preparing Cooperatives for the Future**
4. **Enhancing Inclusivity & Expanding Reach**
5. **Expanding into New Sectors**
6. **Preparing the Younger Generation**

Objectives:

- Triple the cooperative sector's **contribution to GDP by 2034**.
- Increase cooperative societies by **30%** from the current **8.3 lakh**.
- Bring **50 crore new or inactive citizens** into active cooperative participation.
- Establish **at least one cooperative unit in every village** & set up **5 Model Cooperative Villages in every tehsil** (supported by NABARD).
- Establish **PACS or primary cooperative units in every panchayat**.

What are Cooperatives?

- A **cooperative** is an **organization/business** owned and operated by a group of individuals who share a **common interest or goal**.
- **One-member, one-vote principle**: Equal participation in decision-making regardless of capital contribution.
- **Purpose:** To meet the **economic, social, or cultural needs** of members rather than to maximize profits for external shareholders.

Cooperatives as India's Economic Backbone

- **Empowerment:** Small farmers, artisans, fishermen, women & labourers gain **collective bargaining power**.
    - *Example:* **Amul** uplifted millions of dairy farmers, many landless or marginal.
- **Strengthening Rural Economy:** Over **65% of India's population** lives in rural areas; cooperatives provide **credit, inputs, marketing & infrastructure**.
    - *Example:* **PACS** are the **first point of credit delivery** in rural India.
- **Promoting Self-Reliance:** Reduces dependence on middlemen & large corporations by pooling local resources for **production, processing & marketing**.

97th Constitutional Amendment Act, 2011

- Made the **right to form cooperative societies a fundamental right** (**Article 19**).

- Added **Directive Principle of State Policy** on promotion of cooperatives (**Article 43B**).
- Added **Part IX-B** to the Constitution: *"The Cooperative Societies"* (**Articles 243-ZH to 243-ZT**).
- Authorized **Parliament** to make laws for **multi-state cooperatives** & **state legislatures** for other cooperatives.

Government Initiatives

- **National Cooperative University:** Foundation laid for **'Tribhuvan Sahkari University (TSU)'** in Anand, Gujarat.
- **Model Cooperative Village (MCV):** Implemented by **NABARD** in selected villages of Gujarat.
- **Ministry of Cooperation:** Established in **2021** to focus on the sector.
- **Empowerment of Scheduled Cooperative Banks:** Treating them **on par with commercial banks**.
- **Sahkar Taxi:** Launched for **profit-sharing with drivers**.
- **Three national-level multi-state cooperative societies**: For **export promotion**, **seed production**, and **branding & marketing of organic products**.
- **White Revolution 2.0:** Focus on **women's participation**.
- **Expansion of PACS:** Into **Jan Aushadhi Kendras**, **fuel distribution**, **LPG delivery**, and **rural infrastructure services**.

Kargil, Pahalgam and a Revamp of the Security Strategy

India's national security doctrine has undergone a significant transformation over the past two decades, marked by the Kargil War (1999) and culminating in the assertive **Operation Sindoor (2025)** post the Pahalgam terror attack. These events highlight a clear evolution in India's military posture from reactive to proactive, and from conventional defence to strategic offensive deterrence.

Kargil War (1999): A Watershed Moment

- **Context:** Conflict erupted due to Pakistani intrusions across the LoC in the Kargil sector, in violation of the Lahore Declaration (Feb 1999).
- **Challenges:**
  - Lack of real-time intelligence and high-altitude warfare preparation.
  - Limited global diplomatic backing and domestic political fragility.
- **Outcome:** India reclaimed all posts by July 26, 1999, at a heavy cost.
- **Key Lessons:**
  - Need for high-altitude combat capability.
  - Jointness among tri-services and intelligence modernization.

Structural Reforms Post-Kargil

- **Institutional Creation & Reform:**
  - **Defence Intelligence Agency (2002)**
  - **National Technical Research Organisation (2004)**
  - Revamped **NSCS** and **JIC**, appointment of **Permanent NSA**
- **Doctrinal Shifts:**
  - **Cold Start Doctrine**: Swift, limited offensives below the nuclear threshold.

- Raising of **Mountain Strike Corps** for northern theatre.
- **Chief of Defence Staff (CDS)** post created (2019); **Integrated Theatre Commands** under implementation.

Modernisation & Indigenisation Drive

- **Procurements:** Rafale, Apache, Chinook, S-400, BrahMos.
- **Domestic Capabilities:** Dhanush, ATAGS, LCA Tejas, Pinaka.
- **Policy Push:** Defence corridors, DRDO empowerment, private participation under **Make in India**.

From Passive Defence to Strategic Retaliation

- **Pre-Kargil Failures:** IC-814 hijack (1999), Parliament attack (2001) – lack of assertive responses.
- **Shift in Posture:**
  - **Uri Surgical Strikes (2016)**
  - **Balakot Airstrikes (2019)** – India crossed LoC for the first time post-1971.

Operation Sindoor (May 2025): A Strategic Leap

- **Trigger:** Pahalgam terror attack (April 22, 2025) killed 26 civilians.
- **India's Response:**
  - Targeted strikes on 9 terror camps, 11 Pakistani air bases.
  - **BrahMos missile** strike neutralized Pakistan's Nur Khan nuclear storage facility.
- **Outcome:** Pakistan sued for ceasefire in under 96 hours.
- **Significance:**
  - Demonstrated advanced surveillance, air superiority, and readiness.
  - Marked India's shift to **pre-emptive, full-spectrum deterrence**.

Kargil vs Pahalgam: The Strategic Transformation

Aspect	Kargil War (1999)	Operation Sindoor (2025)
Nature	Conventional warfare	Counter-terror surgical strikes
Duration	~3 months	4 days
Response Posture	Reactive	Proactive & pre-emptive
Preparedness	Limited logistics, weak gear	Intel-driven, tech-superior response
Global Support	Minimal	Growing international legitimacy
Outcome	Pakistan evicted	Strategic dominance and deterrence

Conclusion

From the rugged heights of Kargil to the swift precision of Operation Sindoor, India's national security architecture has undergone a radical evolution. Enhanced preparedness, institutional reforms, and a doctrine of credible deterrence underscore the strategic maturity India has developed. In the face of hybrid and asymmetric threats, this proactive posture reaffirms India's commitment to safeguarding its sovereignty with both resolve and resilience.

Should India relax its adoption procedures?

Context

A recent **Supreme Court directive to the Central Adoption Resource Authority (CARA)** to streamline adoption processes has reignited the debate: **Should India relax its adoption procedures?**
With **13 prospective parents for every legally adoptable child**, the issue calls for urgent but **carefully considered reform** — not oversimplified solutions.

Core Issue

The root cause of delays is **not bureaucratic red tape alone**, but a **mismatch** between:

- **Parental preferences** (age, health, gender of the child), and
- **Availability of legally free children for adoption**, compounded by **systemic inefficiencies** in identifying and clearing children for adoption.

Key Arguments Against Relaxing Procedures

1. Safeguards Against Trafficking

- Existing legal procedures are essential to **prevent child trafficking** and **illegal adoptions**.
- International experiences show that **high demand without regulation** can lead to scandals and exploitation.

2. Ensuring Parent Readiness and Child Safety

- Adoption should prioritize **the child's best interests**, not just fulfill adult demand.
- **Rushed placements**, particularly of children with special needs, can result in **trauma, family breakdown, or return** of the child.

3. The Real Bottleneck is the Supply Gap

- India has very **few children legally free for adoption**.
- Many children in shelters are **not evaluated or processed** due to administrative delays and lack of trained staff — not because of overregulation.

Structural Bottlenecks in the Adoption Ecosystem

1. Legal vs. Real Definition of "Orphans"

- India has an estimated **3.1 crore orphans**, but most have **living relatives** and are **not legally free for adoption**.
- Legally adoptable children are often those who are **relinquished voluntarily** — usually due to **socio-economic hardship or gender preference**.

2. Poor Evaluation in Shelter Homes

- Most **child care institutions** lack trained personnel or systems to **assess adoptability**.
- **NGO initiatives** (digitizing child data, early case flagging) show potential but need **policy-level backing**.

3. Awareness Gaps Among Prospective Parents

- Many adoptive parents are **unwilling to consider children over 6 years** or with **special needs**.
- Lack of **education and counseling** leads to **narrow preferences** that restrict successful placements.

Recommendations for Reform

1. Expand the Legal Adoption Pool

- Conduct **systematic reviews of shelter homes** to identify eligible children.
- Equip **Child Welfare Committees (CWCs)** with proper training and

digital tools to **evaluate and certify adoptability**.

2. Invest in Parent Education and Counseling

- **Mandatory training and psychological counseling** for prospective parents, following **international adoption standards**.
- Reinstate **group sessions** to evaluate intent, compatibility, and readiness.

3. Improve Matching and Transparency

- Upgrade **real-time digital matching systems**.
- Develop **tiered waitlists**, share data on **older children and special needs cases**, and **counsel parents** accordingly.

4. Strengthen Monitoring and Accountability

- Ensure **rigorous home studies** pre-adoption — not just paperwork compliance.
- Mandate **post-adoption follow-ups**, especially in special needs or older-child cases, to monitor **family adjustment and child welfare**.

Conclusion

India doesn't need **relaxed procedures**, it needs a **stronger, smarter adoption ecosystem**.
The focus must shift from **meeting parental demand** to **protecting child welfare** through ethical, inclusive, and transparent systems.
As the Supreme Court directive signals reform, the guiding principle must remain:

"The right family for the child, not just a child for every family."

"The fault lines in India's electoral architecture are visible"

Context

As the **Election Commission of India (ECI)** begins the **Special Intensive Revision** of electoral rolls in **Bihar (August 2025)**, widespread **allegations of disenfranchisement** — especially among **migrants, minorities, and the poor** — have reignited critical debates about the **structure, inclusiveness, and responsiveness** of India's electoral framework.

Core Argument

India's electoral architecture is based on **outdated, post-colonial assumptions** that fail to account for the **realities of a mobile and economically vulnerable population**. While citizenship grants the right to vote, the current system's **residency-based eligibility rules** create **structural barriers**, leading to **mass disenfranchisement**, particularly among internal migrants.

Key Issues Raised

1. Structural Disenfranchisement via 'Residency'

- The **Representation of the People Act, 1950** assumes a **sedentary citizenry** — where people vote in the constituency where they reside.
- This assumption is outdated in a country where **over 37% of the population are internal migrants**.
- In Bihar, over **1.2 million names** have been **deleted** from voter rolls in 2025, primarily in **high-migration districts** like **Gopalganj** and **Sitamarhi**.
- Migrants who are temporarily absent during verification are marked as **non-residents**, despite being Indian citizens.

2. Confusion Between Citizenship and Residency

- **Citizenship** is a **constitutional right** and identity.
- **Residency**, however, determines **voting eligibility** within a constituency.
- Migrants live in a **legal limbo**: they are citizens but lack the **mechanism to vote where they work or stay**.

3. Institutional Limitations and Minimalism of the ECI

- The ECI follows a **strict, procedure-driven model** — prioritizing roll "cleanliness" over **substantive inclusion**.
- Despite recognizing the issues, the ECI has **not pushed for reforms** or alternative registration mechanisms.
- This **administrative minimalism** reduces the ECI to a passive implementer.

4. Political Complicity

- Political parties often **exploit voter exclusion** as a tool for **narrative-building**, rather than **solving the issue**.
- **Voter education** is abysmal:
  - **60% of voters in Bihar** were unaware of the correction process.
  - Among **migrants**, this figure drops below **25%**.
- There's a lack of **outreach and support** for affected populations during electoral roll revisions.

5. Lessons from International Best Practices

Other democracies show that **inclusiveness and integrity** can go hand-in-hand:

- **United States**: Uses **absentee and mail-in ballots** to allow non-residents to vote in their home constituencies.
- **Philippines**: Enables **overseas absentee voting** for migrant workers.
- **Australia**: Deploys **mobile polling stations** in remote areas, ensuring **90%+ voter turnout**.
  These examples underline the need for **political will and institutional innovation**.

Recommendations

Legal and Policy Reforms

- Amend electoral laws to reflect **circular and seasonal migration patterns**.
- Introduce **absentee voting** or **remote voting** mechanisms for internal migrants.

Administrative Innovation

- **Pilot new models** for voter registration in **high-mobility regions**.
- Simplify **claims-and-objections procedures**.
- Launch **targeted communication campaigns** for migrant-heavy populations.

Empowering the Election Commission

- The ECI must **move beyond technical compliance** and play a **proactive role** in driving reform.
- It should **redefine roll integrity** to emphasize **inclusive accuracy**, not mass deletions.

Conclusion

India's electoral system is facing a **systemic crisis of exclusion**, especially for **migrants and the economically weak**. The **Bihar experience** is not an outlier but a **symptom of a deeper structural fault** in India's electoral design. Upholding the **spirit of universal adult franchise** requires:

- **Flexible residency norms**

- **Innovative voting models**
- **Stronger institutions and civic education**

Without urgent reform, the ideal of **inclusive democracy** risks becoming **procedural tokenism**.

The India-U.K. FTA spells a poor deal for public health

Background

On July 24, 2025, India and the United Kingdom signed the **Comprehensive Economic and Trade Agreement (CETA)**, a Free Trade Agreement (FTA) anticipated to generate substantial economic gains. However, beneath the promises of economic growth lie critical **public health concerns**, particularly regarding the **increased entry and consumption of unhealthy, ultra-processed foods**.

Key Concerns

1. Influx of HFSS Foods

- The FTA permits **tariff-free access** for British food products such as **biscuits, chocolates, and soft drinks**, many of which are **high in fat, sugar, and salt (HFSS)**.
- These products are likely to become more **affordable and aggressively marketed**, increasing consumption and **heightening long-term health risks**, especially among children and adolescents.

2. Lessons from Mexico (Post-NAFTA)

- After NAFTA, Mexico experienced a **surge in imports and consumption of sugary foods** and beverages.
- This led to increased rates of **obesity and non-communicable diseases (NCDs)**, which were only addressed after significant **policy interventions**, including **soda taxes** and **mandatory warning labels**.

Comparative Regulatory Environment

United Kingdom

- Strong public health safeguards:
  - **Ban on HFSS ads before 9 p.m.** (effective October 2025)
  - **Front-of-Pack Nutrition Labelling (FOPNL)** using a **'traffic light' system** for quick consumer understanding

India

- Weak and fragmented system:
  - **No binding regulations** on advertising junk food to children
  - Heavy reliance on **industry self-regulation** which has **proven ineffective**
  - **Celebrity endorsements** often mislead consumers, with little accountability

Star Rating vs. Warning Labels: A Misguided Approach?

- India has proposed a **'star rating' system** for FOPNL.
  - However, research shows it is **less effective** and can be **misleading**, as it tends to **oversimplify health risks**.
- **Warning labels**, such as **Chile's black octagonal signs**, are more effective in **directly alerting consumers** about excessive sugar, fat, or salt content.
  - Despite proposals in 2022 and a **Supreme Court directive in 2025**, warning label implementation remains **stalled**, likely due to **industry lobbying**.

Rising Lifestyle Disease Burden in India

- **Obesity, diabetes, and other diet-related diseases** are on the rise, including among **children**.
- Consumption of **Ultra-Processed Foods (UPF)** and HFSS products has grown at a **13.3% CAGR (2011–2021)**.
- A **June 2025 position paper** by 29 organizations urged **mandatory warning labels** on UPF and HFSS foods to combat this trend.

The Larger Debate: Trade vs. Public Health

- The India-U.K. FTA, and similar deals like the forthcoming **India-European TEPA**, risk becoming **"Trojan horses" for NCDs** if health concerns are ignored.
- The **Commercial Determinants of Health**—corporate practices that harm public health—are increasingly under global scrutiny.

Way Forward:

To protect public health without derailing economic ambitions:

- **Incorporate health safeguards** into final FTA texts.
- Implement strong food policy reforms:
  - **Mandatory warning labels** (FOPNL)
  - **Ban HFSS advertising**, especially to children
  - Introduce **'HFSS Boards' in schools** to spread dietary awareness
  - **Regulate school and college canteens** to eliminate junk food
- Ensure **public health experts are part of trade negotiations**
- Align national policies with the **Economic Survey 2024–25** and the **Dietary Guidelines for Indians (2024)**

Conclusion

While the India-U.K. FTA may open new doors for trade, it must not compromise **public health**. To avoid repeating mistakes seen globally, India must prioritize **strong regulations on food marketing, clear labelling, and consumer awareness**. A health-first approach will ensure that **economic growth does not come at the cost of national well-being**.

"China, India and the Conflict over Buddhism"

Central Argument

While attention focuses on India-China maritime and military rivalry, a deeper, subtler conflict is unfolding in the **Himalayas** — one centered not on territory or trade, but on **spiritual legitimacy and cultural influence**. Buddhism has become a **tool of geopolitical power**, with **monasteries, reincarnations, and religious institutions** at the heart of the contest.

Key Themes and Developments

Buddhism as Statecraft

- **China's Strategy**:
  - Dominates **Tibetan Buddhism** through **state-sanctioned lamas**, religious databases, and surveillance.
  - 2007 law: Only the **Chinese state** can approve "Living Buddhas" (reincarnations).
  - Reframes Buddhism as a **national asset**, using it for

domestic control and external influence.

- **India's Approach**:
  - Historically provided **asylum to the Dalai Lama** (since 1959), giving it **moral stature**.
  - Only recently begun promoting **Buddhist diplomacy** (e.g. **Nalanda circuit**, Lumbini development).
  - Lacks China's **centralized vision**; efforts are **fragmented** and reactive.

Succession Crisis of the Dalai Lama

- The 14th Dalai Lama (now 90) plans to **reincarnate outside Chinese control** (possibly in India).
- China will likely install a **rival Dalai Lama** using the **Golden Urn**
- This will create a **schism**, forcing Himalayan communities to **"pick sides"**:
  - **India-backed Dalai Lama**
    China-backed Dalai Lama.
- Impact: Realignment of **spiritual and political loyalties** in **Ladakh, Arunachal, Sikkim, Nepal, Bhutan**.

Monasteries as Instruments of Influence

- In **Ladakh and Tawang**, Buddhist identity is closely tied to **nationalist sentiment** (pro-India).
- **Monasteries** are not just spiritual — they influence **local politics, education, and identity**.
- A **shift in monastic allegiance** can alter control in a region without a single shot being fired.

Internal Religious Disputes as Geopolitical Levers

- **Karmapa dispute**: Two rival claimants; India and China support different sides.
- **Dorje Shugden sect**: Shunned by Dalai Lama, **embraced by China** to **weaken exile authority**.
- These schisms offer **openings for strategic manipulation** by external actors.

Geopolitical Implications

- **China's Goal**: Convert **Buddhism into an arm of foreign policy** in the Himalayan belt and South Asia.
- **India's Opportunity**: Leverage its **civilizational roots** in Buddhism to:
  - Forge **regional cultural ties**.
  - Deepen **people-to-people diplomacy** with Buddhist-majority countries (e.g., Nepal, Sri Lanka, Mongolia).
  - Strengthen bonds with Himalayan populations (especially where **territorial disputes** persist).
- **The Risk**: If India fails to act, **China's soft power will fill the void**, subtly redrawing **spiritual and cultural influence maps** across Asia.

Critical Analysis for UPSC Aspirants

Strategic Significance

- The contest over **Buddhist leadership and loyalty** will shape:
  - **Borderland identities** in Arunachal, Ladakh, Bhutan.
  - **Religious diplomacy** in South, Southeast, and East Asia.
- Post-Dalai Lama era could see a **global Buddhist schism**, triggering diplomatic ripples.

Soft Power vs Hard Power

- In inaccessible Himalayan terrains, **soft power = hard power**.
- A **monastery's allegiance** could decide which nation controls local mindsets.

Policy Challenges for India

- Need to transition from **symbolic gestures to strategic coordination**.
- Develop a **coherent Buddhist diplomacy policy**, involving:
    - Ministry of External Affairs (MEA)
    - Ministry of Culture
    - Buddhist scholars and institutions (e.g., Nalanda University, Bodh Gaya Temple Management)

SC on Eatery Rules Along Kanwar Yatra Route

Why in News?

- The Supreme Court addressed a plea challenging a requirement for eateries along the **Kanwar Yatra** route to display **QR codes**, **owner names**, and **registration details**.
- Petitioners argued the rule could **alienate certain communities** and affect **freedom of choice and livelihood**.

Key Highlights from the Hearing

Freedom of Consumer Choice

- Justice Sundresh: *"The consumer is the king."*
- The court emphasized the **right of Kanwariyas to choose** where and what to eat.
- Raised concerns over eateries **changing menus** (from non-veg to veg) during yatra for **business gains**.
- Stressed on **transparency** for consumers to make **informed decisions**.

Food Habits and Alienation

- Referred to Karl Marx's quote: *"Religion is the opium of the people."*
- Court observed how **food habits can alienate** groups and must be handled with care and **sensitivity to diversity**.

Petitioners' Arguments

- Senior Advocates A.M. Singhvi & Huzefa Ahmadi:
    - State actions may **ostracize minority-run establishments**.
    - Owner identity has **no link to food served**; disclosure could foster **identity politics**.
    - Choice must not become a tool for **exclusion** or **surveillance**.

States' Justification

- Cited **central laws** requiring food license display for **health and safety**.
- Argued that it's about **public health and transparency**, not discrimination.

Constitutional & Ethical Dimensions

Article 19 – Freedom of Occupation & Trade

- Mandating QR codes and names could be seen as **restrictions on business freedom**, unless justified reasonably.

Article 21 – Right to Privacy

- Naming owners and employees publicly could violate **privacy** without compelling public interest.

Ethics: Balancing Rights

- **Consumer autonomy vs. minority rights**.
- **Transparency vs. discrimination**.
- Ethical governance must avoid **ulterior motives** in regulation.

Current Status

- Court observed that **Tuesday marked the end of the Kanwar Yatra**.
- Hence, chose **not to deliver a judgment**, but stressed the need

for an **equitable approach without hurting sentiments**.

The Threat to India's 'Great Power' Status

Context

- The article warns that a potential **S.-Israel-Iran war** could damage India's long-term ambitions of becoming a **great power**.
- A possible **regime change in Iran** would increase **S. unipolar dominance in West Asia**, undermining India's strategy of promoting a **multipolar world order**.
- The author stresses that **India's foreign policy goals**—strategic autonomy, balanced energy partnerships, and multipolarity—are threatened by increasing Western hegemony in the region.

Key Concerns for India

1. Geopolitical Repercussions of an Iran Conflict

- **Toppling Iran's regime** would lead to an imbalance in West Asia, ending India's ability to play all sides.
- India would lose diplomatic leverage with Israel and Gulf countries if Iran is removed from the regional power matrix.
- Indian **energy security** would be jeopardized, making it fully dependent on U.S.-aligned oil suppliers.

2. Challenge to Multipolarity

- The U.S. aims to preserve its **unipolar world order**, which conflicts with India's pursuit of a **multipolar global structure**.
- India, along with Russia and China, supports a world where **regional poles of power**
- India's foreign policy stance—especially in refusing to isolate Russia—reveals a long-term commitment to this worldview.

Strategic Dilemmas

- Despite **partnership with the U.S.** to counterbalance China, India does **not fully align with Western geopolitical objectives**.
- **Western media and policymakers** increasingly view India with suspicion when it defies the U.S. line (e.g., Russian warship INS Tamal).

Recommended Path Forward

For India:

- Use **diplomatic leverage** to urge U.S. restraint on Iran.
- Emphasize that destabilizing West Asia **weakens India more than China**, which may hurt U.S. Indo-Pacific interests.
- Project **multipolarity as a stable, peaceful alternative** to war or Chinese hegemony.

For the U.S.:

- Accept **multipolarity** as a rising global reality.
- Recognize that **India's rise benefits global balance**, rather than enforcing a unipolar order that invites resistance.

Conclusion

India's ambition to become a great power depends on a **stable and multipolar world order**, especially in regions like **West Asia**. A U.S.-Israel-Iran conflict or regime change in Iran could reduce India's **strategic autonomy**, harm its **energy security**, and weaken its ability to **balance relations** with all regional powers.

India must use **diplomatic tools** to promote peace and stability, and continue advocating **multipolarity** as a more balanced and inclusive global order. The

U.S., in turn, should recognize that supporting India's rise and respecting **regional diversity** will help maintain long-term global stability.

SC Warns ED Against Being Used for Political Battles

Context

The **Supreme Court of India** dismissed appeals filed by the **Enforcement Directorate (ED)** against the **Karnataka High Court** decision which had **quashed money laundering charges** in the **MUDA land allotment case** involving:

- **Parvathi Siddaramaiah** (Wife of Karnataka CM)
- **State Minister Byrathi Suresh**

Legal and Constitutional Dimensions

Legal Principle	Explanation
Article 32 & Judicial Review	Reaffirmed the SC's constitutional role in checking the misuse of legal tools for **political purposes**.
Prevention of Money Laundering Act (PMLA)	Emphasized **strict adherence to evidentiary standards** before initiating action under the PMLA.
Doctrine of Proportionality	Any coercive action by ED must be **proportionate** to the alleged offence.
Principle of Natural Justice	Ensures **fair treatment** and opportunity to be heard before individuals are criminally labelled.

Ethical Dimensions

Ethical Concern	Explanation
Institutional Integrity	Misuse of ED undermines public trust and questions the credibility of institutions.
Justice vs. Vendetta	Targeting individuals without solid evidence is an unethical **abuse of power**.
Non-partisanship	Investigative agencies must act **impartially**, free from political interference.
Judicial Responsibility	The SC reinforced its ethical duty to uphold **checks and balances** in governance.

Temples of Social Justice

Context

A recent controversy has emerged over the use of Tamil Nadu temple funds for building colleges. The issue brings into focus the legal, historical, and ideological framework behind religious endowment regulation in South India and its connection to the region's social justice movements.

Historical Legal Framework on Religious Endowments

Religious Endowment and Escheats Regulation, 1817:
Introduced by the **East India Company**, it laid the foundation for **state supervision over religious institutions** in colonial India.

- **Post-1858 – Queen Victoria's Proclamation**:
  Assured **non-interference in religious rituals** but allowed **regulation of secular aspects** such as temple land and finances.

British Policy in Madras Presidency

- The British followed a **dual policy**:
  - **No interference** in temple rituals.
  - **Active supervision** over temple resources and finances.
- This approach was particularly pronounced in the **Madras Presidency** (modern-day Tamil Nadu).

Justice Party's Legislative Legacy

- In **1922**, the **Justice Party** introduced the **Hindu Religious Endowments Bill**, allowing the **use of temple surplus funds for secular purposes**.
- Though initially opposed, it laid the groundwork for **progressive endowment legislation**.

Tamil Nadu HR&CE Act, 1959

- **Section 36**: Allows **trustees** to use **surplus funds** for specified purposes **with government approval**.
- **Section 66**: Permits use of temple funds for **colleges and universities**, provided they **promote Hindu religion or temple architecture**.

Definition of 'Surplus':

- Refers to **funds remaining after meeting temple maintenance** and religious training needs.
- Can be lawfully redirected with the **Commissioner's sanction**.

Historical Use of Temple Spaces

- During the **Chola and Vijayanagara periods**, temples were **centres of learning, culture, and education**.
- **Inscriptions and mandapams** (pillared halls) serve as evidence of this **multi-functional use** of temples.

Judicial Endorsement

- The **Tamil Nadu HR&CE Act, 1959**, has been **upheld by constitutional courts**.
- Courts have validated **state oversight** and the **use of temple funds** for social development, especially **education**.

Social Justice and Temple Oversight

- Oversight of temple affairs became central to **anti-caste and social reform movements**:
  - The **Self-Respect Movement** catalyzed **temple entry reforms** (1936, 1947).
  - Enabled **appointment of non-Brahmin priests** in Tamil Nadu and Kerala temples.
- Government oversight has **democratized religious institutions**, aligning them with **social justice goals**.

Political and Ideological Implications

- **Critics' View**: Using temple funds for secular purposes **politicizes religion** and diverts sacred resources.
- **Proponents' View**: This aligns with **South India's legacy of social justice** and supports **redistributive welfare** through cultural institutions.

Conclusion

The **use of temple funds** for educational and secular objectives is **legally permissible**, **historically rooted**, and **ideologically consistent** with the region's **social justice model**.

- Any reversal of this framework may **undermine progressive reforms** that have fostered **inclusion, education, and equity** in South Indian society.

Arrest and Judicial Remand of MPs – Constitutional Provisions and Legal Context

Background

MP P.V. Midhun Reddy was sent to judicial remand till August 1 by the Anti-Corruption Bureau (ACB) Special Court in Vijayawada.
Mr. Reddy's anticipatory bail plea (a pre-arrest safeguard under Section 438 of CrPC) was denied by both the High Court and Supreme Court.

Legal Context

- MPs **do not enjoy blanket immunity** from arrest under criminal law, even during Parliament sessions.
- This is clarified by **Article 105** of the Constitution and judgments such as **Anandan Nambiar (1966)**.
- **Judicial remand** is permitted under **Section 167 of the CrPC, 1973**.
- As per **Direction 73A** of the **Lok Sabha Speaker's Directions**, the **Speaker/Chairman** must be notified immediately upon arrest of an MP.

What is Judicial Remand?

Judicial remand refers to the act of a **Magistrate or Court** placing an arrested individual in custody during the **investigation or trial stage**, under **CrPC Section 167**.

Types of Custody:

1. **Police Custody** – Under police control for interrogation (maximum **15 days** at a stretch).
2. **Judicial Custody** – Under Magistrate's control, typically in jail.

- If investigation cannot be completed within **24 hours** (as per **Section 57, CrPC**), the accused must be produced before a Magistrate.
- The Magistrate may then remand the person to:
    - **Police Custody**
    - **Judicial Custody** – Up to **60/90 days**, depending on the severity of the offence.

Are MPs Immune from Arrest or Judicial Remand?

No. MPs are **not immune** from arrest or judicial custody in **criminal cases**. While they do enjoy **limited constitutional privileges**, these do **not amount to immunity from legal accountability**.

Constitutional Privileges of MPs – Articles 105 & 122

1. **Article 105(1): Freedom of Speech in Parliament**
    - MPs are protected from legal action for anything said or voted in Parliament or its committees.
2. **Article 105(2): Immunity from Court Proceedings**
    - MPs are not liable in court for parliamentary speech or official publications of House proceedings.
3. **No Civil Arrest During Session (Convention)**
    - Based on common law, **MPs are protected from civil arrest** 40 days before/after a session.
    - ⚠ However, **this does not apply to criminal cases** — arrest during session is allowed if the MP is accused of a crime.

Procedure if an MP is Arrested

As per **Direction 73A of the Speaker's Directions**:

- If an MP is arrested during a session:
  - **Speaker (Lok Sabha)** or **Chairman (Rajya Sabha)** must be **immediately informed**.
- If the House is not in session, the same rule applies.
- The **court may permit** a detained MP to attend Parliament proceedings.
- Parliament **does not provide legal immunity** from arrest or prosecution.

Relevant Case Laws

1. **K. Anandan Nambiar v. Chief Secretary, Madras (1966):**
   - MPs **can be arrested under preventive detention or criminal law** even when Parliament is in session.
2. **Raja Ram Pal v. Lok Sabha (2007):**
   - Parliamentary privileges **do not place MPs above the law**; legal accountability is fundamental in a constitutional democracy.

Conclusion

The Indian Constitution balances legislative privilege with the rule of law. While Articles 105 and 122 provide necessary protections for the **independence of Parliamentary functioning**, they do **not shield MPs from criminal proceedings**. The arrest and remand of an MP must follow due legal process, and **Parliament cannot serve as a sanctuary from accountability**. This principle reinforces the idea that **no one is above the law**, even those holding high public office.

Indian Fishermen's Arrest: A Reflection of India-Bangladesh Maritime Strain

Recent Incident:

- **Who?** Indian fishermen aboard **two trawlers**.
- **Where?** Detained **near Mongla port**, Bangladesh.
- **India's Response:** High Commission in Dhaka sought **immediate consular access**.
- **Diplomatic Steps:** Ongoing negotiations for **early release** of crew and vessels.

Background: Maritime Boundary Dispute

Timeline:

- **2009**: Bangladesh initiated **maritime boundary arbitration**.
- **2014**: **Permanent Court of Arbitration (PCA)** at The Hague issued a **binding ruling**.

Key Outcome of PCA Verdict:

- **17,000 sq. km of EEZ** awarded to **Bangladesh**.
- **Equidistance principle** largely followed.
- Adjustments made to prevent **"cut-off" disadvantage** to Bangladesh.
- Ensured Bangladesh's **access to high seas** despite geographic constraints.

UN Convention on the Law of the Sea (UNCLOS):

- Maritime boundaries are typically defined using the **equidistance principle**.
- It ensures marine borders follow a line **equidistant from the coasts** of two states.
- Defines key maritime zones:

1. **Territorial Sea** – up to 12 nautical miles
2. **Exclusive Economic Zone (EEZ)** – up to 200 nautical miles
3. **Continental Shelf** – up to 350 nautical miles (if geologically supported)

Challenges Post-Ruling:

- **Absence of Physical Markers**: Despite legal demarcation, **sea lacks visible boundaries**, causing **accidental trespass**.
- **Impact on Fishermen:**
  - Lack of **GPS or navigation tools**
  - High **economic vulnerability**
  - Repeated **detentions from both sides**

The 'Unwritten Understanding':

- **Earlier Norm**: Mutual release of detained fishermen within days.
- **Based On**:
  - Empathy for **economic plight** of traditional fishermen
  - Realisation of **technical limitations** (navigation)
- **Political Concession**: Facilitated **quick humanitarian releases**

New Shift in Bangladesh Approach:

Recent Trends:

- Rise in **strict legal enforcement**
- **Longer detentions** with procedural delays

Interpretation:

- **Breakdown of prior conventions** and soft diplomacy.
- Likely fallout of **political shift** post **August 2024** (Sheikh Hasina's ouster).
- Indicates **cooling of bilateral warmth** in the maritime context.

National Workshop on Jain Manuscriptology

Organised by:

- **Ministry of Minority Affairs**
- Hosted at **Gujarat University**
- Department: *Validation of Indic Knowledge through Advanced Research*
- **Funded under**: Pradhan Mantri Jan Vikas Karyakram (PMJVK)

Objectives:

- Promote **academic research** and **manuscriptology** related to Jainism.
- Conserve and revive **traditional knowledge systems**.
- Recognise the **spiritual and intellectual heritage** of the Jain community.
- Encourage **inclusivity** by uplifting minority cultures.

Key Highlights:

- Participation from **scholars, monks, and academicians**.
- Discussed themes like **heritage conservation**, Jain literature, and **Indic epistemology**.
- **Parallel initiative** at **Mumbai University**: Preservation of **Avesta and Pahlavi**, sacred languages of Parsis.
- Reflects a **pan-Indian and inclusive cultural policy**.

Pradhan Mantri Jan Vikas Karyakram (PMJVK)

Background:

- Earlier known as **Multi-sectoral Development Programme (MsDP)**.
- Renamed and restructured into **PMJVK** by the Union Government.

Aim:

- Development of **socio-economic and basic infrastructure** in minority areas.
- Focus on:
  - Schools, Colleges
  - Girls' Hostels
  - ITIs & Skill Development Centres
  - Healthcare and sanitation
- Targets **6 notified minority communities**:
  Muslims, Christians, Sikhs, Buddhists, Parsis, and Jains

Jainism – Key Facts

Origins:

- Emerged around **6th century BCE**.
- Propounded by **Lord Mahavira**, the 24th **Tirthankara**.

Core Teachings:

- Moksha through non-violence, truth, and asceticism.
- **Tirthankaras**: Enlightened teachers (24 in number)
  - **1st Tirthankara**: Rishabnatha
  - **24th Tirthankara**: Lord Mahavira

Jain Literature

1. **Agam Literature** – Canonical Texts
   - Based on Lord Mahavira's **teachings**.
   - Compiled by his **disciples**.
   - **Divided into:**
     - **Ang-Agamas** (Primary)
     - **Ang-Bahya Agamas** (Secondary)

2. **Non-Agam Literature**
   - Includes **commentaries** and **independent works**.
   - Written by **monks, nuns, and scholars**.

Languages Used:

- **Prakrit**, **Sanskrit**, **Gujarati**, **Hindi**, **Tamil**, **Kannada**, **Old Marathi**
- Also translated into **German** and **English**

Prime Minister Dhan-Dhaanya Krishi Yojana (PMDDKY)

Context

The Union Cabinet has approved the **Prime Minister Dhan-Dhaanya Krishi Yojana (PMDDKY)**, a flagship agriculture reform scheme, to be **launched in October 2025** (Rabi season). The scheme aims to **boost agricultural productivity** through convergence of multiple schemes.

About PMDDKY

Objective:

An umbrella framework to **converge 36 existing Central schemes** under 11 ministries to improve farm productivity, credit, and livelihoods.

Key Features:

Feature	Details
Launch	October 2025 (Rabi Season)
Duration	6 years
Annual Outlay	₹24,000 crore
Coverage	100 low-productivity districts

Feature	Details
Model	Based on **Aspirational District Programme**

Schemes Included:

- **PM-KISAN**
- **PM Fasal Bima Yojana (PMFBY)**
- Other state schemes identified by **District Dhan Dhaanya Samitis**

Implementation Structure

- **District Dhan Dhaanya Samitis** will coordinate convergence at the local level.
- **PPP (Public-Private Partnerships)** to be promoted in the agriculture value chain.
- **117 key indicators** to be **monitored monthly** by the Centre.
- **District Plans** to align with national goals (e.g., water use, diversification).

Intended Outcomes

1. **Enhance agricultural productivity**
2. **Promote crop diversification and value addition**
3. **Boost rural livelihoods**
4. **Achieve food self-sufficiency** in:
    - Foodgrains
    - Edible oils
    - Pulses
5. **Improve credit disbursement** in underperforming districts
6. Encourage **soil and water conservation** techniques

Concerns Highlighted by the Parliamentary Standing Committee

- **Decline in agriculture's share** in the **Central Plan Outlay**:
    - From **3.53% in 2021–22** to **2.51% in 2025–26**
- **Issues Raised**:
    - Diminishing public investment in agriculture
    - Execution challenges in convergence
    - Need for local adaptability and flexibility

Need for Participation and Inclusivity

- **Key Stakeholders to Involve**:
    - State governments
    - Local Self-Governments (Panchayats)
    - **PACS (Primary Agricultural Credit Societies)**
    - **Agri-universities**
    - Farmers' and Traders' organizations
- Emphasis on a **bottom-up approach** for effective district-level implementation and ownership.

Conclusion

PMDDKY is a **promising initiative** to coordinate fragmented agricultural efforts under one umbrella. However, its success hinges on:

- **Participatory governance**
- **Sustained public investment**
- **Capacity-building** of local institutions

RCB Stampede Tragedy Report Blames Organisers and Police

- **Incident**: On June 4, 2025, a **stampede at M. Chinnaswamy Stadium**, Bengaluru, during RCB's IPL victory celebration, killed **11 people** and injured **71**.
- **Judicial Probe**: Justice Michael D'Cunha's commission held **Royal**

Challengers Sports Pvt. Ltd. (RCSPL), **DNA Entertainment**, **Karnataka State Cricket Association (KSCA)**, and **Bengaluru Police**

Key Failures:

- **No police permission** was obtained.
- Police **enabled an unauthorized event** and worked in **collusion with organisers**.
- Organisers triggered the crowd crush by **failing to regulate entry** and making **reckless announcements**.

- **Action Recommended**: Legal action against private entities and **FIRs against five suspended police officers**.

Understanding Stampedes in India

Causes of Stampedes:

1. **Poor crowd management**
2. **Lack of clear entry/exit routes**
3. **Reckless public announcements**
4. **Unauthorized or overcrowded events**
5. **Police failure or absence of trained personnel**
6. **Structural bottlenecks or narrow passageways**
7. **Sudden panic due to rumours or minor incidents**

Recent Major Stampede Incidents in India:

Date	Location	Event	Cause
July 2, 2024	Hathras, Uttar Pradesh	Religious Satsang by Bhole Baba	Massive overcrowding; inadequate exits and crowd control
Jan 29, 2025	Prayagraj, Uttar Pradesh	Maha Kumbh Mela – Mauni Amavasya	Barrier collapse, poor crowd regulation
Feb 15, 2025	New Delhi Railway Station	Train boarding rush	Overcrowding on footbridge; load fall triggered panic
Jan 8, 2025	Tirumala Temple, Andhra Pradesh	Vaikunta Dwara Darshanam	Ticketing rush; poor queue control
May 3, 2025	Lairai Devi Jatra, Goa	Religious festival	Crowd surge on steep slope
June 4, 2025	Bengaluru	RCB IPL Victory Celebration	Mass gathering; inadequate crowd control
June 29, 2025	Puri, Odisha	Rath Yatra	Congestion during chariot procession
July 27, 2025	Haridwar, Uttarakhand	Mansa Devi Temple visit	Rumoured electric shock, stampede followed
August 2025	Kubereshwar Dham, Madhya Pradesh	Sawan Rituals	Rush during Rudraksha distribution

Key Issues Behind Repeated Stampedes:

1. Weak enforcement of safety norms
2. Lack of coordination between organisers and authorities

3. Inadequate emergency response infrastructure
4. No crowd flow modelling or simulation
5. Event held without real-time surveillance (e.g. CCTV, drones)

How to Prevent Stampedes:

1. **Legal and Regulatory Framework:**
   - Make **event safety certification mandatory** for gatherings >1,000 people.
   - Implement **criminal liability** for organisers of unauthorized or mismanaged events.
2. **Scientific Crowd Management:**
   - Use **crowd simulation software** before event clearance.
   - Plan entry/exit gates using **flow dynamics**.
3. **Technology & Surveillance:**
   - **Drone monitoring**, **live crowd density maps**, AI-based alerts.
   - Deploy **PA systems** with real-time communication capacity.
4. **Police Training and SOPs:**
   - Regular training on **non-lethal crowd control** and evacuation drills.
   - Set up **Quick Reaction Teams (QRTs)** for high-density zones.
5. **Public Awareness:**
   - Educate crowds on **safe behaviour**, exits, and emergency response.

Conclusion:

The RCB stampede highlights the **perils of unregulated mass events**, lack of accountability, and institutional complacency. With India's frequent religious, political, and entertainment gatherings, **institutionalizing crowd safety** through legal, technological, and administrative reforms is essential to prevent future tragedies

A better terror fight with J&K police under state reins

Local Police: The Cornerstone of Counter-Terror Strategy

- **J&K Lieutenant Governor Manoj Sinha** emphasised **eradicating terrorism** as a top priority (June 16, 2025).
- Called upon **Jammu and Kashmir Police (JAKP)** to adopt a **multi-pronged strategy** involving:
  - **Modern technology**
  - **Intelligence**
  - **Community engagement**
  - **Inter-agency collaboration**

Key Point: Central forces can **supplement** but **not replace** local police forces, whose **regional knowledge** and **local connections** are indispensable.

Human Intelligence (HUMINT): A Missing Link

- The **April 2025 Pahalgam attack** revealed **gaps in HUMINT**, which could have potentially **prevented** the attack.
- **Local police** are best placed to generate actionable HUMINT due to their **intimate connect with the community**.

Insight: Without strong intelligence networks rooted in the community, **proactive counter-terrorism** is nearly impossible.

Empowering Elected Governance in Security

- JAKP should function under a **democratically elected government** to ensure **local accountability and trust**.

- **Elected representatives (MLAs, sarpanches)** are more likely to receive **community inputs on suspicious activities** than external agencies.

Argument: **Restoring democratic structures** (from Panchayats to Parliament) will enable a **more inclusive and effective counter-terrorism strategy**.

Democracy and Security: Two Sides of the Same Coin

- J&K has shown **strong local election participation**, yet local bodies remain **disempowered**.
- **Participatory governance** will prevent **public disengagement** and **political apathy**, which can worsen security challenges.

Policy Suggestion: Encourage a **structured dialogue** between **local leaders and police** to:

- Enhance **public safety**
- Improve **policing strategies**
- Build **community trust**

One Size Doesn't Fit All: Contextual Counter-Terrorism

- Terrorism in J&K has **localised variants**, combining **local and foreign cadres**.
- Countermeasures must be **region-specific**, driven by **local governance** and **community-police synergy**.

Example: **Thana-level JAKP units**, when embedded with **local governance**, have historically delivered **positive security outcomes**.

Restoring State Reins: For Accountable & Responsive Policing

- Keeping **elected representatives out** of the security loop leads to a **disconnect** between the police and the public.
- **Restoring control of JAKP** to a locally elected government ensures:
    - **Public trust**
    - **Effective policing**
    - **Democratic legitimacy**

Conclusion:

Counter-terrorism is not just a **security project**, but a **governance challenge**. Without **democratic involvement**, community engagement and lasting peace will remain elusive.

Russian oil: India calls out double standards

Context:

- The U.S. Congress is considering the *Russian Sanctions Act, 2025*, proposing steep duties on nations importing Russian oil, including India.
- NATO chief Mark Rutte echoed threats, urging countries like India, China, and Brazil to pressure Russia or face consequences.

Key Issues:

1. **Proposed Sanctions by U.S.:**
    - **500% ad valorem duty** on importers of Russian-origin oil, gas, uranium, and petrochemicals.
    - Affects nations like **India, China, Brazil** — major importers of Russian energy.
    - Supported by 87 House and 84 Senate co-sponsors (bipartisan backing).
    - Gives U.S. President power to **waive** these duties for six months.
2. **India's Stand:**
    - **"Double standards"**: MEA warns against selective moralizing,

referencing U.S. and European energy security priorities.

- Emphasizes **energy security** as a sovereign concern — India now imports oil from **40 countries** (vs. 27 earlier).
- External Affairs Minister Jaishankar conveyed **India's concerns** directly to U.S. lawmakers.
- India remains cautious but resilient — Petroleum Minister Puri said India will "deal" with sanctions when passed.

Geopolitical Dynamics:

- **Russia's oil exports**:
  - 50% to China
  - 38% to India
  - Only 6% to EU
- India **stopped importing from Iran** under earlier U.S. pressure (Trump 1.0), showing past compliance.
- NATO's attempt to **internationalize pressure** on neutral countries may erode **Global South's trust** in Western multilateralism.

Other India-U.S. Developments:

- Ongoing **trade talks**: tariffs, agriculture, GM produce.
- India **coordinating** with U.S. on deportation of undocumented Indians:
  - 1,563 deported in 2025 so far (vs. 1,529 in all of 2024).
  - After protests over **inhumane deportation methods**, U.S. shifted to **commercial flights** for deportations.

Analytical Insights:

Double Standards in Global Sanctions:

- The West, while purchasing Russian gas covertly or via intermediaries, expects Global South nations to **sacrifice energy security**.
- Sanctions appear to reflect **strategic selectivity** more than universal moral principles.

Strategic Autonomy:

- India asserts its **strategic autonomy** in foreign policy — energy access is non-negotiable.
- Moves to diversify suppliers showcase **resilience and adaptability**.

Pressure on Global South:

- India, Brazil, and China being targeted despite not being NATO allies raises concerns about **equity in global governance**.

Conclusion:

India's firm but diplomatic stance reflects its **mature foreign policy** — balancing **energy needs, geopolitical realities, and global partnerships**. As the world fragments into power blocs, India's advocacy for **multipolarity and national interest** will be tested further.

PM Dhan-Dhaanya Krishi Yojana (PMDDKY): A Comprehensive Agricultural Reform

Context

The **Union Cabinet** has approved the **Prime Minister Dhan-Dhaanya Krishi Yojana (PMDDKY)**, as announced in the **2025–26 Union Budget**, to enhance **agricultural productivity** and promote **sustainable practices**. This marks a significant shift toward integrated farm sector planning.

Key Features

- **Convergence of Schemes**:
  - Merges **36 schemes** across **11 Ministries/Departments**.

- Annual outlay: **₹24,000 crore** for **6 years** (starting 2025–26).
- Expected to benefit **7 crore farmers**.

- **Objectives**:
  - Boost productivity and **sustainable farming**.
  - Enhance **irrigation**, **post-harvest infrastructure**, and **credit access**.
  - Promote **crop diversification**, **organic/natural farming**, and **resource conservation**.
- **Planning and Implementation**:
  - **Committees** at **district, State, and national levels**.
  - Each district will prepare a **District Agriculture and Allied Activities Plan**.
  - Inclusion of **progressive farmers** in planning bodies.

Target Districts

- **100 districts** to be selected initially, using indicators:
  - **Low productivity**, **low cropping intensity**, **low credit disbursement**.
- At least **one district from every State/UT**.
- Allocation based on **Net Cropped Area** and **operational holdings**.
- Modelled on the **Aspirational Districts Programme**.

Expected Outcomes

- Higher **agricultural and allied sector productivity**.
- Improved **local livelihoods** and **value addition**.
- Strengthened **soil and water resource management**.
- Enhanced **self-reliance** and reduced credit dependency.

Expert Views

- **Positive**: Holistic, resilience-oriented approach.
- **Concerns**:
  - District selection should factor **net agri income per hectare**.
  - Low credit disbursement may not be a valid performance metric.
  - Emphasis should shift to **reducing credit dependence** through **income diversification**.

Significance

The PMDDKY is a **first-of-its-kind** national farm initiative focused exclusively on agriculture and allied sectors, aiming to **transform underperforming districts** into **agro-economic hubs**, aligning with **Atmanirbhar Bharat** goals.

Contesting the Future of Forest Governance

Context

- Recently, the **Chhattisgarh Forest Department** designated itself as the **nodal agency** for implementing **Community Forest Resource Rights (CFRR)** under the **Forest Rights Act (FRA), 2006**.
- This move violated the **autonomy of gram sabhas**, which are the rightful authorities under the Act.
- It also mandated adherence to a model plan and prohibited support from other institutions — **undermining decentralised forest governance**.

About CFR and FRA, 2006

- **Community Forest Resource Rights (CFRR)** under **Section 3(1)(i)** of FRA empower **gram sabhas** to:

    - **Protect, regenerate, conserve and manage** customary forest lands.
    - Prepare **CFR management plans** based on **local needs and ecological wisdom**.
- The law seeks to **correct colonial forest injustices**, where the state took control of community forests, displacing traditional forest management systems.

Legal and Institutional Violations

- The forest department's move:
    - Contradicts the FRA, which designates **gram sabhas as the authority**.
    - Imposes external templates (e.g. model plans), violating **community autonomy**.
    - Prevents collaboration with NGOs or experts, weakening grassroots capacity.

Forest Management: Contrasting Visions

Working Plans (Forest Department)

- Origin: **Colonial "scientific forestry"**, focused on **timber maximisation**.
- Still central to forest governance despite:
    - Promotion of **monoculture plantations**.
    - **Neglect of local livelihoods and biodiversity**.
    - Little **external scientific review**.
- Reforms exist (e.g., focus on restoration), but **bureaucratic control remains intact**.

CFR Management Plans (Gram Sabhas)

- Designed to **prioritise local livelihoods, ecology, and adaptive responses**.
- Recognises **local ecological knowledge** and **non-timber values**.
- **Integrated** with working plans **only by the gram sabhas**, not overridden by them.
- But adoption is limited: of 10,000 CFRR titles, fewer than 1,000 communities have prepared plans — due to **lack of support and sabotage by forest departments**.

Challenges to Implementation

- **State resistance**: Attempts to revoke CFR titles, deny funds, reject plans.
- **MoTA's inconsistency**: Issued people-friendly guidelines in 2015, later diluted by aligning CFR plans with the **National Working Plan Code (NWPC)**.
- NWPC is:
    - Complex, **data-intensive**, and rooted in **timber-oriented goals**.
    - Ill-suited for **diverse livelihood needs and local knowledge**.

Reclaiming Governance: What Needs to Be Done

- **Reject NWPC-based conformity** for CFR plans.
- Strengthen **Dharti Aaba Janjatiya Gram Utkarsh Abhiyan** as a flexible planning tool.
- Enable **iterative, locally-driven planning**
- Forest departments should:
    - Provide **logistical and financial support**.
    - Shift from **timber-centric science** to **people- and ecosystem-centric management**.

Key Principle:

"CFRR demands shedding historical baggage and embracing new possibilities." — Emphasis on **adaptive, democratic, and ecologically grounded governance**

Issue with Criminalising all Adolescent Relationships

Background: The Case

- A 14-year-old girl from rural West Bengal eloped with a 25-year-old man, later married him, and had a child at 17.
- Despite her continued support for the man, he was arrested and convicted under **Section 6 of the POCSO Act** (aggravated penetrative sexual assault), receiving **20 years' imprisonment**.
- The case reached the **Supreme Court** in *Re: Right to Privacy of Adolescents (2025)*.

Court's Journey

- **Calcutta High Court (2022):** Reversed the conviction considering:
  - The couple's socio-economic background.
  - Her continued relationship and hardship.
  - However, it made **regressive remarks** about female sexuality.
- **Supreme Court (2023–25):**
  - Took **suo motu cognisance** amid media backlash.
  - Restored conviction, rejecting "non-exploitative" adolescent relationships.
  - Later, after emotional input from the woman (now an adult), chose **not to sentence** the man under **Article 142**, noting the **harm sentencing would cause to the woman**.
  - Called it an **"extraordinary case"**, not to be treated as precedent.

Key Legal and Social Issues

1. Blanket Criminalisation under POCSO

- Age of consent is 18 (raised from 16 in 2012).
- The law assumes **all sexual acts under 18 are exploitative**, leaving **no room for adolescent agency**.
- Adolescent relationships between peers or with small age gaps are **common**.
  - *Enfold study*: 24.3% of romantic POCSO cases; 82% of victims refused to testify against accused.

2. Consent and Flawed Agency

- In contexts of poverty, lack of opportunity, and child marriage norms, adolescent decisions may reflect **limited agency**, not informed consent.
- Yet, criminalising such choices leads to **greater harm**, especially for girls.

3. Systemic Failures

- The girl suffered **family abandonment, social stigma, legal trauma**, and lack of state support.
- Institutionalisation under **Juvenile Justice Act** often leads to further **humiliation and rights violations**.
- The Supreme Court called this case a **"complete failure of society and the legal system."**

4. Judicial Dissonance

- Courts acknowledge the need for nuance, but judgments remain **inconsistent**.
  - *Bombay HC (2025)* refused to quash a consensual

adolescent case, awaiting law reform.

- There is **reluctance to set systemic reform in motion via jurisprudence alone.**

What Should Be Done?

Legal Reform Proposals:

- Recognise **consensual, non-exploitative relationships** between **older adolescents (16+)** as a **distinct category**, like many other countries and **UNCRC General Comment 20**.
- Define invalid consent in terms of **coercion, authority imbalance**, or **lack of informed choice**, not merely age.

Policy Recommendations:

- **Comprehensive sexuality education**
- **Life-skills training and counselling**
- **Emergency support and grievance redressal mechanisms**
- Better data on adolescent relationships and judicial outcomes

The Importance of India and Europe Walking in Step

India–Europe Relations: A Strategic Imperative in a Fragmented World

Why in News?

- Amid global disorder and shifting alliances, India and Europe are emerging as **natural partners**—aspirational middle powers with **shared democratic values**, **strategic autonomy**, and a stake in a **multipolar world order**.

The Global Context: A World in Flux

- Traditional transatlantic unity is **weakened**, particularly due to former U.S. President Trump's **transactional worldview** and disdain for multilateralism.
- Europe is moving towards **strategic autonomy**, marked by:
  - Macron's nuclear assertions
  - Germany's defence investment post-Ukraine war
  - Post-Brexit U.K. recalibrating alliances
  - Canada diversifying beyond U.S. ties
- **India's foreign policy** has evolved from non-alignment to **"multi-alignment"**, navigating between U.S.-China rivalries.

Converging Interests: India and Europe as Middle Powers

- Both support a **rules-based international order**, inclusive multilateralism, and **Global South empowerment**.
- India-EU engagement takes shape on:
  - **Institutional level**: Climate change, trade, security, technology.
  - **Bilateral level**: Deepening ties with France, Germany, Italy, Nordic & Eastern EU members.

Economic and Technological Synergies

- **FDI from the EU to India** rose by **70% (2015–2022)**; France alone saw a **373% rise**.
- EU imports from India **doubled** in 3 years.
- The **India-EU Trade & Investment Agreements** need to be **fast-tracked** with an "early harvest" approach.
  - Must align climate goals with **climate equity**, not **climate protectionism**.

- **India-Middle East-Europe Economic Corridor (IMEC)** as a modern Silk Route — for trade, innovation, and connectivity.

- In **technology**, both sides share a vision:
  - **Europe**: Deep tech, digital manufacturing, semiconductors.
  - **India**: Scalable digital platforms, public goods, innovation.

Human Capital and Mobility

- A **mobility agreement** for students, researchers, and professionals is vital.
- Promotes **talent exchange**, combats unemployment, and boosts bilateral innovation.

Defence and Strategic Cooperation

- Europe is a key defence partner; potential in:
  - **Co-development**, tech transfer (Atmanirbhar Bharat, ReArm 2025).
  - **Cybersecurity, maritime security, space collaboration, counter-terrorism**.
  - Political will needed on issues like **Pakistan's extremism**

Shared Global Vision

- India and Europe champion:
  - **Multilateralism**, reform of UN and WTO.
  - Balanced participation in forums like **Quad**, **AI governance**, and **G20**.
- Middle powers like India and Europe can **stabilise global governance** against coercive great powers.

Changing Perceptions, Not Just Policies

- Strategic intent must be supported by:
  - Public awareness, media narratives, and diplomatic empathy.
  - Events like **Raisina Dialogue Marseille (2025)** and **Ursula von der Leyen's visit to India** are steps forward.

Conclusion

- India and Europe must transition from **tentative engagement** to **strategic alignment**.
- Their partnership is one of **conviction, not convenience** — rooted in shared values and mutual geopolitical compulsions.
- Walking in step, they can offer a **vision for a more stable, inclusive, and equitable global order**.

A Triangular Dynamic in South Asia's Power Politics

Context:

The article explores the evolving triangular relationship between the United States, India, and Pakistan, against the backdrop of South Asia's volatile geopolitical landscape, shaped by terrorism, strategic compulsions, and great power competition.

1. The Triangular Power Structure: USA–India–Pakistan

Historical Legacy:

- During the Cold War, the U.S. aligned more with Pakistan, using it as a strategic base during its containment policy against the Soviet Union.
- Post-1990s, the India-U.S. strategic convergence deepened, especially in counterterrorism and balancing China.
- Pakistan, meanwhile, became synonymous with double-dealing, cooperating with the U.S. while harbouring terror groups.

Recent Shift:

- The Trump administration's overtures to Pakistan's military leadership, including direct engagement with Field Marshal Asim Munir, signal a return to transactional diplomacy.
- The reopening of security assistance and F-16 support for Pakistan undermines India's expectations of strategic consistency from the U.S.

2. India's Strategic Calculations and Policy Shifts

Doctrinal Departure – Operation Sindoor:

- After the Pahalgam terror attack, India launched a decisive military and diplomatic response.
- Modi's reference to a "new normal" represents a shift from strategic restraint to proactive deterrence.

Key Objectives:

- Global isolation of Pakistan, targeting its terror ecosystem.
- Rejecting third-party mediation, especially on Kashmir.
- Reinforcing India's status as a sovereign power unwilling to be "hyphenated" with Pakistan.

3. Pakistan's Calculated Diplomatic Maneuvers

Dual-Track Strategy:

- Combines military posturing with diplomatic engagement with the U.S..
- Promotion of Asim Munir to Field Marshal reflects the dominance of the "hard state" doctrine.

Strategic Goals:

- Rehabilitation of its global image.
- Leverage its geostrategic location near Afghanistan, Iran, and China.
- Maintain relevance in U.S. calculations via intelligence sharing, rare-earth cooperation, and trade deals.

4. The U.S.'s Role: Realism over Ideals

Key Features of American Engagement:

- From principled partnerships to transactional pragmatism.
- Willingness to re-engage Pakistan for short-term geopolitical utility (Afghanistan, Iran, rare-earths).
- Ambivalence on India's concerns regarding terror sponsorship and strategic trust.

Implications for India:

- Erosion of trust in the Indo-U.S. strategic partnership.
- Undermines bipartisan support in the U.S. for India's long-term strategic rise.
- Raises concerns over the future of the Quad and Indo-Pacific priorities.

5. Strategic Dilemma and Tightrope Diplomacy

Competing Interests:

- India sees itself as a global power, rejecting linkage with Pakistan.
- Pakistan wants U.S. engagement to counterbalance India and revive Kashmir's global attention.
- The U.S. walks a tightrope between:
    - Realpolitik (engaging Pakistan),
    - Idealism (democracy, counterterrorism),
    - Strategic vision (Indo-Pacific with India).

Conclusion:

The triangular dynamic of India–U.S.–Pakistan is shaped by:

- Historical baggage,
- Tactical needs,

- Geopolitical repositioning, and
- Personality-driven diplomacy.

For India, maintaining strategic autonomy, deepening multilateral engagements (Quad, BRICS, SCO), and resisting hyphenation with Pakistan are key to navigating this evolving matrix.

BRICS will help create a 'multipolar' world: Modi

Context

- PM Modi's 2025 diplomatic tour includes a visit to **Trinidad and Tobago**.
- The visit coincides with the **180th anniversary** of the **arrival of Indian indentured labourers** in Trinidad (1845–2025).
- Emphasizes India's historical **diaspora linkages** and the legacy of colonial-era migration.
- Symbolic for India's **soft power projection** and **multipolar diplomacy** through platforms like **BRICS**.

Background: Abolition of Slavery and Rise of Indentured Labour

1. **Abolition of Slavery (1833)**
   - The **Slavery Abolition Act, 1833** passed by British Parliament.
   - Created a severe labour shortage in colonies dependent on enslaved Africans (e.g., Caribbean, Mauritius, Fiji).
   - To replace slave labour, the British developed a new form of contract labour – the **Indenture System**.

The Indentured Labour System

Definition

Indentured labour was a system of bonded labour migration under a **contract (girmit)**, usually for **5 years**, with limited rights and harsh working conditions.

Period

1834 – 1920

- Nearly **2 million Indians** were transported across the British Empire.

Key Destinations

- **Mauritius (1834)** – First site of Indian indenture
- **Trinidad (1845)**
- **Guyana, Fiji, South Africa, Suriname**
- **Caribbean islands, East Africa, Southeast Asia**

Reasons Why Indians Were Sent

1. **Labour Demand in Colonies**
   - Needed for sugarcane, tea, coffee, rubber plantations.
2. **Surplus Labour in India**
   - Widespread poverty in **Bihar**, **Eastern U.P.**, **Tamil Nadu**.
   - British saw Indians as "compliant, low-cost workers."
3. **Use of Recruiters ("Arkatis")**
   - Often deceived workers with false promises of land, pay, and freedom.
   - Many signed contracts unknowingly or under duress.
4. **Legal Mechanism: Indian Emigration Act, 1859**
   - Provided the colonial framework for controlled recruitment.
   - Contracts made workers **bound to plantations**, with **restrictions on movement** and **punitive penalties**.

Criticism: "New System of Slavery"

- Though legal, the **indenture system often resembled slavery** in its exploitative structure.

- Harsh working conditions, racial discrimination, poor housing, and limited access to justice.
- Activists like **Mahatma Gandhi** and **Gopal Krishna Gokhale** later campaigned against it.

Abolition of the Indentured System

- Global condemnation and pressure from Indian nationalists led to the **abolition of indenture in 1920**.

Legacy and Diaspora

Cultural Continuity

- Indian-origin communities in Caribbean and Pacific still celebrate **Indian festivals**, preserve **Bhojpuri and Tamil dialects**, cuisine, and traditions.

Political Impact

- Many descendants have risen to top positions (e.g., **Kamla Persad-Bissessar**, former PM of Trinidad and Tobago).

India's Soft Power

- PM Modi's 2025 visit reinforces historical bonds and is part of India's global diaspora outreach.
- Useful for India's diplomatic posture in a **multipolar world**, aligned with **BRICS expansion**.

Custodial deaths

Context

- **Madurai Bench of Madras High Court** condemned the custodial death of **Ajith Kumar**, a security guard in **Sivaganga district, Tamil Nadu**.
- Despite arrests of 5 police constables, **India continues to see a pattern of zero police convictions** in custodial death cases.
- Highlights deep-rooted **impunity**, **caste-based vulnerability**, and **failure of accountability mechanisms** in law enforcement.

Data on Custodial Deaths (2016–2022)

Parameter	Figures/Insights
Total Custodial Deaths	11,656 (National)
Highest State	**Uttar Pradesh**: 2,630 deaths
Southern Region Leader	**Tamil Nadu**
Police Arrested (2017–22)	123
Chargesheets Filed	79
Convictions	0 (Zero across India)
Human Rights Violation Cases	74 filed; 41 chargesheeted; **3 convicted**
Disproportionate Impact	**SCs form 38.5% of detenues** in Tamil Nadu (2022); population share: 20%

Constitutional Provisions

Article 21

- *Right to Life and Personal Liberty*: Includes protection from torture and custodial violence.
- Enforced through **landmark judgments** like *Maneka Gandhi v. Union of India*.

Article 20

- Protects accused persons:
  - **Article 20(1)**: No ex-post-facto law
  - **Article 20(2)**: No double jeopardy
  - **Article 20(3)**: No self-incrimination

***Selvi v. State of Karnataka* (2010):**
Narcoanalysis, polygraph & brain mapping without consent violate Article 20(3) & 21.

Legal Framework

🔷 **Indian Evidence Act, 1872**

- **Section 24**: Confession due to coercion/threat is inadmissible.

🔷 **Indian Penal Code (IPC)**

- **Section 330**: Punishment for voluntarily causing hurt to extort confession
- **Section 331**: Punishment for voluntarily causing grievous hurt for the same purpose

🔷 **Criminal Procedure Code (CrPC), 1973**

- **Section 41 (Amended 2009)**:
  - Arrest must be based on reasonable grounds
  - Arrest memo and grounds of arrest must be documented
  - Family must be informed of the arrest

Systemic Issues in Custodial Deaths

1. **Impunity and Weak Prosecution**
   - Arrests are rare, and even when they occur, **conviction is nearly absent**.
   - Internal police investigations lack independence.
2. **Lack of Independent Oversight**
   - Police Complaints Authorities (PCAs) mandated by **SC in *Prakash Singh case*** not implemented properly.
3. **Caste Bias and Structural Violence**
   - Disproportionate number of SCs, STs and minorities face **brutality in custody**.
   - Reflects social hierarchy and lack of legal empowerment.

Important Judgments

Case	Key Ruling
DK Basu v. State of West Bengal (1997)	Laid down detailed **guidelines to prevent custodial torture**.
Nilabati Behera v. State of Orissa (1993)	Compensation to victims of custodial violence is a **constitutional remedy** under Article 32.
Joginder Kumar v. State of UP (1994)	Arrest should not be routine; rights of arrestee must be protected.

Way Forward / Reform Measures

1. **Independent Investigation Mechanism**
   - Make **National Human Rights Commission (NHRC)** and **State Human Rights Commissions (SHRCs)** stronger and mandatory for all custodial death inquiries.
2. **Police Reforms**
   - Implement **Prakash Singh Guidelines** on police accountability and separation of law and order from investigation.
3. **Fast-Track Courts**
   - For police abuse cases with judicial oversight.
4. **Surveillance & Technology**
   - **Mandatory CCTV installation** in all police stations and lock-ups as directed by the SC.
5. **Strengthen Legal Aid and SC/ST Protection**
   - Legal awareness and representation for vulnerable sections, especially **SC/ST under POA Act**.
6. **Compulsory Judicial Inquiry**

- For every custodial death, under Section 176 CrPC.

Removal of High Court Judges

Context

- The Central Government is preparing to initiate **removal proceedings** against **Justice Yashwant Varma** (now in the **Allahabad High Court**), following findings from a Supreme Court-appointed in-house inquiry related to a suspicious fire and **large quantities of burnt currency notes** found at his Delhi residence.
- Based on the **CJI-led panel's recommendation**, Parliament will now consider a motion for his removal.

Constitutional & Legal Framework for Judge Removal

Relevant Constitutional Articles

Article	Provision
Article 124(4)	Deals with **removal of Supreme Court judges**, but extended to High Court judges via Article 217
Article 217(1)(b)	High Court judge can be removed as per the procedure under **Article 124(4)**

Grounds for Removal (Article 124(4))

- **"Proved misbehaviour or incapacity"**

Statutory Procedure: Judges (Inquiry) Act, 1968 & Rules, 1969

Steps in the Removal Process

1. **Initiation of Motion**
    - Needs **100 MPs in Lok Sabha** or **50 MPs in Rajya Sabha** to submit a motion.
2. **Speaker/Chairperson's Role**
    - Admits the motion and constitutes a **three-member inquiry committee**.
3. **Inquiry Committee Composition (Section 3 of the Act):**
    - (a) **Chief Justice of India** or a **SC judge**
    - (b) **Chief Justice of a High Court**
    - (c) A **distinguished jurist**
4. **Inquiry Timeline**
    - Submit report **within 3 months** (can be extended).
5. **Post-Inquiry Steps**
    - If **guilt is proven**, the motion is taken up for debate and voting in both Houses.
6. **Final Voting Requirement**
    - Passed by a **special majority**:
        - A majority of total membership of the House, **and**
        - Two-thirds of members present and voting
7. **Presidential Assent**
    - Once passed in both Houses, the President issues **removal order**.

Justice Yashwant Varma Case – Key Developments

- **Incident**: Fire at his official residence in Delhi (March 2025); burnt sacks with cash recovered.
- **In-house Inquiry**: Led by then **CJI Sanjiv Khanna**, found sufficient evidence for further proceedings.
- **Recommendation**: Referred to **President and PM** for action under constitutional provisions.

- **Current Status**: Motion to be introduced in Parliament.

Note: In-house inquiry **did not indict**, but recommended formal motion under the law.

Checks and Balances in Judicial Removal

- **High threshold** ensures judicial independence.
- **Rare use** of removal powers: Only **Justice V. Ramaswami (1993)** faced motion (failed in LS).
- Prevents **executive overreach**, but ensures **judicial accountability** in cases of misconduct.

Conclusion

- The case of **Justice Yashwant Varma** reignites debates around the **balance between judicial independence and accountability**. While the **removal process under Article 124(4)** and the **Judges (Inquiry) Act, 1968** is intentionally stringent to prevent political misuse, it also makes the process rare and prolonged. The current proceedings reflect a test of India's **institutional integrity**, and underscore the need to **strengthen internal mechanisms** while preserving constitutional protections.

Socialism and Secularism – The Spirit of the Indian Constitution

Context

- Recent **demands to remove 'socialism' and 'secularism'** from the **Preamble** have sparked constitutional debate.
- Critics argue these principles reflect the **foundational values** of the Constitution and form part of its **Basic Structure**, which cannot be amended or erased.

1. **Socialism in the Indian Constitution**

🔷 **Meaning**

- Indian socialism ≠ Marxist state control
- Instead: **Democratic Socialism** → aims at **social & economic justice**, **welfare of all**, and **reduction of inequality**.

🔷 **Preamble Reference**

- **Originally absent**, but spirit present (e.g., "Justice: social, economic and political")
- **42nd Amendment Act, 1976**: Inserted "Socialist" into the Preamble during the Emergency.

🔷 **Fundamental Rights Enabling Socialism**

- **Article 14**: Equality before law
- **Article 15**: No discrimination on religion, caste, sex, etc.
- **Article 16**: Equality in public employment

  ➡ These uphold **social equality and inclusion**.

🔷 **Directive Principles of State Policy (DPSP)**

- **Article 38**: Social order to promote welfare of people
- **Article 39**: Equal pay, livelihood, equitable distribution of resources
- **Articles 41–43**: Right to work, education, public assistance

  ➡ These are non-justiciable but **act as guiding principles for welfare legislation**.

1. **Secularism in the Indian Constitution**

🔷 **Meaning of Indian Secularism**

- **Positive secularism**: Equal respect for all religions, not strict separation as in Western models.
- Protects religious freedoms **while allowing the State to intervene for social reform.**

🔷 **Preamble Reference**

- **Added by 42nd Amendment (1976)**
- Originally reflected in **"Liberty of belief, faith and worship"** and **"Fraternity"**

🔷 **Constitutional Provisions**

- **Articles 25–28**: Freedom of religion
- **Articles 29–30**: Minority cultural and educational rights
- **Article 25(2)(a)**: Allows the State to regulate religious practices for **social welfare** (e.g., temple entry, triple talaq).

Judiciary on Socialism and Secularism

🔷 **Kesavananda Bharati v. State of Kerala (1973)**

- Introduced **Basic Structure Doctrine**
- Declared **secularism** as a part of the **Basic Structure** – **cannot be amended** by Parliament.

🔷 **Minerva Mills v. Union of India (1980)**

- Reaffirmed that **socialism and social justice** form part of the **Basic Structure**.

🔷 **SR Bommai v. Union of India (1994)**

- Secularism = **constitutional morality**
- Any political party or government that violates secular principles can be deemed unconstitutional.

1. Historical Foundations

🔷 **Objective Resolution (1946) – Jawaharlal Nehru**

- Laid foundational principles of equality, liberty, and justice — **precursors to secularism and socialism**.

🔷 **Dr. Ambedkar's Vision (1949)**

- Advocated **economic equality** (socialism) and **religious freedom** (secularism) as **pillars of justice**.
- Warned against **social discrimination** and **religious majoritarianism**.

Conclusion

The principles of **socialism and secularism** are not temporary or ideological impositions but essential to the **spirit, structure, and functioning** of the Indian Constitution. They reflect India's **diverse social fabric**, uphold **justice and equality**, and act as safeguards against both **economic exploitation** and **religious majoritarianism**.

Attempts to remove them from the Preamble challenge not only symbolic commitments but also **the substantive guarantees of the Constitution**. As upheld by the **Supreme Court**, these principles are part of the **Basic Structure** and must remain **inviolable in any constitutional democracy**.

Two Democracies and the Echoes of Tyranny

CONTEXT:

- The article was published on **July 5, 2025**, the day after **U.S. Independence Day (July 4)**.
- Reflects on how **constitutional democracies** like the **USA and India** face **internal threats of tyranny**, not from coups but from **institutional decay and authoritarian drift**.
- Draws parallels between:
  - **U.S. President Donald Trump's governance style**.
  - **India's 1975 Emergency under Indira Gandhi**.

DEMOCRATIC BACKSLIDING IN INDIA: THE 1975 EMERGENCY

🔷 **Timeline:**

- **Emergency declared**: June 25, 1975
- Invoked under **Article 352** (on grounds of "internal disturbance")
- Trigger: Allahabad High Court found **Indira Gandhi guilty of electoral malpractice**

🔷 **Key Events:**

- **Fundamental Rights suspended**, including the **Right to Life (Article 21)**
- Over **1,00,000 people detained**, dissent criminalised
- Use of **MISA (Maintenance of Internal Security Act)** for preventive detention
- **Media censorship** imposed
- **Forced sterilisation and slum demolitions** under Sanjay Gandhi
- Only **Justice H.R. Khanna** dissented in the Habeas Corpus case — denied elevation to Chief Justice

🔷 **Structural Vulnerabilities:**

- Indira Gandhi used **constitutional provisions**, not extralegal means
- **Parliament, Judiciary, Bureaucracy, and Media** failed to check executive overreach
- Highlights **H.V. Kamath's 1949 warning**: Emergency provisions in the Constitution mirrored those of **Weimar Germany**, exploited by Hitler

THREATS TO DEMOCRACY IN THE U.S.

🔷 **Similar Patterns:**

- **Donald Trump** allegedly:
  - Threatened the Constitution
  - Sought to weaponize institutions (e.g., Justice Department)
  - Attempted to erode checks and balances

🔷 **Institutional Weaknesses:**

- **Congress failed to act decisively**
- **Judiciary delayed interventions**
- **Media rationalized actions**
- Signals a shift toward **"monarchy by another name"**

KEY THEMES AND LESSONS

1. **Tyranny through Legality:**
   - Both Indian Emergency and U.S. authoritarian tendencies show:
     - Tyranny can be **legal**, **constitutional**, and **popularly justified**
     - Democratic erosion need not involve a coup — it can occur silently
2. **Institutional Fragility:**
   - **Constitutions do not defend themselves**
   - Need for **vigilant institutions and courageous individuals**
   - Relevance of **constitutional morality** (Dr. B.R. Ambedkar's ideal)
3. **Accountability vs Monarchy:**
   - "Let the law be king" – democracy rests on **laws, not individuals**
   - Leaders must be **accountable**, not **above the Constitution**
4. **Role of Civil Society:**
   - Civil servants, judges, journalists, and citizens must act as **guardians of democracy**
   - Inaction and complicity empower authoritarianism

PM Modi's Five-Nation Visit: India's Outreach to the Global South

Countries Covered: Ghana, Trinidad & Tobago, Argentina, Brazil, Namibia
Objective: Strengthen India's diplomatic, economic, technological, and developmental outreach to the Global South.

Ghana Visit

- First bilateral trip by an Indian PM in 30 years; PM Modi's first visit to Ghana.
- **Trade Relations**:
  - India: Largest destination for Ghanaian exports.
  - Gold: Over 70% of India's imports from Ghana.
- **New Initiatives**:
  - Proposal for a **vaccine manufacturing hub**.
  - Digital initiatives aligned with India's COVID-era goodwill.
- **Challenges**:
  - Strong competition from **China and the EU** in execution and influence.

Trinidad & Tobago Visit

- First bilateral Indian PM visit in over two decades.
- **Diaspora Connection**:
  - ~40–45% of Indian diaspora in Caribbean resides in T&T.
  - Leadership includes people of Indian origin (PM Kamla Persad-Bissessar, President Christine Carla Kangaloo).
- **Historic Milestone**:
  - 180 years since arrival of Indian immigrants in T&T.
- **Economic Ties**:
  - Bilateral trade at $341.61 million in FY 2024–25.
- **Strategic Significance**:
  - Second Caribbean visit in 8 months (after Guyana, Nov 2024).
- **Concerns**:
  - Diaspora diplomacy not yet translating into robust tech or economic partnerships.

Argentina Visit

- First bilateral Indian PM visit in **57 years**.
- Meeting with President **Javier Milei** (follow-up to G20 2024).
- **Key Sectors**:
  - **Lithium Cooperation**: Crucial for India's green energy and EV goals.
  - Edible oils (soybean, sunflower) exports to India.
- **Economic Standing**:
  - India: Argentina's **5th-largest trading partner** (2024).
- **Risks**:
  - **Political instability** under President Milei raises policy continuity concerns.

Brazil Visit

- **Occasion**: BRICS Leaders' Summit and subsequent **State Visit** to Brasilia.
- Meeting with President **Luiz Inacio Lula da Silva** to deepen the **India-Brazil Strategic Partnership**.
- **Trade**:
  - Brazil is **India's largest trading partner in South America**.
- **Geopolitical Factor**:
  - China's growing assertiveness in Latin America affects India's strategic space.

Namibia Visit

- Third-ever Indian PM visit to Namibia; PM Modi's first.
- **Trade Growth**:
  - From <$3 million (2000) to nearly **$600 million (2025)**.
- **Indian Investments**:
  - Sectors: Mining, manufacturing, diamond processing, services.
- **Soft Power & Tech Diplomacy**:
  - 2022 cheetah translocation (world's first intercontinental carnivore relocation).
  - Launch of **UPI in Namibia** – part of India's digital diplomacy.
- **Challenge**:
  - Global competition in digital infrastructure investment.

India's Global South Outreach: Key Takeaways

1. Strategic Vision

- Reinforces India's aspiration to lead among **postcolonial developing nations**.
- Builds on initiatives like the **2023 Voice of the Global South Summit**.

2. Challenges

- **Aspirations vs. Execution**:
  - Leadership role often remains **symbolic**, not backed by sustained outcomes.
- **Limited Scale vs. China's BRI**:
  - India's outreach lacks **institutional heft**, financial depth, and long-term project follow-up.
- **Overdependence on Soft Power**:
  - Diaspora ties and culture diplomacy must be backed by **economic and technological initiatives**.

Conclusion

- The tour builds momentum for future cooperation in:
  - **Critical minerals** (e.g., lithium)
  - **Digital Public Infrastructure** (e.g., UPI)
  - **Climate and biodiversity** (e.g., cheetah relocation)
  - **Vaccine production & health diplomacy**
- Signals a possible **"Modi Doctrine 3.0"**:
  - Anchored in **Global South solidarity**,
  - **Tech-led diplomacy**, and
  - **Multilateral reform advocacy**.

India is Fourth 'Most Equal' Country, Says World Bank Report

Context

According to the **World Bank's "Spring 2025 Poverty and Equity Brief"**, **India** has seen a **substantial decline in inequality** between 2011–12 and 2022–23. It is now ranked as the **4th most equal country globally**, reflecting the effectiveness of targeted social welfare programs and inclusive development strategies.

Inequality Decline in India

- **Global Ranking** (Based on Gini Index):
  1. **Slovak Republic**
  2. **Slovenia**
  3. **Belarus**
  4. **India** 🥉
- **Attribution of Progress**:
  - Credited to **government schemes**, **poverty alleviation programs**, and

socio-economic reforms over the last decade.

Understanding the Gini Index

- **What It Measures**:
  - **Income, wealth, or consumption inequality** across a population.
- **Scale**:
  - **0** = Perfect Equality
  - **100** = Perfect Inequality
- **India's Current Gini Index (2022–23)**:
  - **25.5**
  - Categorized as **"Moderately Low Inequality"** (Range: 25–30)
  - On the verge of being reclassified as **"Low Inequality"** (<25)
- **Global Comparisons**:
  - **China**: 35.7
  - **USA**: 41.8

Indicates that **India is significantly more equal** in income distribution than many developed nations.

Trends in Income Distribution & Poverty

- **Decline in Extreme Poverty**:
  - From **16.2% (2011–12) → 2.3% (2022–23)**
  - Shows alignment with **UN Sustainable Development Goal (SDG) 1 – No Poverty**

Policy Implications

- **Improved Welfare Targeting**:
  - Enhanced Gini Index reflects **effective implementation** of welfare schemes (e.g., DBT, PM-KISAN, Ujjwala Yojana).
- **Inclusive Growth**:
  - Points to **reduction in income disparities** across rural and urban populations.
  - Suggests **broad-based economic development** rather than growth concentrated in a few sectors or classes.

Conclusion

India's improvement in global equality rankings demonstrates the **success of inclusive policies**, targeted poverty reduction programs, and expanding social safety nets. This achievement not only highlights developmental progress but also strengthens India's position in global equity and human development metrics.

India, Trinidad and Tobago ink deals on pharma, finance

Context

During Prime Minister Modi's July 2025 visit to Trinidad and Tobago (T&T), **six bilateral agreements** were signed, significantly boosting cooperation across multiple sectors. This visit forms part of India's broader **Global South outreach**, with a focus on the **Caribbean region**, and aligns with India's strategic vision of **South-South cooperation**, **diaspora diplomacy**, and **sustainable development partnerships**.

Bilateral Agreements Signed

- **Total Agreements**: 6
- **Key Sectors**:
  - **Finance**
  - **Pharmaceuticals**
  - **Education**
  - **Capacity Building**
  - **Sports**

    - **Diplomacy**
- **Strategic Significance**:
    - Expands India's **influence in the Caribbean**.
    - Reinforces India's **Act East + Global South policy** framework.

Joining India-led Global Initiatives

1. **Coalition for Disaster Resilient Infrastructure (CDRI)**
    - Trinidad and Tobago formally joined the **India-led multilateral platform**, launched in **2019**.
    - Focus: **Resilient infrastructure development** in vulnerable countries.
2. **Global Biofuel Alliance (GBA)**
    - T&T joined the **GBA**, launched under India's **G20 Presidency (2023)**.
    - Objective: Promote **sustainable biofuels** and clean energy alternatives.

Quick Impact Projects (QIPs)

- **MoU on Grant Assistance**:
    - India to fund **up to five QIPs annually** (USD 50,000/project).
    - Focus on **high-visibility, short-term development goals**.
- **Significance**:
    - Strengthens India's **development diplomacy** under LoCs and technical aid.

Pharmaceutical and Health Sector Cooperation

- **MoU on Pharmacopoeia**:
    - Ensures access to **affordable Indian generic medicines**.
    - Includes provision of **treatment in India**.
- **Jaipur Foot Camp**:
    - Prosthetic limbs for **800 beneficiaries** in Trinidad and Tobago.

Cultural and Educational Engagement

- **ICCR Chairs Reinstated**:
    - Two chairs in **Hindi** and **Indian Studies** at University of West Indies (UWI).
- **Digital Education Gift**:
    - **2,000 laptops** gifted to schoolchildren.
- **OCI Extension**:
    - **Overseas Citizenship of India** eligibility extended to **6th generation diaspora** (earlier 4th gen).
    - Boosts **diaspora connect and civilizational diplomacy**.

Support to Agriculture & Healthcare

- **Agricultural Aid**:
    - India gifted **$1 million** worth agro-machinery to **NAMDEVCO**.
    - Focus on **millet cultivation**, **seaweed-based fertilisers**, and **natural farming**.
- **Healthcare Assistance**:
    - **20 haemodialysis units** and **2 sea ambulances** gifted.
    - Key for **remote island healthcare access**.

Capacity Building and Cultural Training

- **Diplomatic Training**:

- Indian institutions to train T&T diplomats.

- **Training of Hindu Priests**:
  - India to support training of **Pandits** in T&T and the wider Caribbean.
  - Enhances **soft power** and sustains **diaspora religious heritage**.

Counterterrorism & Strategic Partnership

- **Condemnation of Pahalgam Terror Attack**:
  - T&T expressed **solidarity** with India.
  - Reaffirmed **zero tolerance for terrorism**.
- **India–CARICOM Engagement**:
  - Strengthened cooperation with **CARICOM bloc**.
  - Key to India's **leadership role in the Global South** multilateral order.

Conclusion

India's comprehensive engagement with Trinidad and Tobago strengthens its **strategic, economic, and cultural footprint in the Caribbean**. The multi-sectoral collaboration highlights India's commitment to **inclusive development**, **diaspora outreach**, and **South-South cooperation**—hallmarks of its evolving global diplomacy.

Khelo Bharat Niti 2025

Context

In recent years, India has been actively transforming its sports ecosystem from a peripheral sector to a **strategic pillar of national development**. With the announcement of the **Khelo Bharat Niti 2025** and the formal expression of interest in hosting the **2036 Olympic Games**, the Government of India has signaled a decisive policy shift toward integrating sports with the broader **"Viksit Bharat by 2047"** vision.

India's Emerging Global Sports Ambition

Under the leadership of **Prime Minister Narendra Modi**, sports have acquired strategic national significance. As a testament to this vision, **India has officially expressed interest in hosting the 2036 Olympic Games** — a potential landmark in its sports evolution.

To prepare for this, the country is set to host **multiple prestigious international sporting events** in the coming decade. The overarching objective is to position India as a **global sporting powerhouse**, integrating sports into the national development framework under the vision of **Viksit Bharat (Developed India) by 2047**.

Khelo Bharat Niti 2025: A Transformational Policy Initiative

On **July 1, 2025**, the **Union Cabinet** approved the **National Sports Policy 2025**, also referred to as **Khelo Bharat Niti**. This policy is built upon a **five-pillar framework**, aiming for a comprehensive overhaul of India's sports ecosystem:

1. **Sports Excellence** – Enhancing international competitiveness and the global performance of Indian teams.
2. **Sports for Social Development** – Promoting inclusivity, accessibility, and grassroots participation.
3. **Sports for Economic Development** – Stimulating job creation, boosting the sports industry, and leveraging mega-events for economic gain.
4. **Sports as a People's Movement** – Encouraging widespread public participation across all demographics.
5. **Sports in Education** – Integrating sports into school curricula to nurture talent from an early age.

Tapping Global Talent: Diaspora and OCI Inclusion

The policy highlights the importance of leveraging the **Indian diaspora**, particularly in football, to enhance national teams. Countries like **Malaysia, Singapore, Bangladesh**, and several European nations have successfully included naturalized players with dual nationalities.

However, India faces a legal barrier: **OCI (Overseas Citizen of India) cardholders do not possess Indian passports**, and India does not allow **dual citizenship**, making them ineligible under **FIFA regulations**, which require a national passport to represent a country.

Despite this, the policy indicates an intent to explore **legal and procedural mechanisms** to strategically include talented OCI players, while aligning with domestic citizenship laws and international eligibility norms.

Grassroots Football Development through Schools

The **All India Football Federation (AIFF)** is spearheading a structured **player development pathway**, starting from the grassroots level:

- **Ages 8–10**: Introduction to basic football training.
- **Ages 12–13**: Entry into competitive circuits.
- **U-17 to U-20**: High-performance training aimed at professional careers.

Schools are central to this initiative, enabled through inter-ministerial coordination between:

- The **Ministry of Education** (Dharmendra Pradhan), and
- The **Ministry of Youth Affairs and Sports** (Mansukh Mandaviya).

The alignment of the **National Education Policy (NEP) 2020** and **National Sports Policy (NSP) 2025** is crucial to building a sustainable ecosystem for talent identification and nurturing.

FIFA Football for Schools (F4S): Boosting Grassroots Participation

India has successfully implemented **FIFA's Football for Schools (F4S)** programme, which aims to integrate football into education while promoting life skills and physical well-being.

- Over **1.53 lakh schools** have joined the initiative.
- More than **9.26 lakh footballs** have been distributed to ensure basic access at the **U-8 level**.
- The programme fosters early-age participation and connects sports to **education, character building**, and **physical development**.

Policy Impact: Transparency, Inclusion, & Global Competitiveness

The **Khelo Bharat Niti 2025**, aligned with **NEP 2020**, is designed to achieve:

- **Greater transparency** in sports governance and administration.
- **Enhanced inclusivity**, especially for **girls**, **rural youth**, and marginalized communities.
- **Improved accountability** in infrastructure delivery and athlete development.

The long-term vision focuses on:

- Strategic **investment in sports infrastructure**.
- Widespread **community-level participation**.
- Building **global-level competitiveness**, particularly in **football** and **Olympic disciplines**.

Conclusion

The convergence of **national ambition**, **grassroots activation**, and **international collaboration** through initiatives like **Khelo Bharat Niti 2025** may well usher India into a **golden era of sports**.

With PM Modi's leadership and seamless ministerial coordination, India is on track to:

- **Enhance sports excellence**.
- **Harness global Indian talent**.
- **Establish an Olympic-ready sports ecosystem**.

This sports-driven transformation directly contributes to the broader national goal of realizing **Viksit Bharat by 2047**, reinforcing the role of sports as a vital pillar of India's development journey.

Women MSMEs still struggle for credit despite schemes

Despite numerous government schemes and rising entrepreneurship, **women-led MSMEs** in India continue to face **systemic barriers to credit, scale, and sustainability**, reflecting deeper **gendered inequities** in the economic ecosystem.

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1. Role of MSMEs and Women's Contribution

- **MSMEs** contribute nearly **30% to India's GDP (2024)**, with targets to increase this to 35%.
  ➤ Key pillars of **employment generation, exports, and grassroots innovation**.
- **Women-led MSMEs** constitute:
  - **20% of registered MSMEs**
  - Contribute only **~10% of total turnover**
  - Receive just **11–15% of total MSME investments**

➞ Indicates **structural gender gaps** in entrepreneurship, capital access, and business scale.

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2. Financial Challenges: The Credit Gap

According to **SIDBI data**:

- **Credit gap for women-led MSMEs**: **35%**
  ➤ Compared to **20% for male-led MSMEs**
  ➤ Affects **26% of women entrepreneurs**
- Consequences:
  - Reliance on **informal, high-risk lenders**
  - **Reduced scalability**, business vulnerability
  - Slower innovation and digital adoption
- **High market competition** is cited as the **second-biggest barrier**, further exacerbated by lack of **working capital support**.

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3. Government Schemes: Reach vs Effectiveness

(a) Pradhan Mantri MUDRA Yojana (PMMY)

- Launched to offer **collateral-free loans** to micro and small businesses.
- **Women hold 64% of loan accounts (42.49 million of 66.77 million)**
  ➤ However, they receive only **41% of total loan value (₹2.25 lakh crore of ₹5.41 lakh crore)**

➞ Reflects a **disparity between loan count and loan volume**, limiting the actual business impact.

(b) Udyam Assist Platform (UAP)

- Aims to formalize **Informal Micro-Enterprises (IMEs)** and enable credit access.
- **1.86 crore IMEs registered**; **70.5% are women-owned**

- These women-led IMEs contribute to **70.8% of employment generation** in this segment.

➞ Despite high participation, **credit conversion remains low**, due to:

- **Poor awareness** of schemes
- **Weak bank/local institutional support**

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4. Key Challenges Facing Women Entrepreneurs

Challenge	Details
Financial Literacy Deficit	Lack of understanding of loans, digital banking, compliance norms.
Limited Collateral Ownership	Many women lack property or movable assets to back loans.
Banking Discrimination	Women require **4 bank visits** on average vs **2 for men** (IFC data).
	Perceived as **risky** due to informal models and asset gaps.
Social-Cultural Barriers	Restrictions on mobility, work-life balance, and decision-making power.

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5. The Way Forward: Towards Credit Equity

- **Tailored Loan Products**:
  ➤ Based on cash flow, not collateral.
  ➤ Expand **credit guarantee schemes** for women.
- **Digital Financial Literacy Drives**:
  ➤ Especially targeting semi-urban/rural entrepreneurs.
- **Strengthen Local Support Ecosystems**:
  ➤ Banks, SHGs, local administration, and women business networks.
- **Gender-sensitive Banking Protocols**:
  ➤ Incentivize banks to reduce procedural discrimination.
- **Monitor Scheme Effectiveness**:
  ➤ Use **disaggregated data** to track actual fund utilization and impact.

Conclusion

The underutilized potential of **women-led MSMEs** is not just a gender issue—it's an economic inefficiency. A focused push toward **financial inclusion, gender-responsive banking, and localized support structures** is key to unlocking a new wave of **inclusive growth, innovation, and resilience** in India's MSME sector.

The ECI does not have unfettered powers

Context:

- The **Election Commission of India (ECI)** has ordered a **Special Intensive Revision (SIR)** of the **electoral rolls in Bihar**, ahead of the upcoming **Assembly elections in November 2025**.
- The move has drawn criticism and legal challenges over its legality and timing.
- This article examines the **constitutional and legal boundaries of the ECI's powers**.

Constitutional Provisions:

- **Article 324**: Vests the **superintendence, direction, and control** of elections in the ECI.
- **Article 326**: Guarantees **universal adult suffrage** for all Indian citizens aged 18 and above unless disqualified by law.

Legal Framework under the Representation of the People Acts:

Provision	Content
RPA 1950 – Section 21	Deals with preparation and revision of electoral rolls. Includes: 1) Regular annual revision 2) Revision before general/by-elections 3) Special revision for **constituency or part thereof** (not entire state)
RPA 1950 – Section 14	Qualifying date for inclusion in the roll is **January 1** of the relevant year.
RPA 1950 – Section 19 & 20	Criteria: Minimum age of 18 + ordinary residence in constituency.
Rule 8 of Registration of Electors Rules, 1960	Citizens must provide information **"to the best of their ability"**; strict documentation cannot be insisted upon.

Issues with the ECI's Current SIR in Bihar:

1. **Questionable Legal Standing**:
   - The ECI order sets **01/07/2025** as the qualifying date, **which lacks statutory basis**
   - The term **"Special Intensive Revision"** does **not exist** in the RPA, 1950.
2. **Scope of Revision**:
   - Section 21(3) allows special revision **only for a constituency or part**, **not the entire state** as being done in Bihar.
3. **Violation of Natural Justice**:
   - Allegations that people are being removed **without proper verification or appeals**.
   - Risk of **disenfranchisement of marginalized communities**, including **migrants and minorities**.
4. **Supreme Court Jurisprudence**:
   - In **Mohinder Singh Gill vs CEC (1978)**: ECI must **act within the framework of existing laws** where applicable. Article 324 fills only legislative gaps — **not a license for arbitrary action**.

Implications for Electoral Democracy:

Positive Potential	Legal/Constitutional Challenges
- Cleaning up voter rolls - Ensuring only genuine voters participate	- Could undermine voter rights - Allegations of **motivated disenfranchisement** - **ECI's neutrality under question**

Way Forward / Recommendations:

1. **Adhere to Legal Mandates**:
   - Follow Section 21 strictly and ensure qualifying dates align with the law.
2. **Transparency & Due Process**:
   - Ensure voters are **informed, consulted**, and **given hearing** before deletion.
3. **Strengthen Oversight**:
   - Supreme Court or an **independent Election Tribunal** should oversee

controversial electoral roll revisions.

4. **Reinforce ECI Independence**:
    - Current demand for **collegium-based appointments** (as done for CEC recently) should extend to **Election Commissioners** as well.
5. **Improve Voter Registration Technology**:
    - Use **Aadhaar linkages (voluntary)**, GIS data, and door-to-door campaigns to ensure robust and inclusive voter rolls.

India, Africa Must Work Side by Side: PM Modi in Namibia

Prime Minister Modi's Visit to Namibia

- PM **Modi** addressed the **Namibian Parliament** in **Windhoek**.
- Reaffirmed India's **historic support** for **Namibia's independence** since **1946**.
- Conferred with **Namibia's highest civilian honour** – **Order of the Most Ancient Welwitschia Mirabilis**.

Key Highlights of the Visit

- India's engagement in Africa is based on **cooperation**, not **competition**.
- Emphasized that **Africa** must be seen as a **partner in value creation**, not just a source of **raw materials**.
- **Namibia** will adopt India's **UPI system** – first **African country** to do so.
- **Agreements signed**:
    - **Entrepreneurship Development Centre** to be established in Namibia.
    - Cooperation in **health and medicine**.
- Namibia joins:
    - **Coalition for Disaster Resilient Infrastructure (CDRI)**.
    - **Global Biofuel Alliance**.
- PM Modi paid tribute to **Sam Nujoma**, Namibia's **freedom leader**.
- Recalled India's support to **SWAPO** and **anti-colonial struggles** in Africa.

India–Africa Relations: Broader Context

Historical Background

- Shared legacy of **anti-colonial movements** and the **Non-Aligned Movement (NAM)**.
- India supported **liberation movements** in various **African nations**.

Economic and Strategic Ties

- **India–Africa trade** crossed **$100 billion** in **2023–24**.
- Indian **investment** in Africa exceeds **$75 billion**.
- **Digital diplomacy** through:
    - **e-Vidya Bharati** and **e-Aarogya Bharati**.
    - **Pan-African e-Network**.
- **Defence and maritime cooperation** through:
    - **India-Africa Defence Dialogue**.
- **People-to-people engagement** via scholarships and training programs under **ITEC** and **ICCR**.

Namibia's Strategic Importance for India

- Rich in **strategic minerals** like **uranium**, **copper**, and **diamonds**.
- Long **Atlantic coastline** – potential for **maritime cooperation**.
- **Politically stable** and **friendly** towards India.
- Open to adopting **Indian digital technologies** like **UPI**.

Way Forward for India–Africa Cooperation

1. **Deepen Digital Cooperation**
    - Extend **UPI** and **India Stack** to more African countries.
2. **Promote Development Partnerships**
    - Focus on **skilling**, **health**, **agriculture**, and **start-up support**.
    - Utilize **Lines of Credit (LoCs)** to finance **sustainable projects**.
3. **Enhance Strategic Diplomacy**
    - Revive the **India-Africa Forum Summit (IAFS)**.
    - Support **African Union's permanent seat** at the **UN Security Council**.
4. **Counterbalance China's Influence**
    - Provide **transparent financing**.
    - Prioritize **people-centric development** and long-term partnerships.

Simultaneous Elections Bill and the concerns raised by former CJIs

Why in News?

Two former Chief Justices of India — **D.Y. Chandrachud** and **J.S. Khehar** — told the Joint Parliamentary Committee that

Background: About the Simultaneous Elections Bill (129th Amendment Bill, 2024)

The Bill aims to:

- Enable **One Nation, One Election** by synchronizing elections to Lok Sabha and State Assemblies.
- Introduce a **constitutional framework** for holding elections simultaneously.
- Amend key provisions such as **Article 83**, **Article 172**, and add **Section 82A** for synchronized terms and elections.

Key Issues Raised by Former CJIs

1. Unbridled Powers to EC

- **Section 82A(5)** gives EC the discretion to delay state assembly elections if it feels they cannot be held with Lok Sabha elections.
- EC recommends to the **President**, who must then issue an order.
- **No institutional oversight** or checks on EC's decision-making power.
- This **violates the principle of checks and balances** in a democracy.

2. Vague Definition of "Remaining Period"

- If a state assembly is dissolved early, elections must be held **for the remainder of its term**.
- But there is **no definition** of "remainder".

    - What if only **a week or a few months** remain?
    - This **defeats the very purpose** of simultaneous elections.
- **Risk**: May be misused to **impose President's Rule** or manipulate election timing.

3. Role of Parliament or Council of Ministers

- Justice Khehar suggested **Parliament or the Union Cabinet** must have a role in deciding whether Assembly elections should be held separately.
- Otherwise, the **EC acts in isolation**.

4. No Violation of Basic Structure

- Both CJIs agreed the Bill **does not undermine**:
    - **Federalism**
    - **Democracy**
    - **Judicial Review**
    - **Separation of Powers**
- But caution against **concentration of power** without accountability.

Panel Response

- BJP MP **P. Chaudhary**, chairing the panel, said the committee welcomes all inputs and is **open to reforms and improvements**.

What Needs to be Fixed?

1. **Define "remainder of term"** clearly to avoid legal ambiguity.
2. **Introduce an oversight mechanism** (e.g. Parliamentary approval or judicial review) for EC's decisions under Section 82A(5).
3. **Limit discretionary powers** to prevent misuse under political influence.

BELIEVERS IAS ACADEMY

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GENERAL STUDIES - III

1. Indian Economy
2. Agriculture And Food
3. Environment And Biodiversity
4. Science And Technology
5. Disaster Management
6. Internal Security

GS 3

State of Food and Nutrition in the World (SOFI) 2025 Report

Why in News?

- The SOFI 2025 report reveals persistent and alarming levels of malnutrition in India, particularly among children and women, despite economic growth and multiple welfare schemes.

About the SOFI Report

Aspect	Details
Full Name	State of Food Security and Nutrition in the World
Started In	1999
Published By	FAO, IFAD, UNICEF, WFP, WHO
Purpose	Tracks global food security, hunger, and nutrition trends; supports monitoring of SDG-2: Zero Hunger

Global Highlights (2025)

- Hunger Rate: Declined from 8.5% (2023) → 8.2% (2024).
- Undernourished Population: 735 million globally.
- Double Burden: Co-existence of undernutrition & obesity.
- Healthy Diets: Increasingly unaffordable due to inflation & climate shocks.

India-Specific Findings (SOFI 2025)

Indicator	Value	Concern
Wasting (under-5)	18.7% (highest globally; 21M children)	Acute undernutrition
Stunting (under-5)	37.4M children	Chronic malnutrition, cognitive loss
Overweight Children	4.2M (up from 2.7M in 2012)	Poor diet diversity, rising obesity
Anaemia in Women (15–49)	53.7% (203M women)	Low iron intake; affects maternal health & productivity
Undernourished Population	172M (12% of population)	Widespread food insecurity
Unaffordable Healthy Diet	42.9% cannot afford; cost rose $2.77 (2017) → $4.07 (2024)	Rising food prices vs income
Adult Obesity	71.4M (doubled in 10 yrs)	Lifestyle & dietary imbalance

Conclusion

The SOFI 2025 report underscores a paradox—economic growth in India has not translated into nutritional security, leaving millions malnourished while obesity rises. Tackling this double burden of malnutrition requires:

- Diet diversification & affordability through PM-POSHAN, fortified foods, and targeted PDS reforms.
- Women-centric nutrition interventions to reduce anaemia.
- Integrated health-nutrition programs combining ICDS, Poshan 2.0, and Ayushman Bharat.
  Only a multi-sectoral approach can ensure SDG-2: Zero Hunger becomes a reality for India.

Adopt Formalisation to Power Productivity Growth

Why in News?

India's **formal manufacturing sector** is increasingly dependent on **contract labour**, raising concerns over **job quality, wage gaps, and productivity stagnation**.

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1. Rising Contractualisation

- **Share of contract workers** doubled: **20% (1999-2000) → 40.7% (2022-23)**.
- **Informalisation within the formal sector** is growing, **eroding worker welfare & productivity**.
- **Cost-driven hiring:**
  - In 2018–19, contract workers earned **14.47% less** than regular employees (wage gap in large enterprises: **31%**).
  - **Employer labour costs** for contract workers: **24% lower** on average; in some industries, **78–85% lower**.
- **Legal gap:** Contract workers excluded from **Industrial Disputes Act, 1947** – **no protection against arbitrary dismissal**.

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2. Impact on Productivity *(ASI Data – MoSPI)*

- **Principal-agent problems:** High turnover & limited skill investments.
- **Labour productivity:**
  - **Contract labour-intensive (CLI) firms**: **31% lower** productivity than **regular labour-intensive (RLI)** firms.
  - Gap highest in **small firms** (<100 workers): **36%**, followed by **medium (23%)**.
  - In **labour-intensive industries**, gap widens to **42%** (even after controls).
- **Exception:** High-skill/capital-intensive large CLI firms show **5–20% productivity gains**, but form only **20% of the sector**.

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3. Policy Response

- **Industrial Relations Code (2020):**
  - Allows **fixed-term hiring without contractors**.
  - Seeks to mandate **statutory benefits**, but **unions fear accelerated informalisation**.
- **Recommendations:**
  - **Encourage longer-term contracts** through **social security concessions** & **skilling incentives**.
  - **Revive PMRPY (2016–2022):**
    - Govt bore **12% EPF/EPS contribution**.
    - **1+ crore jobs** benefitted; **revival could reduce contract labour misuse**.

PM Rozgar Protsahan Yojana (PMRPY)

- **Implemented by:** Ministry of Labour & Employment (Aug 2016 – Mar 2022).
- **Purpose:** Incentivising employers for generating new employment by paying **12% EPF/EPS** for eligible employees (wages < ₹15,000).
- **Impact:** Expanded **employment base**, improved **social security access** for workers.

Way Forward

- **Formalisation-first approach:** Extend **EPF/EPS incentives**, revive **PMRPY-like schemes**.
- **Skill-linked contracts:** Mandate skill training for contract workers.
- **Strengthen worker protection:** Amend laws for **security & benefits** even for fixed-term hires.
- **Targeted productivity support:** Identify **high-productivity sectors** for contract hiring and incentivise formal employment.

Conclusion

India's **labour market dualism**—growing **contractualisation within the formal sector**—is undermining **productivity, worker welfare, and long-term growth potential**. Formalisation through **incentive-driven hiring, stronger legal safeguards, and skilling** is vital to **transform India's demographic dividend into a productivity dividend**.

NISAR satellite Launch

Context

- The **NASA-ISRO Synthetic Aperture Radar (NISAR)** satellite is scheduled for launch at **5:40 p.m. on Wednesday** from **Satish Dhawan Space Centre, Sriharikota**.
- The satellite has been mounted on the **GSLV-F16** (Geosynchronous Satellite Launch Vehicle), and **all systems have been checked by ISRO**.

Satellite Specifications

- **Weight:** 2,392 kg
- **Orbit: 743-km sun-synchronous orbit** – ensures consistent Earth observation under similar lighting conditions.
- **Liftoff Site: Second Launch Pad**, Sriharikota.

Key Technology – Dual-Frequency SAR

- **First satellite** to use **dual-frequency Synthetic Aperture Radar (SAR):**
  - **L-band SAR** (NASA)
  - **S-band SAR** (ISRO)
- Uses **NASA's 12-metre unfurlable mesh reflector antenna**, mounted on **ISRO's modified I3K bus**.

Mission Capabilities & Applications

- **Global Earth Monitoring:**
  - **All-weather**, **day-and-night coverage** with **242 km swath width**.
  - **12-day revisit cycle** for time-series analysis.

Key Applications:

- **Ground deformation tracking** – earthquakes, landslides.
- **Ice sheet movement monitoring** – climate change studies.
- **Vegetation & forest dynamics** – biodiversity assessment, carbon stock analysis.

- **Soil moisture variation** – agriculture & drought monitoring.
- **Surface water resource mapping** – irrigation & watershed management.
- **Sea ice classification & ship detection** – maritime security.
- **Disaster response & storm analysis** – rapid damage assessment.

Mission Phases

1. **Launch Phase:**
    - Injection into orbit by **GSLV-F16**.
2. **Deployment Phase:**
    - **Unfolding of the 12-metre antenna** using a **9-metre deployable boom**.
3. **Commissioning Phase (90 days):**
    - Initial spacecraft checks.
    - Payload and radar calibration.
4. **Science Phase (5 years):**
    - Active radar scanning.
    - Orbit maintenance with **minimal observation disruption**.

Conclusion

NISAR is a **landmark Indo-U.S. collaboration**, combining NASA's radar expertise with ISRO's launch capability. With **high-resolution dual-band SAR** and **wide coverage**, it will **enhance Earth observation for climate monitoring, disaster management, and resource mapping**. Its **data-driven insights** will be crucial for addressing **climate change, natural hazards, and sustainable development goals (SDGs)**.

How the Fair Use Clause is Being Applied to Generative AI

Context

Courts in the **U.S. are examining** whether using **copyrighted content** to train **Large Language Models (LLMs)** without permission constitutes **'fair use'** under copyright law. This has **major implications for AI development** and **intellectual property rights (IPR)** globally, including in India.

Understanding LLMs

- **What are LLMs?**
    - Large general-purpose models for **text classification, Q&A, and text generation**.
    - **Trained on massive datasets** using deep learning (transformer architecture).
    - Use **attention mechanisms** for contextual understanding.
- **Working:**
    - Predicts the **next word or sequence** based on input prompts.
    - Trained on data from **Common Crawl, scanned books, and other sources** (both authorized & unauthorized).

The Legal Grey Area

- **Central Issue:**
    - Does **training AI on copyrighted material without permission** = copyright infringement?
- **Data Sources:**
    - Public domain + copyrighted + **potentially unauthorized content**.

- **Key Legal Test (U.S.):**
  4-Factor Fair Use Test:

  1. **Purpose & character of use** – Is it **transformative** (creates a new purpose)?

  2. **Nature of the work** – Factual vs. fictional content.

  3. **Amount used** – Both qualitative & quantitative.

  4. **Effect on market value** – Does it harm the market for the original work? *(Most decisive: Transformative use & market impact)*

Recent U.S. Cases

1. Anthropic Case (Andrea Bartz vs. Anthropic PBC)

- **Issue:** Claude trained on scanned/purchased + illegally sourced books.
- **Judgment:**
  - **Print-to-digital conversion & training = Fair use** (transformative).
  - **Illegal source downloading ≠ Fair use** → Separate infringement analysis.

2. Meta Case (Kadrey vs. Meta Platforms)

- **Issue:** LLaMA trained on books from unauthorized sources.
- **Judgment:**
  - **Training = Transformative** → Fair use.
  - **No proven market harm** → Meta won summary judgment.
  - **But:** Torrent distribution still under scrutiny.

3. Thomson Reuters vs. Ross Intelligence (Precedent)

- **Issue:** AI retrieving legal content (non-GenAI).
- **Judgment: No fair use** → No transformation + direct market competition.

Implications for India

- **Indian Position:**
  - **No explicit 'fair use'** → Only **'fair dealing'** under **Sections 52 & 39** of the Copyright Act, 1957.
  - Exceptions: Research, private study, criticism, review, reporting, etc.
- **Relevance:**
  - With initiatives like **AIRAWAT** (AI research hub) and **Bhashini** (multilingual AI), **clarity on copyright use in AI training** is essential.
  - Need for **policy updates** balancing innovation with IPR protection.

Conclusion

The **U.S. courts are setting important precedents** by recognizing **AI training as potentially transformative fair use**, but **illegal sourcing remains contentious**. For **India**, with its growing AI ecosystem, **clearer guidelines on the use of copyrighted data for AI training** are urgently needed to **foster innovation while protecting creators' rights**.

India's Emerging Shield Against the Climate Crisis

Context:

- **Natural Disasters in India since 1900**: 764 total; **~50% occurred post-2000** → indicates **increased frequency and intensity due to climate change.**
- **Climate Losses (2019–2023)**: India suffered **$56 billion** in weather-related damages, accounting for **25% of Asia-Pacific's total** — highest in South Asia.

Need for a New Financial Model:

- **Traditional Insurance Limitations:**
  - Post-disaster loss assessments → **delays & disputes**
  - **Exclusion issues** common
  - Not suited for frequent, unpredictable climate shocks

Parametric Insurance: Game-Changer for Disaster Resilience

- **Definition**: Pre-agreed payout triggered **automatically** when a defined parameter (e.g., rainfall, temp, wind speed) is breached.
- **No loss assessment needed** – payout based on **data thresholds**, not physical inspection.

How It Works:

- Uses **independently verified climate data** from:
  - **IMD**, NASA's MERRA, Satellite-based systems
- **Payouts** disbursed when:
  - Rainfall < 300 mm
  - Temperature > 40°C
  - Solar irradiance or humidity anomaly, etc.

Applications Across Sectors:

Sector	Parametric Trigger	Benefit
Agriculture	Low rainfall, high temperature	Income protection, credit safety
Renewable Energy	Low solar irradiance	Compensation for power loss
Livestock & Industry	High humidity/temperature	Continuity, reduced disruptions

Examples in India:

- **Jharkhand**: Microfinance firm insured farm loans (rainfall <300 mm + temp >40°C).
- **Rajasthan, Uttar Pradesh**: Pilots with **women farmers** using **water balance index**.
- **Nagaland (2024)**: **First state** to buy **multi-year parametric insurance** for landslides/extreme rainfall using **disaster mitigation funds**.

Global Examples:

- **Africa, Pacific Islands, UK**: Used for **cyclones, floods, droughts**
- Demonstrates **scalability and adaptability**

Why Parametric Insurance Fits India:

India already has:

- **Robust weather & climate data infrastructure**
- **Digital delivery platforms (e.g., DBT, UPI)**
- **Early successful pilot cases**

What India Needs:

1. **State-level adoption** as part of disaster response policy
2. **Integrate into national disaster management** frameworks

3. **Treat as critical climate infrastructure** – like UPI for finance
4. **Expand satellite & weather data networks** (e.g., NISAR data usage)
5. **Build trust-based, fast-disbursement models** for vulnerable communities

Conclusion:

Parametric insurance offers India a **fast, data-driven, inclusive** risk financing solution in a climate-uncertain future. With state-level integration and tech-enabled scaling, it can be India's **financial vaccine against the climate crisis**.

Altermagnet's Charge Carriers Change in Different Directions

What is Direction-Dependent Conduction Polarity (DDCP)?

- **Conventional Conductors:** Typically exhibit either:
  - **n-type conductivity** (via free electrons), or
  - **p-type conductivity** (via holes) *uniformly in all directions*.
- **DDCP Property:**
  - A **rare phenomenon** where a material conducts **via electrons in one direction** and **via holes in another**.
  - This allows the **same crystal to simultaneously exhibit both n-type and p-type behaviour**, depending on current direction.

New Indian Scientific Breakthrough

- **Institutions Involved:**
  - *S.N. Bose National Centre for Basic Sciences*
  - *Indian Association for the Cultivation of Science (IACS), Kolkata*
- **Material Identified: Chromium-Antimony (CrSb)**
- **Experimental Techniques Used:**
  - **Hall Effect:** Detected electron-dominated conduction **in-plane**.
  - **Seebeck Effect:** Revealed reversed voltage along vertical axis — confirming **hole-dominated conduction**.

Why is This Discovery Important?

First DDCP in an Altermagnet

- **Altermagnets:** A novel magnetic class where:
  - Atomic spins are **antiparallel**, cancelling net magnetism.
  - Yet, **spin-polarised transport** exists due to symmetry and crystal geometry.
- **CrSb:** Becomes the **first altermagnet** to also show **direction-dependent conduction polarity**.

Material Advantages:

- **Abundant & Sustainable:** Made from **earth-abundant elements** (Cr and Sb).
- **Easy to Synthesize:** Allows for scalable and cost-effective applications.
- **Doping Flexibility:**

- Substituting **2% chromium with vanadium** switched entire crystal to **p-type**, confirming its **tunable electronic nature**.

Applications & Future Potential

1. Semiconductor Electronics

- **Dual-role crystals** reduce need for separate n- and p-type materials.
- Enables **simpler and smaller circuit designs** with fewer junctions.

2. Thermoelectric Devices

- Built-in **n–p conduction** enables **more efficient heat-to-electricity conversion**.
- Potential in wearable electronics and space applications.

3. Spintronics

- Leverages **electron spin** rather than charge, allowing **low-power, high-speed memory** and logic devices.
- Altermagnetic symmetry supports **spin-polarised current flow without net magnetism**.

4. Tunable Material Engineering

- Possibility of engineering **custom conductivity directions** via doping and structural design.
- Useful in **quantum computing**, **energy harvesting**, and **non-volatile memory**.

5.Global Relevance:

- Adds India to the list of countries contributing to **next-gen material discoveries**.
- Opens up potential for **indigenous device manufacturing** using **novel functional materials**.

6.Academic Value:

- The discovery supports theories from **condensed matter physics**, **topological materials**, and **quantum magnetism**.

7.Industrial Translation:

- With further testing, CrSb-based devices could be adopted in **flexible electronics**, **smart sensors**, and **green energy platforms**.

Conclusion

The discovery of **DDCP in CrSb**, an **altermagnetic material**, marks a **milestone in material science**, particularly for **energy-efficient electronics** and **spin-based computing**. With India at the forefront, this breakthrough blends **basic science with transformative application potential**, aligning well with *Atmanirbhar Bharat* in high-tech innovation.

Android Phones Brought Early Quake Warnings to 98 Countries

What is the Android Earthquake Alert (AEA) System?

- **Launched by:** Google in partnership with **University of California, Berkeley**
- **First deployed in:** 2020 (USA); now expanded to **98 countries**
- **Countries covered:** New Zealand, Turkey, Greece, Nepal, Philippines, etc.
- **Purpose:** Provide **early earthquake warnings** using smartphone sensors.

How It Works: Crowdsourced Earthquake Detection

- **Phones as Seismometers:** Every **stationary Android phone** acts as a **mini-seismometer** using its **accelerometer**.
- **Wave Detection Mechanism:**
  - **P-waves (Primary):** Fastest, first to arrive, less damaging
  - **S-waves (Secondary):** Slower, more damaging
  - **Surface waves:** Most destructive but **not detected** by AEA
- **Alert Types:**
  - **BeAware Alert:** For mild shaking
  - **TakeAction Alert:** For strong shaking; includes **loud audio** and overrides **silent mode**
- **Epicentre Estimation:**
  - Uses the **time gap** between P- and S-wave arrivals
  - Adjusted for **depth >200 km**

Performance and Impact (2021–2024)

- **Quakes Detected:** 18,000+
- **Alerts Issued:** 11,231
- **Major Events:**
  - **Turkey–Syria quake (M 7.8)**
  - **Nepal (M 5.7)**
  - **Philippines (M 6.7)**
  - **Turkey (M 6.2 in 2025)**
- **Global Reach:**
  - Grown from **25 crore users (2019)** to **250 crore (2024)**
- **User Satisfaction:**
  - 79% of **1.5 lakh users** found alerts useful

Limitations and Improvements

Key Challenges:

- Initial **magnitude estimation** not always accurate
- Some alerts received **after** shaking began
- **Surface waves** cannot be detected

Upgrades Implemented:

- Magnitude estimation error **reduced** from **±0.5 to ±0.25**
- Faster alert delivery
- **Reduced false positives** (e.g., from hurricanes or crowds)

Significance for Mains Answer Writing

Example for Disaster Management (GS III): *"The Android Earthquake Alert system demonstrates how AI and crowdsourced mobile technology can support early warning systems in disaster-prone areas, complementing national efforts like India's NDEM (National Database for Emergency Management)."*

Example for Science & Technology Ethics and Inclusion: *"With no additional cost to users, AEA exemplifies equitable tech-based disaster risk reduction, offering inclusive access to life-saving information even in low-resource settings."*

Conclusion

The Android Earthquake Alert system represents a **revolution in public safety tech**, harnessing everyday smartphones for **real-time seismic sensing**. Its expansion across the globe showcases how **public–private partnerships** and **crowdsourcing** can bridge critical gaps in

disaster preparedness and community resilience.

Critical Minerals and India's Strategic Imperative – Building Resilience for the Future

Context:

Strategic Value of Critical Minerals

- Critical minerals underpin **clean energy**, **digital transformation**, and **national security**.
- India's **import dependence and limited processing capacity** threaten its long-term autonomy.
- Securing these minerals is vital to achieve **Atmanirbharta (self-reliance)** in key industries like EVs, semiconductors, and defence.

What Makes Minerals 'Critical'

- Defined by:
  - **High importance** for strategic sectors (e.g., lithium, cobalt, REEs).
  - **High risk of supply chain disruption** due to geographical concentration and geopolitical control.
- Demand is driven by:
  - The **energy transition**
  - **Digitalisation**
  - Global efforts for **supply chain resilience**

Geopolitical Landscape: The China Factor

- **China dominates global supply chains**:
  - 90% of REE refining
  - 70% of cobalt processing
  - 60% of lithium conversion
- China's lead stems from **decades of industrial planning** and strategic foresight.
- India remains **highly vulnerable** to external supply shocks, particularly from Chinese export curbs.

India's Policy Response

- **2022**: Ministry of Mines identifies **30 critical minerals**.
- **2025**: Launch of the **National Critical Mineral Mission (NCMM)** to secure end-to-end supply chains.
- Ongoing exploration:
  - 195 projects in the past year
  - 227 approved for the upcoming year

Challenges in Exploration and Auctions

- **MMDR Act amendments** facilitated critical mineral auctions.
- **Five rounds completed**, but **low private participation** due to:
  - High capital requirements
  - Lack of processing technology
  - Regulatory and logistical hurdles

India's Midstream Weakness

- India lacks capability in **refining and chemical conversion**, leading to continued **dependence on foreign refineries**.
- **Battery-grade lithium, cobalt, and nickel** processing is still in nascent stages.

Proposed Industrial Interventions

- Establish **mineral processing zones** near mining hubs.
- Introduce **PLI schemes** for refining and separation technologies.
- Incentivise **private investment** in midstream industries through credit support and regulatory facilitation.

Geopolitical and Strategic Risk Management

- Recent Chinese **export restrictions** on REEs have directly affected India's EV and electronics sectors.
- Strategic steps needed:
  - Build **independent supply chains**
  - Deepen partnerships with **Australia, Argentina, and other resource-rich nations**
  - Engage with **Quad, G20**, and **Minerals Security Partnership (MSP)** for strategic alignment

Sustainability and Circular Economy Approach

- Promote **battery and e-waste recycling** to reduce raw material imports.
- Barriers to circular economy:
  - Dominance of informal sector
  - Lack of **efficient and formal recycling infrastructure**
- Sustainable mining:
  - Mineral reserves often lie in **tribal and ecologically sensitive areas**
  - Requires **ESG compliance**, community consent, and **benefit-sharing models**

Policy and Strategic Realignment

- Conduct **regular demand–supply assessments** of critical minerals.
- Create **strategic stockpiles** to cushion against global price and supply volatility.
- Align **mineral, industrial, energy, and foreign policies** for coherent national strategy.

Conclusion: A Strategic Imperative

India stands at a pivotal juncture. To ensure energy security, technological competitiveness, and strategic autonomy, India must:

- Reduce external dependence
- Invest in domestic capabilities
- Embed **sustainability and resilience** in its critical mineral value chain

With focused policy execution, India can emerge as a **major global hub in the critical mineral economy** and support its broader **geopolitical and economic ambitions**

The Reality of the Changing Dimensions of Warfare

The Erosion of Traditional Order

- Historical norms like the **Westphalian system** and **Congress of Vienna** have lost relevance in today's geopolitical climate.
- The illusion of peace since WWII masks decades of continuous, smaller conflicts.
- Modern power struggles rely more on **technology and unconventional means** than on diplomacy or static rules.

The False Promise of Post-War Peace

- The post-WWII world, despite its "rules-based international order", witnessed numerous **regional wars**—Korea, Vietnam, Middle East, etc.
- The **S. atomic dominance** temporarily suppressed large-scale wars but didn't eliminate conflict.
- Peace was an illusion, not a stable reality—**mistrust and surveillance** remained key diplomatic practices.

New Conflicts, New Doctrines

- The **end of the Cold War** and **9/11** marked turning points but not clear-cut beginnings of modern warfare.
- **Operation Desert Storm (1991)** revealed the **integration of precision, speed, and technology**—a blueprint for future wars.

- Military strategists only now fully grasp how transformative these early indicators were.

Ukraine, West Asia, and the India-Pakistan Conflict (2025)

- The **Russia-Ukraine war** and **conflicts in West Asia** showcase how drastically warfare has evolved.
- **Drone warfare**, **AI-driven targeting**, and **loitering munitions** are now central to combat.
- The **May 2025 India-Pakistan conflict** highlighted:
  - Use of **fixed-wing drones**, **BrahMos**, and **PL-15 missiles**
  - Transition to **network-centric warfare** and **precision weaponry**
  - Emergence of **multi-domain conflicts** (cyber, space, AI, kinetic)

Emergence of Technological Warfare

- Modern wars are no longer about troop numbers or physical strength alone.
- Rise of:
  - **Hypersonic missiles**
  - **AI-enabled autonomous systems**
  - **Cyber warfare** and **image-recognition-based targeting**
- Warfare has become **digital, decentralized, and data-driven**—old doctrines are becoming obsolete.

Urgent Need for Indian Adaptation

- India must **rethink its military modernisation plans** in light of these rapid changes.
- Reliance on:
  - **Rafale jets** and **delayed indigenous programs**
  - **Outdated procurement strategies**
- India risks being outpaced by China, which already fields **5th and is developing 6th generation fighters**, along with a **diversified UAV arsenal**.

Recommendations for India

- **Diversify military platforms and technology sources**
- Accelerate indigenous production of:
  - **Long-endurance drones**
  - **AI-integrated systems**
  - **Next-generation aircraft and missiles**
- Reassess all current **procurement policies and tenders** to align with future warfare needs.
- Prepare for potential **two-front war scenarios** with **digitally enabled, multi-domain readiness**.

Conclusion

The character of war has fundamentally changed. Traditional concepts of statecraft and physical force are giving way to **autonomous, AI-driven, and cyber-augmented warfare**. India must not only modernise but also **strategically transform** its military posture and technological capabilities to remain prepared for the realities of tomorrow's battlefield.

Swachh Survekshan 2024–2025

Evolution of the Survey

- From fewer than 100 cities in 2016 to over **4,500 urban centres** in 2024–25.
- Hailed as the **world's largest cleanliness survey**, spearheaded by SBM-Urban.
- Goes beyond awards—offers critical insights into **urban governance**, **waste management**, and **citizen behaviour**.

Evidence-Based Urban Sanitation Assessment

- Evaluates cities on **10 comprehensive parameters**, such as:
  - Waste segregation and disposal
  - Sanitation worker welfare
  - Grievance redressal mechanisms
- Involves **third-party verification** and feedback from **140 million citizens**, ensuring reliability and transparency.
- Acts as a powerful **planning and monitoring tool** for policymakers.

Super Swachh League: A More Equitable Ranking System

- Introduced to prevent **monopoly by recurring top performers** like Indore and Navi Mumbai.
- Created space for other cities like **Ahmedabad, Lucknow, and Bhopal** to rise within their categories.
- Grouped cities into **five population-based brackets**, promoting **inclusive and diverse participation**.
- Odisha's success reflects this: **Bhubaneswar's leap to 9th rank**, and emergence of smaller cities like **Aska and Chikiti**.

Showcasing Innovation and Best Practices

- Cities are becoming **laboratories of innovation**:
  - Indore: **Six-way waste segregation**
  - Surat: **Sewage treatment for revenue**
  - Pune: **Ragpicker-led cooperatives**
  - Agra: **Dumpsite conversion using bioremediation**
- The survey serves as a **repository of scalable models** that can be adapted nationwide.

Cleanliness as an Economic and Cultural Imperative

- Greater focus on **tourist hubs and cultural events** (e.g., Prayagraj during Maha Kumbh).
- The 2025 theme, **Reduce, Reuse, Recycle (RRR)**, builds on the prior **Waste to Wealth**
- Clean environments can **boost tourism, public health, and local economies**—an untapped opportunity for India, which holds only 1.5% of global tourist arrivals.

Challenges That Persist

- **Behavioural change around waste minimisation and recycling** is still limited.
- Despite success in eliminating open defecation, **consumerist habits and plastic use**
- With **5 lakh tonnes of waste** generated daily, much depends on:
  - **ULB capacity**
  - Efficient **waste segregation and collection**
  - Effective **plastic and e-waste management**

The Road Ahead

- The focus should now shift from **rankings to resilience**.
- Cleanliness must be seen not just as a duty but as a **civic virtue and economic opportunity**.
- Success hinges on **policy support, community involvement, and smart technology**.

Conclusion

Swachh Survekshan 2024–25 tells a story of possibility and progress. It proves that with **competition, innovation, data, and civic engagement**, India's cities can move from **waste management to wealth creation**—ensuring dignity, health, and sustainability for all.

MiG-21 Fighter Jets to Retire in September 2025

Why in News?

- The Indian Air Force (IAF) will **formally retire the MiG-21 Bison jets** in September 2025.
- A **ceremonial send-off** is planned at **Chandigarh Airbase**, attended by veteran pilots.
- **Tejas Mk1A** will replace the outgoing jets in a significant step toward **indigenisation** of defence equipment.

About MiG-21

➤ **Origin and Induction**

- Soviet-origin, single-engine **supersonic fighter and interceptor**.
- First inducted in **1963**.
- Over **700 aircraft** inducted, many **assembled by HAL** under license.

➤ **Operational Legacy**

- **Backbone of IAF** until mid-2000s.
- Played critical roles in:
  - **1965 & 1971 wars** with Pakistan
  - **Kargil War** (1999)
  - **Balakot air strikes** (2019) – Abhinandan Varthaman shot down a Pakistani F-16 using a MiG-21.
  - **Operation Sindoor**

Current Status

- Two remaining squadrons (36 aircraft):
  - **23 Squadron (Panthers)**
  - **3 Squadron (Cobras)**
- Stationed at **Nal Airbase**, Rajasthan.
- Post-retirement, IAF's squadron strength will **drop to 29 squadrons**, below the sanctioned strength of **42**.

Challenges and Controversies

➤ **Accidents & Safety**

- Nicknamed **"Flying Coffin"** due to high crash rate.
- **170 pilots** and **40 civilians** have lost their lives in MiG-related accidents.

➤ **Ageing Fleet**

- Airframe and technology are **severely outdated**.
- Maintenance and safety issues have grown over time.

Future Roadmap

➤ **Indigenisation: Tejas Mk1A**

- Replacing MiG-21 with **indigenously developed Tejas Mk1A**
- Manufactured by **HAL**, with better **avionics**, **combat capability**, and **safety standards**.

➤ **Modernisation of IAF**

- Ongoing efforts to:
  - Induct **Rafale**, **Su-30MKI**, **Tejas Mk1A**, and future **AMCA**.
  - Maintain strategic edge amidst **two-front threat** from China and Pakistan.

Realities behind the global experiment of 'remote work

Remote Work: The Promise vs. the Reality

- **Global aspiration**: Workers worldwide desire more flexibility and autonomy.
- **Practice lags aspiration**: Actual remote workdays remain well below ideal expectations (1.27 vs 2.6 days globally in 2024).
- **Cultural and structural obstacles**: Traditional work culture, poor

infrastructure, and managerial reluctance hinder implementation.

Survey Insights and Regional Disparities

- **Global Survey of Working Arrangements** (Stanford & Ifo Institute): Data from 16,000 educated workers across 40 countries (2024–25).
- **Geographical variations**:
  - **Western nations** (US, UK, Canada): 1.6 remote days/week.
  - **Asia**: Only 1.1 days, despite higher aspiration — due to "presenteeism", small living spaces, and unreliable internet.
  - **Africa & Latin America**: Mid-range participation in remote work.

Gendered Patterns in Remote Work

- **Women, especially mothers**, desire more remote work (avg. 2.66 days/week) — driven by care responsibilities.
- **Persistent inequality**: Remote work for women often reflects necessity, not empowerment.
- **Men's motivations differ**: Emphasis on autonomy, hobbies, and relief from office monotony — not caregiving.
- **European anomaly**: Men report slightly more remote days than women.

Why Remote Work is Declining

- **Employer concerns**: Fear of reduced collaboration, team cohesion, innovation, and oversight.
- **Structural constraints**: Many industries lack systems for remote effectiveness.
- **Health impacts**:
  - Physical: Higher rates of back pain, headaches, eye strain.
  - Mental: Isolation, blurred work-life boundaries, burnout.

Hybrid Work: A Balanced Path

- **Best compromise**: Combining office presence with home flexibility.
- **Needs institutional support**:
  - Ergonomic and mental health safeguards at home.
  - Digital disconnection protocols to prevent burnout.
  - Investment in remote infrastructure.

Policy and Infrastructure Imperatives

- **Governments' role**:
  - Universal broadband and digital access.
  - Home office upgrade stipends.
  - Legally enforced remote work standards.
- **Especially urgent in developing countries**, where infrastructure lags.

Broader Societal Implications

- **Gender equity challenge**: Remote work alone won't fix unequal domestic burdens.
- **Shifting male identity**: Autonomy is now a dominant motivator — a sign of evolving work values.
- **Deeper reflections**: The remote work model reflects tensions between:
  - **Freedom vs. control**
  - **Trust vs. oversight**
  - **Autonomy vs. loneliness**

Conclusion

Remote work is not just a technological adjustment; it's a **social mirror** revealing deeper fractures in workplace culture, gender roles, and institutional imagination. Without structural reforms and cultural change, the promise of remote work will remain unfulfilled — especially for the global South and for women worldwide.

Chikungunya Virus

Why in News?

China's **Ministry of Health** has launched an **emergency public health campaign** to address a **rising risk of Chikungunya fever**, especially in southern regions vulnerable to **mosquito-borne illnesses**.

What is Chikungunya?

Aspect	Details
Causative Agent	*Chikungunya virus* (CHIKV), an **RNA virus** of the genus *Alphavirus*
First Identified	1952, during an outbreak in **Tanzania**
Etymology	From **Makonde (Africa)** meaning "that which bends up" (due to joint pain)
Geographic Spread	Over **110 countries** in **Asia**, **Africa**, **Europe**, **Americas**

Transmission

- Spread by bites of **infected female mosquitoes**:
    - **Aedes aegypti**
    - **Aedes albopictus**
- These are **daytime-biting mosquitoes**, also known for transmitting:
    - Dengue
    - Zika
    - Yellow Fever
- **Not transmitted** directly from person to person

Symptoms and Impact

Common Symptoms	Others
Sudden high **fever**	Rash
Severe joint pain (hallmark)	Muscle ache, fatigue, headache
May last **weeks to months**	Nausea, mild hemorrhage (rare)
Rarely fatal but **debilitating**	Long-term arthritis-like effects

- Higher risk of complications in:
    - Infants under 1 year
    - Elderly
    - People with co-morbidities

Treatment and Prevention

- **No vaccine** or specific **antiviral** exists
- **Treatment is symptomatic**:
    - Rest
    - Fluids
    - Paracetamol
- **Prevention**:
    - Mosquito control
    - Personal protection
    - Community sanitation

India Can Reframe the Artificial Intelligence Debate

Context

India will host the **AI Impact Summit** in **February 2026**, aiming to promote a vision of Artificial Intelligence (AI) that serves **inclusion, development, safety**, and **international cooperation**, especially from the **Global South's perspective**. India seeks to demonstrate that **governments**, not just private corporations, can lead **AI innovation for public good**.

What is the AI Impact Summit 2026?

- A major **international forum in New Delhi** to shape the **global AI future**.
- Follows the **Bletchley Declaration (UK, 2023)** and the **Paris AI Summit (2025)**—which lacked consensus.
- India wants to frame AI as:
  - A tool for **developmental inclusion**.
  - An area for **democratic innovation**.
  - A platform for **cooperative safety frameworks**.
  - A voice for the **Global South** in global AI discourse.

Why is India's Role Significant?

- **Geopolitical Context**:
  - Prior summits were **fractured** due to **global tensions**: Ukraine war, West Asia instability, and US-China rivalry.
- **India's Credibility**:
  - Positioned as a **neutral democratic voice** capable of bridging North-South divides.
- **Public Participation**:
  - India's agenda-setting process includes **citizen input via MyGov**, reflecting a **participatory approach**.

Five Key Proposals from India's Digital Experience

1. **AI Pledges and Report Cards**

- Inspired by **Aadhaar** and **UPI** as public digital goods.
- Proposal:
  - Each country announces a **measurable AI goal** (e.g., reduce compute energy; AI literacy for girls).
  - A **global scoreboard** to track progress annually.

2. **Global South in the Front Row**

- Ensure **equitable representation** from developing countries.
- Propose creation of an **"AI for Billions Fund"** to:
  - Provide **cloud credits**.
  - Offer **fellowships**.
  - Develop **local language datasets**.
- Launch an **AI Challenge** for **50 underserved languages** (Indian & African).

3. **Global AI Safety Collaborative**

- Establish a **unified safety checklist** for AI model development.
- Share:
  - **Red team scripts**
  - **Stress test data**,
  - **Incident logs**.
- India's **AI Institute** to publish **open evaluation kits** for bias, fairness, and robustness.

4. **Voluntary Frontier AI Code of Conduct**

- Position between:
  - US laissez-faire model,
  - EU's AI Act,
  - China's heavy state control.
- Inspired by **Seoul AI Pledge**.
- Specific commitments:
  - **External red team** audit within 90 days.
  - **Compute disclosure** after usage crosses threshold.
  - **Accident hotline** for real-time reporting.

5. **Avoiding Summit Fragmentation**

- Ensure the summit **remains inclusive** and avoids being split along geopolitical lines.

- Foster **global common ground**, not tech nationalism.

Conclusion:

India has a unique opportunity to **redefine the global AI discourse** through its democratic, inclusive, and citizen-first approach. By anchoring AI in **public good**, **linguistic diversity**, and **digital trust**, India can lead a model that emphasizes **ethical innovation** and **South-South cooperation**, avoiding the polarizing models of tech dominance seen in other parts of the world.

BioEmu: A New Frontier in Protein Dynamics

The Core Issue: Protein Dynamics

- **Proteins are not static**: They constantly **twist, shift, and adopt different shapes** essential to their biological functions.
- Traditional tools like **AlphaFold** predict only **one stable structure**, missing these dynamic conformations.
- **Dynamic modeling** is crucial for understanding:
  - **How proteins function**
  - **Where drugs can bind**
  - **Why mutations alter activity**

What is BioEmu?

- A **deep learning-based AI system** developed by:
  - **Microsoft**
  - **Rice University**
  - **Freie Universität Berlin**
- **Function**: Predicts the **equilibrium ensemble** — the **full range of stable conformations** a protein adopts under biological conditions.

Why is BioEmu Important?

Key Benefits:

- **Cryptic Pockets Detection**: Reveals **hidden drug-binding sites** not visible in static models.
- **Massive Speed Advantage**: Offers high-resolution, large-scale modeling of **thousands of proteins** at reduced cost.
- **Resource Efficiency**: Drastically reduces computation time compared to molecular simulations.

Traditional Approach: Molecular Dynamics (MD)

Features:

- Simulates **real-time motion** of proteins using tools like:
  - **GROMACS**
  - **Anton**
- Provides **fine-grained transition data** (how a protein moves over time).

Limitations of MD:

- **Extremely slow & expensive** — requires **thousands of GPU-hours** even for microsecond-level simulations.

Limitations of BioEmu

Feature	Limitation
Transition Path	Does **not show how** proteins change shape over time
Complex Biological Contexts	Cannot yet simulate **drug binding**, **cell membranes**, **pH**, **temperature**, or **multi-chain interactions**
Prediction Confidence	**Does not indicate confidence scores**, unlike AlphaFold

- **Combined Use**: Speeds up **drug discovery**, protein function analysis, and structural modeling.

Implications for Science and Drug Discovery

What it Enables:

- Faster **drug target identification**
- Insight into **protein flexibility**
- Boosts **structural biology research**
- Scalable modeling for **thousands of proteins** cost-effectively

Required Skillsets for Scientists:

- **AI & Machine Learning**
- **Molecular Biology**
- **Physics-based simulation**
- **Physical Chemistry & Modeling**

The Universe's Antimatter Mystery

Core Puzzle: Why is the Universe Made Mostly of Matter?

- According to the **Big Bang theory**, **equal amounts of matter and antimatter** should have been created.
- Yet, the observable universe is overwhelmingly composed of **matter**, with **antimatter nearly absent**.
- This **asymmetry** is one of the **deepest mysteries** in modern physics and cosmology.

What is CP Violation?

➤ CP Symmetry:

- **C (Charge conjugation)**: Swapping particles with **antiparticles**.
- **P (Parity)**: Mirror inversion of **physical processes**.
- **CP symmetry**: If laws remain unchanged when both **C** and **P** are applied, CP symmetry holds.

➤ CP Violation:

- If CP symmetry **fails**, it means **nature treats matter and antimatter differently**.
- CP violation is considered a **possible explanation** for matter dominance in the universe.

Previous Observations of CP Violation:

- Detected **only in mesons** (quark-antiquark combinations).
- **Never before observed in baryons** (three-quark particles like protons and neutrons).

New Discovery: CP Violation in Baryons

- **Where?** At **CERN's Large Hadron Collider** using the **LHCb detector**.
- **Particle involved:** Λb^0 (Lambda b-zero), a type of baryon.
- **What was observed?**
  - Its **decay products** were compared with those of its **antiparticle**.
  - Showed a **2.45% asymmetry**.
  - **Statistical confidence:** 5.2 sigma (meets the threshold of a discovery).

Significance:

- Confirms that **baryons**, the building blocks of visible matter, **also exhibit CP violation**.
- While the effect is **small**, it provides a crucial clue to solving the **matter-antimatter imbalance**.

What is Antimatter?

🔷 **Definition:**

- Antimatter is the **mirror twin** of ordinary matter.
- It consists of particles with **the same mass** but **opposite electric charge**.

🔷 **Examples:**

Matter Particle	Antimatter Equivalent
Electron (−)	Positron (+)
Proton (+)	Antiproton (−)
Neutron (0)	Antineutron (0)

🔷 **Properties:**

- Antimatter has **mass** like matter.
- It is **highly unstable** in normal conditions.
- **Annihilates** on contact with matter, releasing immense energy.

Key Historical Milestones:

- **1928**: Paul Dirac predicted antimatter via quantum equations.
- **1932**: **Positron** discovered in cosmic rays.
- **1955**: **Antiproton** produced at Bevatron accelerator (Berkeley).

How is Antimatter Created?

- Produced via **ultra-high-speed collisions** at particle accelerators like:
  - **Large Hadron Collider (LHC)** – CERN, Geneva
- **Complex Antimatter**:
  - **Antihydrogen** produced in labs.
  - Most complex: **Antihelium** (counterpart of helium).

Applications of Antimatter:

Field	Application
Medical Imaging	**PET Scans** use positrons for high-resolution body imaging
Cancer Treatment	**Antiproton therapy** targets and destroys tumors precisely
Interstellar Travel	**Matter-antimatter annihilation** could power space probes (e.g., to Alpha Centauri)
Materials Science	Detect atomic vulnerabilities to **design stronger materials**
Defense	Theoretical use as **trigger mechanism in advanced nuclear weapons**

SEBI moves to curb high volatility in electricity futures

Context

The **Securities and Exchange Board of India (SEBI)** plans to impose **higher margins during high-volatility periods** in the **electricity futures market** to curb speculative trading and ensure stability.

About Electricity Futures

🔷 Classification & Regulation

- **Electricity** is classified as a **highly volatile commodity**, requiring **higher initial margins** for futures trading.
- Futures product jointly developed by **SEBI, NSE, and CERC** (Central Electricity Regulatory Commission).

🔷 Purpose

- To provide **price stability** and **hedging instruments** for:
    - Electricity Generators (Gencos)
    - Distribution Companies (Discoms)
    - Large Industrial Consumers
- Helps manage **sudden price fluctuations** in the short-term power market.

🔷 Contract Features

- **Bi-monthly expiry**
- **NSE holds 95%** of market share; **MCX 5%**

Electricity Derivatives Explained

🔶 Derivative Instruments in Power Sector

- **Electricity Futures**: Standardized contracts to buy/sell electricity at a fixed future date and price.
- **Options**: Give the right (not obligation) to buy/sell electricity at a certain price before expiry.
- **Swaps**: Agreements to exchange cash flows, e.g., fixed vs variable electricity prices over time.

Advantages of Electricity Derivatives

- **Hedging risk** from price fluctuations.
- **Enhances liquidity** in electricity markets.
- **Improves demand forecasting**, key for deploying **Energy Storage Systems (ESS)**.
- **Separates financial settlement** from physical delivery—deepens the electricity market.

Link with Clean Energy Vision

- Aligns with India's target of:
    - **500 GW** non-fossil fuel capacity by **2030**.
    - **Net-zero emissions by 2070**.
- Needs **~USD 250 billion annually till 2047** for green energy transition.
- **Stable electricity prices** are crucial for financing and planning renewable energy projects.

Basic Understanding of Derivatives

Instrument	Description
Futures	Legal contract to buy/sell asset at predetermined price and future date
Options	Right (not obligation) to buy/sell asset at specific price within time frame
Swaps	Private contracts to exchange financial flows like interest rates, electricity, etc.

Conclusion / Way Forward

- SEBI's move ensures a balance between **market development** and **investor protection**.
- Electricity futures are essential tools in India's journey toward a **green, efficient, and stable energy economy**.
- Future focus must be on **strengthening oversight**, **encouraging hedging participants**, and **educating stakeholders** about electricity market dynamics.

EU imposes sanctions on refinery in Gujarat for Russia energy links

Context

The **European Union (EU)** has imposed sanctions on **Nayara Energy Ltd.**, a

refinery located in **Vadinar, Gujarat**, partly owned (49.13%) by **Russia's Rosneft**. This is the first time an Indian-based energy installation has been targeted under EU sanctions against Russia.

About Nayara Energy & Sanction Trigger

- **Location**: Vadinar, Gujarat
- **Ownership**: Rosneft (Russia) – 49.13%
- **Capacity**: Processes 400,000 barrels/day
- **Operations**: Runs over 6,300 petrol pumps across India
- **Designation**: Marked as a "Rosneft refinery in India" by the EU.

New EU Sanctions Package (18th Sanctions Package on Russia)

Aimed at weakening Russia's economic and military capabilities amid the Ukraine conflict.

🔷 Key Measures:

1. **Oil Price Cap**
   - G7-nation buyers must cap Russian oil purchases at **$47.6/barrel** (earlier $60).
2. **Import Ban**
   - EU-wide ban on **refined products made from Russian crude**.
3. **Pipeline Restrictions**
   - **Full transaction ban** on **Nord Stream 1 & 2** pipelines
   - Pipelines transport Russian natural gas to Germany via the Baltic Sea.
4. **Maritime & Energy Sanctions**
   - Ban on **105 additional vessels** (total now 444), targeting the **shadow fleet** evading sanctions.
   - Travel bans, asset freezes, and clampdowns on flag registries.
5. **Financial Sector Sanctions**
   - Transaction bans on **45 Russian banks**
   - Sanctions on **26 entities** supplying dual-use goods (civilian + military), disrupting Russia's **military-industrial complex**.

India's Position & U.S. Angle

- India has continued energy trade with Russia post-Ukraine invasion citing **strategic autonomy**.
- EU sanctions could lead to **diplomatic scrutiny** over Indian oil procurement from Russian-linked entities.
- **U.S. debates** on imposing stricter measures on Russian oil buyers could further pressurize India.

Geopolitical & Legal Significance

- Highlights EU's alignment with **Ukraine** and intent to pressure Russia economically.
- Sanctions issued under the **EU Common Foreign and Security Policy (CFSP)**.
  - Legally enforceable under **Council Regulations** via the **Treaty on the Functioning of the EU (TFEU)**.

Conclusion / Way Forward

- India needs to carefully navigate **strategic partnerships** without compromising **energy security**.
- Emphasis on developing diversified energy sources and **indigenous refining capabilities**.
- Continue upholding **neutrality** in global conflicts while maintaining diplomatic channels with the West and Russia.

Share of Clean Energy in Electricity Still Below 30%

India's Clean Energy Paradox: Installed Capacity vs Actual Supply

Context

India has achieved a major milestone by reaching **50% installed capacity** from **non-fossil fuel sources**, **five years ahead** of its **Nationally Determined Contributions (NDCs)** under the **Paris Agreement**. However, the **actual share of clean energy in electricity generated and supplied** remains **below 30%**, raising concerns over efficiency and integration.

Installed Capacity vs Actual Generation

Indicator	2014	2025
Share in Installed Capacity (RE + nuclear + hydro)	~30%	50%
Share in Actual Generation	~17%	~28%

- **Installed Capacity (June 2025)**: ~484 GW total
- **Clean Energy Share**: Solar, wind, biomass, hydro (large & small), nuclear.

Why the Gap?

1. Low Capacity Utilisation Factor (CUF):

- **CUF** = % of installed capacity actually generating power.
- **Solar CUF**: ~20%
- **Wind CUF**: 25–30%
- **Coal CUF**: ~60%
- **Nuclear CUF**: ~80%
  ➞ Despite high capacity, actual output from renewables is limited.

2. Coal as Base Load Source:

- Coal still meets **~75%** of India's electricity needs.
- Critical for **round-the-clock** power availability.
- **Solar power drops** after sunset, increasing **coal dependence** in evenings.

Challenges to Integration

- **Lack of flexible grids**.
- **Absence of large-scale battery storage**.
- **Flat electricity pricing** (same tariff day/night).
- **Inadequate smart grid infrastructure**.
- Seasonal and diurnal variability in renewables.

Suggested Solutions

1. Smart Grids & Differential Tariffs

- Introduce **time-of-day pricing**: cheaper power during **daytime** to promote solar use.
- Requires robust **grid automation and digital metering**.

2. Battery Storage Systems

- Store excess **solar/wind energy** during the day.
- Release during **peak demand** (evenings/nights).

3. Hybrid Energy Models

- Combine **solar + wind + hydro + storage** for stable power supply.
- Encouraged in recent policy pushes for **round-the-clock (RTC)** renewable projects.

Significance

- **Clean energy leadership**: India progressing on its **climate goals**.
- But to move from **capacity addition** to **real decarbonisation**, the focus must shift to:
  - **Efficient utilisation**
  - **Technology integration**
  - **Demand-side management**

- Lays foundation for **energy transition**, but real impact will depend on **policy innovation**, **infrastructure**, and **behavioral economics**.

Global Shipping and Decarbonisation

What is the Goal?

- **Target:** Decarbonisation of global shipping by **2040–2050**.
- Aligns with **International Maritime Organization (IMO)** goals for **net-zero emissions** by 2050.
- Aims to replace fossil-based marine fuels like **VLSFO**, diesel, and **LNG** with **green alternatives**.

What Are Green Marine Fuels?

1. Green Hydrogen

- Produced by **electrolysis of water using renewable energy**.
- Not directly used in shipping due to **storage and safety concerns**.

2. Green Ammonia

- Made from **green hydrogen + nitrogen**.
- Emits **no carbon** when burned.
- **Challenges**: Toxicity, storage at low temperatures, and engine modification.

3. Green (E-)Methanol

- Made from **green hydrogen + captured CO_2** from industrial sources.
- **Low-carbon** fuel (90% less CO_2 than VLSFO).
- Easier adoption due to **liquid state at ambient temperature**.
- Can be used with **modest engine and storage changes** (drop-in fuel).

4. Biofuels

- Derived from organic material.
- Seen as interim solutions, but **scale limitations and land-use concerns**

Why Is Decarbonising Shipping Difficult?

- **High Fuel Costs**: Green e-methanol costs **~$1,950/tonne** vs VLSFO at **~$560/tonne**.
- **Technology Lag**: Shipping industry is conservative, slow to adopt new tech.
- **Infrastructure Gaps**: Lack of bunkering (refuelling) infrastructure for green fuels.
- **Engine Compatibility**: Retrofitting or building green-capable ships requires **high capital investment**.
- **Green Fuel Supply-Demand Gap**: Expected demand for green methanol in 2028 is **14 million tonnes**, but projected supply is only **11 million tonnes**.

India's Strategy for Green Shipping

Domestic Plans

- **Decarbonise coastal shipping** using green fuels.
- Develop **green bunkering hubs** at **Tuticorin** and **Kandla**
- **Retrofitting & new ship builds** with green fuel compatibility.
- Target: At least **10-20%** of the 110 ships (under $10 billion plan) to be **green fuel capable and Indian-flagged**.

Green Ammonia Push

- India's fertilizer sector relies on **LNG imports** — green ammonia could substitute.
- India can become a **major exporter** of green ammonia to **Singapore** (global refuelling hub).

How Can India Build Green Fuel Hubs?

Strengths

- **Solar power capacity** (from 2.8 GW in 2014 to 105 GW in 2025).
- **Industrial CO_2** sources and **planned 1.5 GW electrolyser manufacturing**
- Strong experience in **solar ecosystem creation** via **sovereign guarantees** and **policy assurance**.

Challenges

- Import dependency on **solar panels and electrolysers**.
- High upfront costs for **green methanol plants**.
- **Financing hurdles**: Indian loans ~12% interest; global banks offer ~4%.

Policy Recommendations

- **Sovereign guarantees** for de-risking green fuel investments.
- **PLI schemes** for electrolyser and green hydrogen production.
- **Carbon Capture Utilisation & Storage (CCUS)** incentives to improve e-methanol feasibility.
- Leverage **multilateral finance** for capital access.

Reviving Shipbuilding and Ownership in India

- Encourage **foreign partnerships** with Japan, South Korea for technology and scale.
- **Retrofit existing vessels** and build new green-capable ships domestically.
- Strategic incentives to make Indian shipyards competitive.
- Government to support **Indian-flagged, green fuel-ready fleet**.

Locust Swarming: New Research on Pheromone Control

Why in News?

- Researchers from the **Institute of Zoology, Chinese Academy of Sciences**, have identified the **pheromone responsible for locust swarming** and demonstrated a **molecular strategy to block it**.
- The study, published in *Nature* (June 25), offers a **proof-of-concept for eco-friendly locust control**—a potential alternative to harmful pesticides.

Background: The Locust Menace

- Locusts in swarms can consume **as much food as 35,000 people/day per sq. km.**
- Major swarms occurred in **East Africa, Pakistan, and India (2019–2020)**, the worst in 25 years.
- Current control methods heavily rely on **chemical insecticides**, which harm soil, ecosystems, and human health.

Key Findings of the Study

1. Swarming Trigger: 4-Vinylanisole (4VA)

- Locusts release **4VA**, an **aggregation pheromone**, **after feeding**, which draws other locusts and **initiates gregarious behavior**.
- Triggered by serotonin release due to leg rubbing.

2. Role of Phenylalanine

- The **amino acid phenylalanine**, present in plant material, is metabolized by locusts after eating.
- It is converted into 4VA via two key enzymes:

- **4VPMT1** (primary)
- **4VPMT2** (secondary)

3. Disrupting 4VA Biosynthesis

- Genetic deactivation of the **4VPMT1** gene prevented the **transition from solitary to gregarious phase**.
- Using **4-nitrophenol (4NP)**, researchers **blocked the 4VPMT enzyme**, stopping 4VA production.

Challenges

- **4NP is toxic** and environmentally persistent (up to 2 weeks in soil, 2+ months in seawater).
- Exposure risks include **eye, skin, and respiratory irritation**.

Proposed Alternatives

- **RNA interference (RNAi)**: Gene silencing technique targeting **4VPMT**
- Identified **7 safer molecular candidates** for future research.
- Encourages **pollution-free locust control** through **bio-molecular intervention**.

Integrated Locust Control Strategy Proposed

1. Use synthetic 4VA analogues to **trap and eliminate** locusts using fungi or limited pesticides.
2. **Spray 4VA disruptors** to prevent swarming.
3. **Track population** via 4VA markers.
4. Release **genetically modified solitary-phase locusts** into the wild.
5. Combine **molecular blockers** with **biopesticides** for sustainable control.

Significance

- Marks a major breakthrough in **eco-friendly pest control**.
- Reduces dependence on **broad-spectrum chemical insecticides**.
- Offers an opportunity for **precision agriculture and integrated pest management**.
- Important for **food security**, especially in arid regions vulnerable to locust outbreaks.

Aircraft Accident Investigation Bureau

Why in News?

- **Preliminary report** released by **AAIB** on the **Air India AI 171 crash (Ahmedabad)** where 241 of 242 onboard died.
- Found **both engine fuel control switches moved to 'CUTOFF'** seconds after takeoff.
- Raised suspicions, leading to detailed investigation using **CVR (Cockpit Voice Recorder)** and **FDR (Flight Data Recorder)**.

Aircraft Crash Investigation: Global Norms

- Governed by the **1944 Chicago Convention** (ICAO – UN aviation body).
- **'State of Occurrence'** leads the investigation.
- Other stakeholders:
  - **State of Registry** – country where aircraft is registered.
  - **State of the Operator** – which operated the flight.
  - **State of Design** – responsible for design approval.
  - **State of Manufacture** – responsible for final aircraft assembly.
- Rules outlined in **Annex 13** of the Convention.

About AAIB: India's Independent Crash Investigation Body

- **Established: 2012**, post-ICAO directive to separate regulation from investigation.
- Works under the **Ministry of Civil Aviation** as an **Attached Office**.
- Ensures **impartial, independent investigations**, distinct from DGCA (regulatory body).

Legal Framework

- **Section 7 of the Aircraft Act, 1934** empowers rules for accident investigation.
- Initially, handled by DGCA's Air Safety Directorate under **Aircraft Rules, 1937**.
- Current governing rules:
  - **Aircraft (Investigation of Accidents and Incidents) Rules, 2012**
  - Amended in **2017 and 2021**

Functions of AAIB

- Investigates:
  - **All accidents and serious incidents** involving:
    - Aircraft over **2,250 kg All-Up Weight**
    - **Turbojet aircraft**
  - **Classification of events**:
    - Accident
    - Serious Incident
    - Incident

Key Powers

- **Unrestricted access** to:
  - Crash site, black boxes, records, operators, regulator data
- Can collaborate with:
  - **HAL**, DGCA labs, and other experts

Investigation Focus

- **Only prevention-focused**: No blame or liability is assigned (Rule 3 of 2017 Rules)
- Steps:
  - Immediate site inspection
  - Evidence preservation
  - Technical and expert analysis
  - Draft and final report published, submitted to ICAO and stakeholders

Additional Roles

- Conducting **safety studies**
- Issuing **safety recommendations** to:
  - DGCA
  - International aviation regulators

Conclusion

- The AAIB plays a **critical role in aviation safety**.
- The **AI 171 crash** highlights the need for **transparent, independent, and quick investigations**.
- Strengthening AAIB with **modern forensics, AI tools, expert manpower, and global partnerships** is vital for India's fast-growing aviation sector.

India's Turn to Repay the Green Revolution Debt

Why in News?

- USAID, the major funder of CIMMYT, was shut down from **July 1, 2024** by the Trump administration.

- **CIMMYT** (International Maize and Wheat Improvement Center), crucial to India's Green Revolution, now seeks increased support from India.

About CIMMYT

- **Headquartered in Mexico**, CIMMYT is a premier institute for wheat and maize research.
- Founded with Rockefeller Foundation and Mexican govt. support in the 1940s–50s.
- **Norman Borlaug**, father of the Green Revolution, was closely associated.
- Developed high-yield **semi-dwarf wheat varieties**: Lerma Rojo 64A, Sonora 63.
- India first adopted CIMMYT wheat varieties in **1964–65**.
- In 2024, **USAID contributed $83 million** of CIMMYT's $211 million funding.

Wheat & Rice Research as Cold War Tools

- CIMMYT and IRRI (International Rice Research Institute) were **strategic tools** of US foreign policy to curb communism via food security.
- Helped boost cereal yields in Asia, Africa, and Latin America.
- Borlaug's varieties raised **Indian wheat yields from 1–1.5 to 4–4.5 tonnes/hectare**.
- Borlaug won the **Nobel Peace Prize in 1970** for these contributions.

India's Gains from the Green Revolution

- Indian scientists adapted CIMMYT and IRRI varieties to local conditions.
- Key Indian wheat varieties: **Kalyan Sona, Sonalika**, HD 2285, HD 2967.
- Key Indian rice varieties: **Swarna, Samba Mahsuri**; Basmati: Pusa 1121, 1509.
- Over **90% of Basmati exports** are from IARI-bred varieties.
- In 2024–25, India exported **1 million tonnes of Basmati worth $5.94 billion**.

Why India Still Needs CIMMYT and IRRI

- In 2024–25, **6 of top 10 wheat varieties** (over 20 million ha) used CIMMYT germplasm.
- Indian-bred HD 2967 had peaked earlier; few successful post-2019 domestic varieties.
- CIMMYT/IRRI offer advanced **germplasm**, **AI tools**, **gene-editing**, and **climate-resilient crop technologies**.
- Critical for addressing **heat, drought, nitrogen use efficiency**, and future food security.

Conclusion & Way Forward

- India contributed **just $0.8 million to CIMMYT** vs $18.3 million to IRRI in 2024.
- Given its huge benefit, India must **increase funding** to CIMMYT.
- This global support should **complement domestic R&D investment**, not substitute it.
- Strengthening **public research institutions** like IARI is key for sustainable agri-growth.

Air India Crash: Fuel Cut-Off & Systemic Failures

Context:

- On June 13, 2025, an **Air India Boeing 787-8 aircraft** crashed near Ahmedabad shortly after take-off, killing **at least 260 people**, including **19 on the ground**.
- Preliminary investigation by the **Aircraft Accident Investigation Bureau (AAIB)** reveals the **fuel switches of both engines transitioned to 'CUTOFF'** just **3 seconds after take-off**, leading to **engine thrust loss** and eventual crash.

Key Findings from AAIB Preliminary Report:

1. **Fuel Switch Malfunction or Manual Error?**

- **DGCA-registered cockpit recording** captures:
  - One pilot asking, *"Why did you cut-off [fuel]?"*
  - The other denying having done so.
- Both fuel control switches moved from **RUN to CUTOFF — 1 second apart** — then switched back to RUN after **10–12 seconds**.

2. **Engine Failure Timeline:**

- **1:38:42 PM** – Aircraft becomes airborne
- **3 seconds later** – Fuel switches transition to CUTOFF
- **Mayday call sent** ~30 seconds later
- **1:39:00 PM** – Aircraft crashes near airport boundary

3. **Prior FAA Advisory Ignored:**

- **FAA Advisory (2018)** warned of potential disengagement of fuel switch locking feature on Boeing 787-8.
- **Air India didn't act**, citing non-mandatory nature of the advisory.

4. **Black Box Recovery Delays:**

- Black boxes (Enhanced Airborne Flight Recorders, EAFRs) recovered:
  - **Tail section unit**: Substantially damaged
  - **Front unit**: Covered in soot, but intact
- Data retrieved only after **US NTSB kit** arrived on **June 23** – **10+ days delay**
- Raises concerns on India's readiness for crash forensics despite having a **black box analysis lab**

Technical Insights:

- **DGAT2 enzyme or technical fault not involved** here (unlike Alzheimer's research in previous note).
- Likely human error or **mechanical disengagement** of fuel lock switches
- Report **doesn't recommend changes** to Boeing 787-8 aircraft or GE GEnx-1B engines as of now

Critical Issues Highlighted:

1. Pilot Communication & CRM Failure?

- Miscommunication or malfunction?
- Raises questions on **Crew Resource Management (CRM)** practices and training

2. Regulatory Oversight Gaps:

- Advisory bulletins (FAA) not treated seriously
- Maintenance logs show no recent defect — but critical part was last replaced in 2023

3. Crash Forensics Delays:

- Despite India having a **black box lab**, it wasn't equipped to handle the damage

- Dependence on U.S. equipment (Golden Chassis, cables) delayed analysis

Conclusion:

This tragic crash underscores systemic vulnerabilities in **aviation safety**, **regulatory response**, and **crash investigation infrastructure**. While technical malfunction or human error is yet to be conclusively established, the event highlights the **urgent need for better compliance with international advisories**, **faster post-crash data analysis**, and **crew training in crisis management**.

With India expanding its aviation footprint, **strengthening civil aviation safety governance**, enhancing **indigenous black box forensics capacity**, and improving **aircrew protocols** must become national priorities.

Immune cells' fat blocks brain's ability to clean Alzheimer's plaques

Context:

A recent study published in the journal *Immunity* by researchers at Purdue University has uncovered a novel mechanism linking **fat accumulation in brain immune cells (microglia)** to **Alzheimer's disease (AD)** progression. This adds a new dimension to the understanding of neurodegeneration, going beyond the traditional **amyloid-beta and tau protein theories**.

Key Scientific Concepts:

1. Alzheimer's Disease (AD):

- A neurodegenerative disease characterized by:
  - Memory loss
  - Cognitive decline
  - Behavioural changes
- Key pathological features:
  - **Amyloid-beta (Aβ) plaques**
  - **Tau protein tangles**
  - Progressive neuronal damage

2. Microglia:

- The brain's resident immune cells
- Function: Clearing waste and toxic proteins like amyloid-beta
- In AD: Microglial function is impaired, contributing to plaque accumulation

3. Findings of the Study:

- Enzyme **DGAT2** converts **free fatty acids** into **triacylglycerols**, stored as **lipid droplets**.
- In late-stage Alzheimer's:
  - Microglia near amyloid plaques show **high DGAT2 expression**
  - They become bloated with **lipid droplets**, especially in the **hippocampus** (memory center)
- This fat build-up **compromises their ability to clear amyloid plaques**, worsening the disease.

4. Therapeutic Intervention:

- **DGAT2 inhibitors and PROTAC-like degraders** (specifically targeting microglia) were used in mice.
- Results:
  - **>50% reduction** in plaque burden
  - **Restoration of microglial immune function**
  - Reduced markers of neuronal damage

Broader Implications:

1. New Paradigm in Alzheimer's Understanding:

- From a **plaque-focused** to a **multifactorial model** incorporating:
    - Inflammation
    - Metabolic dysfunction
    - Lipid homeostasis disruption

2. Personalized and Targeted Therapies:

- Precision medicine through **cell-type-specific targeting** could avoid systemic side effects

3. India's Research Opportunity:

- Boosting **translational neuroscience** and **biotech innovation**
- Collaboration with global research networks to develop low-cost interventions

Conclusion:

This study adds a critical link between **lipid metabolism and immune dysfunction** in Alzheimer's disease, offering a promising avenue for **cell-specific therapeutic strategies**. While still in experimental stages, it redefines the role of **microglia not just as immune sentinels but also as metabolic gatekeepers** in the brain. With Alzheimer's burden rising in India due to an aging population, such breakthroughs underline the **need for early diagnosis, public awareness, and research funding** in neurodegenerative diseases.

A new BHARAT — establishing healthy ageing parameters for the Indian population

Context

The **Indian Institute of Science (IISc), Bengaluru**, launched the **BHARAT study** under the **Longevity India Program** in 2023.

- It aims to establish **India-specific biological baselines** for healthy ageing by collecting physiological, molecular, and lifestyle data.
- It addresses the **mismatch between global diagnostic benchmarks and Indian health profiles**.

What is BHARAT?

🔷 **Full Form:**

BHARAT = Biomarkers of Healthy Aging, Resilience, Adversity, and Transitions

🔷 **Objective:**

To define and map the **biological, molecular, and environmental indicators** that constitute **healthy ageing** in the Indian population.

🔷 **Components of the Study:**

1. **Genomic Markers** – mutations, disease susceptibility, genetic age.
2. **Proteomic/Metabolic Markers** – inflammation, glucose metabolism, cardiovascular health.
3. **Environmental & Lifestyle Factors** – diet, stress, pollution exposure, physical activity.

Why Chronological Age ≠ Biological Age?

- **Biological age** reflects **functional health and cellular wear** better than simple years lived.
- Influenced by **diet, pollution, genes, physical activity**, and **socioeconomic status**.
- **Early biological deterioration** is often missed if only chronological age is considered.

Need for India-Specific Data

🔶 **Global Benchmarking Flaws:**

- Most health standards (cholesterol, Vitamin D/B12, BMI) are **based on Western populations**.
- These may **misdiagnose or over-diagnose** Indian patients.

Example:

- **Vitamin D deficiency** per Western benchmarks may be common in India despite no functional harm.
- **Cholesterol cut-offs** may misrepresent cardiovascular risks in South Asians.

Studies Supporting Regional Differences:

- **Scientific Reports (China)** showed biomarkers vary in interpretation between **Europeans and Asians**.
- **Implication**: A "universal" standard is not suitable for clinical or policy-level decisions in the **Global South**.

Role of Artificial Intelligence & Machine Learning

- **AI/ML Integration** will help:
  - Process high-dimensional health data
  - Predict outcomes of lifestyle/dietary interventions
  - Detect early warning signals of disease progression
  - Personalize health recommendations

Outcomes of the BHARAT Study

Outcome	Relevance
Bharat Baseline Database	India-specific biological norms for ageing
Better Public Health Interventions	Preventive care based on **real-world Indian data**
Personalized Geriatric Care	Tailored to Indian genetics and environment
Reduces Misdiagnosis	Avoids applying Western cut-offs to Indian bodies
Strengthens Atmanirbhar Health Research	Enhances data sovereignty and **global South representation** in science

Conclusion

The **BHARAT study represents a paradigm shift** in Indian public health and biomedical research. By **moving beyond imported health metrics**, India is asserting the need for **context-sensitive, data-driven approaches** to ageing and wellness. This will not only improve healthcare outcomes but also help India **lead the Global South in shaping inclusive global health standards**.

Indigenous heavy water reactors get licence

Context

In a major boost to India's indigenous nuclear power programme, the **Atomic Energy Regulatory Board (AERB)** granted a **5-year operational licence** to **NPCIL** for **Kakrapar Atomic Power Station (KAPS) Units 3 and 4** in Gujarat. These are India's **first indigenously developed 700 MWe Pressurised Heavy Water Reactors (PHWRs)**.

Commissioning Milestones

- **KAPS Unit-3**: Achieved full power operation in **August 2023**.
- **KAPS Unit-4**: Reached full power commissioning in **August 2024**.
- Both reactors underwent commissioning under **Phase-C**,

involving extensive **safety and operational validation trials**.

Rigorous Licensing and Safety Review

- AERB licensing included **multi-tiered reviews** across the nuclear reactor lifecycle:
  ➤ *Siting → Design → Construction → Commissioning → Operation.*
- **Reactor design evaluation** spanned **15 years**, involving:
  - Technical support organizations
  - Independent nuclear safety experts
- Safety and efficiency improvements:
  - Earlier reactors: 15 PHWRs (220 MWe) + 2 PHWRs (540 MWe)
  - Current upgrade: 540 MWe → 700 Mwe

  ➤ Improves **energy output**, **fuel efficiency**, and **safety margins**.

What is a Pressurised Heavy Water Reactor (PHWR)?

- A **PHWR** is a type of nuclear reactor that uses:
  - **Natural (unenriched) uranium** as fuel.
  - **Heavy water (D_2O)** as both **coolant** and **moderator**.
- **Key Features:**
  - Heavy water coolant under pressure → enables high-temperature operation without boiling.
  - Does **not require fuel enrichment facilities**, making it **cost-effective** and **strategically autonomous**.
  - Heavy water is expensive, but improves **neutron economy** significantly.

NPCIL's Role and Future Plans

- **NPCIL (Nuclear Power Corporation of India Ltd.)**:
  ➤ A public sector undertaking under the **Department of Atomic Energy (DAE)**.
  ➤ Responsible for design, construction, and operation of nuclear power plants.
- With this licensing success, NPCIL aims to construct **10 more 700 MWe PHWRs** in **fleet mode**.

Fleet Mode Explained

- **Fleet Mode Construction** entails:
  - Standardised design & modular construction
  - Simultaneous reactor building at multiple sites
  - Lowered construction cost & time
  - Streamlined regulatory & administrative clearances

Atomic Energy Regulatory Board (AERB): India's Nuclear Safety Authority

- **Established**: 1983 by Presidential order
- **Legal Basis**:
  ➤ *Atomic Energy Act, 1962*
  ➤ *Environment (Protection) Act, 1986*
- **Mission**:
  ➤ Ensure use of nuclear energy and ionizing radiation **does not pose undue risks** to health and the environment.
- **Role**:
  - Regulatory oversight of all stages: design, construction, commissioning, operation, and decommissioning of nuclear facilities.

Significance

- Marks a **critical leap in India's Atmanirbhar Bharat vision** for nuclear energy.

- Strengthens India's **energy security** and **carbon-free power generation capacity**.
- Aligns with India's commitments under **climate change goals** and **net-zero targets**.
- Establishes India's capability to design and operate **high-capacity nuclear reactors** without foreign technology dependence.

Ahead of COP30, Bonn climate talks fumble the pressure test

The 2025 Bonn Climate Conference, meant as a crucial preparatory step for COP30 in Belém, Brazil, **exposed sharp divides** among countries over **finance, adaptation, equity, and mitigation**, despite limited technical progress.

1. **Procedural Deadlock and Agenda Disputes**
   - The talks were **delayed by two days**, reflecting deep-rooted tensions.
   - Key dispute: Inclusion of **climate finance obligations** (Article 9.1, Paris Agreement) and **unilateral trade measures** (e.g., carbon border taxes) as **separate agenda items**.
   - **Like-Minded Developing Countries (LMDCs)**, including India, demanded recognition of these as standalone issues.
   - **Developed countries**, particularly the EU, **opposed**, fearing dilution of mitigation focus.
   - Resolved informally, but revealed the fundamental divide: **Historical responsibility (Global South)** vs **Voluntary forward-looking action (Global North)**.
2. **Global Goal on Adaptation (GGA)**
   - Aim: Enhance resilience and reduce vulnerability to climate change.
   - Contentious task: Narrowing ~9,000 proposed **indicators** to around **100 core metrics**.
   - **India** pushed for **context-specific, flexible frameworks**, not one-size-fits-all standards.
   - Divisive issue: Inclusion of **Means of Implementation (MoI)** indicators—finance, technology, and capacity-building:
     - Supported by: **African Group, AILAC**
     - Opposed by: **Japan, Australia** (concern over over-reporting)
   - Outcome: Agreement on **headline indicators** and **regional sub-indicators**, but **no consensus** on MoI-related metrics.
3. **Mitigation Work Programme (MWP): Safe Space or Pressure Chamber?**
   - Originally launched under the **Glasgow Climate Pact (COP26)** to keep the **1.5°C goal alive**.
   - Key disagreement:
     - **Developed nations (EU, AOSIS):** Push for increased ambition and deliverables.
     - **Developing nations (India, LMDCs, Africa, Arab Group):** Call for a **non-punitive, facilitative approach** respecting national circumstances.
   - Developing countries reiterated that their **NDCs are ambitious**, but they face a **finance-tech deficit**.
   - Proposal: A **digital platform** to share mitigation strategies.
     - Supported: **Brazil, Egypt**
     - Opposed: **EU, AOSIS** (risk of redundancy and inefficiency)

4. **Loss and Damage (L&D), Just Transition, and Gender Focus**

Loss and Damage (L&D):

- Continued review of the **Warsaw International Mechanism (WIM)** and the **Santiago Network**.
- Developing countries (India, others) demanded:
  - **Non-economic L&D inclusion**.
  - Better **technical support** and **scaled-up finance**.

Just Transition Work Programme:

- Emphasis on **equity**, **labour rights**, and **stakeholder engagement**.
- Pushback against **carbon tariffs** and other **unilateral trade barriers**.
- Notable focus: Role of **critical minerals** in the green economy.

Gender Action Plan:

- Disputes over terminology (e.g., **intersectionality**).
- Emphasis on:
  - **Unpaid care work**, **SRH rights**, **GBV**.
  - Use of **gender-disaggregated data**, **traditional knowledge**, and **gender-responsive budgeting**.

5. **Climate Finance: The Sticking Point**

- Finance remained the **cross-cutting, unresolved issue**.
- Under Article 9.1 (Paris Agreement), developed countries are **obligated** to assist developing nations financially.
- Divisions:
  - **Grants vs loans**
  - **Public vs private finance**
  - **Mitigation vs adaptation funding**
- The **Baku to Belém roadmap** aims to raise **$1.3 trillion annually** for climate finance.
- Demands from G77+China, AOSIS, LDCs:
  - **Tripling adaptation finance by 2030** (relative to 2022).
  - **Fast-disbursing, non-debt instruments**.
  - **Equitable burden-sharing frameworks**.
- Innovative proposals:
  - **Taxes on financial transactions**.
  - **Commitment-tracking systems** for transparency.

Conclusion: A Divided Road to Belém

Despite technical progress in areas like adaptation indicators and gender budgeting, the Bonn talks revealed that **political will** remains fractured. Climate finance, equity in trade measures, and the structure of mitigation efforts remain heavily contested. As COP30 approaches, the world faces a **critical test of climate diplomacy**, where **trust, equity, and urgency** must align for real outcomes.

Budgetary allowances alone will not solve India's R&D problem

Context

- The **Union Cabinet** has approved a **₹1-lakh crore Research Development and Innovation (RDI)**
- It aims to **incentivise private sector investment** in **basic and core research**, an area traditionally dominated by the government.

- The scheme will be operationalised through the **Anusandhan National Research Foundation (ANRF)**.

Key Features of the Scheme:

Feature	Details
Fund Size	₹1 lakh crore
Implementing Body	**ANRF** (under Department of Science & Technology)
Type of Support	Primarily **low-interest loans** to private entities
Eligibility Criteria	Only projects at **Technology Readiness Level 4 (TRL-4)** and above

What is TRL-4?

- A concept developed by **NASA**, the **Technology Readiness Level** scale ranges from:
    - **TRL-1**: Basic principles observed
    - **TRL-9**: Actual system proven in operational environment
- **TRL-4** means **"Technology validated in lab"** — a mid-level threshold requiring some prior advancement in development.

India's R&D Landscape:

- **Current R&D Spending**: **~65% of GDP** (as per DST, 2022), much below:
    - **USA**: 2.8%
    - **China**: 2.4%
    - **South Korea**: 4.5%
- **Spending Breakdown**:
    - **Govt**: ~70%
    - **Private Sector**: ~30%
    - In contrast, in developed economies, **private sector leads R&D investment**.

Key Issues Highlighted:

1. Restrictive Eligibility (TRL-4 cutoff):

- Excludes **early-stage innovations**, where private capital is most needed.
- Contradicts the nature of **breakthrough innovations**, which often start at TRL-1 or 2.

2. Neglect of Strategic Public Investment:

- The U.S. invested in technologies like **GPS, Internet, radar** through **military R&D**, not private industry alone.
- India's lack of a comparable **military-industrial research complex** hinders risk-heavy R&D.

3. Brain Drain:

- Scientists and researchers leave for countries offering **better infrastructure, research ecosystems, and academic freedom**.

4. Weak High-Tech Manufacturing Base:

- There is a gap between **lab-level innovation and commercial-scale manufacturing**.
- No robust **ecosystem for deep-tech prototyping or productisation**.

Implications for India:

Area	Implication
Academia	Limited funding for blue-sky/basic research
Private Sector	Incentives could lead to tech commercialization if implementation is smooth
Innovation	Risk of short-termism; low support for moonshot projects

Area	Implication
Global Standing	Without structural reforms, India may continue lagging in global innovation rankings

Way Forward:

1. **Broaden Eligibility**:
    - Include **TRL 1–3 projects** and provide **grant-based support**, not just loans.
2. **Strengthen ANRF Autonomy**:
    - Ensure **academic freedom**, **peer-reviewed evaluations**, and **insulation from bureaucratic red tape**.
3. **Military–Industry Collaboration**:
    - Emulate models like **DARPA** (USA) or **Fraunhofer Institutes** (Germany) to develop high-risk technologies with public funds.
4. **Boost Domestic Manufacturing Capacity**:
    - Align R&D policies with **PLI schemes**, **Semiconductor Missions**, and **Make in India**
5. **Retain Talent**:
    - Create attractive **career pathways for researchers**, including in startups, labs, and think tanks.

India to Set Up Domestic MRO Facility for S-400 Air Defence System

Indian Firm Selected for MRO Operations

- The **Ministry of Defence** has identified an Indian firm to establish a **Maintenance, Repair, and Overhaul (MRO)** facility for the **S-400 Triumf** air defence system in India.

Strategic Importance of the MRO Facility

- This facility will enable **India to be self-reliant** in maintaining advanced air defence systems.
- It aligns with the **'Make in India'** and **Atmanirbhar Bharat**
- It helps India **mitigate supply chain disruptions** and **bypass international sanctions** that may affect the availability of spare parts and technical support from Russia.

Role of S-400 in Operation Sindoor

- India currently possesses **three S-400 systems**, officially named **Sudarshan Chakra**.
- During **Pakistan's retaliation** for India's Operation Sindoor in May 2025, the S-400 played a **crucial role in intercepting and destroying drones and missiles** aimed at **over 15 Indian cities**.

India's Procurement of S-400 Systems

- India had signed a deal with Russia in **2018 for five S-400 systems** at an estimated cost of **$5.43 billion (approx. ₹40,000 crore)**.
- **Three systems have been delivered**, with the **fourth and fifth** expected in **2026 and 2027**, respectively.
- The deal had faced **pressure from the U.S. under CAATSA sanctions**, but India has remained firm on the decision due to the system's critical capabilities.

Additional Information: What is the S-400?

- The **S-400 Triumf** is one of the **world's most advanced air defence systems**, developed by **Russia's Almaz-Antey**.

- It can **detect, track, and destroy aerial targets** including:
    - Aircraft
    - Unmanned aerial vehicles (UAVs)
    - Cruise missiles
    - Ballistic missiles
- The system can engage targets at **ranges up to 400 km** and at **altitudes up to 30 km**.
- It uses **multiple missile types** with varying ranges and is known for its **multi-layered defence capability**.
- S-400 radar and missile guidance systems are **highly sophisticated**, providing a **360-degree shield**.

Significance

- Establishing an indigenous MRO for the S-400 is a **strategic and technological milestone** for India.
- It reduces dependency on foreign assistance for routine and emergency servicing.
- Enhances the operational availability and **combat readiness** of India's air defence capabilities.

Genetic Analysis of Assam Rhino Horn Samples Initiated

Background

- In **September 2021**, the **Assam Forest Department** destroyed **2,479 rhino horns** as part of an anti-poaching initiative and to eliminate myths around rhino horn's medicinal value.
- Samples were collected and stored for **DNA analysis** before destruction.

Genetic Analysis Process

- Conducted under the **RhoDIS India** programme (Rhino DNA Index System).
- Samples repackaged and sent to the **Wildlife Institute of India (WII)** in Dehradun.
- **Objective**:
    - Create **individual DNA profiles** of rhino horns.
    - Monitor **allele frequency** changes in **Short Tandem Repeats (STRs)** over time.
    - Build a robust **genetic database** to:
        - Trace poached horns.
        - Understand population diversity.
        - Assist in rhino conservation and management.

Importance of RhoDIS:

- RhoDIS originated in South Africa to combat rhino poaching.
- Helps in:
    - Forensic identification of seized horns.
    - Linking poached horns to specific rhinos or locations.
    - Legal proceedings against wildlife crimes.

Rhino Species Around the World & IUCN Status

There are **five species** of rhinoceros globally, spread across Asia and Africa:

Species	Range	IUCN Status
Indian Rhino (Greater One-Horned)	India, Nepal	**Vulnerable**

Species	Range	IUCN Status
Javan Rhino	Indonesia (Ujung Kulon NP)	**Critically Endangered**
Sumatran Rhino	Indonesia (Sumatra & Borneo)	**Critically Endangered**
Black Rhino	East & Southern Africa	**Critically Endangered**
White Rhino	Southern Africa (mostly), Central Africa (very few)	**Near Threatened**

🔍 *Note: Northern white rhino is functionally extinct — only two females left.*

India's Rhino Conservation

- India has the **largest population of Greater One-Horned Rhinos**.
- Major habitat: **Kaziranga National Park**, Assam.
- **Population**: Over **2,700** rhinos (2023 estimates).
- India follows a **zero poaching policy** and undertakes efforts like:
    - **Indian Rhino Vision 2020** (now extended).
    - **Translocation** to other protected areas.
    - **Community awareness** and **anti-poaching patrols**.

"Smarter, Faster, Stronger: How AI is Transforming the Manufacturing Landscape"

AI in Manufacturing: A Paradigm Shift

AI is revolutionising manufacturing in India by enabling **predictive maintenance**, **real-time quality control**, **intelligent automation**, and **data-driven decisions**. It is reshaping how goods are **made, moved, and managed**.

Rapid Growth & Policy Push

- **Global AI-in-manufacturing market**: Set to grow from **$4.1B (2024)** to **$25B+ by 2029**.
- **India's adoption rate**: Jumped from **8% to 22% in manufacturing** in just one year (FY2024).
- **Supportive policies**: Government's ₹10,372 crore **AI Mission** aims to boost infrastructure, talent, and indigenous models.

Smart Operations: AI on the Factory Floor

- **Predictive Maintenance**: Reduces equipment downtime by **up to 30%**.
- **AI Vision Systems**: Detect **micro-level defects** in real-time.
- **Cobots** (Collaborative Robots): Enhance **safety** and reduce **repetitive strain** for workers.
- **Digital Twins**: Simulate systems to optimise **energy**, **layout**, and **asset health**.

📊 Example: **CPCL** uses AI-powered CCTVs, smart procurement, and generates **1 TB of data/day**.

Integrated Digital Ecosystem

- **IoT Sensors**: Capture real-time machine/environment data.
- **Edge Computing**: Enables instant robotic responses.
- **Cloud Platforms**: Power **model training**, **digital twins**, and **multi-site coordination**.
- **Integration with ERP/Supply Chains**: Ensures insights flow across the organisation.

AI-Driven Innovation

- **Generative AI**: Accelerates **product design**.
- **AI in logistics**: Improves **forecasting** and **scheduling agility**.
- **Mass Personalisation**: AI enables **customisation at scale**.

💡 **ZF Group** is using AI to simplify tasks, reduce errors, and increase inspection efficiency.

Challenges to Scale

- **High integration costs**
- **Talent shortages**
- **Data governance & AI transparency** concerns
- A **2024 Reuters/Ipsos survey**: 44% of manufacturers cautious about **GenAI scalability**

Way Forward

AI is **not just a tool for efficiency**, but a **driver of innovation**. As India moves towards a **$5 trillion economy**, AI adoption in manufacturing will be **key to global competitiveness**.

The Need for Doctor-led Innovation

Context

- Rapid evolution of healthcare: **AI, digital health, personalised medicine**.
- **Engineers & entrepreneurs** dominate innovations; doctors remain **peripheral**.
- Need for doctors to **transition from service providers to creators** of solutions.

Why Doctors Must Innovate

- **Unique perspective:** Deep understanding of **patient care**, **clinical workflows**, **treatment protocols**.
- **Healthcare challenges:**
  - Rising patient loads
  - Chronic diseases
  - Resource limitations
- **Doctor-led innovation** ensures **clinical relevance & practical implementation**.

Barriers to Doctor-led Innovation

- **Time constraints** due to heavy clinical workload.
- **Risk-averse medical culture** vs. **risk-taking** required for innovation.
- **Lack of exposure** to:
  - Financial management
  - Product development
  - Startup ecosystems
- **Perception:** Innovation = Engineers' domain.
- **Entrepreneurship in medicine** often limited to clinics/hospitals → **Improves access but not disruptive innovation**.

Bridging the Gap: Reforms Needed

- **Curriculum reforms:**
  - Introduce **entrepreneurship, bio-design, digital health** in medical education.
- **Interdisciplinary collaboration:**
  - **Med + Engg students** for product co-development.
- **Innovation hubs & incubators** in hospitals for **idea testing**.
- **Mentorship programs:** Connect doctors with **engineers, investors, regulators**.
- **Government support:**

- **Streamlined regulatory processes**.
- **Funding for MedTech startups**.

India's Supportive MedTech Ecosystem

- **Government Initiatives:**
  - **BIRAC** – Grants & funding.
  - **Startup India & Atal Innovation Mission** – Infrastructure & mentoring.
  - **Make in India** – Local device manufacturing with **tax benefits & faster approvals**.
- **Incubators:** C-CAMP, Venture Center, Bangalore Bioinnovation Centre.
- **Academic collaborations:** IITs, IISc for **research-driven innovation**.
- **Funding support: India Health Fund (Tata Trusts)** – Especially in **infectious diseases**.

The Way Forward

- **Short-term courses:** Product development & entrepreneurship for doctors.
- **Hospitals & associations:**
  - Dedicated **innovation funds**.
  - **Pitch events** for doctors.
- **Cultural shift:**
  - **De-stigmatise failure** in medical entrepreneurship.
- Doctors must **embrace calculated risks** & **own the future of healthcare**.

Conclusion

- **Healthcare innovation = Essential, not optional.**
- Doctors must evolve as **entrepreneurs, problem-solvers & leaders in MedTech**.
- The **white coat** should symbolise **clinical excellence + innovation leadership**.

FATF Acknowledges State-Sponsored Terror Financing

FATF's Landmark Recognition

In a significant development, the **Financial Action Task Force (FATF)** — the global watchdog for anti-money laundering and terror financing — has for the first time included a **dedicated section on state-sponsored terrorism** in its **July 2025 Comprehensive Update on Terrorist Financing Risks**.

Forms of State Support for Terrorism

The report outlines that:

- Certain **national governments** provide **financial, logistical, and material support** to terrorist organisations.
- Such support includes **direct funding**, **training**, and assistance in **financial management**.

India's Longstanding Stand on Pakistan Vindicated

- India had flagged **Pakistan's role** in supporting terrorism as early as **2022**, during its national risk assessment on money laundering and terror financing.
- The report explicitly highlights the **financing patterns of Pakistan-based groups** such as:
  - **Lashkar-e-Taiba (LeT)**
  - **Jaish-e-Mohammed (JeM)**

Significance

- The inclusion validates India's repeated concerns over **cross-border terrorism emanating**

from Pakistan.

- Reinforces India's calls for **global accountability** of states that **sponsor terrorism** as a strategic tool.

State-Sponsored Terrorism: Concept and Concerns

Definition

State-sponsored terrorism refers to the **intentional support of terrorist groups** by a national government to pursue **strategic, ideological, or geopolitical objectives**.

Forms of State Sponsorship

- **Direct financial transfers** to terror groups.
- **Safe havens and training camps** for militants.
- **Provision of arms, explosives, and logistics**.
- **Diplomatic cover or political legitimization**.
- Use of **proxy organizations** to maintain deniability.

FATF's Role in Addressing Terror Financing

About FATF

- An inter-governmental body founded in 1989 to combat **money laundering** and later, **terrorist financing**.
- Maintains **grey list** and **black list** of non-compliant countries.

Key FATF Actions So Far

- **Pakistan was grey-listed from 2018 to 2022**, leading to financial and diplomatic pressure.
- Demands transparency, regulation of **NGOs, hawala networks, online donations**, and **real estate transactions**.

Axiom-4 Mission

Why in News?

- **Axiom Space** successfully launched its **Axiom-4 (Ax-4)** mission to the International Space Station (ISS) in January 2025, featuring **the first Indian commercial astronaut**, Air Vice Marshal (Retd.) **Shivangi Sharma**, marking a milestone in India's participation in private spaceflight.

About Axiom-4

- **Launch Date:** 10 January 2025 (Falcon 9 rocket, SpaceX Crew Dragon spacecraft).
- **Mission Type:** Fully private crewed mission to the ISS.
- **Organised by:** Axiom Space (U.S.-based commercial space company).
- **Duration:** ~14 days aboard ISS.
- **Crew Composition:**
    - **Shivangi Sharma** (India) – First Indian commercial astronaut.
    - **Ali AlQarni** (Saudi Arabia) – Saudi astronaut, follow-up mission after Ax-2.
    - **Michael López-Alegría** (U.S./Spain) – Veteran astronaut & mission commander.
    - **Marcus Wandt** (Sweden) – ESA project astronaut.

Objectives

1. **Commercial & Research Goals**
    - Conduct microgravity experiments in **life sciences, material sciences, and space medicine**.
    - Test commercial payloads and future space station technologies.

2. **International Collaboration**
    - Strengthen India–U.S.–private space ties in human spaceflight.
    - Enable participation of emerging space nations in LEO research.
3. **Space Diplomacy**
    - Showcase public–private–international partnerships in the space domain.

Significance for India

- **First Indian commercial astronaut** → Expands India's human spaceflight profile beyond ISRO's *Gaganyaan*.
- Opens opportunities for **Indian payloads and startups** in commercial space missions.
- Supports India's vision to become a **major player in the global space economy**.
- Enhances India's **soft power and scientific diplomacy**.

12 Killed as Bridge Collapses in Vadodara, Gujarat

The Incident

On **Wednesday, July 10, 2025**, a **portion of the Gambhira bridge** near **Padra town** in **Vadodara district, Gujarat**, collapsed, killing **12 people** and injuring **nine others**. The 15-metre-long slab fell, sending vehicles into the **Mahisagar river**.

Bridge Details and Maintenance

- **Constructed in 1985**, making it **40 years old**.
- State authorities claimed **periodic maintenance** had been conducted.
- The **cause of the collapse is under investigation**.

Bridge Collapses in India: Causes, Consequences, and Way Forward

Frequent Incidents in Recent Years

India has witnessed **numerous bridge collapses** in recent years, indicating a systemic failure in infrastructure maintenance. Examples include:

- **Morbi bridge collapse (Gujarat, 2022)**: 135 people died.
- **Majerhat bridge (Kolkata, 2018)**: Several casualties due to poor upkeep.
- **Under-construction bridge collapse in Bihar (2023)**: Safety violations and corruption were alleged.

Reasons Behind Bridge Collapses in India

1. Aging Infrastructure

- Many Indian bridges were built **over 50 years ago**, exceeding their **intended lifespan**.
- Structural wear and tear not adequately assessed or acted upon.

2. Poor Maintenance and Inspection

- Inadequate **periodic inspection and preventive maintenance**.
- Often, **maintenance records are either falsified or incomplete**.
- Example: In the Morbi bridge case, it was opened to the public **without safety certification**.

3. Overloading and Unregulated Traffic

- Bridges not designed to handle **modern-day vehicular load**.
- No strict regulation on **heavy commercial traffic** on older bridges.

4. Corruption and Substandard Construction

- **Use of inferior materials**, cost-cutting, and lack of accountability in public works.
- Contractors often bypass norms for personal gain.

5. Extreme Weather and Natural Disasters

- Heavy rains, floods, and earthquakes weaken structures.
- **Climate change-induced stress** on infrastructure is rarely factored into design.

6. Administrative Apathy

- Delay in implementing **Bridge Management Systems** and **Digital Inspection Tools**.
- Lack of inter-departmental coordination among **PWD, urban development bodies, and disaster agencies**.

Consequences of Bridge Collapses

1. Human Cost

- High fatalities and long-term injuries.
- Trauma for survivors and families.

2. Economic Impact

- Disruption of trade, logistics, and local livelihoods.
- Emergency operations and repair costs run into **crores of rupees**.

3. Public Distrust

- Erodes **citizens' faith in government accountability** and infrastructure safety.
- Becomes a political flashpoint, drawing opposition criticism.

Way Forward: Ensuring Bridge Safety

1. Comprehensive Bridge Management System (BMS)

- A digital repository of **age, structure, traffic, and inspection records**.
- Regular audits using **AI, drones, and sensors** for structural integrity checks.

2. Strict Compliance with Safety Audits

- Mandatory **pre- and post-monsoon inspections**.
- Penalties for bypassing maintenance checks.

3. Prioritizing Infrastructure Upgradation

- Replace or retrofit bridges older than 30–40 years.
- Allocate **dedicated funds for rural and urban bridge rejuvenation**.

4. Transparent Tendering and Monitoring

- Ensure **public oversight** and **third-party audits** for bridge construction and repair.
- Public dashboards for **real-time monitoring** of ongoing infrastructure projects.

5. Citizen Participation and Reporting

- Use platforms like **"Meri Sadak" app** to report damages and concerns.
- Local communities should be sensitized to **warning signs of impending collapse**.

Prelims Practice Questions

Q1. Under the Prevention of Sexual Harassment of Women at Workplace (POSH) Act, 2013, which of the following are correct regarding Internal Complaints Committees (ICCs)?

1. ICCs are mandatory for all workplaces with 10 or more employees.
2. The chairperson must be a senior woman employee.
3. ICCs have powers equivalent to a civil court for summoning witnesses and collecting evidence.
4. ICCs can take suo motu cognisance of workplace harassment cases.

Select the correct answer using the code given below:
(a) 1, 2 and 3 only

(b) 2, 3 and 4 only
(c) 1 and 2 only
(d) 1, 2, 3 and 4

Q2. Under Article 105 of the Indian Constitution, Members of Parliament enjoy:
(a) Immunity from both civil and criminal arrest during Parliament session.
(b) Immunity from civil arrest during Parliament session.
(c) Immunity from preventive detention during Parliament session.
(d) No immunity from arrest in criminal cases, even during Parliament session.

Q3. Consider the following with reference to the Election Commission of India's (ECI) plenary powers:

1. They are absolute and require no external approval.
2. They are explicitly mentioned in the Constitution under Article 324.
3. They can override any law passed by Parliament.

Which of the statements given above is/are correct?
(a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

Q4. Which of the following statements is/are correct about Lok Adalats in India?

1. They are established under the Legal Services Authorities Act, 1987.
2. Their awards are binding and have the status of a civil court decree.
3. They can take up both civil and criminal cases, including all non-compoundable offences.

Select the correct answer:
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Q5. Which of the following best describes the "Romeo & Juliet Clause" discussed in the context of the POCSO Act reform?
(a) A legal provision exempting consensual sexual activity between adolescents close in age from being considered statutory rape.
(b) A marriage registration law for young couples in India.
(c) A clause in the Special Marriage Act allowing minors to marry with parental consent.
(d) A provision in the Juvenile Justice Act dealing with child marriage annulment.

Q6. Rajendra Chola I earned the title *Kadaram Kondan* for:
(a) Conquering the Maldives
(b) Conquering Kedah (modern-day Malaysia)
(c) Establishing trade with Song China
(d) Building the Brihadeeswarar Temple

Q7. Which of the following pairs is/are correctly matched?

Ancient Rebellion	Region
Paika Rebellion (1817)	Odisha
Moplah Rebellion (1921)	Telangana
Vellore Mutiny (1806) —	Tamil Nadu

(a) 1 only
(b) 1 and 3 only
(c) 1 and 2 only
(d) 1, 2 and 3

Q8. The Gangaikonda Cholapuram temple is distinct from the Brihadeeswarar temple because of:
(a) Taller vimana and vertical lines in architecture
(b) Curved vimana style and softer sculptural lines
(c) Wooden superstructure
(d) Lack of inscriptions

Q9. In Jainism, the term "Agam Literature" refers to:
(a) Works based on the teachings of Lord Mahavira compiled by his disciples.
(b) Commentaries by medieval Jain

monks.
(c) Non-canonical philosophical treatises.
(d) Ritual manuals in Sanskrit only.

Q10. Which of the following festivals is linked to the birth star of Rajendra Chola I?
(a) Panguni Uthiram
(b) Aadi Thiruvathirai
(c) Thai Pongal
(d) Karthigai Deepam

Q11. The Baitarani River originates in:
(a) Simlipal Hills, Odisha
(b) Gonasika Hills, Odisha
(c) Netarhat Plateau, Jharkhand
(d) Eastern Ghats, Andhra Pradesh

Q12. The "Equidistance Principle" in maritime boundary demarcation means:
(a) Drawing a boundary equidistant from the nearest points of the baseline of two states.
(b) Dividing marine resources equally regardless of coastline length.
(c) Allocating EEZ based on population density of coastal states.
(d) Assigning maritime zones according to historical navigation routes.

Q13. With reference to Tuvalu, consider the following:

1. It is part of Melanesia in the Pacific Ocean.
2. It has signed the Falepili Union Treaty with Australia for climate migration.
3. Its capital is Funafuti.

Which of the statements given above is/are correct?
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Q14. The Nature Cities study (2025) highlighted that India:
(a) Has the highest number of slum clusters in flood-prone areas.
(b) Has the highest number of coastal megacities.
(c) Has the largest inland freshwater wetland area.
(d) Is the only country with urban flood insurance for all residents.

Q15. Which of the following is NOT a factor contributing to floodplain settlement in India?
(a) Lower land cost in floodplains
(b) Proximity to employment opportunities
(c) Subsidised flood insurance schemes for slum dwellers
(d) Limited availability of affordable formal housing

Q16. In quantum mechanics, "matrix multiplication is non-commutative" means:
(a) The product of two matrices changes if their order is reversed.
(b) All matrices are always diagonal.
(c) Matrix size changes depending on the order of multiplication.
(d) Matrices cannot be multiplied at all.

Q17. Which of the following are applications of quantum mechanics?

1. Lasers
2. Semiconductors
3. Magnetic Resonance Imaging (MRI)

Select the correct answer:
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Q18. Which of the following is/are feature(s) of IndiaQuake app?

1. Issued by National Disaster Management Authority
2. Provides earthquake early warning information
3. Developed by National Center for Seismology

Select the correct answer:
(a) 1 only
(b) 2 and 3 only

(c) 3 only
(d) 1, 2 and 3

Q19. The Prime Minister Dhan-Dhaanya Krishi Yojana (PMDDKY) aims to:
(a) Merge all state agriculture schemes under a single funding pool.
(b) Converge multiple central schemes to boost farm productivity in low-performing districts.
(c) Provide direct cash transfer to all farmers in India.
(d) Nationalise all agricultural markets.

Q20. Which of the following is NOT part of the pillars of the National Cooperative Policy 2025?
(a) Preparing the Younger Generation
(b) Expanding into New Sectors
(c) Ensuring 100% FDI in cooperatives
(d) Strengthening the Foundation

Q21. Which of the following is/are features of cooperatives in India?

1. "One member, one vote" principle
2. Aim to maximise profits for shareholders
3. Can operate in agriculture, industry, and services sectors

Select the correct answer:
(a) 1 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

Q22. The ICJ's 2025 advisory opinion on climate obligations reaffirmed:
1. 1.5°C as a binding global target.
2. CBDR-RC principle as central to climate treaties.
3. Annex-I and Annex-II responsibilities of UNFCCC.

Select the correct answer:
(a) 1 and 2 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

Q23. In the context of India–Bangladesh maritime relations, the Permanent Court of Arbitration (PCA) ruling (2014):
(a) Followed the equidistance principle and awarded part of EEZ to Bangladesh.
(b) Favoured India entirely in the EEZ dispute.
(c) Invalidated UNCLOS provisions for South Asia.
(d) Created a joint fisheries management authority.

Q24. The "Falepili Union Treaty" is between:
(a) Tuvalu and New Zealand
(b) Tuvalu and Australia
(c) Fiji and Australia
(d) Kiribati and New Zealand

Q25. Which of the following was a key difference between Kargil War (1999) and Operation Sindoor (2025)?
(a) Kargil lasted for 3 months; Operation Sindoor lasted 4 days.
(b) Kargil was pre-emptive; Operation Sindoor was reactive.
(c) Kargil involved missile strikes on Pakistani nuclear facilities; Operation Sindoor did not.
(d) Kargil had strong global diplomatic backing; Operation Sindoor had minimal.

Q26. The Cold Start Doctrine primarily focuses on:
(a) Nuclear deterrence through second-strike capability.
(b) Rapid mobilisation for limited conventional offensives.
(c) Naval blockade of adversaries.
(d) Cyber warfare capabilities.

Q27. The Pradhan Mantri Jan Vikas Karyakram (PMJVK) focuses on:
(a) Development of socio-economic and basic infrastructure in minority areas.
(b) Rural electrification in tribal areas.
(c) Skill training for women in rural panchayats only.
(d) Providing health insurance to all unorganised workers.

Q28. Which of the following minorities are covered under PMJVK?

1. Muslims
2. Parsis

3. Jains
4. Anglo-Indians

Select the correct answer:
(a) 1, 2 and 3 only
(b) 2 and 4 only
(c) 1 and 3 only
(d) 1, 2, 3 and 4

Q29. In the context of Indian media regulation, OTT platforms under IT Rules, 2021 are required to:

1. Display age ratings for content.
2. Obtain CBFC pre-certification for all releases.
3. Appoint grievance officers in India.

Select the correct answer:
(a) 1 and 2 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

Q30. The term "CBDR-RC" in international environmental law stands for:
(a) Common but Differentiated Responsibilities and Respective Capabilities
(b) Climate-Based Disaster Risk – Response Coordination
(c) Common Biodiversity Regulation – Resource Conservation
(d) Climate and Biodiversity Damage Reduction – Responsibility Clause

Mains Practice Questions

1. The Prevention of Sexual Harassment (POSH) Act, 2013 has been in force for over a decade. Critically analyse the effectiveness of Internal Complaints Committees in ensuring workplace safety for women. Suggest reforms to address existing gaps.
2. "Parliamentary privileges must be reinterpreted to strengthen democratic accountability." Discuss this statement in light of recent controversies over MPs' immunity from arrest.
3. Examine the constitutional position of the Election Commission of India under Article 324. How do its plenary powers interact with statutory laws enacted by Parliament?
4. Discuss the role of Lok Adalats in enhancing access to justice in India. Evaluate their limitations in handling criminal cases.
5. Should consensual relationships between adolescents close in age be decriminalised under the POCSO Act? Examine the legal and societal implications of introducing a "Romeo & Juliet clause" in Indian law.
6. Assess the significance of Rajendra Chola I's overseas expeditions in the context of India's maritime history and cultural diplomacy.
7. The Paika Rebellion of 1817 is often called the first war of independence. Evaluate this claim in the broader context of anti-colonial resistance in India.
8. "The architecture of Gangaikonda Cholapuram reflects a blend of imperial ambition and regional adaptation." Discuss.
9. Explain the significance of Agam literature in Jain philosophy and religious practice.
10. Analyse the impact of settlement patterns along floodplains in India, with special reference to the Nature Cities Global Study (2025) findings. Suggest policy measures to reduce disaster risk.
11. The equidistance principle has shaped India's maritime boundary negotiations. Discuss with reference to the India–Bangladesh EEZ dispute.
12. Small Island Developing States (SIDS) like Tuvalu face existential threats from climate change. Examine the role of bilateral treaties like the Falepili Union Treaty in ensuring climate migration and sovereignty protection
13. Evaluate India's performance in implementing the CBDR-RC principle under global climate agreements.
14. Quantum mechanics is no longer confined to theoretical physics; it is driving innovations in healthcare, defence, and communication. Discuss with examples.
15. Discuss the role of the IndiaQuake app in strengthening India's earthquake preparedness. How can digital tools be

integrated into broader disaster risk reduction strategies?

16. Critically evaluate the Prime Minister Dhan-Dhaanya Krishi Yojana (PMDDKY) in the context of improving agricultural productivity in low-performing districts.
17. The National Cooperative Policy 2025 seeks to modernise the cooperative movement in India. Examine its key pillars and potential challenges in implementation.
18. Analyse the implications of the International Court of Justice's 2025 advisory opinion on states' obligations in climate change mitigation and adaptation.
19. "India's military doctrines must adapt to short, intense conflicts in the future." Examine this in light of Operation Sindoor and the Cold Start Doctrine.
20. The Pradhan Mantri Jan Vikas Karyakram (PMJVK) focuses on infrastructure development in minority-dominated areas. Critically assess its impact and suggest improvements.
21. OTT platforms have transformed India's entertainment industry but have also raised regulatory concerns. Evaluate the IT Rules, 2021 framework for OTT regulation.
22. Discuss the strategic and diplomatic dimensions of India's overseas humanitarian operations with examples from recent missions.
23. Evaluate the cultural and economic impact of maritime trade routes established by the Cholas with Southeast Asia.
24. Explain the geopolitical implications of Tuvalu's partnership with Australia under the Falepili Union Treaty for the Indo-Pacific region.
25. Assess the role of technology in improving transparency in public examinations, with special reference to Aadhaar-based face authentication.

ANSWER KEY PRELIMS PRACTICE QUESTION

PRELIMS PRACTICE QUESTION	1.A	2.D	3.B	4.A	5.A	6.B	7.B	8.B	9.A	10.B
	11.B	12.A	13.B	14.A	15.C	16.A	17.D	18.B	19.B	20.C
	21.B	22.D	23.A	24.B	25.A	26.B	27.A	28.A	29.B	30.A