May 2026 Issue

VAJIRAO & REDDY IAS

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For UPSC | IAS | IPS & State Civil Services Aspirants

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BURNING NEWS

US–Iran 14-Day Ceasefire (April 2026)

1. Why in News?

- On **(7 April)**, just two hours before a final US deadline to "destroy" Iranian infrastructure, President Donald Trump announced a **14-day ceasefire** mediated by **Pakistan**.
- This pause follows over a month of "unprecedented" airstrikes and the blockade of the world's most critical oil route.
- The United States had warned that it would **destroy Iran's energy and economic infrastructure** if Iran did not agree to its demands.
- This ceasefire came after more than **39–40 days of continuous conflict**, which included heavy **airstrikes, missile attacks, and drone warfare**.
- During the conflict, Iran disrupted the **Strait of Hormuz**, which is one of the most important global oil routes.

Therefore, the ceasefire is important because it prevented a **major regional war and possible global economic crisis**.

2. Background of the Conflict

Beginning of War

- The conflict started on **28 February 2026**.
- The **United States and Israel** launched coordinated strikes on Iran.
- These strikes targeted:
  - **Nuclear facilities**
  - **Ballistic missile systems**
  - **Industrial infrastructure (steel plants, power plants)**

Iran's Response

- Iran responded with **missiles and drones**.
- It targeted:
  - **US military bases in the Gulf region**
  - **Oil installations in Saudi Arabia, UAE, and Qatar**
  - **Economic infrastructure such as ports and airports**

Expansion of Conflict

- The conflict spread to:
  - **Lebanon (through Hezbollah)**
  - **Gulf countries hosting US bases**
- This made the war a **regional conflict**, not just a US–Iran issue.

3. Key Terms: What was Agreed?

Immediate Actions under Ceasefire

Ceasefire Duration

- Both sides agreed to a **14-day pause** in fighting.
- During this period:
  - The United States will **stop bombing Iran**
  - Iran will **halt military responses**

This period is meant to create **space for diplomacy**.

Reopening of Strait of Hormuz

- Iran agreed to ensure:
  - **Complete, immediate, and safe reopening** of the Strait of Hormuz
- Importance:
  - Around **20% of global oil supply** passes through this route
  - Disruption earlier caused **rise in global oil prices**

This was the **main demand of the United States**.

🔷 **Negotiation Venue**

- Both countries agreed to begin **direct talks** in:
  - **Islamabad, Pakistan**
  - Date: **10 April 2026**

These talks are seen as **Phase 2 of diplomacy**

Iran's 10-Point Proposal (Foundation of Talks)

- The United States described Iran's proposal as a **"workable basis"** for negotiation.

🏷 ***Detailed Demands***

- **Non-Aggression Commitment**
  - The United States must guarantee that it will **not attack Iran or its allies in future**
- **Removal of Sanctions**
  - Iran demands removal of:
    - **Primary sanctions (direct US restrictions)**
    - **Secondary sanctions (restrictions on other countries trading with Iran)**
- **Recognition of Nuclear Rights**
  - Iran wants acceptance of its right to **uranium enrichment**
- **Withdrawal of US Troops**
  - All US combat forces must leave the **Middle East region**
- **Compensation for War Damage**
  - Iran demands financial compensation for:
    - Infrastructure damage
    - Economic losses
- **Release of Frozen Assets**
  - Billions of dollars of Iranian funds held abroad must be **unfrozen**
- **End of UN and IAEA Restrictions**
  - Removal of:
    - **UN Security Council resolutions**
    - **IAEA monitoring restrictions**
- **Binding Legal Agreement**
  - Final deal must be legally binding under the **United Nations system**

These demands are called **maximalist demands** because they are **very broad and difficult to fully accept**

4. The Lebanon Loophole (Major Risk Point)

🏷 ***Different Interpretations***

- **Pakistan's Position**:
  - Ceasefire applies to **all fronts including Lebanon**
- **US and Israel's Position**:
  - Ceasefire applies **only to Iran**
  - Lebanon conflict is **separate**
  - Donald Trump called it a **"separate skirmish"**

🔷 **Ground Situation**

- Attacks on **Iran have stopped**
- However, **Israel continues airstrikes in Lebanon**, especially:
  - Beirut
  - Tyre

🔷 **Why it is Dangerous**

- Iran supports groups like **Hezbollah**
- If attacks continue:
  - Hezbollah may retaliate
  - Iran may re-enter conflict

This can **break the ceasefire completely**

5. Why Did Both Sides Agree?

United States Motivation

- **Economic Pressure**
  - Rising **oil prices**
  - Disruption of **global supply chains**
- **Strategic Calculation**
  - US believes it has weakened Iran's:
    - **Nuclear infrastructure**
    - **Missile systems**
- **Political Benefit**
  - The leadership can claim that it:
    - Prevented a **large-scale war**
    - Controlled escalation

Iran's Motivation

- **Economic Survival**
  - Heavy damage to:
    - Power plants
    - Industrial facilities
    - Bridges and transport systems

- **Strong Bargaining Position**
  - Iran controlled the **Strait of Hormuz**
  - It showed it could **impact global oil supply**
- **Regime Security**
  - Ceasefire prevents:
    - Full US invasion
    - Massive destruction

6. Global Impact of the Conflict

- **Human Cost**
  - More than **3000 deaths** across regions
- **Economic Impact**
  - Increase in **global oil prices**
  - Disruption in **international trade routes**
- **Infrastructure Damage**
  - Oil refineries
  - Airports
  - Ports
  - Desalination plants

7. Impact on India :

- **Energy Security**
  - India imports about **60% of its oil from Gulf countries**
  - Disruption in Hormuz created **serious economic risk**
- **Indian Diaspora**
  - Around **1 crore Indians live in the Gulf region**
  - They contribute about **40% of India's remittances**
- **Evacuation and Loss**
  - Around **7 lakh Indians returned to India**
  - **8 Indian citizens lost their lives**
- **Trade Impact**
  - Very limited movement of ships during conflict
- **After Ceasefire**
  - Oil supply is expected to **stabilize**
  - Trade routes may **reopen**

India supported the ceasefire and emphasized **freedom of navigation**

8. What Happens Next?

- **10 April 2026**
  - US and Iran will begin **direct negotiations in Islamabad**

Main Issue: Nuclear Program

- The United States wants:
  - Iran to **stop uranium enrichment**
- Iran wants:
  - Recognition of its **nuclear rights**

This is the **core dispute**

🔷 **Regional Risk**

- Continued conflict in **Lebanon**
- Possibility of:
  - Proxy attacks
  - Retaliation by Iran's allies

Situation remains **unstable**

9. Key Concepts for Exam

- **Brinkmanship** → pushing situation to edge of war
- **Chokepoint** → strategic narrow route (Hormuz)
- **Sanctions** → economic restrictions
- **Proxy War** → indirect conflict using allied groups

10. Conclusion

- The ceasefire is a **temporary and fragile arrangement**
- Major issues are still unresolved:
  - **Iran's nuclear program**
  - **Regional conflicts like Lebanon**
- The success of this ceasefire depends on:
  - **Outcome of negotiations in Islamabad**

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BRICS Youth Coordination Meeting 2026

Why in News?

- India hosted the **1st BRICS Youth Coordination Meeting in virtual mode**, marking the formal beginning of youth-related engagements under its **BRICS Chairship 2026**.

Overview

- The meeting is part of India's effort to strengthen **youth diplomacy and multilateral cooperation** within the BRICS framework. It sets the agenda for structured youth engagement activities throughout 2026.

Organisation

- The meeting was organised by the **Department of Youth Affairs**, under the **Ministry of Youth Affairs and Sports**.

Theme

- The theme of the meeting was: **"Building for Resilience, Innovation, Cooperation and Sustainability"**
- It reflects a focus on **future-oriented collaboration among youth of BRICS nations**.

Objectives

- Strengthen **youth cooperation among BRICS countries**
- Promote **multilateral collaboration in youth-led development**
- Build platforms for **skills, innovation, and intercultural exchange**

Participation

- Representatives from all **BRICS member countries** participated
- Discussions focused on aligning priorities under the **Youth Track framework**
- Helped establish a shared roadmap for youth engagement in 2026

Key Initiatives Under BRICS Youth Track 2026

India presented a structured roadmap for youth engagement activities, including:

- Working Group Meetings
- Thematic Engagements
- **Serve BRICS Volunteering Activities**
- Youth Development Forum
- Youth Council Meeting
- Youth Summit
- Youth Ministerial Meeting

These initiatives aim to create a **continuous engagement ecosystem rather than isolated events**.

Priority Areas of Cooperation

The Youth Track focuses on:

- Education and skill development
- Entrepreneurship
- Science and innovation
- Social participation and inclusion
- Health and sports
- Environment and sustainability
- Interfaith dialogue
- Youth exchange programmes

Significance of India's Chairship

- Marks the **formal launch of BRICS Youth Track 2026** under India's leadership
- Strengthens India's role in shaping **global youth agenda within BRICS**
- Encourages structured, long-term cooperation among emerging economies
- Positions youth as key stakeholders in **global governance and sustainable development**

Conclusion

The BRICS Youth Coordination Meeting reflects India's emphasis on **youth-led multilateral engagement**. It lays the foundation for sustained collaboration among BRICS nations in areas critical to **innovation, sustainability, and global development priorities**.

Arab League Appoints Nabil Fahmy as Next Secretary-General

Why in News?

- The **Council of the League of Arab States (Arab League)** has **approved Egypt's nomination of Nabil Fahmy** as the next **Secretary-General** for a **five-year term**, beginning **1st July 2026**.
- He will **succeed Ahmed Aboul Gheit** in this role.

Arab League: An Overview

About

- **Full Name**: **League of Arab States**
- **Founded**: **1945** in **Cairo, Egypt**
- **Members**: **22 Arab countries** across **West Asia and North Africa**

Origin

- Formed following the **Alexandria Protocol (1944)** in the **post-World War II** era.
- **Aims**:
    - Promote **Arab unity**
    - Resist **colonial divisions**
    - Address concerns over **developments in Palestine**

Objectives

- Foster **coordination and cooperation** among member states in:
    - **Political** domains
    - **Economic** domains
    - **Cultural** domains
    - **Social** domains
- **Founding Charter** emphasizes:
    - **"Close cooperation"** among members
    - **Peaceful settlement of disputes**
    - **Discouraging the use of force** among member states

Mediation Role

- Empowered to **mediate disputes**:
    - Among **member states**
    - Between **member states and external parties**

Cooperation Framework

- **1950 Joint Defence and Economic Cooperation Pact**:
    - Provides for **collective security**
    - Enables **coordinated military measures**

Challenges

- Operates as a **loose confederation**, leading to:
    - **Weak enforcement capacity**
    - **Ineffective conflict resolution**
    - **Internal divisions**
    - **Declining relevance** in global geopolitics

India and Azerbaijan Reset Diplomatic Ties

Why in News?

- After a year of **diplomatic strain** following **India's 'Operation Sindoor'**, India and Azerbaijan have **initiated a reset** in bilateral relations.
- **Senior officials** held the **6th round of Foreign Office Consultations**, the **first high-level engagement since 2022**, marking a **strategic shift** in India's **Central Asia policy**.

Key Highlights of the Diplomatic Reset

- **Comprehensive review** of bilateral relations, covering:
    - **Trade**
    - **Technology**
    - **Tourism**
    - **Pharmaceuticals**

- **Energy**
- **Culture**
- **People-to-people exchanges**
- **Fight against cross-border terrorism**

Strategic Significance for India's Central Asia Policy

Expanding the International North-South Transport Corridor (INSTC)

- Azerbaijan is a **critical node** on the **western route of the INSTC**.
- **Route**: Goods from India → **Iran's Bandar Abbas/Chabahar ports** → **rail/road to Astara (Iran-Azerbaijan border)** → **Azerbaijan** → **Russia and Europe**.
- **Benefit**: Provides India a **reliable overland route** to **Central Asia and Eurasia**, **bypassing Pakistan**.

Countering the Pakistan-Turkey Axis

- Pakistan, Turkey, and Azerbaijan have **formalized a trilateral strategic axis** based on **Islamic solidarity and mutual defense**.
- **India's reset with Baku** prevents Pakistan from **monopolizing Azerbaijan's strategic bandwidth** and pushing **anti-India narratives** in Central Asia.

Enhancing Energy Security

- Azerbaijan and **Central Asian Republics (Kazakhstan, Turkmenistan)** share the **hydrocarbon-rich Caspian Basin**.
- **Potential**: India could tap into **Trans-Caspian pipelines** for **Turkmen gas or Kazakh oil** via **swap agreements**.

Regional Security Cooperation

- Addressing **cross-border terrorism** aligns India's concerns with **SCO's Regional Anti-Terrorist Structure (RATS)**.

De-hyphenating Conflicts

- India demonstrates **diplomatic maturity** by engaging **Armenia and Azerbaijan bilaterally**, mirroring its **Middle East strategy (Israel-Arab states)**.
- Reassures Central Asian states of India's role as a **neutral, non-disruptive partner**.

Diplomatic Strain Between India and Azerbaijan

Operation Sindoor Disagreement

- Azerbaijan **criticized India's strikes on Pakistan**, reflecting **divergent positions on terrorism and security**.

Opposite Alliances

- Azerbaijan's **close partnership with Pakistan** contrasts with **India's defense ties with Armenia**.
- **Nagorno-Karabakh conflict** complicates relations, with **opposing geopolitical interests**.

SCO Membership Tensions

- In **September 2025**, Azerbaijan's President **accused India of blocking its SCO ascension**, signaling **growing mistrust** in multilateral engagements.

India-Azerbaijan Bilateral Relations: An Overview

Historical & Cultural Ties

- **Silk Route connections**: 18th-century **'Ateshgah' fire temple** near Baku features **Devanagiri and Gurmukhi inscriptions**.

Diplomatic Milestones

- India **recognized Azerbaijan's independence** in **December 1991** post-USSR dissolution.
- **High-level coordination** in **Non-Aligned Movement (NAM)** and **Voice of Global South Summit (VoGSS)**.

Strategic Engagements

- Baku hosted **Indian delegations** for:
  - **COP29 (November 2024)**
  - **World Telecommunication Development Conference (WTDC-25, November 2025)**

Energy Security & Economic Trade

- **Bilateral trade**: **USD 1.88 billion (2022 peak)**, **USD 401 million (2025)**.
- **ONGC Videsh Ltd (OVL)** invested **USD 1.2 billion+** in:
  - **Azeri-Chirag-Gunashli (ACG) oil and gas fields**
  - **Baku-Tbilisi-Ceyhan (BTC) pipeline**

Capacity Building & Education

- **ITEC Programme**: India supports **Azerbaijan's institutional capacity building**.

People-to-People Connectivity

- India is the **4th largest source of inbound tourists** for Azerbaijan (2025).
- **Indian diaspora**: ~1,000 professionals and students fostering **bilateral goodwill**.

Challenges in India-Azerbaijan Bilateral Relations

Armenia Factor

- **Unresolved Armenia-Azerbaijan tensions** risk disrupting **trade routes**.
- India's **defense ties with Armenia** (e.g., **Pinaka rockets, Swathi radars**) have drawn **Azerbaijani criticism**.

Belt and Road Initiative (BRI)

- **China's deep entrenchment** in Central Asia via **BRI infrastructure loans** outpaces India's **slow connectivity projects**.

Western Sanctions

- Sanctions on **Russia and Iran** complicate **INSTC's financial and logistical viability**, increasing reliance on Azerbaijan.

Divergence on Kashmir & Terrorism

- Azerbaijan, as an **OIC member**, often **aligns with Pakistan on Kashmir** and **does not strongly support India's concerns on cross-border terrorism**.

Economic Imbalance

- **Trade skewed towards crude oil imports** with **limited diversification** into **pharma, IT, and manufacturing**, leading to a **persistent trade imbalance**.

Measures to Strengthen India-Azerbaijan Bilateral Relations

Strict "De-hyphenation" Policy

- India must **clearly communicate** that its **South Caucasus relations are independent**.
- Example: **India-Israel-Palestine** or **India-Iran-Saudi Arabia** balancing act.

Integrating Chabahar with the Middle Corridor

- Link **Chabahar port** with the **Trans-Caspian International Transport Route (Middle Corridor)** via Azerbaijan for a **seamless multi-modal network** from **Mumbai to Central Asia**.

Economic Diversification

- Expand beyond oil into **IT, pharmaceuticals, and digital public infrastructure (DPI)** to **deepen economic ties**.

Institutionalized Dialogues

- Propose a **"Caspian-India Dialogue"** (similar to **India-Central Asia Summit**) to engage **Azerbaijan, Kazakhstan, and Turkmenistan** on:
  - **Maritime security**
  - **Trade**
  - **Energy cooperation**

Conclusion

India's **diplomatic reset with Azerbaijan** is **critical for energy security and Central Asia outreach**, with the **INSTC playing a pivotal role**. Moving forward, India must **balance its ties with Armenia** while **strengthening economic and strategic engagement with Azerbaijan** to counter regional geopolitical challenges.

India-Austria Strategic Partnership: 2026 Chancellor's Visit

Why in News?

The Federal Chancellor of the **Republic of Austria** undertook a historic four-day official visit to India in 2026. This engagement marks a significant diplomatic milestone, as it is the first visit by an Austrian Chancellor to India in over **four decades** (the last being in 1984).

Key Outcomes of the 2026 Visit

- **Defence and Security:** Signed a Letter of Intent (LoI) to boost **defence technology partnerships** and established a **Joint Working Group on Counter-Terrorism**.

- **Economic Fast-Track:** Instituted a **Fast-Track Mechanism** to resolve operational bottlenecks for investors, enhancing the 'Ease of Doing Business'.
- **High-Tech & Space:** Cemented cooperation in **quantum technology**, machine learning, and lasers. A joint **space industry seminar** is scheduled for Vienna in Autumn 2026.
- **Skill & Youth Mobility:** Operationalized the **Working Holiday Programme** and promoted mutual recognition of educational and vocational qualifications.
- **Agricultural Trade:** An MoU between **FSSAI (India)** and **AGES (Austria)** was signed to harmonize food safety risk assessments and promote agricultural trade.

India-Austria Bilateral Relations

Category	Status and Trends
Trade Growth	Bilateral trade doubled from USD 1.08 billion (2019-20) to **USD 2.06 billion (2023-24)**; CAGR of 17.36%.
Trade Balance	India successfully reversed its deficit to record a **trade surplus of US$ 214 million** in 2023-24.
FDI	Cumulative Austrian FDI in India reached **USD 663 million** (as of March 2024).
Mobility	The **Migration and Mobility Pact (2023)** facilitates legal movement for skilled workers and students while combating illegal migration.
Space History	Austria's first two satellites were launched from India's **Sriharikota** in 2013.

Strategic and Geographical Profile of Austria

- **Location:** A mountainous, **landlocked country** in south-central Europe. It shares borders with eight nations: Germany, Czech Republic, Slovakia, Hungary, Slovenia, Italy, Switzerland, and Liechtenstein.
- **Geopolitical Neutrality:** Known as the **"neutral core of Europe,"** Austria established permanent neutrality in 1955. It joined the **European Union** in 1995 but remains outside of NATO.
- **The Nehru Connection:** India's first PM, **Jawaharlal Nehru**, played a pivotal role as a mediator during the Cold War to help conclude the **Austrian State Treaty (1955)**, which ended Allied occupation.
- **Topography:** Dominated by the **Alps**; the highest peak is the **Grossglockner**. Nearly the entire country drains into the **Danube River system**, which flows into the Black Sea.

Significance of the Partnership

- **Gateway to Central Europe:** For India, Austria serves as a high-tech gateway and a strategic transit hub via the **Danubian trade routes**.
- **Innovation Synergy:** Combining India's massive startup ecosystem with Austria's specialized engineering and R&D capabilities in lasers and material science.
- **Multilateral Cooperation:** Forging a strategic partnership between India's **Centre for UN Peacekeeping** and the Austrian Armed Forces (AUTINT) strengthens global stability efforts.

Conclusion

The 2026 visit has successfully transformed a traditionally friendly relationship into a **future-ready strategic partnership**. By bridging sectors from space technology to vocational training, India and Austria are leveraging their historical diplomatic ties—facilitated by the vision of leaders like Nehru—to build a robust, high-tech economic corridor in the 21st century.

Vice President's Historic Visit to Sri Lanka and OCI Expansion

Why in News?

- In a significant diplomatic milestone, the **Vice President of India, Shri C.P. Radhakrishnan**, embarked on a two-day visit to **Sri Lanka** in 2026.
- This marks the first-ever visit by an Indian Vice President to the island nation, highlighting the deepening strategic and cultural bonds between the two neighbors.

Context of the Visit

- The visit centered on India's "Neighborhood First" policy, with a major focus on the **Indian Origin Tamil (Malaiyaha Tamil)** community.
- By extending **Overseas Citizen of India (OCI)** eligibility to the fifth and sixth generations, India has addressed a long-standing demand of the diaspora.
- Discussions also accelerated the transformation of **Trincomalee** into a regional energy hub and reaffirmed India's commitment to Sri Lanka's post-cyclone recovery.

Key Highlights of the Visit

- **OCI Eligibility Expansion:** Eligibility has been extended to the **fifth and sixth generations** of the Indian diaspora in Sri Lanka. The application process is now simplified, allowing for verification based on documents provided directly by the Sri Lankan government.
- **Energy Security:** Both nations fast-tracked the development of the **Trincomalee Energy Hub**, including a **multi-product fuel pipeline** linking South India to Sri Lanka and the restoration of World War II-era oil tank farms.
- **Housing Assistance:** Handover of the final tranche of houses under **Phase III of the Indian Housing Project**, part of India's flagship commitment to build 50,000 homes for displaced and plantation workers.
- **Humanitarian Assistance:** Sri Lanka expressed gratitude for the **USD 450 million relief package** provided by India following **Cyclone Ditwah**, cementing India's role as the regional "First Responder."
- **Fishermen Issue:** Agreed on a **humanitarian approach** to resolve the Palk Strait dispute, focusing on the livelihoods of local communities rather than just legalistic enforcement.

Understanding the OCI Scheme

Feature	Details
Origin	Launched in 2005 (Citizenship Amendment Act); merged with the PIO scheme in 2015.
Nature	Grants **long-term residency and travel privileges**; it is NOT dual citizenship.
Visa Status	Multiple-entry, multi-purpose, **lifelong visa**; exempt from FRRO registration.
Economic Rights	Parity with NRIs in financial and educational fields; however, **cannot buy agricultural land/plantations**.
Ineligibility	Anyone with parents/grandparents from **Pakistan or Bangladesh** is strictly ineligible.

Rights and Limitations of OCI Holders

- **No Political Rights:** OCI holders cannot vote in Indian elections nor contest for Parliament or State Legislatures.
- **Constitutional Bars:** They are ineligible to hold high offices, including **President, Vice-President**, or Judges of the Supreme Court and High Courts.
- **Employment:** They do not have equality of opportunity in public employment (Article 16).
- **Cancellation Clause:** Registration can be revoked for fraud, showing disaffection toward the Constitution, or trading with an enemy during war.

Strategic Significance: The Trincomalee Hub

- The development of Trincomalee as an energy and logistics center—supported by a **tripartite MoU between India, Sri Lanka, and the UAE**—is crucial for regional stability.
- It reduces Sri Lanka's energy vulnerability while providing India with a strategic foothold in the central Indian Ocean, ensuring a secure and efficient energy corridor.

Conclusion

The 2026 visit of the Vice President marks a transition from purely developmental aid to a **deep strategic and emotional partnership**. By expanding OCI rights to the Malaiyaha Tamils and integrating energy grids, India is

ensuring that its relationship with Sri Lanka is built on the twin pillars of **cultural identity and economic interdependence**, moving toward a more integrated South Asian ecosystem.

India–Republic of Korea (ROK) Joint Strategic Vision (2026–2030)

Why in News?

- India and the **Republic of Korea (ROK)** have unveiled a **Joint Strategic Vision for 2026–2030** during the state visit of South Korean President Lee Jae Myung to India.
- This roadmap marks a fundamental shift from a purely economic relationship to a **comprehensive strategic partnership** spanning security, emerging technology, and climate action.

Key Highlights of the Joint Strategic Vision

- **Political Engagement:** Agreed to annual leader-level meetings and the launch of a **2+2 Dialogue** at the Vice Minister level.
- **Indo-Pacific Alignment:** Synchronized India's **"Act East Policy"** with South Korea's **"New Southern Policy,"** transitioning into a broader security partnership. ROK will also participate in the India-led **Indo-Pacific Oceans Initiative (IPOI)**.
- **Digital & Tech Integration:** Launched the **India-Korea Digital Bridge** to collaborate on AI, semiconductors, and data governance.
- **Financial Linkage:** A landmark MoU integrates India's **UPI (via NPCIL)** with Korea's **KFTC**, enabling real-time cross-border payments.
- **Space Cooperation:** Established a Joint Working Group between **ISRO** and the newly formed **Korea Aerospace Administration (KASA)**.
- **Climate Partnership:** South Korea joined the **International Solar Alliance (ISA)**, while India joined the Seoul-headquartered **Global Green Growth Institute (GGGI)**.

India–ROK Bilateral Profile

Category	Details and Success Stories
Historical Ties	Traced back to 48 AD (**Princess Suriratna of Ayodhya**) and the 1929 poem "Lamp of the East" by **Rabindranath Tagore**.
Economic Scale	Bilateral trade reached **USD 25.1 billion** (2024). Major conglomerates (Samsung, Hyundai, LG) are heavily integrated into **"Make in India."**
Defense Success	The **K-9 Vajra** self-propelled howitzer, co-produced by L&T and Hanwha Defense, is a standout "Make in India" success.
Cultural Impact	The **"Hallyu" (Korean Wave)** has a massive following in India, spanning K-pop, K-dramas, and K-beauty.

Trade and Economic Rebalancing

A major outcome of the 2026 vision is the formal restart of the **Comprehensive Economic Partnership Agreement (CEPA)** upgrade. Both nations acknowledged the need to address the **"trade asymmetry"** and dismantle Non-Tariff Barriers (NTBs) that currently hinder Indian exports in pharma, IT, and agriculture.

Challenges and Strategic Way Forward

Challenge	Proposed Way Forward
Widening Trade Deficit	Shift to **sector-specific integration** (green tech, electronics) to include Indian firms in Korean supply chains.
Defense Barriers	Move from a buyer-seller model to **co-development** and mandatory Technology Transfer (ToT).
China Factor	Strengthen **issue-based minilateralism** (e.g., India–ROK–US) to focus on maritime security and critical minerals.
Tech Collaboration Gap	Move beyond assembly-based FDI to joint R&D in **semiconductors, AI, and 6G**.

Energy and Resource Security

- India is now a participant in the **FORGE** (Forum on Resource Geostrategic Engagement) initiative, a US-led multinational effort to secure supply chains for critical minerals.
- Additionally, ROK welcomed India's participation in the **Pax Silica** initiative, ensuring a resilient supply of critical materials like naphtha.

Conclusion

The 2026–2030 Vision signals that the India–ROK partnership is no longer just about trade and investment; it is about **geopolitical synergy**. By aligning their technological prowess and strategic goals, both nations are positioning themselves as stabilizers in the Indo-Pacific, ensuring that the spirit of democratic innovation guides the global order in the coming decade.

Tuti Island: From Agricultural Haven to Conflict Zone

Why in News?

Tuti Island, historically celebrated as a tranquil agricultural sanctuary in Sudan, has surfaced as a tragic focal point in the ongoing **civil war** between the **Sudanese Armed Forces (SAF)** and the paramilitary **Rapid Support Forces (RSF)**. The island's strategic and symbolic value has transformed it from "Khartoum's Garden" into a site of intense humanitarian distress.

Geographical and Strategic Significance

- **The Nile Confluence:** Tuti is a crescent-shaped landmass (approx. **8 sq. km**) situated at the precise point where the **White Nile** (originating in Uganda) and the **Blue Nile** (from Ethiopia) merge to form the main Nile River.
- **Metropolitan Hub:** It occupies the geographical center of Sudan's tri-city conurbation, serving as a bridge between:
  - **Khartoum:** The political and administrative capital (South).
  - **Omdurman:** The nation's largest city and cultural heart (West).
  - **Khartoum North (Bahri):** The primary industrial hub (Northeast).

Geomorphology and Heritage

- **Alluvial Fertility:** The island was formed entirely by **alluvial silt deposition** over millennia of Nile flooding cycles. This has created exceptionally fertile soil, allowing the island to supply fresh produce to the surrounding desert metropolis.
- **The Mahas Tribe:** The island has been home to the **Mahas tribe** since the late 15th century. This community is credited with building Khartoum's oldest structures and maintaining a unique self-sufficient lifestyle.
- **Al-Taya System:** A traditional, indigenous **early-warning system** for flood management. Residents use collective drumming and specific observation points to monitor rising water levels, a practice that has saved the island for centuries.

The Civil War and the Blockade

Phase	Impact on Tuti Island
April 2023	Civil war erupts; RSF takes control of the bridge connecting the island to Khartoum.
June 2023 – March 2025	A **total blockade** is imposed by the RSF, turning the island into an "open-air prison."
Weaponization of Starvation	Strict control over food, medicine, and fuel supplies; residents were forced to pay exorbitant bribes for basic survival.
Humanitarian Crisis	Outbreaks of preventable diseases and acute malnutrition due to the lack of medical corridors.

The HEART Project

In response to the conflict, the **HEART project (Heritage Empowered Action for Risk in Tuti)** was launched.

- **Objective:** To document and preserve the **Al-Taya** flood management system and the island's oral histories.
- **Urgency:** With the mass displacement of the Mahas elders, there is a severe risk that centuries of indigenous knowledge regarding the Nile's behavior could be lost forever.

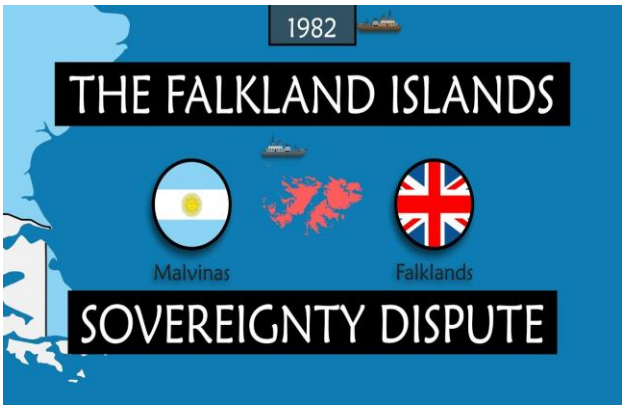
Current Status in 2026

- As of early 2026, while the peak of the blockade has eased in some sectors due to international pressure, the island remains a high-security zone.
- The agricultural output has plummeted as farmers have fled or lack the fuel for irrigation pumps, marking a period of deep ecological and social scarring for one of Africa's most unique riverine settlements.

Conclusion

Tuti Island represents the intersection of rich indigenous heritage and the brutal realities of modern urban warfare. Its fate is intrinsically tied to the wider Sudanese conflict; until a permanent ceasefire is achieved, "Khartoum's Garden" remains a symbol of the resilience and suffering of the Sudanese people amidst a neglected global crisis.

The Falkland Islands (Malvinas) Sovereignty Dispute



Why in News?

In **late April and early May 2026**, the **United Kingdom** firmly reaffirmed its sovereignty over the **Falkland Islands**. This diplomatic assertion followed reports of a leaked **U.S. Pentagon memo** suggesting that Washington might reassess its long-standing support for Britain's claim. The report caused significant friction in Anglo-American relations, prompting an immediate "No. 10" response.

- **The UK Stance:** Sovereignty is "non-negotiable," and the islanders' **right to self-determination** is paramount.
- **The Argentine Response:** President **Javier Milei** has reignited the claim (Malvinas), calling for a "road map" toward Argentine sovereignty while acknowledging that the process must be handled "judiciously" through diplomatic channels.
- **The U.S. Factor:** While the leaked memo suggested a potential shift, the U.S. State Department officially reiterated its position of **neutrality**, recognizing the UK's *de facto* administration without taking a definitive side on the underlying sovereignty.

1. Historical and Legal Context

The islands have been at the center of a tug-of-war for nearly two centuries:

- **1833:** The British established a permanent administration on the islands.
- **1982 Falklands War:** Argentina invaded the islands in April 1982. A 74-day war ensued,

ending with a British victory and the surrender of Argentine forces.

- **2013 Referendum:** In a decisive display of self-determination, **99.8%** of islanders voted to remain a British Overseas Territory (only three people voted against).

2. Competing Claims: UK vs. Argentina

Entity	Basis of Claim	Core Argument
United Kingdom	**Self-Determination**	The UN Charter grants peoples the right to choose their own government. The islanders have consistently chosen British rule.
Argentina	**Territorial Integrity**	Invokes the principle of *uti possidetis juris* (as you possess under law), arguing the islands were inherited from the Spanish Empire in 1810.
Legal Basis	**Falkland Islands Act 1985**	British law affirming administration; Argentina cites **UN Resolution 2065**, which calls for a negotiated settlement.

3. Strategic and Economic Significance

The dispute is not merely about territory; it involves high-stakes resources:

- **Hydrocarbons:** Estimates suggest the waters around the Falklands may contain up to **1.3 billion barrels of oil**.
- **Fisheries:** The islands manage a highly lucrative fishing zone, particularly for squid, which is a major contributor to the local economy.
- **Geopolitics:** The islands serve as a strategic British military foothold in the **South Atlantic** and a gateway for Antarctic research.

Conclusion

The 2026 flare-up highlights how historical wounds can be reopened by shifts in global alliances. While the military threat of a new conflict remains low, the diplomatic "war of words" continues to shape the foreign policies of London, Buenos Aires, and Washington. For a stable South Atlantic, the challenge remains balancing the **islanders' wishes** with **Argentina's historical grievances**.

The Chabahar Port Crisis: Sanctions and Strategic Uncertainty

Why in News?

The strategic landscape of India's connectivity to Central Asia shifted significantly on **April 26, 2026**, when the **U.S. sanctions waiver** on Iran's **Chabahar Port** officially expired. This waiver had previously allowed India to develop and operate the port without facing "Secondary Sanctions" from Washington. Its end places India at a crossroads: continue the project and risk U.S. penalties, or scale back a decade of geopolitical investment.

- **Current Status:** India has taken "de-risking" measures, including the **withdrawal of personnel** from the site and **prepaying its $120 million investment** commitment to fulfill contractual obligations before the deadline.
- **The "Exit" Strategy:** Discussions are underway regarding the potential **transfer of India's stake** in the Shahid Beheshti Terminal to an Iranian entity, though no final implementation has occurred.

1. Geography of Chabahar: India's Gateway

Chabahar is located in the **Sistan-Baluchistan province** of Iran, situated on the **Makran coast** along the **Gulf of Oman**. It is Iran's only oceanic port, providing direct access to the Indian Ocean.

- **Two Terminals:** The port comprises **Shahid Kalantari** and **Shahid Beheshti**. India's operational interest is specifically tied to the development of the **Shahid Beheshti Terminal**.

- **The Trilateral Pact:** In 2016, India, Iran, and Afghanistan signed a landmark agreement to establish a transit and transport corridor using Chabahar as the hub.

2. Strategic and Economic Significance

Category	Significance
Bypassing Pakistan	Historically, India's land access to Afghanistan and Central Asia was blocked by Pakistan. Chabahar provides a **sea-land route** that completely bypasses Pakistani territory.
INSTC Linkage	Chabahar is a vital node of the **International North-South Transport Corridor (INSTC)**, a multi-modal route connecting India to **Russia and Europe** via Iran.
Countering Gwadar	Strategically, Chabahar is seen as India's response to China's **Gwadar Port** in Pakistan (part of CPEC), located just 170 km away.
Trade Efficiency	It reduces transportation costs by an estimated **20%** and transit time to Central Asia by nearly **half** compared to the traditional route via the Suez Canal and Europe.

3. The Impact of U.S. Sanctions

The expiry of the waiver brings "CAATSA" (Countering America's Adversaries Through Sanctions Act) and other U.S. primary/secondary sanctions into play.

- **Financial Hurdles:** Even if India wants to continue, global banks are often unwilling to process payments for Iranian projects for fear of being cut off from the U.S. financial system.
- **Supply Chain Risks:** Acquiring heavy machinery (like cranes) for the port becomes difficult as international manufacturers fear "sanction contagion."
- **Humanitarian Aid:** Previously, Chabahar was used to send wheat and life-saving medicines to Afghanistan. The current uncertainty jeopardizes these vital supply lines.

Conclusion

Chabahar is often called the **"Golden Gateway"** for India's trade with the North. However, the 2026 sanctions crisis proves that geopolitical projects are only as stable as the international legal environment allows. Whether India chooses a "silent exit" or a "diplomatic surge" to secure a new waiver, the outcome will define India's influence in Central Asia for the next decade.

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EDITORIALS

Crux of The Hindu & Indian Express

International Issues

Russia–China Veto on UN Resolution (Strait of Hormuz Crisis – 2026)

1. Why in News?

- On **7 April 2026**, **Russia and China vetoed a resolution** in the United Nations Security Council related to the **reopening of the Strait of Hormuz**.
- The resolution was introduced amid:
  - Ongoing **US–Iran conflict**
  - Rising **global energy crisis**
- The voting result was:
  - **11 votes in favour**
  - **2 vetoes (Russia, China)**
  - **2 abstentions (Pakistan, Colombia)**
- The vote took place just before a deadline set by Donald Trump demanding Iran reopen the Strait.

This event highlights **global power divisions and limits of UN action**

2. Importance of Strait of Hormuz

- The **Strait of Hormuz** is a **strategic maritime chokepoint**

Key Facts:

- Around **20% of global oil supply** passes through it
- It connects:
  - Persian Gulf → Arabian Sea

During Conflict:

- Iran restricted movement in the Strait
- This led to:
  - **Sharp rise in global oil prices**
  - **Threat to global energy security**

Gulf countries considered this an **existential threat**

3. About the Proposed UN Resolution :

Initial Proposal

- Proposed by **Bahrain**
- It aimed to:
  - Ensure **free navigation**
  - Reopen the Strait
- Initially allowed:
  - Use of **"all necessary means"** (including military force)

Dilution of Resolution :

- Due to opposition from **Russia, China, France**:

Changes made:

- Removed:
  - **Use of offensive force**
- Limited to:
  - **Defensive measures only**
- Further diluted to:
  - Only **encourage coordination among countries**
  - No direct authorization of action

The resolution became **very weak**

4. Final Provisions of Resolution

- It **encouraged countries** to:
  - Protect **commercial shipping**
  - Escort **merchant vessels**
  - Ensure **safe navigation**
- It demanded Iran to:
  - Stop attacks on **ships and infrastructure**
  - Respect **freedom of navigation**

However, it had **no binding enforcement mechanism**

5. Why Did Russia and China Veto?

- Russia and China argued that:
  - The **US and Israel started the conflict**
  - Military pressure would **increase tensions**
- They emphasized:
  - Need for **immediate ceasefire**
  - Preference for **diplomatic solution**

Their veto reflects **geopolitical alignment and strategic interests**

6. Impact of the Veto

On Global Governance

- Shows limitations of:
  - **United Nations system**
- Even with majority support:
  - A **single veto can block action**

On Conflict

- No strong international action to:
  - Reopen Strait
  - Protect shipping
- Conflict continued without:
  - Effective global intervention

On Global Economy

- Continued:
  - **Energy supply disruption**
  - **High oil prices**

Increased **economic uncertainty worldwide**

7. Reaction of Countries

- Gulf countries (like Bahrain) expressed concern:
  - Said failure sends **wrong signal globally**
- The resolution was seen as:
  - A missed opportunity to ensure **maritime security**

8. About United Nations Security Council (UNSC)

Basic Features

- The United Nations Security Council is:
  - One of the **6 principal organs of the UN**
- Established in:
  - **1945**
- Main role:
  - Maintain **international peace and security**

Structure : Total Members: 15

Permanent Members (P5)

- Countries:
  - **China, France, Russia, UK, USA**
- Special power:
  - **Veto Power**

Any one veto can **block a resolution**

Non-Permanent Members (10)

- Elected for:
  - **2-year terms**
- Based on:
  - **Geographical representation**

Voting System

- A resolution requires:
  - **At least 9 votes in favour**
  - **No veto by P5 members**

Key Powers

- **Sanctions** (economic restrictions)
- **Peacekeeping missions**
- **Authorization of military action**
- **Conflict investigation**

Legal Authority

- Under **Article 25 of UN Charter**:
  - Members must follow UNSC decisions

Makes UNSC decisions **legally binding**

9. Significance of UNSC in This Case

- UNSC acted as:
  - A **global negotiation platform**
- However:
  - **Veto power prevented action**

Highlights:

- **Power politics over global consensus**

10. Conclusion

- The veto by Russia and China reflects:
  - **Geopolitical rivalry**
  - Limits of **multilateral institutions**
- Despite global concern:
  - UNSC could not take effective action
- The event shows that:
  - **International peace mechanisms depend heavily on major powers' interests**

India's Outreach to Angola for Energy Security (2026)

1. Why in News

- Disruption in the **Strait of Hormuz** exposed India's **energy vulnerability**
- Impact on India:
  - Nearly **90% of LPG supply routes affected**
  - Around **50% of LNG demand depends on imports**
- India has started **energy negotiations with Angola**
- This is not just emergency action, but a **long-term strategic shift in energy policy**

2. Core Issue Identified

- India's energy imports are **highly concentrated in West Asia**
- This creates:
  - **Geopolitical risk**
  - **Supply disruption risk**

Key Problem: **Overdependence on a single region**

3. Why Angola is Important

- Angola has:
  - **4.6 trillion cubic feet of gas reserves**
- Already:
  - India's **5th largest LNG supplier (FY25)**
  - Export value: **$924 million**

Not a new partner, but an **underutilised strategic partner**

4. Current Developments

Indian Companies Involved

- Indian Oil Corporation (IOC)
- Bharat Petroleum Corporation Limited (BPCL)

- Hindustan Petroleum Corporation Limited (HPCL)
- GAIL Ltd

Partner

- Angola's national oil company → **Sonangol**

Nature of Agreements

- **Short-term contracts** → LPG supply
- **Long-term contracts (up to 10 years)** → LNG imports

Shift from:

- Spot purchases → Structured long-term engagement

5. Key Drivers Behind This Shift

(A) Supply Disruption

- Reduced supply from:
  - Qatar
  - UAE

Highlighted vulnerability of **West Asia dependence**

(B) Energy Security Need

- India requires:
  - **Stable and continuous supply**

Crisis showed:

- Cost is less important than **availability**

(C) Strategic Diversification

- Aim:
  - Reduce dependence on **single geography**

Move towards **multi-region energy sourcing**

6. Advantages of Angola

(A) Resource Strength

- Large **natural gas reserves**

(B) Existing Trade Link

- Already a **reliable supplier**

(C) Logistical Advantage

- Shipping time:
  - **10–15 days shorter than North America**

Leads to:

- Faster delivery
- Lower inventory cost

(D) Future Potential

- If imports increase:
  - Trade may reach **$2–3 billion annually**

Angola can become a **top-tier supplier**

7. Impact on India–Africa Trade

- Current trade:
  - **$90–100 billion**

Expected Changes

(1) Energy Diversification

- Even **5–10% shift to Africa**:
  - Reduces dependence on West Asia

(2) Stable Long-Term Trade

- Long-term LNG contracts:
  - Ensure **predictable supply**

(3) Expansion Beyond Energy

- Growth in:
  - Shipping
  - Ports
  - Engineering services

(4) Investment Opportunities

- Indian firms may invest in:
  - Angola's energy sector

Shift from:

- Buyer–seller → Investment partnership

8. Trade-Offs (Important)

(A) Higher Cost

- African gas may be:
  - More expensive than Gulf suppliers

(B) Short-Term Burden

- Increased import cost

(C) Strategic Logic

Key Idea:

- **Cost efficiency without supply security is risky**
- India is shifting to:
  - **Risk-adjusted trade strategy**

9. Strategic Significance

- Reduces dependence on:
  - **Hormuz chokepoint**
- Creates:
  - **Diversified energy basket**
- Improves:
  - **Long-term energy security**

- Provides:
    - **Model for future diversification (Africa focus)**

10. About Angola (Prelims Focus)

Location

- Angola is located on:
    - **South-Western coast of Africa**
- Borders:
    - Republic of Congo
    - Democratic Republic of Congo
    - Zambia
    - Namibia
- Coastline:
    - **Atlantic Ocean**

Capital

- **Luanda**

Geographical Features

- Climate:
    - Tropical with dry season
- Major Rivers:
    - Cuango River
    - Cuanza River
- Waterfall:
    - Calandula Falls
- Highest Peak:
    - Mount Moco

Natural Resources

- Petroleum
- Diamonds
- Iron ore
- Gold
- Uranium

India–Germany Defence Industrial Cooperation

Why in News

- Defence Minister Rajnath Singh addressed German Parliamentarians in Berlin on 21 April 2026.
- He called for **enhanced defence industrial partnerships** between India and Germany.
- Invited German industry to collaborate under **Aatmanirbhar Bharat** through **co-creation, co-development, and co-innovation**.

Key Points

1. Aatmanirbhar Bharat in Defence

- Not limited to **procurement**; focuses on **indigenous production, innovation, and global collaboration**.
- Emphasises **technology partnerships** and **domestic capability building**.
- Marks a shift from **import dependence → partnership-driven model**.

2. India–Germany Industrial Synergy

- Germany: **advanced manufacturing**, strong **Mittelstand (MSME sector)**.
- India: **startups**, **private defence sector expansion**.
- Result: **complementary strengths** enabling **joint production and innovation**.

3. Strategic Partnership

- Driven by leadership of Narendra Modi and Friedrich Merz.
- Based on **shared democratic values** and **economic resilience**.
- Increasing **India–EU convergence**, especially in **defence cooperation**.

4. Changing Nature of Security Threats

- Threats are **technology-driven, interconnected, and complex**.
- Include **cyber warfare, AI-based systems, hybrid warfare**.

- Require **coordinated responses, trusted partnerships, adaptive strategies**.

5. West Asia Situation and India's Response

Importance

- Critical for **energy security** due to dependence on oil imports.
- Presence of key route: **Strait of Hormuz**.

Government Measures

- Formation of **Group of Ministers on West Asia**.
- Focus on:
  - **Energy supply stability**
  - **Essential commodities availability**
  - **Inflation control**
  - **Protection of citizens and industry**

Key Insight

- Reflects **institutional coordination, foresight, and crisis management capacity**.

6. Strait of Hormuz

- A **strategic oil chokepoint**.
- Handles a **significant share of global petroleum trade**.
- Disruptions impact **oil prices, inflation, and economic stability**.

7. Cultural Diplomacy

- Tribute paid to Rabindranath Tagore.
- Highlights **India–Germany cultural and intellectual ties**.
- Demonstrates role of **soft power in diplomacy**.

Significance for India

- **Diversification of defence partners**
- Access to **advanced technologies**
- Boost to **domestic manufacturing and exports**
- Strengthening of **strategic autonomy**

Challenges

- **Germany's export control regulations**
- **EU regulatory framework complexities**
- Differences in **procurement systems**

Way Forward

- Promote **joint ventures and co-development**
- Enhance **technology transfer**
- Strengthen **India–EU strategic alignment**
- Invest in **defence R&D and innovation ecosystems**

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Indian Polity & Governance

National Commission for Backward Classes (NCBC)

Why in News?

Niranjan Jyoti has taken charge as **Chairperson**, and Kiran Umesh Mahalle as **Member** of the National Commission for Backward Classes.

About NCBC

- The **NCBC** is a **constitutional body** responsible for safeguarding the interests of **Socially and Educationally Backward Classes (SEBCs)**.
- It was initially set up as a **statutory body (1993)** and later granted constitutional status through the 102nd Constitutional Amendment Act 2018.

Significance of Constitutional Status

- Earlier, NCBC's role was largely limited to **inclusion/exclusion in the Central OBC list**.
- Post-2018, it has a **broader institutional role**:
  - Mandatory **consultation by the government** on policies affecting SEBCs
  - Strengthened **grievance redressal mechanism**
  - Enhanced parity with commissions for SCs and STs

Constitutional Basis

- Established under **Article 338B** of the Constitution
- Works alongside:
  - National Commission for Scheduled Castes (Article 338)
  - National Commission for Scheduled Tribes (Article 338A)

Composition

- Total **5 members**:
  - Chairperson
  - Vice-Chairperson
  - Three Members
- Appointed by the **President of India**
- Tenure and service conditions determined by the President

Qualifications and Representation

- **Chairperson**:
  - Eminent individual from SEBCs
  - Proven record of **public service and social credibility**
- **Vice-Chairperson & Members**:
  - At least **two members from SEBCs**
- **Gender Representation**:
  - At least **one woman member**

Tenure

- Term of **3 years**
- Generally limited to **two terms**

Key Functions

Investigative Role

- Examines implementation of **constitutional and legal safeguards** for SEBCs

Inquiry Function

- Looks into **specific complaints** of rights violations

Advisory Role

- Recommends measures for **socio-economic development**
- Assesses **progress of backward classes**

Reporting Function

- Submits **annual reports** to the President

Powers of NCBC

- Functions with powers similar to a **civil court**, including:
  - Summoning individuals
  - Requiring document production
  - Receiving evidence on affidavits
  - Examining witnesses

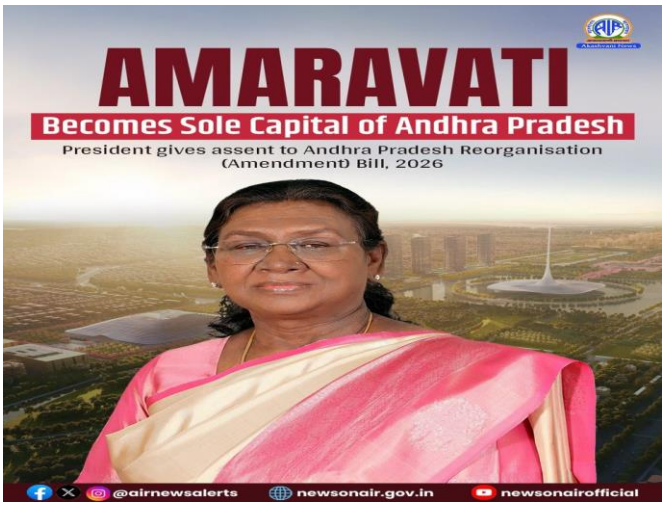
Related Constitutional Developments

- **Article 342A** (via 102nd Amendment):
  - Empowers the **President** to notify SEBCs for **Central List**
- 105th Constitutional Amendment Act 2021:
  - Restored powers of **State Governments** to maintain their **own OBC lists**

Analytical Perspective

- Elevation to constitutional status reflects the growing importance of **social justice governance**
- Enhances **institutional accountability** in addressing backward class concerns
- However, issues remain regarding:
  - **Overlap of powers** between Centre and States
  - Effectiveness of recommendations (advisory nature)
- Strengthening NCBC's role is crucial for achieving **inclusive development and equity**

Andhra Pradesh Reorganisation (Amendment) Bill, 2026: Amaravati as Permanent Capital



Why in News?

- The Lok Sabha passed the **Andhra Pradesh Reorganisation (Amendment) Bill, 2026**, formally designating **Amaravati as the sole and permanent capital of Andhra Pradesh**.
- This move aims to remove ambiguity over the state capital and prevent future policy reversals.

Overview of the Bill

- The legislation follows a resolution passed by the **Andhra Pradesh Legislative Assembly**,

requesting the Union Government to legally finalise Amaravati's status as the capital.

- It brings a decisive end to the ongoing debate over a **multi-capital model** and establishes a clear administrative framework.

Key Provisions of the Amendment

Amendment to 2014 Act

- The Bill modifies **Section 5 of the Andhra Pradesh Reorganisation Act, 2014**
- Earlier provision: **Hyderabad was the common capital for Andhra Pradesh and Telangana for up to 10 years**

Recognition of Amaravati

- Amaravati is now officially designated as the **permanent capital of Andhra Pradesh**
- The move overrides earlier proposals for a **three-capital model**, which included:
    - Visakhapatnam (executive capital)
    - Kurnool (judicial capital)
    - Amaravati (legislative capital)

Retrospective Effect

- The law will take effect retrospectively from **2 June 2024**
- This marks the end of the **10-year common capital arrangement with Telangana**

Constitutional and Legislative Significance

- This is the **first instance in independent India** where Parliament has explicitly declared a **specific city as the permanent state capital through legislation**
- Strengthens the role of Parliament in resolving **inter-state administrative disputes arising from state bifurcation**

Historical Context

Post-Bifurcation Uncertainty

- After the **bifurcation of Andhra Pradesh in 2014**, Hyderabad served as a shared capital temporarily
- The arrangement created long-term uncertainty over the location of Andhra Pradesh's capital

Policy Debates

- The **K.C. Siva Ramakrishnan Committee** had recommended a **decentralised capital model**
- Later state-level policy shifts proposed a **three-capital system**, which was politically contested and eventually dropped

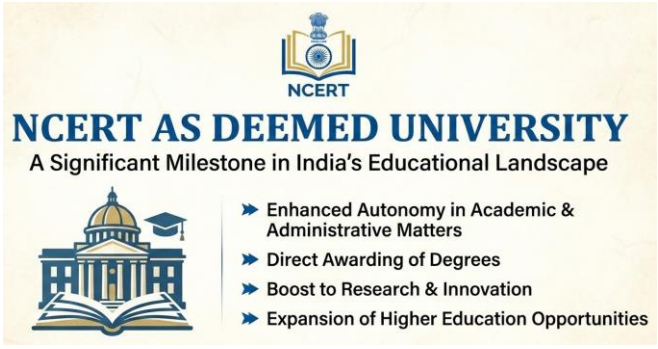
Significance of the Decision

- Provides **administrative stability and clarity** for governance in Andhra Pradesh
- Encourages focused development of **Amaravati as a planned capital city**
- Resolves prolonged **political and policy uncertainty post-bifurcation**
- Reinforces the importance of **legislative intervention in federal administrative issues**

Conclusion

The formal recognition of **Amaravati as the permanent capital** marks a significant constitutional and administrative milestone. It ends a decade-long debate on capital location in Andhra Pradesh and highlights how **legislative clarity can stabilize post-bifurcation governance challenges in India's federal system**.

NCERT Granted "Deemed to be University" Status



Why in News?

- The Centre has granted the **National Council of Educational Research and Training (NCERT)** the status of an **"Institution Deemed to be University under Distinct Category"**.
- This move enables NCERT to expand its academic role beyond school curriculum development into higher education and research.

Overview

- With this new status, NCERT transitions from a curriculum-design institution to a **degree-granting academic body**, strengthening

India's teacher education, research ecosystem, and alignment with **NEP 2020 reforms**.

Key Provisions of the New Status

Degree-Granting Power

- NCERT and its **6 regional institutes** can now:
  - Offer academic courses independently
  - Award degrees in education and allied fields
- Marks a shift toward **institution-led teacher education expansion**

Regulatory Compliance

- Must follow norms of the **University Grants Commission (UGC)**
- Programs must align with **National Education Policy (NEP) 2020**

Academic Expansion

- Mandated to develop:
  - Research programmes
  - Doctoral (PhD) courses
  - Innovative interdisciplinary academic programmes
- Allowed to establish:
  - Off-campus centres
  - Offshore campuses (as per UGC rules)

Non-Profit Requirement

- NCERT must remain a **non-commercial institution**
- Cannot engage in profit-driven education activities

Accreditation and Quality Assurance

- Mandatory accreditation by:
  - **National Assessment and Accreditation Council (NAAC)**
- Program-level assessment by:
  - **National Board of Accreditation (NBA)**

National Ranking Participation

- Required to participate in **National Institutional Ranking Framework (NIRF)** rankings
- Enhances transparency and performance benchmarking

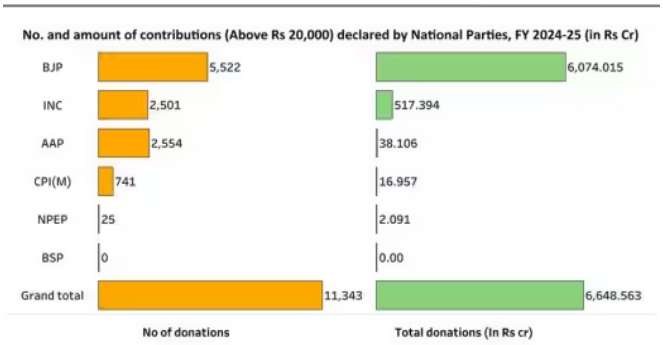
Digital Integration

- Mandatory adoption of **Academic Bank of Credits (ABC)** system
- Includes:
  - Digital student IDs
  - Credit storage in digital lockers
  - Seamless credit transfer across institutions

Significance of the Move

- Strengthens **teacher education and pedagogy research in India**
- Aligns curriculum development body with **higher education framework**
- Promotes **multidisciplinary and research-oriented teacher training**
- Enhances integration between **school education and university-level learning systems**
- Supports implementation of **NEP 2020 vision of flexible, credit-based education**

ADR Report on Political Funding (FY 2024–25): Rising Concentration and Accountability Concerns



Why in News?

- The **Association for Democratic Reforms (ADR)** released its analysis of **political donations for FY 2024–25** based on contributions of **₹20,000 and above** reported to the **Election Commission of India (ECI)**.
- The report highlights a sharp rise in declared funding along with increasing **concentration of political resources** among major parties.
- It shows that the **Bharatiya Janata Party (BJP)** received about **₹6,074 crore**, registering a

171% increase over the previous year, raising concerns about **transparency and funding imbalance** in electoral finance.

Overview

- India's political funding system is gradually shifting towards **formal banking channels**, but it is increasingly shaped by **corporate dominance** and **intermediary institutions like Electoral Trusts**.
- While post-electoral bond reforms have improved disclosure, they have not resolved issues of **unequal fund distribution** and **opacity in influence networks**.

Key Findings of the ADR Report

Sharp rise in political funding

- Total declared donations (above ₹20,000) increased by around **161%** year-on-year.
- **BJP accounted for over 90%** of total declared funding among national parties.
- Indicates growing **financial centralisation** in politics.

Corporate dominance in donations

- Around **92%+ contributions came from corporate and business entities**.
- **Individual donations remain marginal**, showing weak grassroots participation.
- Raises concerns about **corporate influence on policymaking**.

Role of Electoral Trusts

- **Electoral Trusts** act as key intermediaries in fund transfer.
- **Prudent Electoral Trust** emerged as a major channel.
- Funds largely flow towards **dominant national parties**, reducing transparency of donor links.

Regional concentration

- Highest donations originated from **Delhi, Maharashtra, and Gujarat**.
- Reflects the link between **industrial hubs and political funding networks**.

Disclosure gaps

- Some parties reported **zero or negligible donations above threshold limits**.
- Indicates possible reliance on **informal or unreported funding channels**.

Political Funding Structure in India

Individual donations

- Contributions above **₹2,000** must be made via **non-cash modes**.
- Smaller donations remain **anonymous**, limiting transparency.

Corporate funding

- Governed by **Section 182 of Companies Act, 2013**.
- The earlier **7.5% profit cap was removed in 2017**.
- Requires disclosure in company financial statements.

Electoral Trusts

- Function as **intermediaries between corporates and parties**.
- Required to distribute at least **95% of funds annually**.
- Reduce direct visibility of **donor–party linkage**.

Indirect state support

- Includes **tax exemptions, free media airtime, and subsidised infrastructure**.
- Represents **partial public financing**, not direct funding.

Evolution of Political Funding in India

Pre-2017 phase

- Dominated by **cash donations and partial disclosure**.
- Corporate donation cap of **7.5% existed earlier but was removed**.
- High incidence of **split donations to avoid scrutiny**.

Electoral Bonds era (2018–2024)

- Introduced **donor anonymity through banking channels**.
- Improved formalisation but reduced **transparency and accountability**.
- Created **information asymmetry** between voters and donors.

Supreme Court ruling (2024)

- In **ADR vs Union of India**, Electoral Bonds were struck down.

- Held that anonymity violates **Article 19(1)(a)** (right to information).
- Warned against risks of **institutionalised corruption and policy capture**.

Post-2024 system

- Funding now flows through **Electoral Trusts and direct donations**.
- Reporting strengthened via **Integrated Election Management System (IEMS)**.
- Yet, issues of **fund concentration remain unresolved**.

Importance of Financial Transparency in Elections

- ***Prevents quid pro quo politics***
- Reduces risk of **policy favours in exchange for funding** from large donors.
- ***Ensures electoral fairness***
- Helps prevent **financial dominance from distorting competition**.
- ***Protects sovereignty***
- Limits risk of **foreign or indirect influence** in domestic politics.
- ***Empowers informed voters***
- Enables citizens to assess **financial backing and interests behind parties**.
- ***Constitutional basis***
- Supreme Court links transparency in funding with the **right to information under Article 19(1)(a)**.

Institutional and Legal Framework

- **Representation of the People Act, 1951**: Party registration and disclosure norms
- **Income Tax Act, 1961**: Tax exemptions and deductions for political donations
- **Companies Act, 2013**: Regulation of corporate political funding
- **FCRA, 2010**: Prohibits foreign funding to political parties
- **ECI guidelines**: Mandate disclosure through contribution reports and digital systems

Key Committees on Political Funding

- **Tarkunde Committee (1975)** – Emphasised **transparency and stronger ECI oversight**
- **Dinesh Goswami Committee (1990)** – Suggested **partial state funding** and reducing corporate influence
- **Indrajit Gupta Committee (1998)** – Recommended **in-kind state funding** for recognised parties
- **Law Commission (170th Report, 1999)** – Supported state funding with conditions like **internal democracy and transparency**

Way Forward / Reforms Needed

Strengthening transparency

- Lower disclosure threshold from **₹20,000 to ₹2,000**
- Introduce **real-time disclosure of donations**

Regulating corporate influence

- Reintroduce caps on **corporate political funding**
- Mandate **shareholder approval** before donations

Strengthening ECI

- Empower ECI to **de-register non-compliant parties**
- Ensure **independent audits via CAG-approved auditors**

Expenditure control

- Introduce limits on **total party election expenditure**

Electoral Trust reforms

- Improve transparency in **fund flow and distribution**
- Ensure **fair allocation mechanisms**

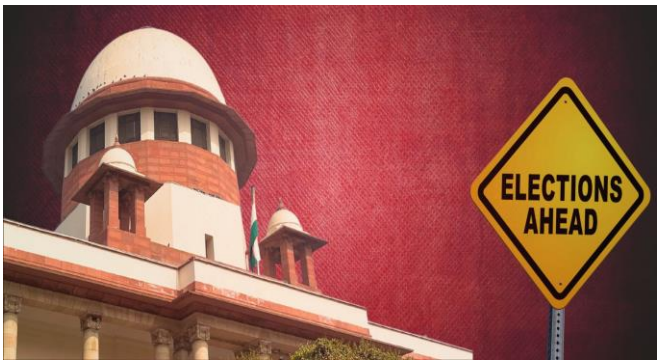
State support (optional reform)

- Provide **in-kind assistance** like media airtime, logistics, and infrastructure

Conclusion

The ADR report highlights a political funding system increasingly marked by **corporate dominance, intermediary-led financing, and concentration of resources** among major parties. Although post-Electoral Bond reforms have improved **formal transparency**, deeper structural concerns of **inequality, influence, and opacity** remain. A balanced reform approach involving **strong disclosure norms, regulated funding channels, and empowered institutions like the ECI** is essential to safeguard **democratic accountability in India**.

Supreme Court Ruling on Election Petitions



Why in News?

- The **Supreme Court (SC)** ruled that **appellate courts cannot remand election petitions** for **fresh evidence or expert examination** (e.g., fingerprint analysis) if these issues were **not raised before the Election Tribunal**.
- **Election disputes must be decided solely based on the existing record** to **preserve the integrity of the original proceedings**.

Election Petition: Overview

Definition and Purpose

- **Exclusive judicial remedy** to challenge the **validity of an election result** in India.
- Ensures the **integrity and purity of the democratic process**.

Constitutional and Statutory Basis

- **Article 329(b) of the Constitution**: No election to **Parliament or State Legislatures** can be questioned except by an **election petition**.
- **Representation of the People Act, 1951**: Governs election petitions for **Parliament (Lok Sabha and Rajya Sabha)** and **State Legislative Assemblies**.
- **State Laws**: Election disputes for **local bodies (Panchayats and Municipalities)** are governed by **respective State laws** under the **73rd and 74th Constitutional Amendments**.

Jurisdiction

- **Parliamentary or Assembly elections**: Petitions filed in the **High Court of the respective state**.
- **Presidential or Vice-Presidential elections**: Petitions filed **directly in the Supreme Court** under **Article 71**.

Eligibility and Timeline

- **Who can file**: Any **candidate or elector** from the constituency.
- **Time limit**: **45 days** from the date of the **result declaration**.

Grounds for Voiding an Election

Under **Section 100 of the RPA, 1951**, an election can be declared void if:

- The **candidate was disqualified**.
- **Corrupt practices** occurred (e.g., bribery, undue influence, appeals to religion/caste).
- **Improper acceptance or rejection of nomination papers**.

Appellate Provisions

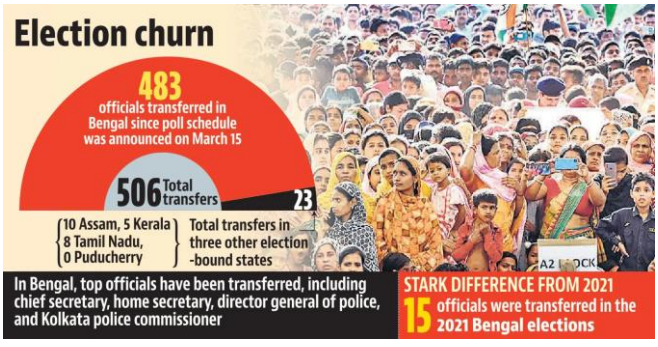
- **Appeal against High Court's decision** lies with the **Supreme Court**.
- **Time limit for appeal**: **30 days**.

Judicial Outcomes

The Court may:

- **Dismiss the petition**.
- **Declare the election void**, leading to a **bye-election**.
- **Substitute the winner** if the petitioner is proven to have received the **majority of valid votes**.

Election Commission of India's Controversial Transfers Ahead of 2026 Polls



- **Why in News?**

  The **Election Commission of India (ECI)** has transferred multiple **senior state officials**, including **Chief Secretaries** and **Directors**

General of Police in states like **West Bengal**, in preparation for the **2026 Assembly elections**.

- This unprecedented move, implemented **without consulting state governments**, has ignited a **national debate** about the **extent of the ECI's constitutional authority** under **Article 324**.

Understanding the ECI's Constitutional Mandate

Article 324: The Foundation of Electoral Authority

The **Constitution's Article 324** grants the **ECI comprehensive powers** for **election supervision**, including:

- **Complete control** over **election conduct**
- **Authority to requisition staff** as needed (per **Article 324(6)**)
- **Broad interpretive powers** to ensure **electoral integrity**

Judicial Interpretation of ECI's Powers

In the landmark **1978 case** of **Mohinder Singh Gill vs Chief Election Commissioner**, the **Supreme Court** established that:

- **Article 324** serves as a **comprehensive power repository** for **election management**
- These powers are **not unlimited** but must operate within **legal boundaries**
- The **ECI must respect existing legislation** when present
- All actions must conform to **principles of natural justice** and **good faith**
- The Court explicitly warned against **arbitrary exercise of power**

Key Concerns About the Recent Transfers

Legal Ambiguities

- No **specific provision** in **election laws** explicitly permits the **ECI to transfer top state officials**
- **Existing civil service regulations** place **transfer authority** with **state governments**

Federalism Implications

- The **unilateral transfers** challenge the **constitutional division of powers**
- **State governments** argue this undermines their **administrative autonomy**
- Critics warn of potential **power imbalances** between **central and state authorities**

Operational Challenges

- **Last-minute transfers** may disrupt **election preparations**
- Officials may face **unwarranted reputational damage**
- The process lacks **transparent criteria** for determining **officer suitability**

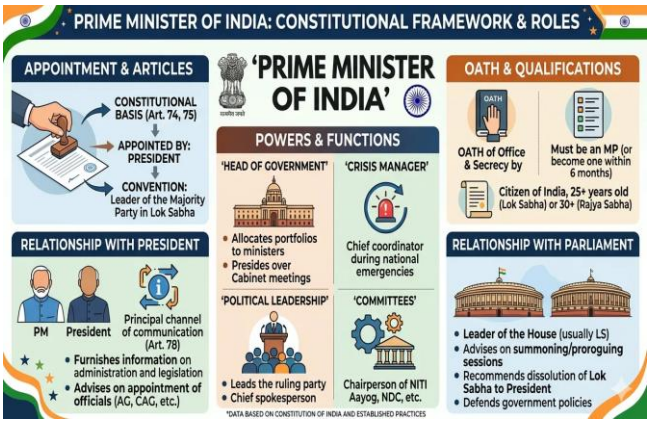
Path Forward

While the **ECI's commitment** to **fair elections** is commendable, there is a growing consensus that:

- **Clear legal guidelines** are needed to define **transfer authorities**
- The **balance** between **electoral integrity** and **federal principles** requires careful calibration
- **Judicial clarification** may be necessary to resolve the current **constitutional ambiguity**

This situation highlights the **complex interplay** between **electoral oversight** and **federal governance** in India's **constitutional framework**.

Term Limits for the Office of Prime Minister: A Constitutional Debate



Why in News?

- The debate regarding the introduction of fixed term limits for the Indian Prime Minister has resurfaced.
- The discussion focuses on whether prolonged incumbency leads to a concentration of power that undermines the "continuous accountability" envisioned by the framers of the Constitution.

Constitutional Position on Tenure

Current Framework

- **No Fixed Limit:** The Constitution of India does not prescribe a maximum number of terms or years for the Prime Minister.
- **Basis of Power:** A PM remains in office as long as they command the confidence of the **Lok Sabha** and maintain electoral support.
- **Ambedkar's Rationale:** Dr. B.R. Ambedkar argued for **"daily assessment"** (via questions, motions, and debates) over **"periodic assessment"** (elections). He believed continuous parliamentary oversight was a more effective check than fixed terms.

The "Double Disability" of Accountability

The original vision of the Constituent Assembly has been weakened by two major factors:

1. **Anti-Defection Law (1985):** The **10th Schedule** (52nd Amendment) mandates that MPs follow the party whip. Voting against the party—even on a No-Confidence Motion—leads to disqualification. This effectively neutralizes the legislature's power to check a PM who holds a majority.
2. **Lack of Intra-Party Democracy:** Unlike the UK system, where party members can vote out their leader (e.g., the Conservative Party caucus), Indian parties lack formal mechanisms for leadership challenges.

The Rajya Sabha Loophole

- An amendment to the **Representation of the People Act (2003)** removed the domicile requirement for Rajya Sabha members (upheld in *Kuldip Nayar v. Union of India*).
- This allows a leader to hold the highest executive office without winning a direct popular election, potentially distancing them from direct voter accountability.

The Debate: Pros and Cons of Term Limits

Arguments For Term Limits

- **Preventing "Cult of Personality":** Long tenures often lead to power being concentrated in the **PMO**, weakening the principle of collective cabinet responsibility.
- **Global and Domestic Precedent:** While **Article 57** allows for Presidential re-election, Indian convention limits Presidents to two terms. Proponents argue the actual executive head should face similar restrictions.
- **Fresh Leadership:** Forces parties to groom new talent and prevents political stagnation.
- **Institutional Safeguard:** Acts as a fail-safe in a system where the Anti-Defection Law has "locked" the loyalty of legislators.

Arguments Against Term Limits

- **Restricts Voter Choice:** Prevents the electorate from re-electing an effective leader who enjoys genuine popularity.
- **Policy Disruption:** Major long-term economic and infrastructural reforms often require continuity that a 5 or 10-year limit might break.
- **Lame-Duck Syndrome:** A leader in their final term may lose authority as the focus shifts to their successor.
- **Proxy Rule:** Risk of "puppet" leaders being installed by the outgoing PM to maintain indirect control.

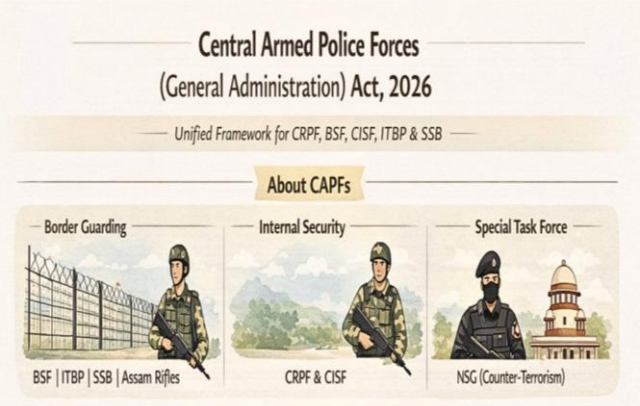
Proposed Reforms to Strengthen Accountability

- **Amend the 10th Schedule:** Exempt No-Confidence Motions from the Anti-Defection Law. As suggested by the **Dinesh Goswami Committee (1990)**, MPs should have a "free vote" on matters of government survival.
- **PM's Question Time:** Formalize a mandatory, unscripted session for the PM to answer questions in Parliament, similar to the UK House of Commons.
- **Shadow Cabinet:** Legally recognize an Opposition "Shadow Cabinet" to provide expert scrutiny of each ministry.
- **Retirement Age:** Establish a voluntary or mandatory retirement age (e.g., 70-75) for executive roles to ensure generational transition.
- **Cooling-off Periods:** If term limits are introduced, they could allow a leader to return only after a mandatory break, preventing lifetime incumbency.

Conclusion

While the Indian system was designed for **parliamentary accountability**, the rise of the "whip culture" and the decline of intra-party democracy have tilted the balance toward the executive. The debate over term limits is a reflection of the need to restore the **self-correcting safeguards** that are essential for a healthy democracy.

CAPF (General Administration) Act, 2026: Leadership and Service Disputes



Why in News?

- The notification of the **Central Armed Police Forces (General Administration) Act, 2026**, has sparked nationwide protests by retired personnel and their families.
- Demonstrations peaked at Raj Ghat on **9 April 2026**, a date chosen to coincide with **CRPF Valour Day** (commemorating the 1965 Battle of Sardar Post, Rann of Kutch).
- The protests highlight a deepening rift regarding cadre rights and the leadership structure of India's internal security forces.

The CAPF (General Administration) Act, 2026

Core Provisions

The Act provides a permanent legislative framework for the leadership structure across the five primary CAPFs (**BSF, CRPF, CISF, ITBP, and SSB**). It mandates the reservation of senior positions for **Indian Police Service (IPS)** officers as follows:

- **Inspector General (IG) Rank:** 50% of posts.
- **Additional DG (ADG) Rank:** At least 67% of posts.
- **Special DG and Director General (DG) Ranks:** 100% of posts.

Administrative Authority

- **Overriding Power:** The Act designates the **Ministry of Home Affairs (MHA)** as the ultimate administrative body. Rules framed under this Act regarding recruitment and service conditions explicitly override any previous laws, executive orders, or court judgments.

Government Rationale vs. Force Concerns

Government Stand

- **Operational Synergy:** The Centre argues that CAPFs must work in constant coordination with state police and civil administrations. Since these are led by IPS/IAS officers, having IPS leadership at the top of CAPFs ensures "smooth operational synergy."
- **Legislative Clarity:** The government claims an umbrella law is necessary to provide a stable legal foundation and preserve the "operational distinctiveness" of each force.

Concerns Raised by Personnel

- **Violation of SC Directives:** Protesters argue the Act directly contradicts a **2025 Supreme Court directive** which instructed the Centre to "progressively reduce" IPS deputation up to the IG rank within two years to boost force morale.
- **Stagnation and Promotion Delays:** Approximately **13,000 Group A officers** in the CAPFs face severe career stagnation, often waiting 15–18 years for a single promotion due to senior slots being occupied by deputed officers.
- **Combat vs. Command:** Personnel highlight a "functional disconnect" where cadre officers lead frontline combat operations in Naxal-hit areas or borders, while senior policy and command roles are reserved for external IPS officers.

Key Demands of the Protesters

- **Old Pension Scheme (OPS):** Restoration of the pre-2004 pension system, arguing that CAPFs face hardships similar to the regular Armed Forces.

- **Cadre Review:** Implementation of time-bound promotions and a "dignified career progression" plan.
- **Leadership Reform:** Gradual phasing out of IPS deputation in favour of internal cadre officers who have risen through the ranks of the specific force.

Historical Context: CRPF Valour Day

- **The Date:** 9 April commemorates the **1965 Battle of Rann of Kutch**, where a small contingent of the 2nd Battalion, CRPF, successfully repulsed an attack by a full Pakistani Infantry Brigade.
- **Significance:** The protest on this day was symbolic, intended to contrast the "valour" of the force with the "administrative neglect" alleged by the personnel.

Hate Speech and Hate Crimes (Prevention) Act, 2026

Why in News?

The **Odisha State Law Commission (OSLC)** has submitted comprehensive recommendations for the **Odisha Hate Speech and Hate Crimes (Prevention) Act, 2026**. The move aims to establish a robust legal framework to curb inflammatory expressions and identity-based violence through stringent penal and preventive measures.

Context

- **Proposed Law:** Odisha envisions a dedicated Act with cognizable offences, digital content removal powers, and up to **7 years** of imprisonment for repeat offenders.
- **Gap in Existing Law:** Current provisions in the **Bharatiya Nyaya Sanhita (BNS)** and existing judicial guidelines are viewed as insufficient to tackle the rapid spread of online hate.
- **The Balance:** The law seeks to balance **Article 19** (Freedom of Speech) with public order through clear definitions, AI moderation, and social resilience.

Key Recommendations of OSLC

- **Penal Provisions:**
  - **First-time offenders:** Imprisonment from **1-5 years** and a fine of **10,000**.
  - **Repeat offences:** Imprisonment up to **7 years** and a fine of **50,000**.
- **Classification of Offences:** Crimes would be **cognizable and non-bailable**, allowing police to arrest without a warrant and requiring high judicial scrutiny for bail.
- **Expansive Definition:** Defines "Hate Speech" as public expressions (spoken, written, or electronic) intended to cause hatred or ill will based on religion, caste, race, gender, language, disability, or place of birth.
- **Digital Regulation:** An officer (not below the rank of **Additional District Magistrate**) can direct digital platforms to block or remove hate content.
- **Organizational Liability:** Extends criminal liability to organizations; heads of operations are held accountable unless they prove due diligence.
- **Victim-Centric Approach:** Empowers **Judicial Magistrates First Class** to award financial compensation to victims based on the harm suffered.
- **Exemptions:** Penalties do not apply to materials related to art, science, or literature deemed to be for the **public good** or *bona fide* religious/heritage purposes.

Legal and Constitutional Framework

Category	Provisions / Statutes
Constitutional	**Article 19(1)(a)** (Freedom of Speech) vs. **Article 19(2)** (Reasonable Restrictions for public order).
BNS, 2023	**Section 196:** Penalizes promoting enmity between groups. **Section 299:** Punishes acts intended to outrage religious feelings.
Electoral Law	**Section 8 of RP Act, 1951:** Disqualifies candidates convicted of promoting communal disharmony.
Special Acts	**SC/ST (Prevention of Atrocities) Act, 1989** and **Protection of Civil Rights Act, 1955**.

Key Judicial Judgements

- **Shaheen Abdulla v. Union of India (2022):** SC directed police to register **suo motu FIRs** in hate speech cases without waiting for formal complaints.
- **Tehseen S. Poonawalla v. Union of India (2018):** Issued guidelines to curb **mob lynching** and recommended district nodal officers.
- **Shreya Singhal v. Union of India (2015):** Struck down **Section 66A of the IT Act**; ruled that vague restrictions on "annoyance" violate free speech.
- **Pravasi Bhalai Sangathan v. Union of India (2014):** Urged the Law Commission to define hate speech to avoid **judicial overreach**.

Challenges in Prevention

- **Definitional Dilemma:** Lack of a narrow, global definition leads to legal ambiguity and a **"chilling effect"** on legitimate speech.
- **The Digital Hydra:** Banned content reappears via **mirror accounts**; end-to-end encryption complicates tracing the **"first originator"**.
- **Transnational Conflicts:** Jurisdictional barriers arise when speech originates in countries with different legal standards (e.g., USA) but affects India.
- **Echo Chambers:** Algorithms create **radicalization loops**, and "Lone Wolf" actors make preemptive security difficult.

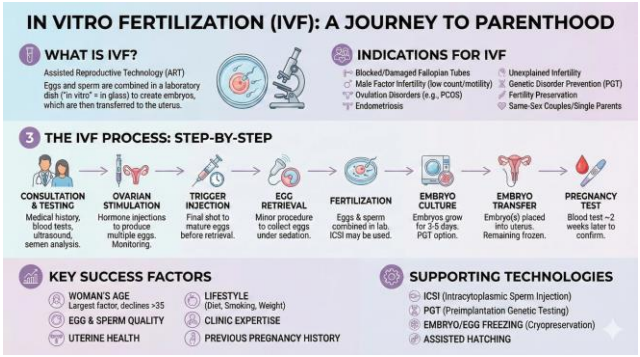
Measures Needed

- **Legislative Overhaul:** Implement **Viswanathan** and **Bezbaruah Committee** suggestions to insert specific sections into BNS defining "incitement to hatred."
- **The Rabat Threshold Test:** Use the **UN Rabat Plan of Action** (6-part test: context, speaker, intent, content, extent, likelihood) to distinguish incitement from free speech.
- **AI Moderation:** Use **Machine Learning** for "Shadow-banning" hate symbols and de-prioritizing repeat offenders.
- **Social Resilience:** Integrate **Media Literacy** into the **NCERT curriculum** to help citizens identify "othering" narratives.
- **Fast-Track Adjudication:** Specialized benches to ensure swift justice and prevent speech from escalating into physical violence.

Conclusion

Odisha's proposed legislation represents a comprehensive attempt to institutionalize **communal fraternity**. By combining stringent penal measures with **AI-driven moderation** and **clear legal thresholds**, it seeks to bridge the gap between digital policy and ground-level enforcement while upholding the spirit of the Constitution.

Delhi High Court Ruling on IVF and Reproductive Autonomy



Why in News?

- The **Delhi High Court** recently upheld a woman's right to continue **In-vitro Fertilization (IVF)** using the sperm of her husband, an Indian Army soldier currently in a **vegetative state** (disorder of consciousness).
- The landmark ruling establishes that prior consent remains valid and that a spouse can exercise reproductive rights under extraordinary medical circumstances.

Context :

- **The Case:** A soldier's wife sought judicial intervention to resume IVF treatment after her husband suffered a debilitating injury, leaving him unable to provide fresh consent.
- **Legal Standing:** The court invoked the wife's **Right to Motherhood and Dignity** under **Article 21**, overriding procedural hurdles regarding contemporary consent.

- **Significance:** This ruling clarifies the application of the **ART Act, 2021**, in cases where a partner is medically incapacitated but had previously expressed the desire to conceive.

Key Aspects of the Ruling

Category	Legal & Medical Observations
Constitutional Basis	Invoked **Article 21** (Right to Life), emphasizing that reproductive autonomy and the choice to become a parent are essential to human dignity.
Consent Validity	Held that under the **Assisted Reproductive Technology (Regulation) Act, 2021**, the wife's consent is legally valid on her husband's behalf in this unique situation.
Medical Probability	While the medical board noted a **"meagre" chance** of retrieving viable sperm, the court prioritized the woman's right to try over the statistical probability of success.

What is In-Vitro Fertilization (IVF)?

- **Process:** A widely used **Assisted Reproductive Technology (ART)** where eggs are fertilized with sperm in a laboratory setting. The resulting embryo is then transferred to the uterus to initiate pregnancy.
- **Regulation in India:**
    - **ART (Regulation) Act, 2021:** Sets strict standards for clinics, egg/sperm donation, and the cryopreservation of embryos.
    - **Financial Support:** Under the **Central Government Health Scheme (CGHS)**, eligible individuals can receive reimbursement for IVF cycles, making the technology more accessible.

Significance of the Judgement

- **Reproductive Autonomy:** It reinforces that an individual's reproductive choices do not vanish if they lose consciousness, provided their prior intent was clear.
- **Spousal Agency:** The court recognized the spouse as a legitimate decision-maker for reproductive matters when the other partner is in a permanent vegetative state.
- **Judicial Empathy:** The ruling balances the "letter of the law" (which usually requires simultaneous consent) with the "spirit of the law," providing a humane solution to a tragic biological impasse.

Conclusion

The Delhi High Court's decision is a progressive step in Indian jurisprudence, merging medical ethics with constitutional rights. By allowing the procedure despite the low medical odds, the court has prioritized **individual dignity and the right to family** over rigid administrative interpretations of consent.

Karnataka High Court Mandate on Menstrual Leave Policy

Why in News?

- The **Karnataka High Court** has issued a landmark directive to the State government to **strictly and faithfully implement** the menstrual leave policy.
- The ruling positions menstrual health not merely as a workplace benefit, but as a core matter of **dignity, equality, and fundamental rights**.

Context of the Directive

- The directive serves as an interim mandate until the formal enactment of the **Karnataka Menstrual Leave and Hygiene Bill, 2025**.
- The Court emphasized that for a policy to be truly effective, it must move beyond the organized sector and reach the most vulnerable women in the workforce, ensuring that biological needs do not become a barrier to economic participation.

Key Highlights of the High Court Ruling

Category	Legal and Policy Directives
Mandatory Leave	Uniformly grants **one day of menstrual leave (ML) per month** to women employees aged **18–52**.
Scope of Inclusion	Must extend beyond factories and offices to include the **unorganized sector**, such as daily wage laborers and domestic workers.
Substantive Equality	The Court held that recognizing biological differences is not a violation of equality but a necessary step to address the **"structural exclusion"** women face.
Constitutional Link	Explicitly linked menstrual health to the **Right to Life and Dignity under Article 21** of the Indian Constitution.

Judicial Precedents: The Shift to Fundamental Rights

- The High Court's stance is reinforced by the pivotal **Supreme Court** judgment in **Dr. Jaya Thakur v. Government of India & Ors. (2026)**.
- In this case, the apex court officially recognized **Menstrual Health and Hygiene (MHH)** as a fundamental right under **Article 21**, setting a national precedent for states to follow.

Significance of the Policy

- **Breaking the Stigma:** By institutionalizing menstrual leave, the State aims to normalize conversations around menstrual health and reduce workplace discrimination.
- **Health and Productivity:** Recognizing the physical toll of menstruation (dysmenorrhea) allows women to manage their health without fear of wage loss or professional reprisal.
- **Focus on Hygiene:** The ruling also mandates the expansion of facilitative mechanisms, such as providing access to clean toilets and sanitary products at work sites.

Challenges in Implementation

- **Privacy Concerns:** Ensuring that women can avail of the leave without being subjected to invasive questioning or breach of medical privacy.
- **Unorganized Sector Reach:** Designing a mechanism to provide "paid" leave for daily wagers who do not have formal contracts or payroll systems.
- **Economic Impact:** Balancing the policy implementation to ensure it does not lead to a "hiring bias" against women in the private sector.

Conclusion

The Karnataka High Court's mandate is a progressive stride toward gender-just governance. By transitioning from **formal equality** (treating everyone the same) to **substantive equality** (accounting for biological realities), the state is working to ensure that the Right to Life and Dignity is truly inclusive for all women, regardless of their sector of employment.

Re-election of Rajya Sabha Deputy Chairman

Why in News?

- In a historic milestone for the upper house, **Harivansh Narayan Singh** has been re-elected unopposed as the **Rajya Sabha Deputy Chairman** for a third consecutive term.
- This marks a significant precedent as he is a nominated Member of Parliament holding this constitutional post.

Context of the Position

- The office of the Deputy Chairman is a constitutional requirement under **Article 89(2)**, which mandates that the Rajya Sabha must elect one of its members to this role.
- The election ensures the continuity of the House's proceedings, especially when the Chairman (the Vice-President of India) is unavailable.

Election and Tenure

- **Process:** Any member can propose the name of another member through a motion, which

must be seconded by another member. The candidate must submit a formal declaration of willingness to serve.

- **Tenure:** The Deputy Chairman remains in office until their Rajya Sabha membership ends, they resign, or they are removed by a resolution of the House.
- **Vacancy:** If the office falls vacant, a new election must be held. Resignations are submitted directly to the Chairman of the Rajya Sabha.

Roles and Functions of the Deputy Chairman

Feature	Description
Presiding Officer	Presides over the House in the absence of the Chairman, exercising all the powers of the Chairman during that period.
Independence	The office is **not subordinate to the Chairman**; the Deputy Chairman is directly responsible to the Rajya Sabha.
Voting Power	While presiding, they cannot vote in the first instance but hold a **casting vote** in case of a tie.
Normal Membership	When not presiding, they act as a regular member, participating in debates and voting like any other MP.
Salary	Fixed by Parliament and **charged on the Consolidated Fund of India**, ensuring financial independence.

Removal Procedure

The Deputy Chairman can be removed from office under specific constitutional conditions:

- **Resolution:** Requires a resolution passed by a **majority of all the then members** of the Rajya Sabha.
- **Notice:** A mandatory **14 days' prior notice** must be given before moving the resolution.
- **Restriction:** The Deputy Chairman **cannot preside** over the House while a resolution for their own removal is under consideration.

Panel of Vice-Chairpersons

To further ensure the smooth functioning of the House, the Chairman nominates a **Panel of Vice-Chairpersons** from among the members.

- Any member of this panel can preside in the absence of both the Chairman and the Deputy Chairman.
- **Limitation:** Members of the panel **cannot preside** if the offices of the Chairman or Deputy Chairman are vacant; in such cases, the President of India appoints a member to perform the duties until an election is held.

Conclusion

The re-election of a nominated member to this high constitutional office underscores the evolving traditions of the Indian Parliament. As the Deputy Chairman is directly responsible to the House, the role remains a vital pillar in maintaining the democratic decorum and legislative efficiency of the Rajya Sabha.

Privilege Notice and Parliamentary Privileges

Why in News?

- A **privilege notice** has been submitted against the Prime Minister of India, alleging a breach of parliamentary privilege.
- The notice follows remarks made after the defeat of the **Constitution (131st Amendment) Bill, 2026**, raising significant questions about the boundaries of executive commentary on legislative outcomes.

What is a Privilege Notice?

- A Privilege Notice (or Motion) is a formal mechanism used by a Member of Parliament (MP) to allege that their rights, immunities, or the dignity of the House have been violated.
- It is a tool for accountability against both members and outsiders who mislead the House, withhold facts, or cast aspersions on its members.

Procedure and Scrutiny

- **Rules of Submission:** Moved under **Rule 222** in the Lok Sabha and **Rule 187** in the Rajya Sabha.

- **Presiding Officer's Role:** The Speaker or Chairman acts as the first level of scrutiny, deciding whether to admit the notice or withhold consent.
- **Leave of the House:** Once admitted, the member must seek "leave" (formal permission). If at least 25 members support it, leave is granted.
- **Committee of Privileges:** Typically, the matter is referred to this standing committee for a semi-judicial examination. The member/individual accused is given a fair hearing before the committee makes recommendations to the House.

Committee of Privileges: Composition

House	Membership	Nominated By
Lok Sabha	15 Members	Speaker
Rajya Sabha	10 Members	Chairman

Understanding Parliamentary Privileges

Parliamentary privileges are special rights and exemptions enjoyed by the Houses of Parliament, their committees, and their members to ensure they can discharge their functions effectively.

- **Who enjoys them?** All MPs, Parliamentary Committees, and the **Attorney General of India**.
- **Who is excluded?** The **President of India** (who holds separate immunities under Article 361) and outsiders, though they can be punished for breaching them.
- **Types:**
    1. **Collective Privileges:** Rights held by the House as a whole (e.g., the right to exclude strangers or publish its own reports).
    2. **Individual Privileges:** Rights of specific members (e.g., freedom of speech within the House and **freedom from arrest in civil cases** during sessions).

Constitutional and Legal Basis

- **Articles 105 & 194:** Provide the constitutional foundation for privileges of Parliament and State Legislatures, respectively.
- **The Codification Debate:** Parliament has deliberately **not codified** these privileges into a single law. Committees in 1994 and 2008 argued that codification would make privileges subject to **judicial review**, thereby infringing upon the exclusive jurisdiction and sovereignty of the House.

Judicial Position and Separation of Powers

The relationship between privileges and fundamental rights has been shaped by landmark Supreme Court cases:

- **The Sharma Case (1959):** Clarified that while freedom of speech (Article 19) does not automatically override privileges, the **Right to Life and Liberty (Article 21)** remains applicable.
- **The Keshav Singh Case (1964):** Established that conflicts between privileges and fundamental rights must be resolved through **harmonious construction**.
- **Convention on Notices:** By convention, the Presiding Officers **do not appear** before courts upon receiving notices. Instead, the matter is referred to the Minister of Law and Justice to uphold the separation of powers.

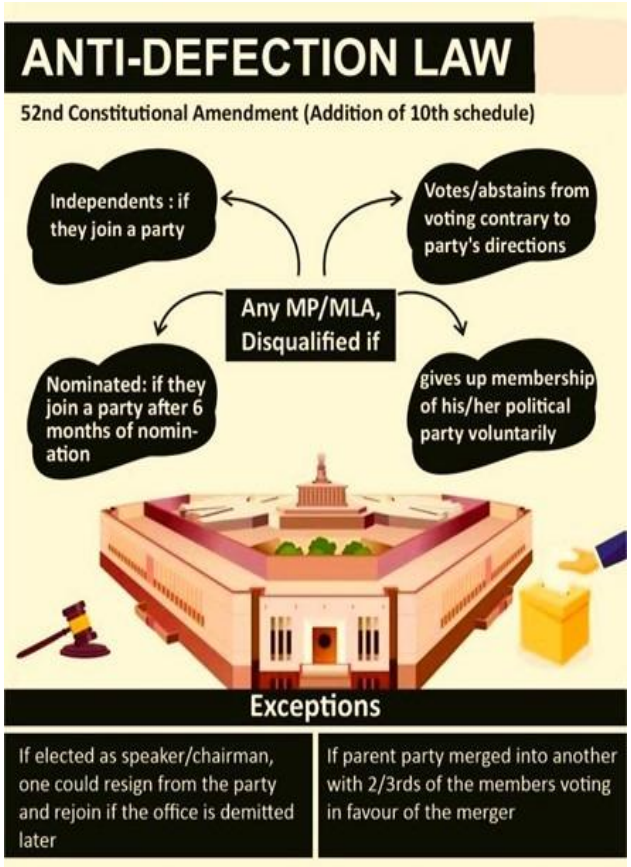
Special Precedent: Swaraj Paul Case (1984)

- Parliament can exercise jurisdiction over a **foreign national** *in personam* if the contempt or breach of privilege is committed by them **within the territory of India**.

Conclusion

The submission of a privilege notice against a high-ranking executive member like the Prime Minister underscores the supremacy of the House over its proceedings. As privileges remain uncodified, the "dignity of the House" serves as an elastic yet powerful shield, ensuring that the legislative process remains free from external intimidation or internal misinformation.

Anti-Defection Law and the "Merger Clause" Debate



1. Why in News?

Recently, a political controversy arose when **seven former Members of Parliament (MPs)** of a party joined another political party. To avoid being disqualified under the Anti-Defection Law, they claimed protection under the **"merger clause"**.

This situation has raised a serious constitutional question:

- **Can only the legislature party (MPs/MLAs) claim a merger?**
- Or is it necessary that the **original political party organization must also merge?**

This issue is important because it tests the **real meaning and purpose of the Anti-Defection Law**.

2. Understanding the Anti-Defection Law

Basic Idea

- The Anti-Defection Law is designed to **prevent elected representatives from changing their political party after being elected**, especially for personal gain, ministerial positions, or political advantage.

In simple terms:

- It ensures that **MPs and MLAs remain loyal to the party** on whose ticket they were elected.

Historical Background

Before this law was introduced, Indian politics saw frequent instability.

- During the **1960s and early 1970s**, many politicians were switching parties very often.
- This phenomenon was famously called **"Aaya Ram, Gaya Ram" politics**.
- Governments were falling repeatedly due to such defections.

A shocking fact:

- Between **1967 and 1972**, around **2000 cases of defection** took place.
- Many legislators changed parties multiple times.

This created chaos in governance, and therefore, a strong law was needed.

3. Constitutional Framework

- The Anti-Defection Law was added by the **52nd Constitutional Amendment Act, 1985**.
- It is included in the **Tenth Schedule** of the Indian Constitution.

Important Amendment

Later, the law was modified by the **91st Constitutional Amendment Act, 2003**.

Earlier:

- Even **1/3rd members (called "split")** could leave the party without disqualification.

Problem:

- This provision was widely misused.

Solution:

- The "split" provision was removed.
- Only the **"merger provision" (2/3rd rule)** was retained.

4. Grounds for Disqualification

A member can be disqualified under the Anti-Defection Law in the following situations:

1. Voluntarily Giving Up Party Membership

- If an MP/MLA leaves the political party on whose ticket they were elected, they can be disqualified.

Important point:

- The Supreme Court has clarified that **formal resignation is not necessary**.
- Even the **conduct of the member** can indicate that they have left the party.

Example:

- Publicly supporting another party
- Attending meetings of a rival party

2. Voting Against Party Whip

- Political parties issue directions to their members on how to vote in the House. This is called a **whip**.

If a member:

- Votes against the party direction, or
- Abstains without permission

→ They can be disqualified.

3. Independent Members

- If a person is elected as an **independent candidate** and later joins a political party, they will be disqualified.

4. Nominated Members

- Nominated members can join a political party only within **six months** of taking their seat.
- After that, joining a party leads to disqualification.

5. Exceptions to Disqualification

There are certain situations where disqualification does not apply.

A. The Merger Clause (Most Important and Controversial)

This is the central issue in current affairs.

What does the law say?

Disqualification will not apply if:

1. A **political party merges with another political party**, and
2. At least **two-thirds (2/3rd) of the legislators** agree to this merger.

The "Twin Test" for Valid Merger

To claim protection under this clause, two conditions must be fulfilled:

Test 1: Merger of the Original Political Party

- The **main political party organization** must merge with another party.
- This is the **primary condition**.

Test 2: Support of Legislature Party

- At least **2/3rd MPs/MLAs** must support the merger.

Key Concept (Very Important)

- The merger must **start from the political party itself**.
- MPs/MLAs **cannot independently declare a merger**.

However, in practice, many groups of legislators claim merger based only on their numbers (2/3rd), without an actual party-level merger. This is the root of the current controversy.

B. Exception for Presiding Officers

- If a member is elected as:
  - Speaker (Lok Sabha or State Assembly)
  - Chairman (Rajya Sabha)

Then:

- They can resign from their political party.
- They will not be disqualified.
- They can rejoin the party after their term ends.

6. Role of the Presiding Officer

- The authority to decide disqualification cases lies with:
  - **Speaker (Lok Sabha/Assembly)**
  - **Chairman (Rajya Sabha/Legislative Council)**

Problem

- The Speaker is usually a member of a political party.
- This raises concerns about:
  - **Bias**
  - **Lack of neutrality**

7. Important Supreme Court Judgments

1. Kihoto Hollohan v. Zachillhu (1992)

- The Court upheld the validity of the Anti-Defection Law.
- It also ruled that:
  - Speaker's decision can be **judicially reviewed**.

2. Ravi Naik v. Union of India (1994)

- The Court clarified:
  - Defection can be proved through **conduct**, not just resignation.

3. Keisham Meghachandra Singh Case (2020)

- The Court recommended:

- Disqualification decisions should be made within **3 months**.
- Suggested creation of an **independent tribunal**.

4. Subhash Desai Case (2023)

- Very important for current issue:
  - Legislature party and political party are **separate entities**.
  - Merger must originate from the **original political party**.

5. Padi Kaushik Reddy Case (2025)

- Supreme Court emphasized the need for:
  - **Reforms in the Anti-Defection Law**
  - Faster and fair decision-making

8. Major Concerns with the Law

1. Misuse of Merger Clause

- The law punishes **individual defection**.
- But allows **group defection (2/3rd members)**.

This creates a loophole:

- Large-scale defections become legal.

2. Reduction to a Numbers Game

- Instead of actual merger of political parties,
- Only **numerical strength (2/3rd)** is considered.

This weakens the original purpose of the law.

3. Partisan Role of Speaker

- Since Speaker belongs to a party:
  - Decisions may be politically influenced.

4. Delay in Decision-Making

- No fixed time limit in the Constitution.
- Cases remain pending for long periods.

Result:

- Defectors continue in power without punishment.

5. Restriction on Freedom of Expression

- Strict party whip:
  - MPs cannot vote freely.
  - Limits debate and discussion.

6. Weakening of Representative Democracy

- MPs become loyal to:
  - Party leadership instead of voters.

7. Legal and Judicial Confusion

- Different courts have given different interpretations.
- Some accept **2/3rd members as enough**.
- Others insist on **party-level merger**.

9. Suggested Reforms

1. Independent Adjudicating Authority

- Remove decision-making power from Speaker.
- Give it to:
  - President/Governor
  - Based on Election Commission advice

2. Establish Permanent Tribunal

- A neutral body with retired judges
- For quick and fair decisions

3. Fix Time Limit

- Decisions should be made within **3 months**

4. Limit the Use of Whip

- Apply whip only for:
  - No-confidence motion
  - Money Bills
- Allow free voting on other issues

5. Clarify Merger Clause

- Clearly state:
  - Political party must merge first
  - MPs alone cannot claim merger

6. Prevent Misuse of Resignation

- Many members resign and re-contest from another party

Solution:

- Ban them from contesting elections for remaining term

7. Strengthen Internal Party Democracy

- Political parties should:
  - Hold regular internal elections
  - Allow internal debate

10. Conclusion

The Anti-Defection Law was introduced to ensure **political stability and discipline**. However, over time, its **merger clause has become a major loophole**, allowing large-scale defections.

Today, the main challenge is to maintain a balance between:

- **Stability of government**
- **Freedom of elected representatives**

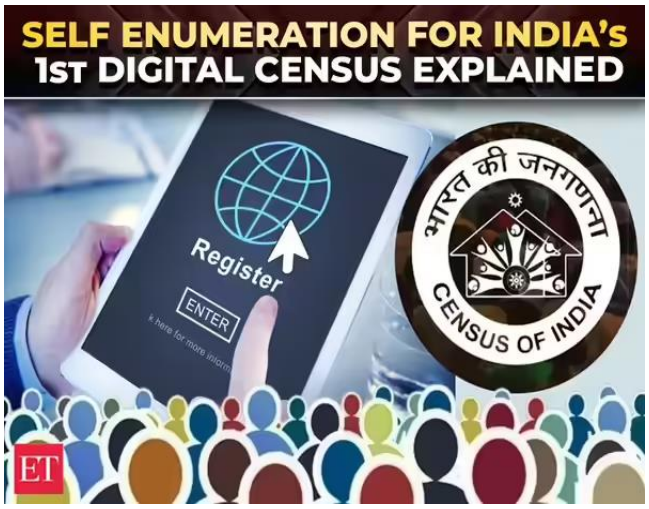
Proper reforms and clear judicial interpretation are necessary to **restore the original purpose of the law**.

EDITORIALS

Crux of The Hindu & Indian Express

Indian Polity & Governance

India Begins First Fully Digital Census (Census 2027)



1. Why in News?

- On **2 April 2026**, the Government of India launched **Phase I of Census 2027**, known as the **Houselisting and Housing Census (HLO)**.
- This marks the beginning of the **world's largest population enumeration exercise**.
- For the first time, India has introduced:
  - **Digital data collection**
  - **Online self-enumeration facility**
- The initiative reflects a major shift from **traditional paper-based census to digital governance systems**.

2. About Census 2027

- The **Census** is a nationwide exercise conducted to collect:
  - **Demographic data** (population, age, gender)
  - **Social data** (literacy, education, household conditions)
  - **Economic data** (assets, employment, living standards)
- Census 2027 will be:
  - **16th Census of India overall**
  - **8th Census after Independence**
- The data collected is used for:
  - **Policy formulation**
  - **Welfare schemes**
  - **Resource allocation**
  - **Administrative planning**

3. Digital Census (Major Reform)

- Census 2027 will be India's **first fully digital census**.

Key Features:

- **Digital Data Capture**
  - Enumerators will use **mobile applications on smartphones**
  - Data will be uploaded directly into a **central digital system**
- **Replacement of Paper Forms**
  - Eliminates manual entry errors
  - Improves speed and efficiency
- **Real-Time Monitoring**
  - Authorities can track progress instantly
- This marks a transition towards **technology-driven governance and data systems**

4. Self-Enumeration Facility (Important Feature)

- Citizens can submit their own data through an **online portal**.

Process:

- Visit the official portal: **se.census.gov.in**
- Fill in household details
- Receive a **Self-Enumeration ID (SE ID)**
- The enumerator will later verify the submitted data during a physical visit.

Significance:

- Enhances **citizen participation**
- Reduces burden on enumerators
- Improves **accuracy and transparency of data**

5. First Participation

- Droupadi Murmu became the **first citizen to complete the self-enumeration process**.
- On the very first day:
  - Around **55,000 households** used the self-enumeration facility
- This reflects **positive public response and acceptance of digital systems**

6. Language Accessibility

- The self-enumeration facility is available in **16 regional languages**.
- This ensures:
  - Wider participation
  - Inclusion of diverse linguistic groups
  - Ease of use for citizens across India

7. Initial Rollout Areas

- The self-enumeration process was first introduced in selected regions:
  - Andaman and Nicobar Islands
  - Goa
  - Karnataka
  - Lakshadweep
  - Mizoram
  - Odisha
  - Sikkim
- Urban regions:
  - New Delhi Municipal Council
  - Delhi Cantonment Board
- These regions act as **initial implementation zones for smooth rollout**

8. Phase I – Houselisting and Housing Census

Duration:

- Conducted from **1 April to 30 September 2026**
- Each State/UT will conduct:
  - **30 days of continuous field operations**

New Feature:

- A **15-day self-enumeration window** will be provided before the door-to-door survey
- This is introduced for the first time to promote:
  - Digital participation
  - Pre-verification of data

Information Collected:

- Data will be collected through **33 questions**
- These include:
  - **Housing conditions** (type, structure)
  - **Household amenities** (water, electricity, sanitation)
  - **Assets** (vehicles, electronics, internet access)
- This data helps in:
  - Infrastructure planning
  - Welfare targeting
  - Urban and rural development

9. Legal Framework

- Census operations are governed by the **Census Act, 1948**

Key Provisions:

- **Strict confidentiality of data**
- Personal information:
  - Cannot be shared publicly
  - Cannot be used as legal evidence
- Ensures:
  - Privacy protection
  - Public trust in census process

10. Significance of Digital Census

Governance Level:

- Improves **evidence-based policymaking**
- Enables better **targeting of welfare schemes**

Administrative Level:

- Faster data processing
- Reduced manual errors
- Improved efficiency

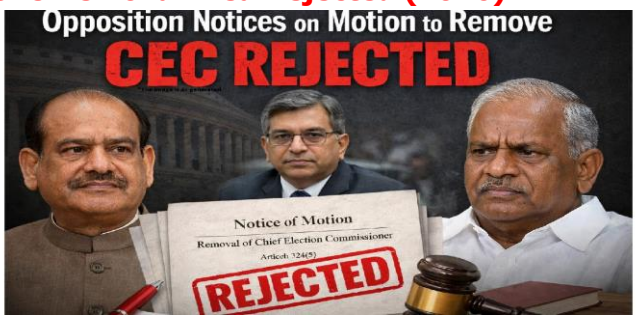
Citizen Level:

- Easy participation through online mode
- Time-saving
- Transparent system

11. Challenges

- **Digital Divide**
  - Lack of internet access in rural areas
- **Data Privacy Concerns**
  - Risk of misuse if cybersecurity is weak
- **Technical Issues**
  - App errors, connectivity problems
- **Training Requirement**
  - Enumerators need proper digital training

CEC Removal Plea Rejected (2026)



1. Why in News

- The **Opposition MPs filed notices** seeking removal of the **Chief Election Commissioner (CEC) Gyanesh Kumar**
- The notices were rejected by:
  - C. P. Radhakrishnan
  - Om Birla
- Reason:
  - **Lack of evidence**
  - No **prima facie case of "misbehaviour"**

The issue relates to **constitutional provisions for removal of CEC**

2. Constitutional Basis for Removal

- Removal of CEC is governed by:
  - **Article 324(5)** → Conditions of service and removal of Election Commissioners
  - **Article 124(4)** → Procedure similar to removal of Supreme Court judges
- Also linked with:
  - **Judges (Inquiry) Act, 1968**

Key Requirement

- Removal requires:
  - Proof of **"misbehaviour" or "incapacity"**
  - Must meet a **high constitutional threshold**

It is **not a simple political process**

3. Details of the Removal Notice

- Submitted on:
  - **12 March 2026**
- Signed by:
  - **63 Rajya Sabha MPs**
  - **130 Lok Sabha MPs**
- Included:
  - **7 charges against the CEC**

Each charge was examined and rejected

4. Main Grounds for Rejection

(A) Lack of Evidence

- Allegations were:
  - **Not supported by clear proof**
- Many issues were:
  - Already **decided by courts**
  - Or **pending before judiciary**

(B) No Prima Facie Case

- The presiding officers held:
  - No **initial evidence of misconduct**

Therefore, proceedings cannot begin

(C) High Constitutional Standard

- Removal requires:
  - **Strong and proven misconduct**
- Political allegations alone are:
  - **Not sufficient**

5. Key Allegations and Responses

(A) Allegation: Appointment was "Tainted"

- Argument:
  - Law under which CEC was appointed is under challenge in Supreme Court

Response

- Court challenge ≠ **misbehaviour**

Legal challenge cannot be basis for removal

(B) Allegation: Bias due to Administrative Background

- Claim:
  - CEC had **close links with executive**

Response

- Many previous CECs had:
  - Similar administrative backgrounds

No automatic **presumption of bias**

(C) Allegation: Bias in Election Commission Decisions

- Claim:
  - Different standards for government and opposition

Response

- No **clear evidence of abuse of power**

Mere allegation without proof is insufficient

(D) Allegation: Obstruction of Electoral Investigations

- Claim:
  - Refusal to share information with State authorities

Response

- Once FIR is filed:
  - Matter lies with **courts**

Cannot be ground for removal

(E) Allegation: Refusal to Share Electoral Rolls Data

- Issue:
  - Machine-readable electoral rolls not shared

Response

- Action was:
  - In line with **Supreme Court directions**
  - Consistent with **Right to Privacy** (Puttaswamy case)

No violation of law found

6. Special Intensive Revision (SIR) Issue

- Allegations related to:
  - **Electoral roll revision in Bihar**

Response

- Election Commission has:
  - **Plenary powers under Article 324**
- Supreme Court:
  - Already reviewed and supported the process

Judicial scrutiny ≠ misbehaviour

7. Contempt of Court Allegation

- Claim:
  - Non-compliance with Supreme Court orders

Response

- Such issues fall under:
  - **Contempt jurisdiction of courts**

Not a ground for removal

8. Allegation of Lack of Independence

- Claim:
  - CEC failed to maintain institutional independence

Response

- Allegation was:
  - **Vague and generalised**
  - No specific evidence

Cannot meet constitutional standard

9. Key Constitutional Insight

- The **Election Commission of India (ECI)** operates under:
  - **Article 324**
- It has:
  - **Autonomous and independent status**

Removal process is kept **strict to protect independence**

10. Significance of the Decision

(A) Protects Institutional Independence

- Prevents:
  - Political misuse of removal process

(B) Upholds Constitutional Morality

- Ensures:
  - High standards for removal

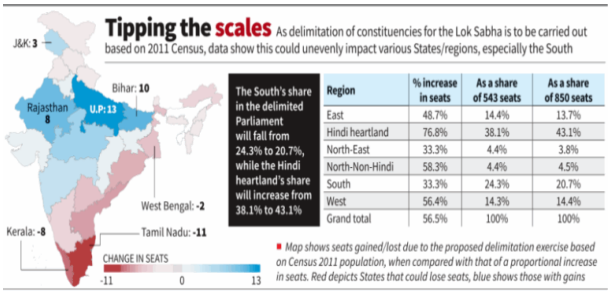
(C) Reinforces Judicial Role

- Many issues:
  - Must be resolved by **courts, not Parliament**

11. Conclusion

- The rejection of removal notice shows that:
  - Constitutional authorities are protected by **strict safeguards**
- Removal of CEC requires:
  - **Strong, proven, and specific evidence**
- Political disagreements:
  - Cannot be used as grounds for removal

Delimitation and Women's Reservation Bills (2026)



1. Why in News

- The Union Government has introduced a set of important legislative measures to implement **33% reservation for women in the Lok Sabha and State Assemblies** and to reform the long-pending **delimitation process**, which involves redrawing electoral constituencies.
- The delimitation exercise has effectively remained frozen since the **1970s**, and these new proposals aim to restart and modernise the process.

2. What is this Reform Package

- This reform package is a **landmark legislative initiative** designed to overhaul both the **composition of the Indian Parliament** and the **mechanism of electoral delimitation**.
- It proposes amendments to key constitutional provisions, including **Article 81 (composition of Lok Sabha), Article 82 (delimitation), and Article 334A (women's reservation)**, in order to address changes in population distribution and the need for better gender representation.
- The overall objective is to bring the electoral system in line with **current demographic realities** and ensure **inclusive political participation**.

3. Legislative Package

- The reform consists of 3 major Bills.
- The **Constitution (131st Amendment) Bill, 2026** proposes the expansion of the Lok Sabha and introduces amendments to Articles 81, 82 and 334A.
- The **Delimitation Bill, 2026** provides a new legal framework for carrying out delimitation through a restructured Delimitation Commission.
- A third Bill facilitates the implementation of **women's reservation in State Assemblies and Union Territories**, thereby extending the reform beyond Parliament.

4. Core Aims of the Reform

- One of the primary aims is to expand the Lok Sabha so that it reflects the **significant population growth since the 1971 Census**, which is currently the base for seat allocation.
- Another important objective is to enable the **immediate implementation of one-third reservation for women**, by removing the earlier requirement that linked it to a future Census-based delimitation.
- The reform also seeks to create a **modern and flexible legal framework** for delimitation so that electoral boundaries can be updated using the most relevant demographic data available.

5. Key Provisions

- The Bills propose to increase the strength of the Lok Sabha from the current **543 seats to a maximum of 850 seats**, including 815 members from States and 35 from Union Territories.
- This expansion is expected to improve the **representation ratio between population and elected representatives**, thereby making democracy more responsive at the grassroots level.
- The reform also accelerates the implementation of **women's reservation**, which was earlier delayed due to its linkage with post-2026 delimitation.
- Under the new proposal, reservation can take effect immediately after delimitation, making **2029 elections a realistic target**.
- A significant constitutional change is the redefinition of "population" under Article 81, which now allows **Parliament to decide which Census data should be used**.
- This introduces flexibility, but also raises concerns regarding potential political discretion.
- Additionally, the amendment to Article 82 removes the earlier restriction that delimitation could only take place after the first Census conducted after 2026.

- This allows the government to proceed using **2011 Census data**, thereby avoiding further delay.

6. Structural Shift in Delimitation

- Traditionally, delimitation was a **constitutionally mandated process linked directly to each Census**, ensuring regular and rule-based adjustments.
- The new framework transforms this into a **Parliament-triggered process**, meaning delimitation can now be initiated based on legislative decision rather than automatic constitutional requirement.
- Another major change is that postponement or modification of delimitation will now require only a **simple majority in Parliament**, instead of the earlier **two-thirds majority**, thereby reducing institutional safeguards against misuse.

7. Delimitation Commission (2026 Framework)

- The proposed Delimitation Commission will be responsible for **redrawing constituency boundaries and reallocating seats across states**.
- It will be chaired by a **serving or retired Supreme Court judge**, and will include the **Chief Election Commissioner and State Election Commissioners** as ex-officio members.
- Each state will also have **10 associate members (5 MPs and 5 MLAs)**, although they will not have voting rights.
- The Commission will take into account factors such as **population, administrative boundaries, geographical features, and public convenience**.
- Importantly, its orders will have the **force of law and cannot be challenged in any court**, which ensures finality but raises concerns about lack of judicial oversight.
- The system will also introduce **rotation of reserved seats for women**, ensuring wider representation across constituencies over time.

8. North–South Divide (Major Political Issue)

- One of the most critical issues arising from delimitation is the **regional imbalance between northern and southern states**.
- Southern states such as Tamil Nadu, Kerala and Karnataka have successfully controlled population growth, whereas northern states have experienced higher population increases.
- If delimitation is carried out strictly on population basis, northern states will gain more seats while southern states may lose relative representation.
- This creates a conflict between the constitutional principle of **equal representation (one person, one vote)** and the political commitment to maintain **federal balance**.

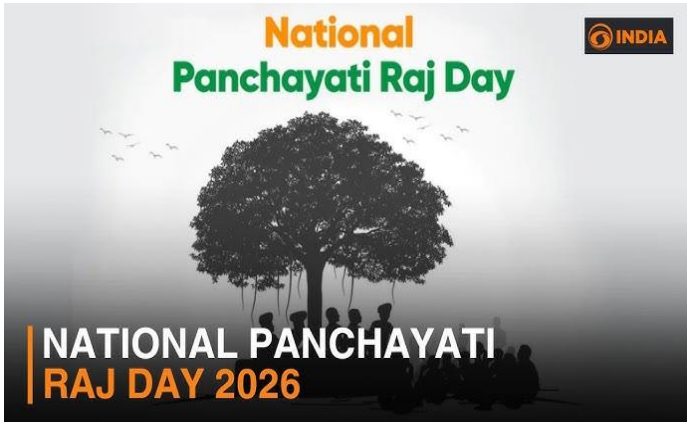
9. Major Challenges

- The reform faces a fundamental constitutional tension between **population-based equality and regional fairness**.
- The reduction of safeguards, such as shifting from a constitutional trigger to a legislative trigger, raises concerns about **political manipulation of electoral boundaries**.
- The delay in completion of the **2021 Census** has already created uncertainty, and reliance on 2011 data is only a temporary solution.
- The timeline for women's reservation is also dependent on the timely and smooth execution of delimitation.

10. Significance

- The expansion of Lok Sabha will improve the **representation of citizens**, especially in densely populated regions.
- The reform has the potential to significantly increase **women's participation in politics**, thereby making governance more inclusive.
- Updating constituency boundaries will correct the distortions created by **outdated population data**, making the electoral system more realistic and fair.

National Panchayati Raj Day 2026: 33 Years of Grassroots Democracy



Why in News?

On **April 24, 2026**, India celebrated **National Panchayati Raj Day (NPRD)**. This day commemorates the **73rd Constitutional Amendment Act (1992)**, which came into force in 1993, giving constitutional status to local self-governments in rural India.

- **Milestone:** 33 years of constitutional local governance.
- **Theme 2026:** *"Sashakt Panchayat, Sarvangeen Vikas"* (Empowered Panchayats, Holistic Development).
- **Vision:** Localizing Sustainable Development Goals (SDGs) to achieve **Viksit Bharat @ 2047**.

1. The 73rd Constitutional Amendment Act, 1992: Key Provisions

Before this Act, local bodies were mentioned only under **Article 40** (Directive Principles), which was not legally binding. The 73rd Amendment changed the "Two-Tier" federalism (Centre-State) into a **"Three-Tier" architecture**.

A. Structural Changes

- **Part IX:** Added to the Constitution, containing **Articles 243 to 243-O**.
- **Eleventh Schedule:** Lists **29 functional items** (e.g., agriculture, health, primary education) that states should devolve to Panchayats (**Article 243G**).

B. The Three-Tier System (Article 243B)

1. **Gram Panchayat:** Village level.
2. **Panchayat Samiti:** Intermediate (Block) level.
3. **Zila Parishad:** District level.

- *Exception:* States with a population below **20 lakhs** may skip the intermediate tier.

C. Gram Sabha: The Soul of Democracy (Article 243A)

The **Gram Sabha** is the only forum of **direct democracy** in India. It consists of all registered voters in a village. While the Panchayat is an *elected* body, the Gram Sabha is a *deliberative* body where every villager has a voice.

D. Reservations and Equity (Article 243D)

- **SC/STs:** Seats reserved in proportion to their population.
- **Women:** At least **one-third (33%)** of all seats and chairperson positions are reserved for women. Currently, women make up nearly **50%** of elected representatives nationwide.

E. Independent Watchdogs

- **State Election Commission (Article 243K):** Conducts local elections independently. The Commissioner has the same protection as a High Court Judge.
- **State Finance Commission (Article 243-I):** Appointed every 5 years to review the financial position of Panchayats and recommend revenue sharing.

2. Challenges Facing PRIs: The "3Fs" Crisis

Despite 33 years of progress, Panchayats suffer from a deficit in **Functions, Funds, and Functionaries**.

A. Funds: The "Dependency Trap"

- **Low Own Source Revenue (OSR):** Panchayats collect only about **1.1%** of their total revenue from local taxes. The national average collection is just **Rs 59 per person per year**.
- **Grant Dependency:** Nearly **95%** of funds come from Central and State grants.
- **"Tied Funds":** Most grants are "tied," meaning they must be spent on specific things (like water or toilets), leaving Panchayats with little freedom to address unique local needs.

B. Functionaries: Capacity Gaps

- **Human Resource Shortage:** Many Panchayats lack dedicated accountants, engineers, or administrative staff.

- **The "Sarpanch Pati" Syndrome:** In many areas, male relatives of elected women wield the actual power, undermining gender-based reservations.

C. Functions: Parallel Bodies

- **Administrative Erosion:** States often create **Parallel Bodies** (Special Purpose Vehicles) for rural work, bypassing the elected Panchayats and making them mere "post offices" for government schemes.

3. Major Initiatives to Empower Panchayats (2021–2026)

- **SVAMITVA Scheme:** Using drones to map village property and provide **Property Cards**, enabling villagers to use land as financial collateral.
- **SabhaSaar:** An **AI-powered tool** that transcribes Gram Sabha minutes in 23 regional languages using the *Bhashini* engine.
- **eGramSwaraj:** A unified digital platform for planning, accounting, and real-time payments linked to the Public Financial Management System (PFMS).
- **16th Finance Commission (2026–31):** Funding for local bodies has increased to nearly **Rs 4.35 lakh crore**.
- **Sashakt Panchayat–Netri Abhiyan:** Specialized leadership training for **Elected Women Representatives (EWRs)** to combat the "Sarpanch Pati" culture.

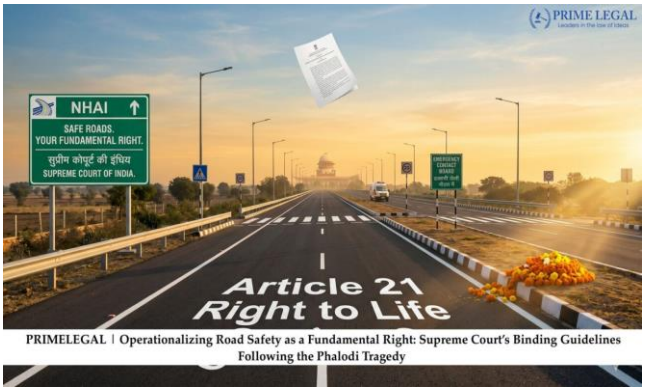
4. The Way Forward: Suggested Measures

- **Activity Mapping:** Clearly defining which specific tasks belong to which tier (Village vs. Block vs. District) to avoid overlap and confusion.
- **Management Cadre:** Creating a professional **Panchayat Management Cadre** (PDOs, Accountants) accountable to the Gram Panchayat.
- **Social Audits:** Adopting the **Meghalaya Model**, where an independent body conducts social audits of all schemes to ensure transparency.
- **Fiscal Autonomy:** Empowering Panchayats to effectively levy property and water taxes to reduce dependency on higher government tiers.

Conclusion

The journey from **Article 40** to the **73rd Amendment** and now toward **Digital Panchayats** shows that India's national development is inseparable from village empowerment. For a **Viksit Bharat**, the focus must remain on making Panchayats not just "implementing agencies," but robust, self-reliant local governments.

Right to Safe Passage: A Fundamental Right Under Article 21



PRIMELEGAL | Operationalizing Road Safety as a Fundamental Right: Supreme Court's Binding Guidelines Following the Phalodi Tragedy

Why in News?

- In a landmark judgment in **early 2026**, the **Supreme Court of India** declared that the **safety of commuters** and the **right to safe passage on highways** are integral components of the **Right to Life** under **Article 21** of the Constitution.
- This ruling elevates road safety from a mere administrative concern to a non-negotiable constitutional mandate.

1. Constitutional Interpretation of Article 21

The Court has significantly expanded the scope of **Article 21**, which guarantees that "no person shall be deprived of his life or personal liberty except according to procedure established by law."

- **Positive Obligation:** The Court held that the State has a "positive obligation" to ensure a safe environment.
- This means the State is not just responsible for preventing unlawful deaths (like homicides) but must also actively prevent deaths caused

by avoidable hazards, such as poor road engineering or unauthorized encroachments.

- **State Failure:** Fatalities resulting from administrative negligence or lack of enforcement are now viewed as a violation of the fundamental rights of citizens.

2. The Crisis of National Highways

The judgment was prompted by alarming data regarding India's road safety:

- **The 2% vs. 30% Paradox:** While **National Highways (NHs)** constitute only **2%** of India's total road network, they account for approximately **30%** of all road fatalities.
- **Vulnerability:** This disproportionate fatality rate highlights severe gaps in infrastructure design, unauthorized commercial activities, and poor traffic management.

3. Strict Prohibitions and Enforcement Directives

To immediately reduce highway risks, the Supreme Court issued several "zero-tolerance" directives:

A. Clearance of Right-of-Way (RoW)

- **Ban on Structures:** There is an immediate ban on constructing or operating any new commercial structures, dhabas, or eateries within the **right-of-way** of any National Highway.
- **Demolition Drive:** District Magistrates (DMs) have been ordered to **demolish or remove all unauthorized structures** within a strict **60-day** window.

B. Parking and Stopping Regulations

- **Carriageway Integrity:** Heavy and commercial vehicles are strictly prohibited from parking or stopping on the main carriageway or even the **paved shoulders**.
- **Designated Areas:** Stopping is only permitted at officially designated **lay-bys** and **wayside amenities**. This is aimed at eliminating "blind-spot collisions" where smaller vehicles crash into stationary trucks.

C. Licensing Guardrails

- **Mandatory Clearances:** No local authority can grant trade licenses or approvals within highway safety zones without prior written clearance from the **National Highway Authority of India (NHAI)** or the relevant **Public Works Department (PWD)**.

4. New Institutional Mechanisms

Entity	Responsibility
District Highway Safety Task Force	A newly mandated body in every district to monitor and enforce safety protocols on the ground.
NHAI / PWD	Empowered as the ultimate "technical clearinghouse" for any activity near highways.
District Magistrate	Held personally accountable for the removal of encroachments and unauthorized access points.

Conclusion

This judgment represents a paradigm shift in Indian jurisprudence. By linking road engineering and enforcement to **Article 21**, the Supreme Court has provided a powerful legal tool for citizens to demand safer infrastructure. It moves India closer to the **"Vision Zero"** philosophy—that no loss of life on the road is acceptable.

The Reconstitution of NITI Aayog: Focus on Science and Technology

Why in News?

In **2026**, the Government of India reconstituted the **National Institution for Transforming India (NITI Aayog)**. This overhaul is significant as it shifts the body's composition away from being strictly economist-heavy toward a team of experts in **health, biotechnology, and deep tech**.

- **New Leadership: Ashok Kumar Lahiri** has been appointed as the Vice-Chairperson, succeeding Suman K. Bery.
- **Strategic Shift:** The inclusion of five new full-time members—three of whom are tech and science specialists—signals a push to improve the **"Ease of Doing R&D in India"** and modernize regulatory frameworks for innovation.

1. What is NITI Aayog?

NITI Aayog is the premier policy "Think Tank" of the Government of India. It was established on **January 1, 2015**, replacing the 65-year-old **Planning Commission**.

- **Legal Status:** It is a **Non-Statutory** and **Extra-Constitutional** body. This means it was created by a Cabinet resolution rather than an Act of Parliament or a Constitutional provision.
- **Approach:** It follows a **Bottom-Up approach**, where states have a significant voice in national policy, unlike the Planning Commission's "Top-Down" model.

2. Core Philosophies: Federalism in Focus

Concept	Meaning
Cooperative Federalism	States are treated as equal partners. The NITI Aayog recognizes that "Strong States make a Strong Nation."
Competitive Federalism	NITI Aayog ranks states on various parameters (like Health or Education) to encourage a healthy "race to the top."

3. Composition of NITI Aayog

For students, understanding the leadership hierarchy is essential for exams:

- **Chairperson:** The **Prime Minister of India**.
- **Vice-Chairperson:** Appointed by the PM; holds the rank of a **Cabinet Minister**.
- **Governing Council:** Comprises the **Chief Ministers** of all states and UTs with legislatures, and Lt. Governors of other UTs.
- **CEO:** An officer with the rank of **Secretary to the Govt of India**, appointed by the PM for a fixed tenure.
- **Full-Time Members:** Experts in various domains; the 2026 reconstitution emphasizes **STEM (Science, Tech, Engineering, Medicine)** experts.

4. Key Functions and Strategic Role

1. **Policy & Program Framework:** Designing long-term strategies (like the 15-year Vision and 7-year Strategy documents).
2. **Monitoring & Evaluation:** Using the **Development Monitoring and Evaluation Office (DMEO)** to check if government schemes are actually working on the ground.
3. **Knowledge Hub:** Acting as a "Resource Centre" for best practices in governance.
4. **Innovation Facilitator:** Managing the **Atal Innovation Mission (AIM)** to foster startups and school-level innovation (Atal Tinkering Labs).

5. Major Indices and Reports

NITI Aayog uses data-driven indices to measure progress. These reports are critical benchmarks for state performance:

- **SDG India Index:** Measures progress toward United Nations Sustainable Development Goals.
- **Aspirational Districts Programme:** Focuses on transforming 112 most under-developed districts through "Convergence, Collaboration, and Competition."
- **State Health Index:** Evaluates the year-on-year performance of states on health outcomes.
- **Export Preparedness Index (EPI):** Assesses the export potential and ecosystem of Indian states.

Conclusion

The 2026 restructuring marks NITI Aayog's evolution into a **"Science-Policy Interface."** By bringing in deep-tech and biotech experts, the government aims to break "academic silos" and ensure that India's regulatory environment can keep pace with rapid global technological changes.

UAPA Notification in Manipur: Legal Expansion and the Ethnic Crisis

Why in News?

- In **April 2026**, the Home Department of **Manipur** issued a significant notification implementing **Section 43A of the Unlawful Activities (Prevention) Act (UAPA), 1967**.
- This directive grants lower-ranked law enforcement officers—specifically **Head Constables and Havildars**—the power to conduct arrests, searches, and seizures without a warrant across the state.
- While the government cites a shortage of senior officers and a heavy FIR workload during the ongoing unrest, the move has sparked intense debate over the erosion of civil liberties in an already volatile region.

1. Key Provisions of the UAPA Notification

The notification fundamentally alters the standard operating procedure for anti-terror operations in Manipur:

- **Empowerment of Lower Ranks:** Typically, UAPA powers are restricted to officers of the rank of **DSP or ACP** to prevent overreach. Now, personnel as junior as Head Constables can exercise these "wide anti-terror powers."
- **"Reason to Believe" Standard:** Officers can make arrests or conduct searches if they simply have a "reason to believe" a crime has been or might be committed.
- **Designated Authority:** The state's **Secretary (Home)** has been appointed as the authority to oversee these operations and handle property seizures linked to "anti-national" activities.
- **Unrestricted Access:** Empowered officers can search vehicles, buildings, and premises at **any time (day or night)**.

2. Major Concerns: The Risk of Overreach

Legal experts and rights groups have raised several "red flags" regarding this delegation of power:

- **Bail and Detention:** Under UAPA, getting bail is nearly impossible if the court finds the police's case *prima facie* true. Accused individuals can be detained for up to **180 days** without a charge sheet.
- **Lack of Specialized Training:** Lower-ranked officers may lack the legal training required to handle such a stringent law, increasing the risk of **wrongful arrests** or personal harassment.
- **Trust Deficit:** In a state divided by ethnic lines, granting sweeping powers to local police—who have previously faced allegations of **ethnic bias**—risks further alienating marginalized communities.

3. Understanding the Manipur Crisis: The Deep Divide

To understand why the UAPA notification is so controversial, one must look at the structural fault lines in the state:

Fault Line	Imphal Valley (Meitei)	Hill Districts (Kuki-Zo/Naga)
Land Area	~10% of the State.	~90% of the State.
Population	~53% (Predominantly Non-Tribal).	~40% (Predominantly Scheduled Tribes).
Political Power	**40 MLAs** in the Assembly.	**20 MLAs** in the Assembly.
Land Laws	Open to all; Meiteis cannot buy land in hills.	Constitutionally protected; non-tribals cannot buy land here.

The Core Triggers

1. **ST Status Demand:** The Meitei community's demand for Scheduled Tribe (ST) status is

opposed by Kuki-Zo groups who fear it will lead to the loss of their land and job quotas.

2. **Forest Evictions & "War on Drugs":** Government drives against poppy cultivation in the hills are seen by Kuki groups as selective targeting. This is linked to the **"Golden Triangle"** drug trade from Myanmar.
3. **Myanmar Influx:** The 2021 coup in Myanmar led to a refugee influx, which Meiteis argue is altering the state's demography.

4. Way Forward: Beyond Security Measures

The reliance on UAPA and security forces is seen as a symptom of a larger administrative vacuum. A lasting solution requires:

- **Balanced ST Evaluation:** Using criteria from the **Lokur Committee (1965)** and **Xaxa Committee (2013)** to assess tribal status demands fairly.
- **Independent Oversight:** If manpower is low, **Special Investigative Teams (SITs)** led by senior, impartial officers from outside the conflict zones should be formed.
- **Political Dialogue:** Moving from "kinetic" (force-based) solutions to a multi-stakeholder peace committee.
- **Disarmament:** A non-partisan operation to recover looted weapons is the first step toward reducing daily violence.

Conclusion

For students of law and governance, the Manipur situation is a case study on the **"State of Exception."** While national security is paramount, the law must not be used as a tool for psychological fear. Lasting peace will come not from empowering lower-ranked officers with anti-terror laws, but from restoring the **constitutional balance** between the valley and the hills.

❐❐❐

Indian Society & Social Justice

Khelo India Tribal Games 2026

Why in News?

- India is hosting its **first national multi-sport event for tribal athletes**, the **Khelo India Tribal Games (25 March – 3 April 2026)** in Chhattisgarh (Raipur, Jagdalpur, Surguja).
- The event brings **tribal athletes from across the country** onto a **national competitive platform**.

About the Games

- Organised jointly by:
  - Ministry of Youth Affairs & Sports
  - Sports Authority of India
  - Indian Olympic Association
  - National Sports Federations
  - Government of Chhattisgarh
- Conducted with **international-level technical standards**
- Part of the Khelo India Programme

Objectives

- Integrate **tribal talent** into **mainstream sports**
- Provide:
  - **Exposure**
  - **Structured competition**
  - **Career pathways**
- Promote:
  - **Grassroots participation**
  - **Talent identification**
  - **Inclusive sporting ecosystem**

Mascot

- **"Morveer"**

- Represents **tribal pride, courage, and cultural identity**

Sports and Participation

Medal Sports (7)

- Athletics
- Football
- Hockey
- Weightlifting
- Archery
- Swimming
- Wrestling

Indigenous Sports

- Kabaddi
- Mallakhamb
- Participation:
  - Over **60,000 athletes**
  - Competing for **338 medals**

Selection Process

- **Two-stage selection mechanism**:
  - **State/UT-level trials**
  - **National-level trials** by federations
- Ensures **merit-based participation**
- Supported by:
  - **Talent Identification and Development Committee (TIDC)**
  - Scouts promising athletes for **advanced training under Khelo India**

Significance

- Provides a **national platform for tribal athletes** who are often underrepresented
- Helps bridge the gap between **traditional sports talent and formal training systems**
- Encourages preservation and promotion of **indigenous sports**
- Strengthens **sports inclusivity and regional representation**

Analytical Perspective

- Reflects a shift towards **inclusive sports policy** by targeting marginalised communities
- Aligns with broader goals of **social justice and empowerment through sports**
- Can contribute to expanding India's **talent pool for international competitions**
- Long-term success depends on:
  - Sustained **institutional support**
  - Access to **infrastructure and coaching**
  - Integration with **elite training systems**

Pradhan Mantri Awaas Yojana–Gramin (PMAY-G)

Why in News?

- **Milestone Achievement:** As of March 2026, PMAY-G has successfully completed nearly **3 crore** houses.
- **Future Target:** The scheme aims to reach a total of **4.95 crore** houses by 2029 to achieve the vision of "Housing for All" in rural India.

What is Pradhan Mantri Awas Yojana-Gramin (PMAY-G)?

- **Objective:** To provide a permanent (**pucca**) house with basic amenities to houseless rural households or those living in dilapidated/kutcha dwellings.
- **Launch & Ministry:** Launched in **2016** by the **Ministry of Rural Development (MoRD)**, restructuring the former Indira Awaas Yojana.
- **Selection Process:** A three-stage validation involving:
  - **Socio-Economic Caste Census (SECC) 2011** data.
  - **Gram Sabha** approvals for transparency.
  - **Geo-tagging** to verify physical progress.
- **Cost Sharing Ratio:**
  - **60:40** for plain areas.
  - **90:10** for NE states, Himachal Pradesh, Uttarakhand, and UT of J&K.

- **100%** Central funding for other UTs (including Ladakh).

Implementation Framework and Reforms

- **Direct Benefit Transfer (DBT):** Funds are wired directly to bank accounts to eliminate middlemen and leakages.
- **Multi-Tier Inspections:**
  - Block level: 10% of houses.
  - District level: 2% at every construction stage.
  - National level: Periodic field visits by monitors.
- **AwaasSoft MIS:** A bilingual digital dashboard that tracks everything from identification to fund release.
- **Social Audits:** Conducted annually by Gram Panchayats to ensure community-led accountability.

AI-Driven Monitoring in Rural Housing

- **Automated Approval:** AI analyzes photos to identify structural elements (walls, roofs, doors) and recommends final approval.
- **Fraud Prevention:** ML algorithms compare photos within localities to detect duplicate images and prevent fund diversion.
- **Awaas+ 2024 App:** Utilizes face authentication and **liveliness detection** (eye-blink/motion) to ensure the physical presence of the beneficiary during e-KYC.
- **Real-Time Tracking:** Digital geo-tagging with time-and-date stamps for every construction stage.

Impact on Rural Households

- **Sanitation & Health:** Convergence with **SBM-G** provides **12,000** for toilet construction.
- **Utility Integration:** Linked with **PM Ujjwala Yojana** (LPG), **PM Surya Ghar** (Solar), and **Jal Jeevan Mission** (Piped water).
- **Women's Empowerment:** Encourages ownership in the name of women or joint ownership, supporting **SDG 5a**.
- **Livelihood:** Provides **90-95 days** of unskilled labor wages under the **Viksit Bharat-Guarantee for Rozgar and Ajeevika Mission**.

Issues Affecting PMAY-G

- **Data Obsolescence:** Reliance on **SECC 2011** excludes many newly eligible families while including those no longer in need.
- **Inflationary Pressure:** Rising costs of raw materials make the existing financial assistance insufficient.
- **Monitoring Gaps:** Reports from the **CAG** indicate compromised geo-tagging, where houses were tagged hundreds of kilometers from actual sites.
- **Corruption:** Persistent issues with "cut money" or bribes demanded by local officials for installment releases.

Conclusion

PMAY-G has transitioned from a shelter scheme to a tool for dignity and security. To meet the 2029 goals, the government must update beneficiary databases, adjust funding for inflation, and tighten digital safeguards to ensure absolute transparency.

8th Poshan Pakhwada 2026: "Maximizing Brain Development"

Why in News?

The Ministry of Women and Child Development (MWCD) launched the **8th edition of Poshan Pakhwada**, observed from **9 April to 23 April 2026**. This fortnightly campaign aims to institutionalize nutrition and early childhood care as a **Jan Andolan** (People's Movement) across India.

Core Theme: Maximizing Brain Development

The 2026 edition focuses on **"Maximizing Brain Development in the First Six Years of Life."** * **Scientific Basis:** Acknowledges that over **85% of brain development** occurs by the age of 6.

- **Critical Period:** Emphasizes the **first 1,000 days** (from pregnancy to age 2) as the most vital window for cognitive mapping, physical growth, and mental well-being.

Strategic Framework: Mission Poshan 2.0

The initiative operates under the umbrella of **Mission Poshan 2.0**, which seeks to improve nutritional outcomes through community participation (**Jan Bhagidari**).

- **Poshan Abhiyaan:** Originally launched in **2018** from Jhunjhunu, Rajasthan, to combat stunting, under-nutrition, and anemia.
- **Convergence:** Unites efforts across multiple Union Ministries and States to provide a unified nutrition framework.

Strategic Focus Areas

1. Maternal and Child Nutrition

- Focus on optimal nutrition during pregnancy.
- Promotion of **exclusive breastfeeding** for the first 6 months and age-appropriate complementary feeding thereafter.

2. Early Stimulation (0–3 Years)

- Advocacy for **responsive caregiving** (interactions like talking, singing, and playing).
- Early learning interventions to spark neural connections.

3. Play-Based Education (3–6 Years)

- Utilizing the **Poshan Bhi Padhai Bhi** (PBPB) initiative to improve Early Childhood Care and Education (ECCE).
- Promoting **school readiness** through holistic, activity-based learning.

4. Lifestyle and Environment

- **Minimize Screen Time:** Encouraging parents to replace digital consumption with active physical engagement.
- **Poshan Vatikas:** Promoting diet diversity through nutri-gardens at Anganwadi Centres to provide fresh, local produce.

Reach and Grassroots Mobilization

The campaign leverages India's extensive frontline health and nutrition infrastructure:

- **Frontline Workers:** Mobilization of **Anganwadi Workers (AWWs)**, **ASHAs**, **ANMs**, and **Self-Help Groups (SHGs)**.
- **Scale:** Nearly **14 lakh Anganwadi Centres** serve approximately **8.9 crore beneficiaries**, including pregnant women, lactating mothers, and children.
- **Technology:** Real-time monitoring of growth indicators via the **Poshan Tracker** application.

Focus on Aspirational Districts

Special emphasis is placed on **Aspirational Districts** to bridge developmental gaps. These regions are encouraged to adopt best practices and innovative community-led solutions to ensure that the vision of a **Viksit Bharat (Developed India) by 2047** reaches every household.

Women in India's Evolving Credit Market: "From Borrowers to Builders"

Why in News?

- A joint report by **NITI Aayog, TransUnion CIBIL, and MicroSave Consulting (MSC)**, titled *"From Borrowers to Builders: Women and India's evolving credit market,"* highlights a structural shift in India.
- Women are moving beyond basic financial inclusion to become central drivers of the entrepreneurial economy.

Key Highlights of the Report

1. Portfolio and Penetration Growth

- **Credit Portfolio:** Women borrowers now hold a credit portfolio of **Rs 76 lakh crore**, representing **26% of total system credit**. This is a nearly 5-fold increase since 2017.
- **Active Borrowers:** The percentage of credit-active women doubled from 19% in 2017 to **36% in 2025**, reaching approximately 16 crore individuals.

2. Surge in Business Lending

- **Growth:** Business-purpose loans for women have surged **7.5x since 2017**, now accounting for 25% of their total credit value.
- **Shift in Maturity:** Borrowers are graduating from microfinance to more sophisticated products like **cash credit and overdraft facilities**.

3. Digitization and Efficiency

- **DPI Impact:** Digital Public Infrastructure (such as UPI and e-KYC) has streamlined lending. Same-day approvals for consumption loans rose from 34% in 2022 to **45% in 2025**.
- **Regional Stars:** While the South and West lead in volume, **Bihar (59% CAGR)** and **Uttar Pradesh (42% CAGR)** have emerged as high-growth markets for business loans.

4. Credit Reliability

- **Superior Behavior:** Data shows women are exceptionally reliable borrowers, defaulting **30% less** (0.7x default rates) than the general market average as of 2024.

Identified Challenges

- **Time Poverty:** Unpaid care and household responsibilities, combined with the use of **shared mobile devices**, limit women's independent engagement with digital financial tools.
- **Limited Autonomy:** Many Rural Women Nano-Entrepreneurs (RWNEs) manage operations but lack full decision-making power over strategic investments or procurement.
- **Logistical Hurdles:** While consumption loans are fast, **housing loans** still face high Turnaround Times (31–90 days) due to non-digitized property valuations and collateral checks.
- **MFI Contraction:** The microfinance sector has seen a supply contraction due to borrower over-indebtedness and rising Non-Performing Assets (NPAs).
- **NTC Decline:** Lenders are increasingly focusing on existing borrowers to maintain portfolio quality, leading to a decline in **New-to-Credit (NTC)** women originations.

Recommendations for Enhancement

- **Flow-Based Underwriting:** Leverage digital footprints (UPI transactions and cash-flow history) to assess risk for first-time borrowers instead of relying solely on physical collateral.
- **"Gender-Intelligent" Products:** Design products with flexible repayment schedules that align with specific business cash-flow cycles of women entrepreneurs.
- **Leveraging Collectives:** Use **Self-Help Groups (SHGs)** to introduce new financial technologies, as peer endorsement reduces perceived risk and drives adoption.
- **Credit Education:** Expand programs like **Project Seher** to improve credit awareness and help women manage their credit scores for long-term financial health.
- **End-to-End Digitization:** Focus on digitizing the entire loan lifecycle to reduce friction and improve "speed-to-credit" in rural areas.

Conclusion

The report underscores that India's credit landscape is shifting toward **women-led development**. By addressing behavioral barriers and utilizing Digital Public Infrastructure for cash-flow-based lending, the country can ensure a more robust and inclusive entrepreneurial ecosystem.

Status of Maternal Healthcare in India

Why in News?

- A recent study in **The Lancet** highlights that while India has significantly reduced maternal mortality since 1990, the pace of progress has **slowed after 2015**.
- This raises urgent concerns regarding gaps in healthcare quality and the need for a comprehensive approach beyond mere physical access to facilities.

Context

- **The Trend:** India's Maternal Mortality Ratio (MMR) has dropped to nearly a **fifth of its 1990 levels**, yet the country still accounts for **one in ten** global maternal deaths.
- **Regional Divide:** States like **Kerala and Maharashtra** have surpassed SDG targets, while states like **Assam and Uttar Pradesh** remain far above the national average.
- **The Goal:** Achieving **SDG Target 3.1** (MMR below 70 by 2030) requires addressing preventable causes like hemorrhages and social determinants like anemia.

Maternal Mortality: Key Definitions

- **Maternal Mortality:** The death of a woman while pregnant or within **42 days of termination**, from any cause related to pregnancy management (excluding accidents).
- **Maternal Mortality Ratio (MMR):** The number of maternal deaths per **100,000 live births**.
- **India's Progress:**
  - **2000:** 384
  - **2020:** 103
  - **2023:** 80 (An 86% drop since 1990).

Challenges in Maternal Healthcare

Challenge	Impact & Statistics
Specialist Shortfall	Nearly **80% shortfall** of Obstetricians and Gynecologists at rural Community Health Centres (CHCs).
Infrastructural Gaps	Lack of 24x7 **Emergency Obstetric Care (EmOC)** and functional blood banks at the secondary level.
Over-Medicalization	Private facility C-section rates are at **47.4% (NFHS-5)**, far exceeding the WHO recommended 10-15%.
The "Silent" Killer	**Postpartum Haemorrhage (PPH)** remains the leading cause of death due to delays in blood transfusion.

Social Determinants: Beyond the Hospital

- **The Anemia Burden: 57% of Indian women** (15-49 years) are anemic. Due to patriarchal dynamics where women **"eat last and least,"** minor bleeding during birth often becomes fatal.
- **Early Marriage: 23.3%** of women (20-24 years) were married before 18. Teenage bodies are biologically less prepared, leading to prolonged labor and higher risks.
- **Pandemic Fragility:** Covid-19 diverted frontline workers and delayed essential antenatal visits, exposing systemic weaknesses.

Measures to Strengthen the System

- **Respectful Maternity Care (RMC):** Training staff to eliminate "obstetric violence" and allowing a **birth companion** to reduce stress.
- **Midwifery-Led Care Units (MLCUs):** Developing a cadre of **Nurse Practitioners in Midwifery (NPM)** to handle low-risk births and decongest tertiary hospitals.
- **"Hub and Spoke" Blood Model:** Ensuring every high-load facility has a blood storage unit to treat PPH within the **"golden hour."**
- **Digital Tracking:** Using portals to identify **"High-Risk Pregnancies"** (hypertension/anemia) early for specialist referral.
- **Nutritional Counseling:** Moving beyond just IFA tablets to community-level counseling to change household eating habits through **Anemia Mukt Bharat**.

Conclusion

India's journey in maternal health is at a critical juncture. To cross the finish line of **SDG 3.1**, the focus must shift from building more hospitals to ensuring **equitable, high-quality care** and dismantling the socio-economic barriers that prevent women from surviving childbirth.

Ease of Doing Research & Development (R&D) in India

Why in News?

NITI Aayog has released two pivotal reports: **"Ease of Doing Research & Development in India"** and the **"Survey Report on Ease of Doing R&D in India."** These reports are aimed at cultivating a more efficient, facilitative, and innovation-driven research ecosystem in the country.

Context :

- **The ROPE Framework:** The core strategy focuses on **Removing Obstacles and Promoting Enablers** to clear administrative and regulatory bottlenecks.
- **Innovation Shift:** India aims to move from basic knowledge creation to a **"Lab-to-Market"** model, translating research into commercial technologies.
- **Current Standing:** India has risen to **38th** in the **Global Innovation Index (GII) 2025** and ranks **6th** globally in patent applications.
- **The Challenge:** Despite progress, R&D investment remains low at **~0.7% of GDP**, and the ecosystem is hindered by rigid bureaucracy and a fragmented industry-academia link.

Key Highlights of the NITI Aayog Reports

- **Mission-Mode R&D:** Urgent focus on translating fundamental research into tangible, practical applications for the market.
- **Funding Democratization:** Facilitating private sector participation by leveraging **Corporate Social Responsibility (CSR) funds** to back startups and deep-tech.
- **Bureaucratic Reform:** Advocating for adaptable administrative frameworks to replace outdated procurement rules and fragmented funding.
- **Trust-Based Ecosystem:** Shifting from administrative overreach to an outcome-oriented system that grants researchers operational autonomy to retain top talent.

Status of R&D in India (2024-2026)

Indicator	Current Status & Global Rank
GII Rank	**38th** (out of 139 economies) in 2025; 1st in Central & Southern Asia.
Expenditure (GERD)	**~0.64% - 0.7% of GDP** (vastly lower than the US at 3.5% or South Korea at 4.8%).
Patent Filings	**6th globally** (WIPO 2024); Patent-to-GDP ratio grew from 144 (2013) to 381 (2023).
Researcher Density	**260 per million people** (vs. 4,000+ in the US/UK).

Key Challenges Hindering the Ecosystem

- **Investment Inversion:** In global leaders, the private sector drives 70% of R&D. In India, the **government bears over 60%** of the burden, while private contribution remains low.
- **The "L1" Bottleneck:** Rigid "Lowest Bidder" (L1) procurement rules cause immense delays in purchasing critical scientific equipment.
- **Lab-to-Market Gap:** While India produces high volumes of research papers, it struggles to scale these into national or global industrial applications.
- **Siloed Frameworks:** Weak **University-Industry-Government (UIG)** linkages; industries often prefer importing tech over local academic collaboration.

- **Brain Drain:** Lack of merit-based career progression leads to the loss of top STEM talent to Western nations.

Key Initiatives Promoting R&D

- **Anusandhan National Research Foundation (ANRF):** To seed R&D in state universities.
- **Atal Innovation Mission (AIM):** Fostering a culture of innovation and entrepreneurship.
- **National Quantum Mission:** Focused on high-priority future technologies.
- **INSPIRE & IMPRINT:** Schemes dedicated to scientific pursuit and indigenous technological impact.
- **Startup India:** Supporting the commercialization of innovative ideas.

Measures to Strengthen R&D

- **Funding Target:** Aim to push GERD to **1.5% - 2% of GDP** through tax incentives and matching grants.
- **Procurement Reform:** Exempt scientific equipment from rigid L1 rules to ensure acquisition in days, not months.
- **Technology Transfer Offices (TTOs):** Mandate TTOs in universities to help scientists navigate IP laws and commercial licensing.
- **Merit-Based Career Tracks:** Replace seniority-based promotions with fast-track structures to retain talent.
- **Cross-Disciplinary Focus:** Fund projects that blend fields, such as **Biotechnology with AI** or **Data Science**.

Conclusion

India stands at a threshold where it can become a global scientific powerhouse. By shifting to a trust-based, outcome-driven R&D system and bridging the gap between academic labs and market reality, the country can achieve true technological self-reliance under **Atmanirbhar Bharat**.

UNEP Food Waste Index 2024: The Crisis of Plenty

Why in News?

- Following the **International Day of Zero Waste (30th March)**, the **UNEP Food Waste Index 2024** highlighted that India wastes **78–80 million tonnes** of food annually.
- This data exposes a stark paradox: India faces a massive food wastage crisis while simultaneously hosting one of the world's largest undernourished populations.

Context :

- **The Paradox:** India wastes food worth **₹1.55 lakh crore** annually, while nearly **194 million** people remain undernourished.
- **Global Rank:** India is the **2nd largest** food waster globally, trailing only China.
- **Root Causes:** Inefficient cold chains, fragmented supply chains, and extravagant consumer behavior.
- **The Goal:** Aligning with **SDG 12.3** (halving food waste by 2030) and **SDG 2** (Zero Hunger).

Scale of Food Waste in India

Metric	Data & Statistics
Annual Waste	**78–80 million tonnes** of post-harvest crop and food.
Economic Value	Estimated at **₹1.55 lakh crore**.
Per Capita Waste	**55 kg annually** per household (Lower than US/Germany but high relative to hunger).
Hunger Context	India ranks **111th out of 125** in the **Global Hunger Index (GHI) 2023**.
FCI Losses	Over **8,200 tonnes** of grains spoiled in Punjab's FCI facilities (2019-2024).

Defining the Problem

- **Food Loss:** Reduction in mass or nutritional value during production, post-harvest, or processing stages (supply chain inefficiencies).
- **Food Waste:** Discarding food fit for consumption (retail, food service, and household behavior).
- **Food Wastage:** An umbrella term encompassing both **Loss** and **Waste**.

Major Causes of Food Wastage

- **Infrastructure Deficit:** India processes only **8–10%** of its produce. A **30–40% loss** occurs in perishables (fruits/vegetables) due to a lack of cold storage.

- **Logistical Gaps:** Fragmented transport and a lack of refrigerated "reefer" vehicles lead to rapid spoilage.
- **Storage Inefficiency:** Use of porous jute sacks and open storage makes grains vulnerable to rodents and moisture.
- **Consumer Behavior:** Extravagant social events and rising urban incomes contribute significantly to household-level waste.
- **Corruption:** The CAG noted grains worth ₹700 crore were damaged in Punjab (2011–2016) due to poor storage management and diversion.

Impacts of Wastage

- **Resource Drain:** Producing 1 kg of rice requires **5,000 liters** of water. Wasting that rice is a direct waste of depleted groundwater.
- **Environmental Harm:** Food waste accounts for **8–10% of global GHG emissions**. If it were a country, it would be the 3rd largest emitter.
- **Methane Release:** Decomposing food in landfills releases methane, which is far more potent than CO_2 in the short term.

Government Initiatives

- **PM Kisan Sampada Yojana (PMKSY):** Creating mega food parks and cold chain infrastructure.
- **Agriculture Infrastructure Fund (AIF):** Financing post-harvest management and community farming assets.
- **FSSAI's "Save Food, Share Food":** Promoting redistribution of surplus food to the needy.
- **Mission LiFE:** A mass movement (Jan Andolan) promoting "Pro-Planet People" habits, including reducing food waste.

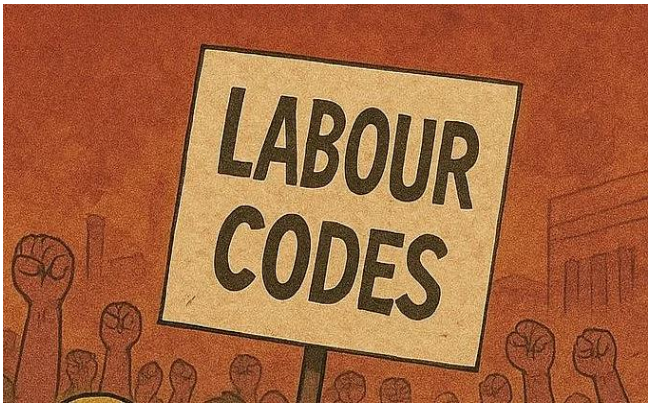
The Way Forward

- **Decentralized Cold Chains:** Promoting solar-powered cold storage at the **Panchayat/FPO level**.
- **Legislation for Donation:** Mandatory donation of unsold edible food by supermarkets, supported by tax incentives (similar to Italy and the US).
- **Circular Economy:** Using the **SATAT scheme** to convert food waste into **Compressed Biogas (CBG)** or organic compost.
- **Behavioral Change:** A nationwide campaign modeled on **Swachh Bharat** to instill the value of "Anna Brahma" (Food is God) in urban consumers.

Conclusion

Tackling India's food waste is not just an economic necessity but a moral imperative. By bridging the gap between "Lab-to-Market" and "Farm-to-Plate" through better infrastructure and redistribution laws, India can turn its food surplus into a tool for achieving total food security.

Worker Unrest and the Implementation of Labour Codes



Why in News?

- A wave of strikes by gig and factory workers in **Noida (Uttar Pradesh)** and nearby industrial regions has exposed deep concerns over low wages, job insecurity, and poor working conditions.
- These protests serve as a critical test for the implementation of India's **Four Labour Codes**, highlighting the friction between industrial ease-of-doing-business and worker welfare.

Context of Worker Protests

- The current unrest is driven by a combination of stagnant wages and rising living costs.
- While the **Consumer Price Index for Industrial Workers (CPI-IW)** surged by nearly **25%** between 2021 and 2026, many states have delayed updating the "base wage" component of minimum wages.

- Dissatisfaction was further fueled by a **35% wage hike in Haryana** in April 2026, raising expectations in neighboring Noida.
- Additionally, rumors regarding a guaranteed flat **20,000 minimum wage**—stemming from a misread government notification—have added to the volatility.

Reasons for Industrial Unrest

- **Inflation-Driven Wage Erosion:** While dearness allowances are updated, the stagnation of base wages has led to inadequate overall income growth.
- **Working Hour Flexibility:** The **OSH Code, 2020** allows for 12-hour shifts under a 4-day workweek model. However, a lack of clear rules on rest intervals has led to allegations of exploitation without overtime pay.
- **Supply Chain Shocks:** The **2026 West Asia conflict** and global trade tariffs have squeezed profit margins, leading to delayed wage payouts and heightened insecurity for migrant workers.
- **Algorithmic Tyranny:** Gig workers face piece-rate wage cuts and software-driven penalties. Platforms often classify them as "partners" to bypass the **Minimum Wages Act**.
- **Reduced Job Security:** The **Industrial Relations Code** raises the threshold for government approval of layoffs from **100 to 300 workers**, making retrenchment easier for larger firms.

India's Four Labour Codes

Labour Code	Laws Merged	Key Objective
Code on Wages, 2019	4 (e.g., Minimum Wages Act, 1948)	Establishes a statutory right to minimum wages for all; promotes gender equality.
Industrial Relations Code, 2020	3 (e.g., Trade Unions Act, 1926)	Streamlines union recognition and dispute resolution; limits flash strikes.
Code on Social Security, 2020	9 (e.g., EPF Act, 1952)	Extends benefits like insurance and PF to unorganized, gig, and platform workers.
OSH Code, 2020	13 (e.g., Factories Act, 1948)	Ensures safer working conditions and simplifies compliance for businesses.

The Legal Right to Strike

In India, the **right to strike** is a **legal right**, not a fundamental right. While the right to protest is protected under **Article 19**, the right to strike is subject to statutory restrictions. The **Industrial Relations Code, 2020** mandates a **60-day notice period** before a strike and prohibits industrial action during conciliation proceedings, aimed at maintaining industrial peace.

Measures to Strengthen Labour Reforms

- **The Rajasthan Model:** Adopt a welfare board system for gig workers with a mandatory "welfare cess" on all platform transactions.
- **Algorithmic Transparency:** Mandate aggregators to share wage calculation and penalty metrics with the Ministry of Labour to prevent software-based exploitation.
- **Binding National Floor Wage:** Set a dynamic floor wage linked to the **CPI** that is strictly binding on all states to prevent regional wage disparities.
- **Reviving Tripartism:** Re-engage the **Indian Labour Conference (ILC)** to build a consensus between the State, Employers, and Employees regarding code implementation.

Conclusion

The ongoing unrest proves that labour reforms must move beyond paper-level ease-of-doing-business to ensure ground-level protection. Achieving the vision of **Atmanirbhar Bharat** requires a workforce that feels secure and valued. India's challenge lies in ensuring economic growth that is built on the dignity of its labor, rather than the dilution of their rights.

Welfare *Vs.* Development: The Paradox of Political Discourse

Why in News?

- There is growing concern over the **blurring of welfare and development** in political discourse.
- Short-term welfare schemes are increasingly projected as long-term developmental achievements, triggering debates on **welfare populism**, fiscal sustainability, and the risk of prioritizing electoral gains over structural economic transformation.

Context of the Debate

- The tension lies between **welfare (short-term relief)** and **development (long-term capacity building)**.
- While targeted welfare is a moral and economic necessity to support human capital, excessive focus on populist "freebies" can strain a state's fiscal health, "crowd out" essential capital expenditure, and create a cycle of dependency rather than empowerment.

Welfare vs. Development: Key Differences

Feature	Welfare	Development
Focus	Short-term consumption and immediate survival.	Long-term capital formation and productivity.
Philosophy	**Redistributive Justice**; providing a safety net.	**Capability Approach**; expanding human freedoms.
Objective	Alleviate distress (food, shelter, basic health).	Build infrastructure, generate wealth, and self-reliance.
Examples	PDS, Pensions, Direct Benefit Transfers (DBT).	Highways, IITs/AIIMS, Skill India, R&D.

The Conflict: Risks of Welfare Populism

- **Crowding Out Capex:** Under the **FRBM Act, 2003**, states have strict borrowing limits. High revenue expenditure on un-targeted subsidies (like free electricity) leaves no fiscal space for **Capital Expenditure (Capex)** like modernizing agriculture or building ports.
- **Inter-generational Inequity:** Funding welfare through **off-budget borrowings** means the current generation consumes the benefits, while the **future generation pays the debt**, robbing them of developmental potential.
- **Market Distortions:** Unconditional freebies can weaken labor incentives. For instance, in some regions, excessive dependency on food security schemes has made it difficult to find farm labor during peak seasons.

The Complement: How Welfare Supports Development

- **Human Capital:** Nutrition (**PM POSHAN**) and healthcare (**Ayushman Bharat**) ensure a healthy workforce ready for industrial productivity.
- **Boosting Demand:** Cash transfers via **PM-KISAN** increase the purchasing power of the rural poor, driving consumption-led economic growth.
- **Social Stability:** By reducing inequality, welfare prevents social unrest, creating a stable environment necessary for private investment.

Measures to Balance the Two

- **From 'Freebies' to 'Merit Goods':** Policy must distinguish between unproductive handouts and **merit goods** (education, health, nutrition) that have positive developmental externalities.
- **Institutionalizing Fiscal Discipline:** The **16th Finance Commission** recommends rationalizing subsidies and adopting uniform accounting to stop off-budget financing. Devolution of central taxes should be linked to a state's **Capital Expenditure ratio**.
- **Capability-Enhancing Approach:** Transition from providing free power (welfare) to investing in solar micro-grids (**PM-KUSUM**) and modern irrigation (development).
- **JAM Trinity:** Utilize the **Jan Dhan-Aadhaar-Mobile** framework to ensure targeted, leakage-free transfers, improving the efficiency of the "productive" welfare state.

Constitutional Mandate

- The Indian Constitution mandates both aspects: **Article 38 and 39** demand equity and welfare, while the broader framework aspires for a prosperous, modern nation.

- The state must act as a welfare provider for the destitute while remaining a developmental facilitator for the youth.

Conclusion

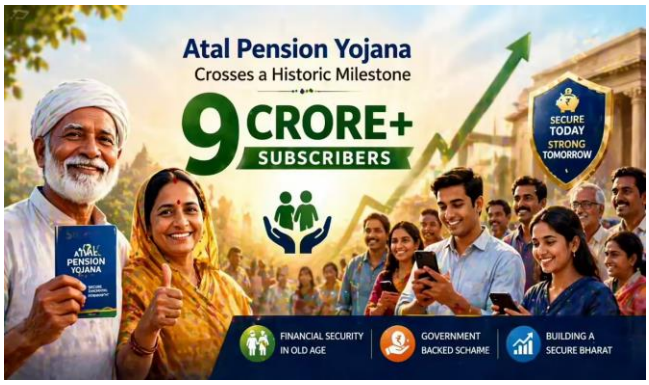
As India strives for upper-middle-income status, political discourse must move beyond the "quick development" fallacy. Prioritizing long-term economic capacity over short-term political gains is essential to ensure that the welfare state empowers citizens to participate in the growth story, rather than creating a perpetual cycle of dependency.

EDITORIALS

Crux of The Hindu & Indian Express

Indian Society & Social Justice

Atal Pension Yojana (APY)



Why in News

- Atal Pension Yojana has crossed a major milestone of **9 crore total enrolments** (April 2026).
- **FY 2025–26 enrolments exceeded 1.35 crore**, the **highest-ever in a single financial year** since launch.

Key Points

1. About Atal Pension Yojana (APY)

- A **flagship social security scheme** of the Government of India.
- Launched in **2015** to promote **universal social security**.
- Administered by Pension Fund Regulatory and Development Authority.
- **Voluntary and contributory pension scheme**.
- Target group: **unorganised sector workers, poor and underprivileged**.

2. Key Features

- Provides **guaranteed monthly pension** of **₹1,000 to ₹5,000** after **60 years of age**.
- **Spouse receives the same pension** after subscriber's death.
- **Nominee receives accumulated corpus** after death of both subscriber and spouse.
- Eligibility:
  - Age group: **18–40 years**
  - **Excludes income-tax payers**

3. Triple Benefit Structure (Sampurna Suraksha Kavach)

- **Guaranteed pension to subscriber**
- **Pension continuity to spouse**
- **Corpus return to nominee**

4. Growth and Expansion

- Rapid increase in enrolments due to:
  - **Banking network support** (PSBs, RRBs, private banks, cooperative banks)
  - Role of **Department of Posts**
  - Awareness campaigns and outreach initiatives
- Reflects **increasing financial inclusion and pension awareness**

5. Voluntary Exit Rules

- Allowed before maturity
- Subscriber receives:
  - **Own contribution + interest**
- Government co-contribution (if any) is **forfeited**

Significance

- Strengthens **old-age income security** for unorganised sector
- Promotes **financial inclusion and pension coverage**
- Reduces **dependency on informal support systems**
- Supports goal of **universal social security**

Challenges

- **Low awareness** in rural and informal sectors

- **Limited pension amount** may be inadequate due to inflation
- **Irregular contributions** by low-income subscribers

Way Forward

- Enhance **financial literacy and awareness campaigns**
- Periodically revise **pension amounts to adjust for inflation**
- Improve **digital and banking access** in rural areas
- Encourage **higher contributions and wider coverage**

Extension and Budget Hike for PMGSY-III

Why in News?

- The **Union Cabinet** has approved the continuation and increased the budgetary allocation for **Pradhan Mantri Gram Sadak Yojana-Phase III (PMGSY-III)**.
- The scheme has been extended beyond March 2025 until **March 2028**, ensuring that the momentum of rural infrastructure development continues to support national growth.

About PMGSY

Launched in **2000**, the Pradhan Mantri Gram Sadak Yojana is a flagship central government initiative designed to provide **all-weather road connectivity** to unconnected rural habitations.

- **Funding Pattern:** Originally a 100% centrally-sponsored scheme, the funding structure was revised in 2015-16 to a **60:40 ratio** between the Centre and States (90:10 for North Eastern and Himalayan states).
- **Impact:** Since its inception, approximately **800,000 kilometres** of rural roads have been constructed, successfully connecting **180,000 habitations**.

PMGSY-III: Consolidation and Linkages

Phase III represents a shift from "providing connectivity" to "upgrading and consolidating" the existing network.

- **Primary Objective:** Consolidation of **Through Routes** and **Major Rural Links** that connect habitations to critical social and economic hubs.
- **Key Connectors:** Focuses on linking villages to **Gramin Agricultural Markets (GrAMs)**, higher secondary schools, and healthcare facilities.
- **Standardization:** Emphasizes the use of "Green Technologies" and non-conventional materials (like plastic waste and cold mix technology) in road construction.

Revised Timelines

Region/Infrastructure	Completion Deadline
Roads (Plain & Hilly Areas)	March 2028
Bridges (Plain Areas)	March 2028
Bridges (Hilly Areas)	March 2029

Socio-Economic Benefits

- **Rural Economy:** Enhances the income of farmers by providing smoother access to markets, reducing transit time and spoilage of perishable goods.
- **Service Delivery:** Improves the reach of emergency medical services and encourages higher school enrollment by making commute safer and faster.
- **Employment:** Significant short-term job creation through construction activities and long-term economic opportunities through improved trade.
- **Viksit Bharat 2047:** Acts as a foundational step in bridging the rural-urban divide, ensuring that "Last Mile Connectivity" is a reality for the remotest parts of India.

Conclusion

The extension of PMGSY-III until 2028 underscores the government's recognition of rural roads as "arteries of growth." By prioritizing the consolidation of existing links over new, scattered projects, the policy ensures

that the massive investments made over the last two decades translate into a high-quality, durable, and commercially viable rural infrastructure network.

MSDE Skilling Initiatives under Vibrant Villages Programme (VVP)

Why in News?

- The **Ministry of Skill Development and Entrepreneurship (MSDE)** recently convened a high-level capacity-building workshop to accelerate skill-led development within the **Vibrant Villages Programme (VVP)**.
- The workshop focused on aligning vocational training with the unique economic needs of India's border regions to foster self-reliance and security.

MSDE's Strategic Role in VVP

MSDE is implementing **demand-driven, locally relevant skilling** to ensure that residents of border villages have sustainable livelihood opportunities.

- **Economic Integration:** Training programs are tailored to regional strengths, such as high-altitude farming, eco-tourism, and traditional handicrafts.
- **Innovation & Peer Learning:** The initiative encourages villages to share "best practices" in entrepreneurship, ensuring that skilling translates directly into income generation.
- **Strategic Stability:** By providing viable career paths, the ministry aims to reduce the economic desperation that often leads to trans-border crimes or illicit activities.

Vibrant Villages Programme (VVP)

Feature	Details
Nodal Ministry	**Ministry of Home Affairs (MHA)**.
Objective	To transform border villages into self-reliant **"First Villages"** of India.
Philosophy	Aligns with the vision of **"Viksit Gaon for Viksit Bharat"** (Developed Village for Developed India).
Security Linkage	Residents serve as the **"eyes and ears"** of Border Guarding Forces to report suspicious activities.

Expansion to VVP-II (2025)

Originally launched in 2023 for villages along the China border, the programme was expanded in **April 2025** as **VVP-II**.

- **Funding:** Reclassified as a **100% centrally funded Central Sector Scheme**.
- **Geographic Scope:** Expanded to cover 17 States and Union Territories, including **Arunachal Pradesh, Rajasthan, Punjab, Uttarakhand, Sikkim, and Uttar Pradesh**.

Core Objectives of the Programme

- **Preventing Migration:** Combatting the "ghost village" phenomenon where residents migrate to urban centers, creating a security vacuum and unwanted demographic shifts.
- **Saturation Approach:** Ensuring 100% coverage (**saturation**) of existing central and state schemes (electricity, water, housing) in these remote clusters.
- **Growth Centres:** Developing villages as hubs for tourism and local trade to ensure they are economically and culturally assimilated with the rest of the nation.
- **Trust Building:** MHA conducts **"culturally sensitive"** outreach to bridge the gap between security agencies and indigenous border communities.

Viksit Gaon: The Strategy for 2026

As of 2026, the VVP has moved into an intensive implementation phase:

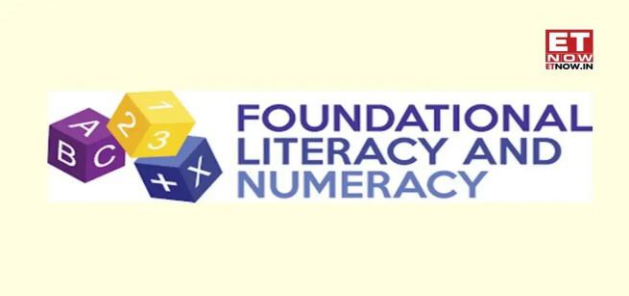
1. **Connectivity:** Prioritizing all-weather roads and 5G telecommunication to end the isolation of "last-mile" habitations.
2. **Renewable Energy:** Setting up solar and micro-hydro projects to provide 24/7 power, essential for the MSDE's digital skilling labs.

3. **Livelihood Diversification:** Moving beyond subsistence agriculture toward high-value medicinal plant cultivation and specialized border tourism.

Conclusion

The synergy between MSDE's skilling initiatives and the MHA's security framework marks a departure from traditional "border management" to "border development." By empowering local populations through skill development, the Vibrant Villages Programme ensures that India's borders are guarded not just by fences and soldiers, but by prosperous, satisfied, and vigilant citizens.

Foundational Literacy and Numeracy (FLN) Crisis in India



Why in News?

- Despite achieving near-universal school enrolment and the policy emphasis of **NEP 2020**, the **Annual Status of Education Report (ASER) 2024** highlights a persistent learning crisis.
- Millions of children are in school but lack **Foundational Literacy and Numeracy (FLN)**, reflecting a gap between "schooling" and "learning."

Understanding FLN and Its Status

FLN is the ability of a child to read simple sentences with meaning and solve basic math problems by the end of **Class 3**. These are "gateway skills" essential for all future learning and critical thinking.

- **The Learning Gap:** ASER data shows that while Grade 3 students' reading ability in government schools improved from **16.3% in 2022 to 23.4% in 2024**, the progress is too slow to meet the universal target by 2026–27.
- **Learning Poverty:** The World Bank estimates India's **learning poverty at 55%**—meaning over half of 10-year-olds cannot read and understand a simple age-appropriate text.

Policy Frameworks in Action

Initiative	Focus Area
NIPUN Bharat	National mission to ensure every child attains FLN by Grade 3 by **2026-27**.
NEP 2020	Identifies FLN as an "urgent national mission" and prerequisite for further education.
PM SHRI	Developing 14,500+ schools as "exemplary" models for NEP implementation.
Vidya Pravesh	A 3-month play-based school preparation module for Grade 1 students.

Causes of the FLN Crisis

1. **Lack of 'Salience':** Unlike infrastructure, "learning" is often invisible. There is a lack of collective social demand (salience) for better learning outcomes at the grassroots level.
2. **Input-Centric Mindset:** Parents and School Management Committees (SMCs) often prioritize **tangible inputs** (mid-day meals, uniforms, buildings) over the **cognitive output** of whether the child can actually read.
3. **The "Syllabus Trap":** Teachers are often pressured to complete textbooks rather than ensuring every child has mastered the basics, leading to a "cumulative burden of non-learning."
4. **Linguistic Barriers:** Teaching in a language other than the child's **mother tongue** in early years creates a significant cognitive hurdle.

Measures to Strengthen FLN

- **Teaching at the Right Level (TaRL):** Grouping children based on their current learning level rather than their grade to bridge foundational gaps.
- **Play-Based Pedagogy:** Scaling tools like the **Jadui Pitara** (a play-based learning kit) to make learning intuitive and reduce the fear of formal schooling.
- **Bhashini Integration:** Using AI tools to create high-quality learning materials in **local dialects**, bridging the comprehension gap between home and school languages.

- **Visible Metrics:** Developing simple tools (like a reading lamp or star chart) that allow parents to easily test their child's reading ability at home, creating accountability for schools.
- **Continuous Formative Assessment:** Replacing high-stakes year-end exams with regular, low-stakes "check-ins" to identify and support struggling learners early.

The "Class Apartheid" Challenge

- The "exit" of the middle class from government schools has weakened local accountability.
- Strengthening FLN is critical to ensuring that first-generation learners are not left behind, preventing a permanent socio-economic divide.

Conclusion

Resolving the FLN crisis is the ultimate test of India's **demographic dividend**. Without this cognitive bedrock, investments in higher education and digital infrastructure will fail to integrate the most marginalized populations. As India moves toward **Viksit Bharat 2047**, ensuring every child can read and count is not just an educational goal, but a fundamental human right and economic necessity.

❐❐❐

Economics

Artificial Intelligence in Tax Administration (Project Insight)

Why in News?

- India is expanding the use of **Artificial Intelligence (AI)** in taxation through **Project Insight**, an initiative of the Income Tax Department.
- While it has strengthened **tax compliance and detection**, it has also raised concerns about **data privacy, algorithmic bias, and accountability**.

Project Insight (PI): Overview

Concept :

- A **data-driven tax intelligence system** launched in **2017** (functional since 2019)
- Integrates **AI and big data analytics** to track financial behaviour of taxpayers
- Builds a **comprehensive financial footprint** using:
  - Banking data
  - GST filings
  - Property records
  - High-value transactions

Core Objectives :

- Curb **tax evasion**
- Promote **voluntary compliance**
- Improve **administrative efficiency**

Institutional Architecture :

INTRAC (Income Tax Transaction Analysis Centre)

- Functions as the **central analytics hub**
- Merges multi-source financial data to generate **risk profiles** of taxpayers

CMCPC (Compliance Management Centralized Processing Centre)

- Converts risk signals into **actionable cases**
- Identifies **mismatches between declared and actual income**

NUDGE Framework

- "Non-intrusive Usage of Data to Guide and Enable"
- Sends **targeted digital communications** (SMS/email)
- Encourages **self-correction instead of coercive enforcement**

Outcomes and Performance

- AI-driven nudging has led to **large-scale voluntary corrections** in tax returns
- Significant **additional revenue mobilisation** through revised filings
- Improved **processing efficiency**, especially faster refunds
- Detection of **substantial undisclosed income and false claims**
- Demonstrates shift from **reactive enforcement to predictive compliance**

Why AI Matters in Tax Administration

Precision in Risk Assessment

- Enables identification of **complex evasion patterns** using data correlations

Efficient Resource Allocation

- Focus shifts to **high-value and high-risk cases**

Administrative Automation

- Routine processes handled by AI → **reduced human workload**

Improved Taxpayer Interface

- Digital assistance tools enhance **ease of compliance**
- Reduces errors and **fraud vulnerabilities**

Global Trend

- Advanced economies like **UK, USA, Australia** are adopting similar **AI-based tax systems**

Key Risks and Challenges

Data Integrity Issues

- Incorrect or incomplete data can generate **false positives**
- Burden shifts to taxpayers to prove compliance

Algorithmic Bias

- AI may replicate **existing socio-economic biases** embedded in past data
- Example: Dutch Childcare Benefits Scandal highlights risks of biased automated decisions

Opacity in Decision-Making

- Lack of clarity on **how AI flags individuals**
- Weakens **procedural fairness**

Privacy and Security Concerns

- Centralised databases create **high-value cyber targets**
- Risk of **financial data breaches**

Institutional Gaps

- Absence of:
  - Independent **oversight authority**
  - Standardised **AI audit frameworks**
  - Transparent reporting mechanisms

Way Forward: Towards Ethical AI Governance

Human Oversight

- Introduce **mandatory human validation** before enforcement action

Independent Grievance Redressal

- Establish an **AI ombudsperson** for dispute resolution

Algorithmic Accountability

- Conduct **regular third-party audits**
- Ensure transparency in **risk-scoring models**

Right to Explanation

- Taxpayers must know:
  - Why they are flagged
  - How to respond effectively

Data Protection Measures

- Strengthen **cybersecurity infrastructure**
- Follow principles of **data minimisation and controlled access**

Context-Sensitive AI Design

- Incorporate Indian realities such as:
  - **HUF structures**
  - Informal sector income
  - Irregular earning patterns

Conclusion

The integration of **AI in tax governance** marks a transition towards a more **predictive, efficient, and technology-driven system**. However, without adequate safeguards, it risks undermining **trust and fairness**. Balancing **technological efficiency with constitutional principles like transparency, accountability, and privacy** will be crucial for building a **credible and citizen-centric tax system**.

Fiscal Deficit Trends in India (2025–26)

Why in News?

- India's **fiscal deficit** reached **₹12.52 trillion** by the end of February 2026, accounting for **80.4% of the annual target**, which is lower than **85.8%** in the same period of 2024–25.
- For the full financial year **2025–26**, the Centre has set a fiscal deficit target of **4.4% of GDP** (₹15.58 trillion).
- These figures were released by the Controller General of Accounts under the Ministry of Finance.

What is Fiscal Deficit?

Definition

- **Fiscal Deficit** refers to the gap between the government's **total expenditure** and its **total receipts (excluding borrowings)**
- It indicates the **borrowing requirement** of the government

Formula

- Fiscal Deficit = **Total Expenditure – (Revenue Receipts + Non-debt Capital Receipts)**

Components of Fiscal Deficit

Expenditure Side

- **Revenue Expenditure**: Day-to-day expenses such as salaries, subsidies, and interest payments
- **Capital Expenditure**: Investment in infrastructure like roads, railways, and energy

Receipts Side

- **Revenue Receipts**:
  - Tax revenue (income tax, GST, etc.)
  - Non-tax revenue (dividends, fees)
- **Non-debt Capital Receipts**:
  - Disinvestment proceeds
  - Loan recoveries

Economic Implications of Fiscal Deficit

Crowding Out Effect

- Excessive government borrowing may reduce **funds available for private investment**

Inflationary Pressure

- High deficits can increase **money supply**, leading to inflation

Debt Trap Risk

- Rising debt may lead to a situation where a large share of revenue goes into **interest payments**

FRBM Framework

- Governed by the Fiscal Responsibility and Budget Management Act 2003
- Originally targeted **3% fiscal deficit of GDP**
- Target relaxed due to **COVID-19 pandemic**

Current Status

- Government aimed to reduce fiscal deficit to **below 4.5% of GDP by 2025–26**
- The target of **4.4%** indicates adherence to the **fiscal consolidation path**

Fiscal Deficit vs Revenue Deficit

Fiscal Deficit

- Reflects **total borrowing needs** of the government

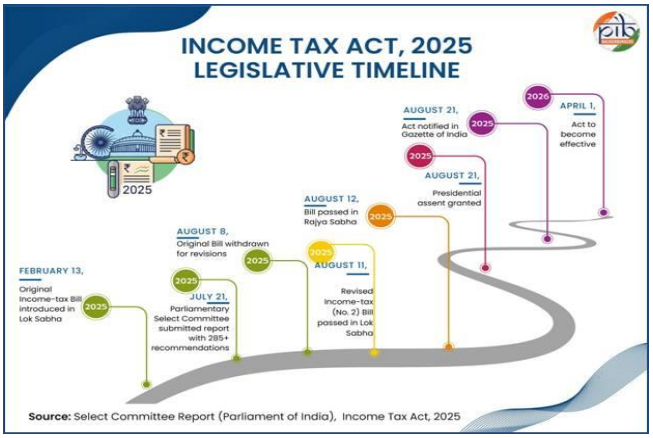
Revenue Deficit

- Indicates shortfall in meeting **regular operational expenses** from current revenue
- Does not account for capital investments

Analytical Perspective

- Lower fiscal deficit (as % of target) suggests **better fiscal discipline** and **controlled spending**
- Emphasis on **capital expenditure** can support long-term growth despite moderate deficits
- Maintaining fiscal prudence is essential to balance:
  - **Growth objectives**
  - **Macroeconomic stability**
- Future challenge lies in sustaining consolidation without compromising **welfare spending and infrastructure investment**

Income-tax Act, 2025: Major Overhaul of India's Direct Tax System



Why in News?

- The **Income-tax Act, 2025** has come into effect from **1 April 2026**, replacing the long-standing **Income-tax Act, 1961**.
- This marks one of the most significant overhauls in India's direct tax framework in over six decades.

Overview

- The new Act aims to modernise India's **tax administration system**, improve **compliance efficiency**, and rationalise outdated provisions that no longer reflect current economic realities such as inflation and rising income levels.

Key Objectives of the Reform

- Align **tax exemptions and thresholds** with present-day income levels and inflation
- Reduce compliance burden on **salaried taxpayers and individuals**
- Strengthen **digital tax administration and transparency**
- Build a more efficient and technology-driven tax ecosystem

The reform is also linked to the broader vision of **Viksit Bharat**, focusing on administrative simplification and ease of doing business.

Operational Framework

- The Act is operationalised through rules notified by the **Central Board of Direct Taxes**, under the **Income-tax Rules, 2026**.

Major Structural and Procedural Changes

1. Replacement of Form 16

- Traditional **Form 16 (TDS certificate)** is replaced by a system-generated **Form 130**
- Aims to improve:
    - accuracy of tax reporting
    - automation of compliance
    - standardisation of data

2. Unified Tax Year Concept

- Earlier distinction between:
    - Financial Year (FY)
    - Assessment Year (AY)
- Now merged into a single concept: **"Tax Year"**
- Intended to simplify tax calculations and filing structure

3. Expanded Digital Tax Scope

- **Undisclosed income definition expanded** to include:
    - virtual digital assets (cryptocurrencies, etc.)
- Tax authorities now empowered to access **virtual digital spaces** such as:
    - emails
    - social media accounts
    - cloud storage during search operations

4. Simplified Compliance System

- Redesign of tax forms for better usability
- Increased reliance on **pre-filled digital returns**
- Focus on reducing manual errors and improving filing ease

Income Tax: Conceptual Understanding

- **Income tax** is a **direct tax** levied on income earned by individuals, companies, and other entities during a financial year. It follows a **progressive taxation system**, where tax rates increase with higher income levels.
- Tax structure may vary under:
    - old and new regimes
    - available deductions and rebates

Revenue Context

According to recent data:

- India's **gross direct tax collections (2025–26)** stood at approximately **₹7.99 lakh crore**
- This reflects a **decline of 1.9%** compared to FY 2024–25

Significance of the Reform

- Marks transition to a **digitally integrated tax system**
- Improves **transparency and compliance efficiency**
- Reduces ambiguity through **simplified tax-year structure**
- Expands tax net to include **digital economy and virtual assets**
- Enhances ease of filing for individuals and businesses

Conclusion

The Income-tax Act, 2025 represents a structural shift in India's tax governance from a legacy framework to a **digitally driven, simplified, and broader compliance system**. While it improves efficiency and transparency, its success will depend on effective implementation and taxpayer adaptation to new digital norms.

Insolvency and Bankruptcy Code (Amendment) Bill, 2025

Why in News?

- The **Lok Sabha passed the Insolvency and Bankruptcy Code (Amendment) Bill, 2025**, introducing **12 key amendments** to the IBC, 2016.
- **Aims**: Maximize stakeholder value, enforce strict resolution timelines, and align Indian law with **global best practices** (e.g., cross-border insolvency).

Key Provisions of the IBC (Amendment) Bill, 2025

1. New Resolution Models

- Replaces the **fast-track process** with a **creditor-initiated insolvency framework**:
  - **Out-of-court settlement option**
  - **"Debtor-in-possession, creditor-in-control" model** to maintain business continuity

2. Strict Timelines

- **Liquidation**: 180 days (extendable by 90 days)
- **Admission of insolvency applications**: Within 14 days of default
- **Resolution plan approval**: 30 days by Adjudicating Authority
- **NCLAT appeals**: Must be decided within 3 months

3. Compressed Process

- **Out-of-court initiation**: 150-day timeline for expedited recovery

4. Cross-Border and Group Insolvency

- **Enabling framework** for cross-border insolvency and group insolvency
- **Purpose**: Boost international investor confidence, handle complex corporate structures

5. Deterrents for Litigation

- **Penalties**: Rs 1 lakh to Rs 2 crore for frivolous/vexatious proceedings

6. Protection of Workmen

- **Workmen's dues**: Given high priority, on par with secured creditors, above unsecured financial creditors and government dues

7. Post-Resolution Success

- **Market capitalization of resolved firms**: Grew from Rs 2.8 lakh crore to Rs 9 lakh crore in 5 years

Insolvency and Bankruptcy Code (IBC), 2016: Overview

About

- **Landmark law** to consolidate and simplify insolvency/ bankruptcy resolution for companies, partnership firms, and individuals.
- **Pre-2016**: Fragmented process (SARFAESI Act, Companies Act) led to delays and low recovery rates.

Core Objectives

- **Strict timelines**: 180 days (as per 2025 amendment)
- **Preserve asset value**: Business as a "going concern"
- **Clean exit**: Encourage entrepreneurship and credit availability

Institutional Framework

Pillar	Role
Insolvency Professionals (IPs)	Manage debtor during resolution
Insolvency Professional Agencies (IPAs)	Regulate IPs
Information Utilities (IUs)	Store authenticated financial data
Adjudicating Authorities	NCLT (corporate), DRT (individual/partnership)

Resolution Process

1. **Default** occurs → creditor/debtor triggers **CIRP**
2. **NCLT admits plea** → moratorium declared
3. **Committee of Creditors (CoC)** formed → decides on resolution plan or liquidation

Key Achievements (by late 2025)

- **Recovery**: Rs 4.1 lakh crore for creditors
- **Companies rescued**: Over 1,300
- **Behavioral shift**: 30,310 cases (Rs 13.78 lakh crore) settled before admission
- **Recovery efficiency**: 170% of liquidation value
- **Banking health**: Gross NPAs at record low (2.3%)

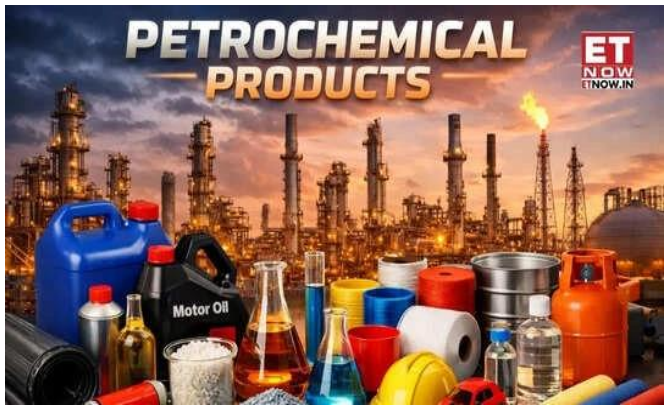
Critical Challenges Facing IBC Framework

Challenge	Impact
Prolonged resolution delays	Average >700 days (vs. 330-day mandate)
Erosion of asset value	Recovery rates: 32–36% of admitted claims; haircuts up to 80–95%
Judicial/infrastructure constraints	Overburdened NCLT, vacancies, excessive litigation
Underutilization of PIRP for MSMEs	Many MSMEs still use CIRP or face liquidation
Liquidation over resolution	High percentage of cases end in liquidation
Inter-creditor disputes	Conflicts delay distribution of proceeds

Steps Needed to Strengthen IBC Framework

1. **Strict Timelines**: Enforce 14-day admission, 3-month NCLAT appeal disposal
2. **Specialized NCLT Benches**: Clear backlog of ~30,000 cases
3. **Operationalize iPIE Platform**: Real-time case tracking, digital filing
4. **Adopt UNCITRAL Model Law**: For cross-border insolvency
5. **Simplify PIRP for MSMEs**: Lower voting thresholds, simplify compliance

Government Exempts Customs Duty on 40 Critical Petrochemical Products



Why in News?

- The **Government of India** has announced a **full customs duty exemption** on **40 essential petrochemical products** until **30th June 2026**.
- This decision aims to **reduce cost pressures** and address **supply chain disruptions** caused by the **ongoing West Asia conflict**, particularly the **Israel-US strikes on Iran**, which have led to **price volatility** in the **global petrochemical market**.

Understanding Petrochemical Products

- Petrochemical products are **chemical compounds** derived from **petroleum or natural gas**, serving as the foundation for about **95% of all manufactured goods**.
- These include **medical devices**, **packaging materials**, **textiles**, **automotive components**, and **renewable energy products**.

Classification of Petrochemicals

Petrochemicals are broadly categorized into **three main groups**:

1. Olefins (Alkanes)

- **Ethylene**: Used primarily to produce **Polyethylene (PE)**, a common plastic found in **packaging, bottles, and films**.
- **Propylene**: Essential for manufacturing **Polypropylene (PP)**, used in **automotive parts, textiles, and heat-resistant food containers**.
- **Butadiene**: A key ingredient in **synthetic rubber**, widely used in **vehicle tires and industrial gaskets**.

2. BTX Aromatics

- **Benzene**: Used in the production of **high-strength plastics** and **industrial packaging**.
- **Toluene**: Serves as a **high-octane gasoline additive** and **solvent in paints**.
- **Xylenes**: Used as a raw material for **PET (Polyethylene Terephthalate)**, commonly found in **water bottles and polyester clothing**.

3. Synthesis Gas (Syngas) and Derivatives

- **Ammonia**: A critical component in **nitrogen-based fertilizers** like **Urea**, supporting **global food production**.
- **Methanol**: Used as a **solvent, fuel additive**, and in the production of **formaldehyde for plywood resins and plastics**.
- **Economic and Strategic Importance** Petrochemicals account for approximately **12–14% of global oil and natural gas demand**.
- Their production is concentrated in regions with access to **affordable feedstocks**, such as **ethane from natural gas** or **naphtha from oil refining**.

Objective and Coverage of the Exemption

Strategic Objective

- The exemption provides **temporary and targeted relief** to **downstream industries** by ensuring the availability of **critical inputs**, including:
- **Anhydrous ammonia**
- **Toluene**
- **Styrene**
- **Methanol**

These products have experienced **significant price spikes** due to **geopolitical tensions in West Asia**.

Impacted Sectors

The exemption supports key industries such as:

- **Plastics**
- **Textiles**
- **Pharmaceuticals**
- **Automotive components**
- **Chemicals**

This measure aims to **stabilize manufacturing operations** and **reduce consumer prices** for final products.

Understanding Customs Duty

Definition and Governance

- **Customs duty** is a **tax** imposed by the **government** on the **import and export of goods** across international borders. In India, it is regulated under the **Customs Act, 1962**, and the **Customs Tariff Act, 1975**.

Key Objectives

- **Revenue Generation**: Contributes to **government income**.
- **Protection of Domestic Industries**: Makes **imports costlier** to safeguard **local manufacturers**.
- **Trade Regulation**: Ensures compliance with **national safety and environmental standards**.

Types of Customs Duties

1. **Ad Valorem Duty**: Calculated as a **percentage of the goods' value**.
2. **Specific Duty**: A **fixed amount per unit** (e.g., per kilogram, liter, or piece).
3. **Compound Duty**: A **combination of ad valorem and specific duties**.
4. **Additional Duties**: Includes **anti-dumping duty**, **countervailing duty**, and **social welfare surcharges**.

Valuation Methodology

Customs duty is calculated based on the **Assessable Value**, which includes:

- **Cost of Goods**
- **Insurance**
- **Freight (CIF Value)**

Formula:

Customs Duty = Assessable Value × Applicable Duty Rate

Recent Reforms in Customs Duty (2026-27)

- **Reduction** in customs duty on goods imported for **personal use** from **20% to 10%**.
- **Full exemption** on **17 cancer drugs** and **medicines/foods for 7 rare diseases**.

HSBC India Manufacturing PMI Hits 45-Month Low in March 2026

Why in News?

- **HSBC India Manufacturing PMI** dropped to **53.9 in March 2026**, a **45-month low**, signaling a **slowdown in industrial activity**.
- **Causes**:
  - **West Asia conflict** disrupting global supply chains.
  - **Rising input costs** due to surging prices of **aluminum, steel, chemicals, and fuel**.

Impact of West Asia Conflict on India's Manufacturing Sector

Shipping and Logistics Disruptions

- **Freight rates** for Indian exporters **jumped by 40–50%**.
- **Rerouting via Cape of Good Hope** added **15–20 days** to delivery times, straining **MSME working capital cycles**.

Energy and Input Cost Surge

- **Crude oil** breached **USD 110/barrel**, and **natural gas prices** spiked, making energy-intensive production unviable for smaller units.
- **Steel scrap costs** rose by **5–8%**.
- **Cement industry** faced **petcoke import shortages** from the UAE and Saudi Arabia, forcing a shift to costlier alternatives.

MSME Crisis

- **Manufacturing hubs** like **Morbi (Ceramics)** and **Surat (Textiles)** reported **shutdowns** in April 2026 due to **industrial gas shortages**, diverted to high-priority sectors.

Currency and Trade Pressures

- **Rupee depreciated** to a record low of **Rs 95 per USD** in late March 2026, increasing costs for **imported components** (electronics, EVs, defense).
- **Fertilizer subsidy outlay** increased to offset **ammonia and urea price spikes**, preventing food inflation.

HSBC India Manufacturing PMI: Overview

About

- **Leading economic indicator** tracking monthly changes in India's manufacturing sector.
- Compiled by **S&P Global** from surveys of **~400 manufacturers**.
- **Weighted average** of five sub-indices:
  - **New Orders (30%)**
  - **Output (25%)**
  - **Employment (20%)**
  - **Suppliers' Delivery Times (15%)**
  - **Stock of Items Purchased (10%)**

Interpretation

- **Above 50**: Sector expansion.
- **Below 50**: Sector contraction.
- **Exactly 50**: No change.

Significance

- **Strong PMI** correlates with **industrial growth and GDP expansion**.
- **Sharp declines** signal **rising costs, disruptions, or demand slowdowns**.

Importance of Manufacturing Sector for India

Economic Growth

- Contributes **~13% to GDP**; target is **25% by 2035** under the **National Mission on Manufacturing (NMM)**.

Employment

- **MSMEs** are the **second-largest employer** after agriculture.
- **NMM aims to create 143 million jobs by 2035**.

Trade and Foreign Exchange

- Accounts for **~45% of total exports**.
- Target: **USD 1.2 trillion in merchandise exports by 2035**.

- **Localization** (e.g., electronics, defense) reduces **import bills** and conserves **foreign exchange**.

Technological Innovation

- Drives adoption of **AI, IoT, and robotics**.
- Strengthens **supply chain resilience** against global disruptions.

Steps to Build Resilience Against Geopolitical Instability

Diversify Energy and Feedstock

- Shift **crude oil sourcing** to **non-Hormuz suppliers** (Russia, US, Brazil).
- Accelerate **National Green Hydrogen Mission** to reduce reliance on **natural gas**.
- Promote **BioE3 Policy** (bio-based alternatives to petroleum chemicals).

Alternative Trade Routes

- Fast-track **International North-South Transport Corridor (INSTC)** and explore **Arctic routes** to bypass **Suez Canal and West Asian chokepoints**.

Regulatory and Financial Buffers

- Extend **RoDTEP** and provide **temporary BCD exemptions** on critical inputs.
- Implement **Labor Codes** for flexible workforce scaling.

Digital Integration

- Use **ONDC + Udyam** to link **MSMEs to global value chains**, bypassing disrupted trade intermediaries.

Sovereign Maritime Insurance

- Establish a **state-backed maritime insurance fund** to counter **40–50% spikes in war-risk premiums** and keep **Indian exports competitive**.

Diplomatic Engagement

- Strengthen ties with **GCC, US, and Quad** for **secure energy corridors** and **joint maritime patrols**.
- Negotiate **supply-chain pacts** for resilient sourcing.

Conclusion

The **2026 West Asia conflict** exposes vulnerabilities in India's manufacturing sector. To build **Atmanirbhar (self-reliant) resilience**, India must prioritize **diversified energy sources, alternative trade routes, and sovereign insurance mechanisms**, turning geopolitical challenges into structural strengths.

India's Major Ports Achieve Record Cargo Handling in FY 2025–26

Why in News?

- India's **major ports** under the **Ministry of Ports, Shipping and Waterways** handled a **record 915 million tonnes of cargo** in **FY 2025–26**, marking a **7.06% growth**.
- This reflects **efficiency gains** under the **Maritime Amrit Kaal Vision 2047**.
- The next phase of **maritime transformation** involves integrating **Artificial Intelligence (AI)** to enhance **operational efficiency, logistics optimization, and decision-making**.

Key Highlights of Port Performance in FY 2025–26

Cargo Handling Achievements

- **Total cargo handled**: **915.17 million tonnes (MT)**, surpassing the **annual target of 904 MT**.

Top Performing Ports

- **Deendayal Port Authority**: **160.11 MT**
- **Paradip Port Authority**: **156.45 MT**
- **Jawaharlal Nehru Port Authority (JNPA)**: **102.01 MT**
- Other strong performers: **Visakhapatnam, Mumbai, Chennai, and New Mangalore Port Authorities**.

Highest Growth Rates

- **Mormugao Port Authority, Goa**: **15.91% growth**
- **Kolkata Dock System**: **14.28% growth**
- **JNPA**: **10.74% growth**

Factors Driving Growth

Digital Transformation

- **Smart port initiatives** and **automation** have delivered **major efficiency gains**.

- **National Logistics Portal (Marine)** and **Maritime Single Window** enable **unified trade facilitation** from a single platform.
- **Sagar Setu platform** and **e-Samudra** unify **maritime services** under one portal.
- **One-Nation-One-Document (ONOD)** and **One-Nation-One-Process (ONOP)** reforms standardize **documentation** and eliminate **redundant procedures** across port ecosystems, including **customs, immigration, and health**.
- **Fully digital processes** reduce **delays, paperwork, and human error**.

Increased Commodity Handling

- Higher volumes of **coal, crude oil, containers, fertilizers, and petroleum, oil, and lubricants (POL)** have driven **overall cargo growth**.

Improved Operational Efficiency

- **Turnaround time** improved from **~4 days in 2013–14 to less than 1 day in 2025**.
- **Enhanced ease of doing business** has boosted **port performance**.

Capacity Augmentation & Modernization

- **Expansion and upgradation** of port infrastructure, supported by reforms under the **Indian Ports Act, 2025**, have significantly enhanced **cargo handling capacity** and **operational efficiency**.

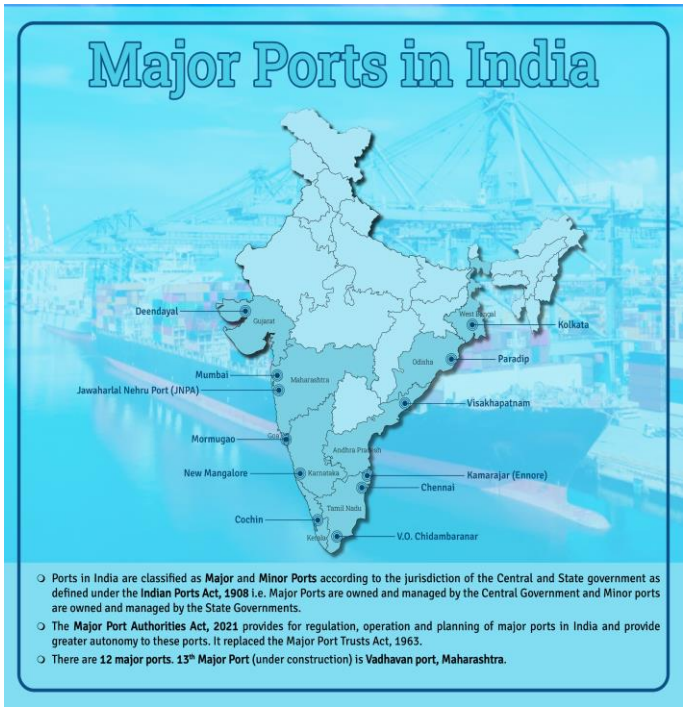
Integrating Indian Ports with AI

- AI can enhance **project planning, operational decision-making, trade facilitation, and energy rationalization**.
- A **pilot by IIT-Madras** for **VO Chidambaranar Port (Tuticorin)** demonstrated AI's potential in **congestion forecasting** and **just-in-time berthing**, saving **fuel and time**.
- For AI to be effective, it needs **enormous data**. The **fragmented, vendor-led nature** of existing deployments means AI should be **institutionalized** and treated as **'digital public infrastructure' (DPI)** to ensure **standardized data, interoperability, shared registries, and cybersecurity**.

Smart Ports vs. AI (Thinking) Ports

Aspect	Smart Ports	AI (Thinking) Ports
Approach & Focus	Technology-driven, focused on **automation** and **real-time monitoring** of operations.	Decision-driven, focused on **predictive insights** and **outcome-based planning** using AI.
Functioning & Optimization	Reacts to **current events** and optimizes within **individual systems (silos)**.	Anticipates **future scenarios** and optimizes across **integrated systems**.
Decision-Making & Outcome	Provides **data visibility** with **limited decision support**, improving **speed and efficiency**.	Enables **AI-backed judgment** and **proactive decisions**, making ports **smarter and future-ready**.

Ports in India



- Ports are **vital to India's economy**, handling **~95% of export-import (EXIM) cargo by volume** and **70% by value**.
- India has **12 Major Ports** (the **13th major port at Vadhavan, Maharashtra** is under development), **wholly owned by the Government of India** and governed by the **Major Port Authorities Act, 2021**.
- **Major Ports**: Deendayal, Mumbai, Jawaharlal Nehru, Mormugao, New Mangalore, Cochin, V.O. Chidambaranar, Chennai, Kamarajar, Visakhapatnam, Paradip, and Syama Prasad Mookerjee Ports.

- **No major port has been privatized**, as **ownership of land and waterfront remains with the Government of India**. However, **private participation in operations** exists under a **landlord port/PPP model**.
- **Major Ports** are administered by the **Ministry of Ports, Shipping and Waterways**, while **non-major ports** fall under **State Governments or State Maritime Boards**.

RBI Monetary Policy (April 2026): Status Quo Amidst Global Volatility

Why in News?

- The **Monetary Policy Committee (MPC)** of the **Reserve Bank of India (RBI)**, chaired by Governor Sanjay Malhotra, has opted to keep the **policy repo rate unchanged at 5.25%**.
- The decision reflects a cautious "wait-and-watch" approach as the Indian economy navigates heightened global geopolitical risks and supply-side inflation pressures.

Key Policy Rates (Status Quo)

The MPC unanimously decided to maintain the following rates under the **Liquidity Adjustment Facility (LAF)**:

- **Policy Repo Rate:** 5.25%
- **Standing Deposit Facility (SDF) Rate:** 5.00%
- **Marginal Standing Facility (MSF) Rate:** 5.50%
- **Bank Rate:** 5.50%

Policy Stance: The committee retained its **'neutral'** stance, allowing flexibility to address evolving economic conditions while ensuring inflation aligns with the target.

Economic Growth Projections

The RBI has released updated growth estimates based on the **new GDP series (Base Year 2022-23)**:

- **FY 2025-26 (Estimated):** 7.6% (driven by robust manufacturing and services).
- **FY 2026-27 (Projected):** 6.9% (revised downward from previous estimates).
- **Growth Drivers:** Strong domestic private consumption, fixed investment demand, and government initiatives from the **Union Budget 2026-27** targeting domestic manufacturing.

Inflation Outlook

The inflation forecast has been updated using the **new CPI series (Base Year 2024=100)**:

- **CPI Inflation (FY 2026-27):** Projected at 4.6%.
- **Key Pressures:** Persistent food inflation and volatile global energy prices.
- **New Basket:** The 2024 series now includes 358 items (up from 299), incorporating modern consumption trends like streaming services and exercise equipment.

Macroeconomic Risks and Resilience

Downside Risks

- **Geopolitics:** The prolonged **2026 West Asia conflict** continues to shadow the global economy.
- **Supply Chains:** Disruptions in the **Strait of Hormuz** have led to spikes in freight and energy costs.
- **Climate Factors:** Potential **El Niño** conditions pose a threat to the southwest monsoon and agricultural output.

Domestic Resilience

Despite external shocks, India's economy remains resilient due to:

- **Healthy Balance Sheets:** Both corporate and financial sectors maintain strong capital positions.
- **Services Sector:** Remains buoyant, particularly in trade, transport, and communication.
- **Manufacturing:** Supported by rebasing and double-digit growth in specific quarters.

Note: Statistical Revisions

- **GDP Base Year:** Shifted from 2011-12 to **2022-23** to better reflect post-pandemic economic structures.
- **CPI Base Year:** Shifted from 2012 to **2024**, aligning with the **Household Consumption Expenditure Survey (HCES) 2023-24**.

10th Anniversary of Unified Payments Interface (UPI)

Why in News?

- In **2026**, India marks the **10th anniversary** of the **Unified Payments Interface (UPI)**.
- Launched in 2016, UPI has evolved from a nascent platform into a global leader in digital payments, famously transforming India **"from queues to QR codes."**
- It now serves as the bedrock of the nation's digital financial ecosystem.
- **Impact:** In a decade, UPI has revolutionized the digital economy by providing fast, low-cost, and inclusive real-time payments, driving financial inclusion and formalization.
- **Global Standing:** India currently accounts for **49% of global real-time payment transactions**, with UPI processing **21.70 billion transactions** in January 2026 alone.
- **The Challenge:** Issues such as cyber fraud, market duopoly, infrastructure strain, and micro-debt risks necessitate stronger regulation and enhanced financial literacy.

What is UPI?

- **About:** An advanced, 24/7 real-time payment system developed by the **National Payments Corporation of India (NPCI)**. It facilitates Peer-to-Peer (P2P) and Person-to-Merchant (P2M) transactions.
- **Key Features:**
    - **Interoperability:** Access multiple bank accounts through a single app.
    - **Virtual Payment Address (VPA):** Uses simple IDs (e.g., name@bank) instead of complex account numbers and IFSC codes.
    - **Push & Pull:** Enables both sending money and requesting payments.

Innovations & Security (2016–2026)

- **UPI 2.0:** Introduced one-time mandates, invoice-in-the-inbox, and signed QR codes for better security.
- **UPI Lite:** Facilitates low-value offline transactions to reduce the load on bank servers.
- **UPI AutoPay:** Streamlines recurring payments like bills and subscriptions.
- **Credit on UPI:** Links RuPay credit cards and pre-approved credit lines to UPI IDs, democratizing short-term loans.
- **Two-Factor Authentication (2FA):** Effective **1st April 2026**, the RBI mandated biometrics or secure tokens alongside OTPs to combat rising fraud.

Historical Context: The JAM Trinity

The UPI revolution was built on the **JAM Trinity** (Economic Survey 2014-15):

1. **J - Jan Dhan:** Massive scale opening of zero-balance bank accounts.
2. **A - Aadhaar:** Provided a biometric-backed digital identity for secure authentication.
3. **M - Mobile:** Rapid expansion of affordable smartphones and data.

- **India Stack:** This foundational layer has evolved into a comprehensive **Digital Public Infrastructure (DPI)**, serving as a global model for secure, population-scale digital goods.

Significance of UPI

Category	Impact & Significance
Financial Inclusion	Brought millions of unbanked citizens into the formal fold; banks on the network grew from 216 in 2021 to **691 in 2026**.
Formalization	Transaction histories allow MSMEs and street vendors to access formal credit without traditional collateral.
Governance	Streamlined **Direct Benefit Transfers (DBT)** like PM-KISAN, eliminating middlemen and leakages.

Soft Power	Positioned India as a leader in open-source DPI, distinct from Western private models or state-controlled Chinese models.
Economy	Instant settlements have increased the **velocity of money**; UPI accounts for **81% of all retail digital transactions** in India.

Concerns & Challenges

- **Market Concentration:** Two foreign-owned players (PhonePe and Google Pay) command over **80% market share**, creating a duopoly risk.
- **Zero MDR Dilemma:** The lack of Merchant Discount Rates (MDR) means banks struggle to fund the massive server upgrades needed to prevent transaction failures.
- **The Digital Divide:** While urban areas are saturated, only **24% of rural households** have internet access (NSSO), leaving many vulnerable to fraud or excluded due to the **gender gap** in smartphone ownership.
- **Psychological Barriers:** Frictionless payments remove the "pain of paying," potentially leading to **impulsive overspending** and micro-debt traps for young users.

Way Forward

- **Tiered MDR:** Introduce nominal fees for large corporate retailers while keeping UPI free for small merchants to ensure financial sustainability.
- **Regulatory Oversight:** Enforce the **30% market share cap** to foster domestic competition.
- **Infrastructure Investment:** Banks must transition to **cloud-native, scalable IT systems** to handle the projected exponential growth in micro-transactions.
- **Literacy Campaigns:** Shift focus from "adoption" to "cyber-hygiene" and digital safety to protect vulnerable demographics.

Conclusion

UPI has successfully bridged the gap between the banked and unbanked, evolving from a homegrown experiment into a **global benchmark**. As it enters its second decade, its success will depend on balancing rapid innovation with robust security and a sustainable revenue model for the banking ecosystem.

Startup India: Record Growth in FY 2025–26

Why in News?

- The government recently reported that **over 55,200 startups** were recognized in **FY 2025–26**, marking the highest ever in a single year since the initiative's inception.
- This surge reflects a robust expansion in India's innovation landscape, venture funding, and high-skilled employment.

Context of Startup Growth

- The **Startup India Initiative** has successfully crossed the milestone of **2.23 lakh** total recognized startups.
- In the last fiscal year alone, startup recognition grew by **51.6%**, while related employment saw a **36.1%** increase.
- Collectively, these ventures have generated over **23.36 lakh direct jobs**, fundamentally shifting India toward a "job-creating" economy.

Startup India Initiative: Core Pillars

- **Nodal Agency:** Implemented by the **Department for Promotion of Industry and Internal Trade (DPIIT)**.
- **Philosophy:** Launched in 2016 to ease regulations, support founders, and enable access to capital for young companies disrupting traditional markets.
- **Definition:** A startup is a young company founded to introduce innovative products or services, often characterized by high scalability and a technology-driven approach.

Major Schemes and Support Mechanisms

Scheme / Pillar	Objective and Impact
Fund of Funds (FFS)	A **10,000 crore** corpus managed by **SIDBI** to support SEBI-registered funds that invest in startups.
Seed Fund (SISFS)	Provides **945 crore** for early-stage needs like proof of concept, prototyping, and initial market entry.
Credit Guarantee (CGSS)	Operationalized by **NCGTC** to provide **collateral-free loans** to startups through financial institutions.
MAARG Portal	A dedicated platform for **Mentorship, Advisory, and Resilience**, connecting founders with industry experts.
States' Ranking (SRF)	Assesses States/UTs to promote **competitive federalism**, identifying "Best Performers" in the startup ecosystem.

The Digital Backbone: Startup India Hub

The **Startup India Hub** acts as a single-window digital platform connecting the entire entrepreneurial ecosystem. It integrates:

- **Investors & Mentors:** Bridging the gap for capital and strategic advice.
- **Incubators & Academia:** Providing the physical and intellectual infrastructure for R&D.
- **Government Bodies:** Streamlining regulatory approvals and access to public procurement.

Significance of Recent Growth

- **Democratization of Innovation:** Startups are no longer restricted to Tier-1 cities; the ranking framework has encouraged Tier-2 and Tier-3 cities to emerge as "Aspiring Leaders."
- **Economic Resilience:** The growth in FY 2025–26 demonstrates the ecosystem's ability to attract domestic and foreign investment despite global economic fluctuations.
- **Employment Multiplier:** Beyond direct jobs, startups have created a massive secondary economy in logistics, gig work, and digital services.

Conclusion

The record-breaking recognition of startups in FY 2025–26 underscores India's position as the world's third-largest startup ecosystem. By combining financial support through SISFS and FFS with regulatory easing, the Startup India Initiative is not just fostering individual businesses but is building a sustainable, innovation-led foundation for **Viksit Bharat**.

Industrial Disasters in India: A Systemic Crisis

Why in News?

- The recurring explosions in fireworks units in **Virudhunagar, Tamil Nadu**—which claimed over **25 lives in April 2026** alone—have once again exposed the fragile safety landscape of India's industrial sector.
- These tragedies highlight a "business-as-usual" approach to high-risk manufacturing, where regulatory gaps and weak enforcement turn industrial units into ticking time bombs.

The "Inspector Raj" vs. "Monitoring Vacuum"

While the government has sought to dismantle the "Inspector Raj" to boost the **Ease of Doing Business (EoDB)**, it has inadvertently created a dangerous monitoring vacuum.

- **Mathematical Impossibility:** In major industrial states, over **40% of factory inspector posts** remain vacant. A single inspector is often tasked with overseeing thousands of units, making physical verification a rare event.
- **Self-Certification Loophole:** Under the **OSH Code, 2020**, small and medium enterprises (MSMEs) are encouraged to use self-certification and third-party audits. In hyper-competitive sectors, this often leads to falsified safety protocols.
- **Shell Operations:** Factories flagged for violations frequently shut down only to

resume operations under a new **shell name**, effectively bypassing the **Doctrine of Absolute Liability**.

Doctrine of Absolute Liability

Established by the Supreme Court in the **M.C. Mehta v. Union of India (1987)** case, this principle is the bedrock of Indian industrial law:

- **No Exceptions:** Unlike "Strict Liability," an enterprise engaged in hazardous activities is **absolutely liable** to compensate for harm caused, regardless of whether it took reasonable care.
- **Deterrent Compensation:** The quantum of compensation must be commensurate with the enterprise's financial capacity to act as a deterrent.

The Human Cost: "Human Sensors"

Nearly **50-70% of high-risk floor work** (e.g., handling volatile chemicals) is outsourced to daily-wage contractual laborers.

- **Information Asymmetry:** These workers are rarely briefed on **Material Safety Data Sheets (MSDS)** and lack specialized PPE.
- **Evading Liability:** Because they aren't on formal payrolls, companies often settle deaths through *ex gratia* payments, avoiding the rigorous scrutiny of the **Public Liability Insurance Act, 1991**.

Geopolitical and Economic Implications

Category	Impact
FDI Deterrence	Global capital under strict **ESG (Environmental, Social, Governance)** norms avoids "regulatory wild wests," impacting the "China Plus One" strategy.
Stranded Assets	Disasters turn capital-intensive "brownfield" projects into **Dead Assets**, contributing to **Non-Performing Assets (NPAs)** in the banking sector.
Natech Risks	Natural disasters (cyclones/floods) hitting unregulated industrial clusters cause **toxic multipliers** that decimate local marine and soil biodiversity.

Key Legal Safeguards

- **OSH Code, 2020:** Consolidates 13 labor laws; mandates **Safety Committees** for larger units and registration for units even with one employee in hazardous sectors.
- **Public Liability Insurance Act, 1991:** Mandates immediate relief for victims (though the relief amount remains low, e.g., ₹25,000 for fatal accidents).
- **Environment Protection Act, 1986:** A post-Bhopal legislation that empowers the Centre to shut down polluting or hazardous units.
- **MSIHC Rules, 1989:** Requires "Major Accident Hazard" (MAH) units to prepare on-site and off-site emergency plans.

Measures for a "Certainty of Safety"

- **NISA Establishment:** Creating a **National Industrial Safety Authority**, independent of the Ministry of Labour, to function as a statutory regulator for hazardous industries.
- **AI & IoT Integration:** Mandating **IoT-enabled pressure/temperature sensors** in MAH units that beam data directly to state servers, preventing management from hiding "near-misses."
- **Insurance-Linked Safety:** Tying corporate insurance premiums and electricity tariffs directly to **Safety Audit Scores**, creating a financial incentive for compliance.
- **Cumulative Impact Assessments:** Freezing permits in clusters (like Noida or Manesar) where urban encroachment has erased mandatory **buffer zones**.

Conclusion

India cannot continue as a "trial-and-error" laboratory for industrial growth. The human cost of the trajectory from Bhopal to Virudhunagar proves that legislative intent without administrative teeth is a recipe for catastrophe. For India to truly achieve **Viksit Bharat 2047**, "Ease of Doing Business" must be inseparable from the "Certainty of Safety."

Rupee Depreciation: External Pressures and Macroeconomic Impact

Why in News?

- The **Indian Rupee (INR)** has weakened beyond the **94 mark** against the **U.S. Dollar (USD)** in early 2026.
- This depreciation is primarily driven by external pressures, specifically the surge in **crude oil prices** (breaching USD 100 per barrel) triggered by escalating geopolitical tensions in **West Asia**.

Depreciation vs. Devaluation

- **Depreciation:** A decrease in the value of a currency relative to others due to **market forces** (demand and supply) in a floating exchange rate system.
- **Devaluation:** A deliberate **downward adjustment** of a country's official exchange rate by its government or central bank, typically under a fixed exchange rate system.

Key Causes for the Current Rupee Weakness

1. **Widening Current Account Deficit (CAD):** As a massive net importer of energy, India's trade balance is highly sensitive to oil prices. High import bills for crude oil have significantly inflated the CAD.
2. **Geopolitical Supply Shocks:** Tensions near the **Strait of Hormuz** have created "war premiums" on energy, sustaining high prices and fueling domestic inflation.
3. **Capital Flight (FPI Outflows):** Global investors are pulling capital from emerging markets like India, seeking "safe-haven" assets like the **U.S. Dollar** and **Gold** amidst global uncertainty.
4. **Equity Market Contagion:** Macroeconomic anxiety has led to heavy selling in domestic equity indices (**Sensex and Nifty**), further reducing the demand for the Rupee.

The Managed Float System

India operates under a **managed float exchange rate system**.

- **Market-Led:** The Rupee's value is determined by the demand and supply of foreign exchange.
- **RBI Intervention:** The **Reserve Bank of India (RBI)** does not target a specific level for the Rupee but intervenes to **curb excessive volatility** and ensure orderly market conditions.

Measures Taken by RBI to Stabilize the Rupee

Mechanism	Action Taken	Impact
Forex Intervention	Selling USD from **Foreign Exchange Reserves**.	Increases the supply of Dollars, arresting the Rupee's fall.
Monetary Policy	Raising interest rates (Repo Rate).	Attracts foreign capital seeking higher returns, supporting INR.
Liquidity Management	**Open Market Operations (OMOs)** and Repo operations.	Manages the supply of Rupee in the system to prevent inflation.
Capital Inflows	Easing norms for **External Commercial Borrowings (ECBs)**.	Encourages Indian firms to bring in foreign capital.

Limits of Intervention

The RBI faces a "Trilemma" or **Impossible Trinity**: it cannot simultaneously have a fixed exchange rate, free capital movement, and an independent monetary policy. Excessive intervention can:

- **Deplete Reserves:** Reduces the buffer against future economic shocks.
- **Tighten Liquidity:** Selling dollars sucks out Rupee liquidity, which can raise borrowing costs and slow down economic growth.

Conclusion

While the Rupee crossing the 94 mark reflects significant global headwinds, it also functions as an **automatic stabilizer**, making Indian exports more competitive. However, the immediate challenge for the RBI and the Government remains managing "imported inflation" and maintaining a sustainable Current Account Deficit to ensure long-term macroeconomic stability in **Viksit Bharat**.

EDITORIALS

Crux of The Hindu & Indian Express

Economics

Pradhan Mantri MUDRA Yojana (PMMY): 11 Years of Financial Inclusion

Why in News?

- The Prime Minister of India recently commended the success of the **Pradhan Mantri MUDRA Yojana (PMMY)** on its **11th anniversary** (8 April 2026).
- The scheme is hailed as a cornerstone of India's strategy to "fund the unfunded" and promote grassroots entrepreneurship.

What is PMMY?

Overview

- **Launch:** 8 April 2015.
- **Objective:** To provide **collateral-free** institutional credit to non-corporate, non-farm micro and small enterprises (MSEs).
- **Pillars of Inclusion:** Banking the Unbanked, Securing the Unsecured, and Funding the Unfunded.
- **Implementing Agency:** Department of Financial Services, Ministry of Finance.

Institutional Framework

- **MUDRA (Micro Units Development & Refinance Agency Ltd):** A subsidiary of **SIDBI** that provides refinance support to lenders. It does not lend directly to individuals.
- **Member Lending Institutions (MLIs):** Commercial banks, RRBs, NBFCs, and MFIs provide the actual loans.
- **Credit Guarantee:** The **CGFMU (Credit Guarantee Fund for Micro Units)** mitigates risk for lenders.
- **MUDRA Card:** A RuPay debit card with an overdraft facility for working capital needs.

Loan Categories and Reach

Category	Loan Amount Range	Share in Volume	Purpose
Shishu	Up to 50,000	74%	Seed capital for very small business startups.
Kishor	50,000 – 5 Lakh	24%	Early-stage expansion (buying equipment/tools).
Tarun	5 Lakh – 10 Lakh	2%	Scaling established units and hiring.
Tarun Plus	10 Lakh – 20 Lakh	0.004%	For successful entrepreneurs who have repaid Tarun loans.

Key Achievements (2015-2026)

- **Massive Outreach:** Sanctioned over **57 crore loans** totaling more than **40.07 lakh crore** over the past decade.
- **Nari Shakti:** Women account for **67%** (two-thirds) of all beneficiaries.
- **Social Equity:** Over **51%** of beneficiaries belong to SC, ST, and OBC communities.
- **Formalization:** Integrated over **12 crore first-time entrepreneurs** into the formal banking system, moving them away from predatory informal moneylenders.
- **Recent Scale:** Sanctioned **5.65 lakh crore** in the 2025-26 financial year alone.

Challenges and Structural Concerns

- **Structural Asymmetry:** The high concentration in the 'Shishu' category indicates a "missing middle," where micro-units struggle to graduate into larger, sustainable small enterprises.
- **Low Value-Addition:** Loans are predominantly focused on **trading and**

services rather than manufacturing, limiting the long-term industrial impact.

- **Debt Substitution:** A portion of credit is often used to pay off old informal debts rather than creating new productive assets.
- **NPAs:** Collateral-free lending without robust creditworthiness checks has led to rising Non-Performing Assets in public sector banks.

Proposed Reforms

- **Cash-Flow Based Lending:** Utilizing **Digital Public Infrastructure (DPI)** and the Account Aggregator framework to assess credit based on real-time business health (GSTN data) rather than assets.
- **'Credit-Plus' Approach:** Moving beyond mere credit to provide end-to-end support, including skill development and market linkages through platforms like **ONDC**.
- **AI-Driven Monitoring:** Using data analytics for **Early Warning Signals (EWS)** to track the end-use of funds and prevent diversion for personal consumption.
- **Manufacturing Incentives:** Special interest subventions for micro-manufacturing units to align with the 'Make in India' mission.
- **NBFC Integration:** Leveraging the "last-mile" connectivity of NBFCs and MFIs who specialize in grassroots credit appraisal.

Bharat Maritime Insurance Pool (BMI Pool) – India's Maritime Risk Shield

Why in News

- The Union Cabinet chaired by Narendra Modi approved the creation of the **Bharat Maritime Insurance Pool (BMI Pool)**.
- The scheme comes with a **₹12,980 crore sovereign guarantee** to strengthen maritime insurance capacity.
- It aims to ensure **continuous and affordable insurance coverage for India's shipping and trade routes amid global geopolitical risks**.

Key Points

About Bharat Maritime Insurance Pool (BMI Pool)

- A **domestic, government-backed maritime risk-sharing mechanism**.
- Designed to reduce dependence on **foreign insurers and reinsurance markets**.
- Provides **collective underwriting of maritime risks by Indian insurers**.
- Combined underwriting capacity: approximately **₹950 crore**
- Backstop support: **₹12,980 crore sovereign guarantee**

Coverage of BMI Pool

The pool covers a wide range of maritime risks, including:

- **Physical damage to ships and vessels**
- **Loss or damage to cargo in transit**
- **Third-party liabilities**, such as:
  - Oil pollution
  - Wreck removal
  - Crew injury
  - Collision liabilities
- **War and conflict-related risks** in high-risk zones

Scope of Coverage

- Applies to:
  - **Indian-flagged vessels**
  - Foreign vessels carrying **Indian cargo to/from Indian ports**
- Ensures continuity of trade through **high-risk maritime corridors** such as:
  - Red Sea
  - Persian Gulf
- Reduces exposure to **global sanctions and insurance market volatility**

Dedicated War-Risk Mechanism

- A specialised arm called the **Bharat Marine Pool (BMP)** has been created.
- Managed by **GIC Re and New India Assurance**.
- Initial capacity: **~$100 million**

- Backed by sovereign guarantee of **~$1.5 billion**
- Focus: **war-risk insurance and large-scale conflict-related claims**

Need for BMI Pool

- Rising **geopolitical instability**, especially in West Asia
- Increasing **insurance premiums for ships in conflict zones**
- Dependence on foreign entities like the **International Group of P&I Clubs**
- Risk of exposure to **sanctions and global insurance withdrawal**

Strategic Significance

For Maritime Trade Security

- Ensures **uninterrupted insurance for India's seaborne trade**
- Reduces vulnerability to **global shipping disruptions**
- Strengthens resilience of **supply chains and port connectivity**

For Economic Security

- Protects India's **import-export ecosystem**
- Stabilises **insurance costs for shipping industry**
- Enhances confidence of **global shipping operators using Indian ports**

For Strategic Autonomy

- Reduces dependence on **foreign insurance and reinsurance systems**
- Builds domestic capability in:
  - **Marine underwriting**
  - **Claims management**
  - **Maritime risk assessment**
  - **Maritime law and governance**

Significance

- Strengthens **maritime economic sovereignty**
- Acts as a **financial safety net for strategic trade routes**
- Enhances India's ability to operate in **high-risk geopolitical environments**
- Supports **Atmanirbhar Bharat in insurance and financial services**

Challenges

- High exposure to **large-scale catastrophic claims**
- Need for strong **risk modelling and actuarial capacity**
- Dependence on **coordination among multiple insurers**
- Managing **global reinsurance market linkages**

Way Forward

- Develop advanced **maritime risk analytics systems**
- Strengthen **domestic reinsurance capacity**
- Expand participation of **private insurers and global partners**
- Integrate with India's **blue economy and maritime security strategy**

PM-AASHA and the Atmanirbhar Pulses Mission

Why in News?

- The Government of India has significantly expanded **Minimum Support Price (MSP)** procurement under the **PM-AASHA** framework.
- Key developments include the launch of Bihar's first structured pulse procurement initiative and the intensification of operations in Chhattisgarh.
- These moves are part of the broader **Atmanirbhar Pulses Mission** to achieve self-reliance in protein-rich crops by 2030.

State-Level Procurement Highlights

- **Bihar Pulse Initiative:** For the first time, organized procurement of **Masoor (Lentil)** has been initiated in Bihar. Led by the **NCCF**, the initiative uses a structured cooperative network to ensure farmers receive the MSP directly, bypassing exploitative middlemen.
- **Chhattisgarh Expansion:** Procurement of **Chana (Chickpea)** and **Masoor** is being driven through the **E-Samyukti digital platform**. This allows for transparent, real-time tracking of procurement at **Primary Agricultural Credit Societies (PACS)** centers across multiple districts.

Atmanirbhar Pulses Mission

Feature	Details
Launch	Announced in Union Budget 2025–26; launched in **October 2025**.
Duration	2025–26 to 2030–31.
Primary Goal	**Self-sufficiency** in pulse production to eliminate import dependence.
Focus Crops	**Tur (Arhar), Urad, and Masoor** (crops with high consumption-production gaps).

Strategic Objectives

1. **Yield Improvement:** Distribution of high-yielding, climate-resilient seed varieties.
2. **Import Reduction:** Saving foreign exchange by reducing the heavy reliance on pulse imports from nations like Canada, Myanmar, and Mozambique.
3. **Nutritional Security:** Ensuring affordable access to plant-based protein for India's population.

PM-AASHA (Pradhan Mantri Annadata Aay Sanrakshan Abhiyan)

Launched in **2018**, PM-AASHA is an umbrella scheme designed to ensure that farmers actually receive the MSP announced by the government, protecting them from market price volatility.

The Three Pillars of PM-AASHA

1. **Price Support Scheme (PSS):** Physical procurement of pulses, oilseeds, and copra by central nodal agencies like **NAFED** and **NCCF**. The expenditure and losses are borne by the Central Government.
2. **Price Deficiency Payment Scheme (PDPS):** Instead of physical procurement, the government pays farmers the **difference** between the MSP and the actual market price. This reduces the need for massive state storage infrastructure.
3. **Private Procurement & Stockist Scheme (PPSS):** A pilot component that allows private players to procure oilseeds at MSP in selected districts, incentivizing private participation in agricultural markets.

Conclusion

The integration of the **Atmanirbhar Pulses Mission** with the **PM-AASHA** procurement framework signals a transition toward a "Mission Mode" approach in agriculture. By focusing on Bihar and Chhattisgarh—states with high production potential but historically weak procurement infrastructure—the government is attempting to diversify India's "granary" beyond the traditional wheat-paddy belts of the Northwest.

The RBI Cancellation of Paytm Payments Bank License

Why in News?

In early 2026, the **Reserve Bank of India (RBI)** took the unprecedented step of **canceling the banking license** of **Paytm Payments Bank Limited (PPBL)**. This action follows years of "persistent non-compliance" and serious lapses in management practices that the regulator deemed "detrimental to public interest."

- **Legal Authority:** The cancellation was executed under the **Banking Regulation Act, 1949**.

- **The Outcome:** PPBL is strictly prohibited from conducting any banking business (accepting deposits, processing transfers, etc.) with immediate effect.
- **Safety Net:** To prevent a bank run or market panic, the RBI confirmed that PPBL has sufficient **liquidity** to repay all existing depositors in full.

1. What is a Payments Bank?

Payments Banks are a "niche" category of banks introduced to provide basic financial services to the unbanked population.

- **Genesis:** Recommended by the **Nachiket Mor Committee (2014)** to drive financial inclusion for migrant workers, low-income households, and small businesses.
- **Structure:** They operate as **Public Limited Companies** and are governed by the RBI Act, 1934, and the Banking Regulation Act, 1949.

Key Operational Features

- **Deposit Limit:** They can accept **demand deposits** (Savings and Current accounts) but are capped at **Rs 2 lakh per individual** (as of 2026).
- **The "No-Lending" Rule:** Payments Banks are **strictly prohibited from lending**. They cannot provide loans or issue **credit cards**.
- **Safety of Funds:** Because they cannot lend, they must invest **75% of their deposits** in secure Government Securities (SLR) to ensure the money is always safe and available.
- **Services Offered:** They can issue ATM/Debit cards, offer net banking, and distribute third-party products like insurance or mutual funds.

2. Comparative Analysis: Payment vs. Small Finance vs. Universal Banks

For students of economics and banking, understanding the hierarchy of Indian banks is crucial:

Feature	Payments Bank	Small Finance Bank (SFB)	Universal (Normal) Bank
Primary Goal	Digital payments & Inclusion.	Credit to small units/farmers.	Full-scale commercial banking.
Lending /Loans	**Prohibited.**	Allowed (High focus on small loans).	Allowed (Retail & Corporate).
Credit Cards	**Cannot Issue.**	Can Issue.	Can Issue.
Deposit Limit	Capped at **Rs 2 lakh**.	No specific limit.	No specific limit.
Min. Capital	**Rs 100 Crore.**	**Rs 200 Crore.**	**Rs 500 Crore.**
Examples	Airtel PB, India Post PB.	AU Small Finance, Equitas.	SBI, HDFC, ICICI.

3. The "Kavach" for Depositors: DICGC Cover

Even when a bank's license is canceled, the common man's money is protected by the **Deposit Insurance and Credit Guarantee Corporation (DICGC)**.

- **Insurance Limit:** Every depositor is insured up to **Rs 5 lakh** (covering both principal and interest).
- **Trigger:** This insurance kicks in during **liquidation, license cancellation, or merger**.
- **Scope:** This covers all commercial banks, including Payments Banks and Small Finance Banks.

4. Major Powers of the RBI under the Banking Regulation Act, 1949

The Paytm case highlights the immense supervisory powers the RBI holds to maintain the stability of India's financial system:

- **Licensing (Section 22):** The RBI is the sole authority that can grant or **cancel** a banking license if a company fails to meet the safety conditions.
- **Management Control (Section 36AA):** The RBI can remove a Chairman or Director if they are acting against the interest of the depositors.
- **Inspection (Section 35):** The RBI has the right to "open the books" of any bank at any time to check for fraud or mismanagement.

- **Moratorium (Section 45):** In a crisis, the RBI can temporarily "freeze" a bank's operations to prepare a rescue plan or an amalgamation with a stronger bank.

5. Summary of Recent RBI Reforms for Payments Banks

To keep the sector competitive, the RBI has evolved the rules over the last few years:

- **Pathway to SFB:** After 5 years of successful operation, a Payments Bank can apply to become a **Small Finance Bank** (allowing them to start lending).
- **Forex Services:** They can now act as authorized dealers for **cross-border remittances** (sending/receiving money from abroad).
- **On-Tap Licensing:** This ensures that new, innovative players can enter the market at any time, rather than waiting for specific "windows" from the RBI.

Conclusion

The cancellation of Paytm's license serves as a **stern warning** to the Fintech industry: *Innovation cannot come at the cost of Regulation.* While Payments Banks are vital for a "Digital India," they must strictly adhere to KYC norms and governance standards. For students, this case is a perfect example of the **"Regulator's Dilemma"**—balancing the need for technological growth with the absolute necessity of protecting public money.

New RBI Master Directions: Tighter NPA Norms and Credit Risk Management

Why in News?

- The **Reserve Bank of India (RBI)** has issued a set of comprehensive **Master Directions**, effective **April 1, 2027**, aimed at overhauling how banks classify and manage bad loans.
- These rules seek to align the Indian banking system with global best practices (like IFRS 9) and ensure that bank balance sheets reflect a more realistic picture of credit risk.

1. Fundamental Shift in NPA Classification

The RBI is moving from a "facility-wise" approach to a **"borrower-wise"** approach to ensure discipline among large debtors.

- **Borrower-Level NPA:** If a borrower has multiple loans (e.g., a home loan, a car loan, and a business loan) and defaults on even **one** of them for more than **90 days**, **all** their credit facilities will be tagged as NPAs.
- **The 90-Day Rule:** The standard definition of an NPA remains unchanged—a loan where the principal or interest payment is overdue for more than **90 days**.
- **Upgradation Barrier:** To be upgraded from "NPA" back to a "Standard Asset," a borrower must now clear **all arrears** (principal and interest) across **all** their accounts, not just the one that was in default.

2. Transition to the Expected Credit Loss (ECL) Framework

This is the most technical and significant reform in the new directions. It moves the banking system from a "reactive" to a "proactive" provisioning model.

Feature	Incurred Loss Method (Old)	Expected Credit Loss Framework (New)
Logic	Provisioning is done **after** a default occurs (90 days).	Provisioning is done based on **probability of future default**.
Timing	"Wait and see" approach.	Forward-looking; provisions are made from Day 1.
Impact	May result in sudden "shocks" to bank profits when a large loan fails.	Spreads the cost over time; makes banks more resilient to cycles.

The Three Stages of ECL:

1. **Stage 1 (Standard):** Loans with no or low credit risk. Banks must provide for 12-month expected losses.
2. **Stage 2 (Significant Increase in Credit Risk - SICR):** Loans where payments are delayed but not yet 90 days overdue. Banks must provide for "lifetime" expected losses.
3. **Stage 3 (Credit Impaired):** Loans that have officially become NPAs (90+ days overdue).

3. Automation and Technical Accuracy

- **Automated Identification:** To eliminate "evergreening" (hiding bad loans) or human error, the RBI has mandated that banks use **automated IT systems** to tag NPAs. Manual intervention is being phased out.
- **Effective Interest Rate (EIR):** Banks must use EIR for loss calculations. Unlike the fixed "contractual rate," EIR considers the **expected cash flows** and timing of payments, providing a more accurate present value of the loan.

4. Understanding NPAs and the "Bad Bank"

For students, it is vital to distinguish between the various terms used in asset quality:

- **Gross NPA (GNPA):** The total amount of all loans defaulted in the bank's books.
- **Net NPA (NNPA):** The actual loss after the bank sets aside "provisions" (money kept in reserve to cover the loss).
    - *Current Trend:* As of late 2025, India's GNPA stood at a healthy **2.1%**, while NNPA was down to **0.5%**.
- **Bad Bank:** A specialized entity (like **NARCL** in India) that buys bad loans from commercial banks.
    - **Purpose:** It "cleans" the bank's balance sheet so the bank can focus on lending again. The Bad Bank then tries to recover whatever it can from the defaulter over a longer period.

Conclusion

The 2027 Master Directions represent the "final frontier" of banking reforms in India. By shifting to a forward-looking ECL model and borrower-level classification, the RBI is ensuring that the banking sector remains the robust backbone of a **Viksit Bharat**.

❐❐❐

Science & Technology

Artemis II Mission and Human Return to Deep Space

Why in News?

NASA launched the **Artemis II mission on 1 April 2026**, marking the first human spaceflight beyond **low-Earth orbit in over five decades**. The mission revives crewed lunar exploration and acts as a critical test before future Moon landings.

What is Artemis II Mission?

- Artemis II is the first crewed mission under NASA's **Artemis programme**. Unlike a landing mission, it is designed as a **lunar flyby test mission** using the **Orion spacecraft** to validate systems needed for deep-space travel.
- The mission duration is around **10 days**, during which astronauts will travel around the Moon and return to Earth without landing.

Crew Highlights

The four-member crew reflects several historic firsts:

- **Reid Wiseman** leads as mission commander
- **Victor Glover** becomes the first person of colour to travel beyond low-Earth orbit
- **Christina Koch** is the first woman to go near the Moon
- **Jeremy Hansen** becomes the first non-American astronaut to leave Earth orbit

This composition highlights the growing **internationalisation and diversity of space exploration**.

Mission Design and Trajectory

- Instead of entering lunar orbit, the spacecraft will follow a **free-return trajectory**, meaning

the Moon's gravity naturally bends its path back toward Earth.

- This involves a **lunar flyby at about 7,400 km beyond the far side of the Moon**. The gravitational pull acts like a **slingshot effect**, scientifically known as a **gravity assist**, reducing fuel requirements and ensuring a safe return path.

Launch System

- The mission uses NASA's **Space Launch System (SLS)**, currently the most powerful rocket ever built.
- It produces about **8.8 million pounds of thrust**, surpassing the Apollo-era Saturn V in raw lift capability.

Key Experiments and Technology Demonstrations

A major focus is testing systems required for long-duration human spaceflight.

- **Communication systems**
  NASA is testing **laser-based communication (Optical-to-Orion or O2O)**. This allows high-speed data transmission from lunar distance, including potential **4K video streaming**, far beyond traditional radio systems.
- **Human biology research**
  The **AVATAR experiment** uses "organ-on-a-chip" technology derived from astronauts' cells. It helps study how radiation and microgravity affect human tissue in real time, without actual risk to the crew.

International payload cooperation

Small satellites (CubeSats) from countries like **Germany, Argentina, South Korea, and Saudi Arabia** are being deployed to study:

- Space radiation
- Space weather
- Future lunar technology applications

Context: Lunar Landing Missions Over Time

Early Lunar Exploration (1960s–70s)

The first phase of lunar exploration was dominated by the US and USSR.

- **Luna 9** demonstrated the first successful soft landing on the Moon, proving the surface was solid
- **Surveyor 1** provided critical surface data for human missions
- **Apollo 11** achieved the first human Moon landing in 1969
- **Luna 16** completed the first robotic sample return mission
- **Apollo 17** marked the final human mission of the Apollo era
- **Luna 24** concluded the Soviet programme with deep soil sampling

These missions established the foundation of lunar science and human spaceflight capability.

Modern Lunar Missions (2013 onwards)

After a long gap, lunar exploration revived with new countries and private players.

- **Chang'e 3** marked China's first lunar landing
- **Chang'e 4** achieved the first landing on the Moon's far side
- **Chandrayaan-3** made India the first to land near the lunar south pole and confirmed presence of sulphur
- **SLIM (Japan)** demonstrated precision landing technology
- **IM-1 (Odysseus)** became the first commercial lunar landing mission
- **Chang'e 6** returned samples from the far side of the Moon

This phase reflects a shift from exploration to **precision landing and resource-focused missions**.

Upcoming Missions

Future missions aim at building sustained lunar presence.

- **Blue Moon MK1 (2026)** focuses on cargo delivery and infrastructure support
- **Griffin-1 (2026)** will carry NASA's VIPER rover to search for water ice
- **Chang'e 7 (China)** targets lunar south pole volatiles and ice deposits
- **Artemis IV (2028)** is expected to be the first crewed lunar landing of the Artemis programme

Significance of Artemis II

The mission is not just symbolic; it is a **technology validation step** for:

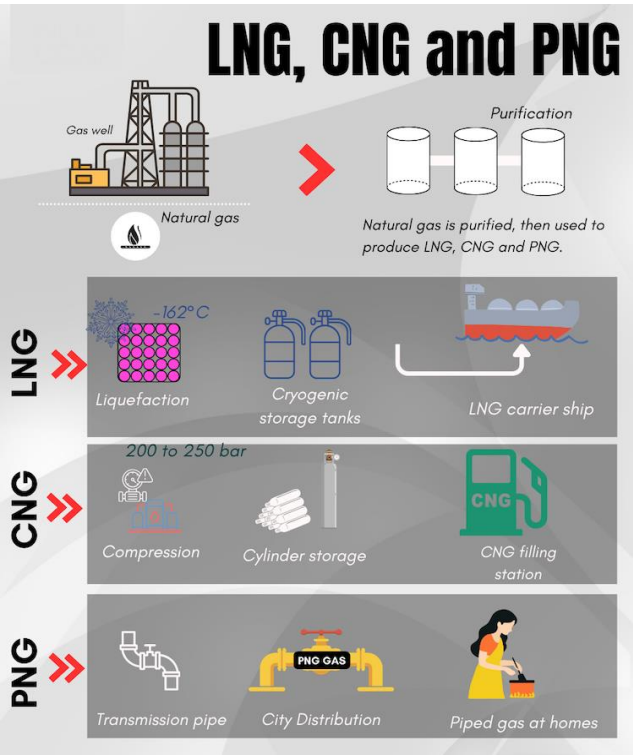
- Deep-space human survival systems
- Advanced propulsion and trajectory design
- Long-distance communication technologies
- International collaboration in space exploration

More broadly, it signals a transition from short-term lunar visits to the possibility of **permanent lunar presence and future Mars missions**.

Conclusion

Artemis II represents a turning point in space exploration, reconnecting humanity with deep-space travel after decades. It is less about reaching the Moon and more about proving that **humans can live, travel, and operate safely beyond Earth for extended periods**, forming the basis for the next era of interplanetary exploration.

LPG to PNG Transition in India: Energy Security and Supply Chain Shift



Why in News?

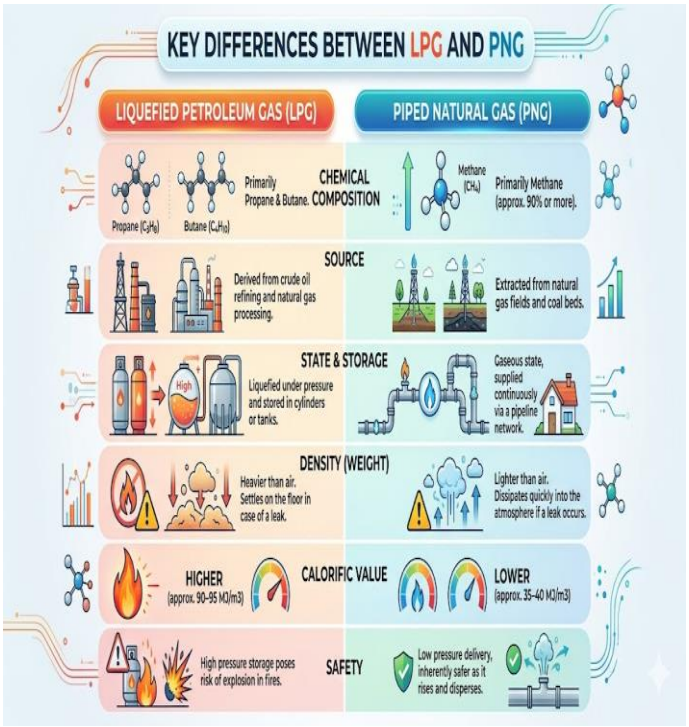
- India is actively promoting the shift from **Liquefied Petroleum Gas (LPG)** to **Piped Natural Gas (PNG)** for domestic cooking.
- This strategy has gained urgency after disruptions in global supply chains, particularly due to risks around the **Strait of Hormuz**, which exposed India's import dependence in LPG sourcing.

Overview

The transition from LPG to PNG is part of India's broader push to:

- Reduce **energy import dependence**
- Improve **urban energy efficiency**
- Strengthen domestic gas-based infrastructure
- Ensure **stable and continuous household fuel supply**

Key Differences Between LPG and PNG



Composition

- **LPG:** Mixture of **propane and butane**, stored under pressure in liquid form
- **PNG:** Primarily **methane**, supplied through pipelines in gaseous form

Storage and Distribution

- LPG:
  - Stored in **cylinders**
  - Requires bottling plants and manual delivery systems
  - Dependent on booking and refill cycles

- PNG:
    - Delivered through **city gas distribution pipelines**
    - Provides **continuous, uninterrupted supply (24/7)**
    - Similar utility model to electricity or water

Physical Properties

- LPG is **heavier than air**, hence can accumulate in enclosed spaces if leaked
- PNG is **lighter than air**, disperses more easily in case of leakage

Efficiency

- LPG has higher **instant heating (calorific intensity)**
- PNG offers **steady combustion efficiency** in continuous flow systems
- Improper conversion from LPG to PNG stove setup can reduce efficiency

LPG and PNG in India

Evolution of LPG

- Introduced in **1955** in Mumbai by Burmah Shell under the brand *Burshane*
- First major expansion by **Indian Oil Corporation** in 1965 with the *Indane* distribution system
- Major push through **Pradhan Mantri Ujjwala Yojana**, improving rural LPG access and women's health outcomes

Development of PNG

- First city-wide PNG system implemented in **Vadodara** in the 1970s
- Expansion now driven by **City Gas Distribution (CGD) networks** across urban India

Current Status

- LPG connections in India: ~33 crore households
- PNG penetration: ~1.5 crore connections
- Target: Expansion to ~12 crore connections by 2034

Supply and Energy Security Dynamics

LPG Dependency

- India imports nearly **60% of its LPG requirement**
- Around **90% of LPG imports pass through the Strait of Hormuz**, making supply vulnerable to geopolitical disruptions
- Domestic LPG production has recently increased by about **25%**

PNG Supply Sources

Domestic natural gas for PNG comes from:

- **Krishna-Godavari (KG) Basin** (major offshore source)
- Assam gas fields
- Tripura gas fields

The **KG Basin** is the largest contributor to India's domestic gas production.

Other Forms of Natural Gas

CNG (Compressed Natural Gas)

- Methane compressed to less than 1% of its original volume
- Used mainly in **transport sector (buses, autos, cars)**
- Cleaner alternative to petrol and diesel

LNG (Liquefied Natural Gas)

- Natural gas cooled to around **-162°C**
- Converted into liquid form for **long-distance maritime transport**
- Regasified before distribution through pipelines

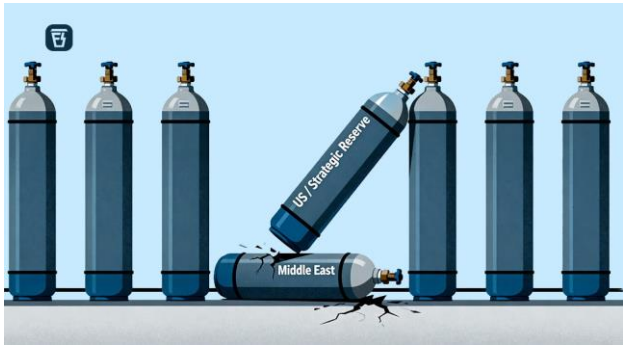
Significance of LPG to PNG Shift

- Reduces **import dependency and geopolitical risk exposure**
- Enhances **energy efficiency in urban households**
- Supports **cleaner fuel transition goals**
- Strengthens **domestic gas infrastructure and pipeline economy**
- Aligns with India's broader push toward a **gas-based economy**

Conclusion

The transition from LPG to PNG reflects India's strategic effort to move toward a **more secure, efficient, and domestically anchored energy system**. However, success will depend on expanding pipeline infrastructure, ensuring affordability, and improving last-mile connectivity across urban and semi-urban regions.

Global Helium Supply Crisis and India's Dependence



Why in News?

The **West Asia geopolitical crisis (2026)** has disrupted global **helium supply chains**, exposing India's **100% import dependence**. This has raised concerns for critical sectors such as:

- Healthcare (MRI systems)
- Semiconductor manufacturing
- Aerospace and advanced technologies

Overview

Helium is a strategically important **noble gas** with unique physical properties. Although abundant in the universe, it is **rare and non-renewable on Earth**, making its supply highly vulnerable to geopolitical disruptions.

Key Properties of Helium

- Colourless, odourless, tasteless, inert gas
- Non-flammable and chemically stable
- Second lightest element in the universe
- Has the **lowest boiling and melting points of all elements**
- Exists on Earth mainly as a **by-product of natural gas processing**, not produced synthetically

Major Applications of Helium

Healthcare and Cryogenics

- Critical cooling agent in **MRI machines**
- Used to cool superconducting magnets near **absolute zero temperature**
- Enables high-resolution internal medical imaging

Aerospace and Rocketry

- Used to **pressurise rocket fuel tanks** (maintains steady fuel flow)
- Used for **purging fuel systems** to remove explosive gases
- Essential for safe launch operations

High-Tech Manufacturing

- Semiconductor industry:
  - Provides inert atmosphere during chip fabrication
  - Enables rapid cooling of microchips
- Fibre optics:
  - Used in cooling glass fibre drawing for internet cables

Deep-Sea Diving

- Used in **Heliox (helium + oxygen mixture)**
- Prevents **nitrogen narcosis** at high pressure
- Reduces breathing resistance at extreme depths

Scientific Research

- Used in **particle accelerators** like the Large Hadron Collider
- Essential for maintaining superconducting magnet temperatures
- Used in **leak detection systems** due to small atomic size and high mobility

Global Helium Supply Chain

Major Producers

- United States
- Qatar
- Algeria

Current Disruption

- Crisis in West Asia has impacted global supply
- Qatar contributes around **34% of global helium exports**
- Operational issues at **Ras Laffan facility** reduced output
- Helium's **"use-it-or-lose-it" nature** makes storage and buffering difficult

India's Vulnerability

- India is **100% import-dependent on helium**
- Estimated demand: **3.4 million cubic meters (2025)**
- Over **50% imports come from Qatar**
- India holds only **7–10 days of helium reserves**, making supply highly fragile

Domestic Availability

- Trace helium found in natural gas fields in:
  - West Bengal
  - Jharkhand
- However, concentration is below **0.2% threshold required for commercial extraction**
- Economic viability expected only after **5–10 years**, as per **S&P Global Energy**

Significance of the Crisis

- Highlights vulnerability of **critical technology supply chains**
- Direct impact on **healthcare infrastructure (MRI operations)**
- Risks to **semiconductor and defence manufacturing**
- Reinforces need for **strategic resource planning and diversification**

Conclusion

The helium supply disruption underscores India's dependence on fragile global supply chains for **critical high-technology materials**. Building long-term resilience will require **diversified sourcing, strategic reserves, and domestic exploration efforts**, especially as demand grows across healthcare and advanced industries.

India Approves First Dengue Vaccine (Qdenga – TAK-003)

Why in News?

- India has approved **Takeda's TAK-003 (Qdenga)** as its first dengue vaccine for individuals aged **4 to 60 years**.
- The approval was granted by the **Subject Expert Committee (SEC)** under the **Drugs Controller General of India**, marking a major shift from **reactive vector control to preventive vaccination strategy**.

Overview of Qdenga (TAK-003)

- Developed by **Takeda Pharmaceuticals**
- It is a **tetravalent dengue vaccine** (targets all four dengue serotypes)
- Tested on **28,000+ participants**
- Approved in **40+ countries**

Nature of Vaccine

- It is a **disease-modifying vaccine**
- Reduces **severity of illness and hospitalisation risk**
- Does **not fully prevent infection or transmission**

Key Features of the Vaccine

Ease of Administration

- No need for **pre-vaccination dengue infection testing**
- Simplifies mass immunisation rollout

Regulatory Conditions

- Post-marketing surveillance mandated by SEC
- Regional studies required to assess:
  - serotype-wise effectiveness
  - real-world performance in India

Limitations of Qdenga

Serotype-Specific Performance

Dengue is caused by four serotypes:

- DENV-1
- DENV-2
- DENV-3
- DENV-4

Key issue:

- Strong efficacy against **DENV-2**
- Lower effectiveness against **DENV-3 and DENV-4**
- Reduced protection in **seronegative individuals** (those never previously infected)

Changing Epidemiology in India

- Rising dominance of **DENV-3 (20–30% of cases in some regions)**
- May reduce overall population-level impact of the vaccine

Cost Barrier

- Full two-dose course cost: **₹6,000–₹12,000**

- Challenges:
  - affordability in rural areas
  - low compliance among economically weaker groups

India's Indigenous Vaccine Development

India is also developing its own dengue vaccine:

- **DengiAll**
- Developed by **Panacea Biotec and Indian Council of Medical Research (ICMR)**
- Aims to provide **balanced immunity against all four serotypes**
- Expected availability: around **2027**

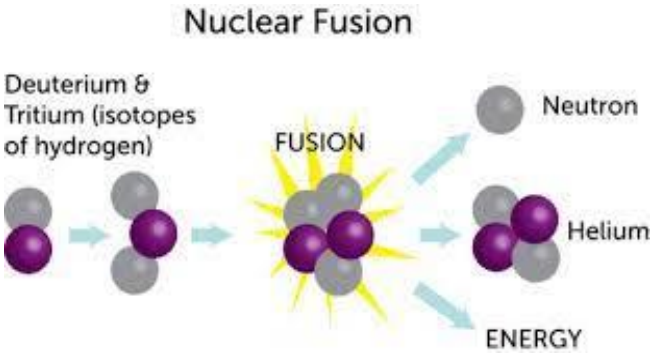
Significance of Approval

- First step toward **preventive dengue control strategy in India**
- Reduces dependence on **vector control alone (mosquito control measures)**
- May help reduce **hospitalisation and severe dengue cases**
- Strengthens India's **public health preparedness against vector-borne diseases**

Conclusion

The approval of Qdenga marks a major milestone in India's fight against dengue by introducing a **preventive biomedical tool alongside existing vector control measures**. However, its effectiveness will depend on **serotype trends, affordability, and successful integration with India's broader disease control strategy**.

New Study Questions Economic Viability of Nuclear Fusion



Why in News?

- A recent study published in **Nature Energy** warns that **current cost projections for nuclear fusion** are **overly optimistic**, raising concerns about **inefficient allocation of clean energy investments**.
- Experts caution that **unrealistic projections** may **divert funds** from more **viable climate solutions** and suggest exploring **alternative reactor designs, fuels, and smaller configurations** to improve **cost reduction and scalability**.

Understanding Fusion Energy

What is Fusion?

- Fusion is the process where **two small, light atoms** (like **hydrogen isotopes**) combine to form a **heavier atom**, releasing **vast amounts of energy**.
- This is the **energy process** that powers the **Sun and stars**.
- Example: In the Sun, **hydrogen nuclei fuse** to form **helium**, releasing energy as **light and heat**.

Energy Release Mechanism

- Fusion releases energy because the **fused product** has **less mass** than the sum of the individual atoms.
- This **"lost" mass**, known as the **mass defect**, is converted into energy according to **Einstein's theory of special relativity ($E=mc^2$)**.

Conditions for Fusion

- **High Temperature**: Around **100 million°C** to overcome atomic repulsion.
- **High Pressure**: Forces atomic nuclei close enough to fuse.
- **Plasma State**: Matter exists in a high-energy state where atoms are broken into **ions and electrons**.

Tokamaks: Fusion Reactor Design

- A **tokamak** is a fusion reactor that uses **magnetic fields** to confine and control **plasma** within a **doughnut-shaped vessel**.
- Its effectiveness is measured by **plasma confinement time**—longer confinement brings reactors closer to achieving **continuous and reliable fusion reactions**.

Q Value (Energy Gain Factor)

- The **Q value** measures a fusion reactor's efficiency.
- It is the **ratio of output energy to input energy**.
- A **Q value > 1** means the reactor produces **more energy than it consumes**.

Fusion vs. Fission

- **Fission**: Process used in **nuclear reactors**, where a **heavy nucleus (e.g., uranium) splits** into smaller nuclei, releasing energy.
- **Fusion**: Combines **lighter nuclei** to release energy.
- **Advantage of Fusion**: Produces **far less radioactive waste** than fission, making it a **more attractive option for clean energy**.

Challenges to Economic Viability of Nuclear Fusion

Capital-Intensive Nature

- Fusion power plants are **large-scale and capital-intensive**, requiring **very high energy output** to sustain internal operations like **cooling and heating**.

Technological Complexity

- Fusion technology is **highly complex**, often **more intricate than nuclear fission**, with **interdependent designs** that limit **standardization and scalability**.

Site-Specific Customization

- Fusion plants require **site-specific customization** due to factors like:
  - **Seismic risks**
  - **Water availability**
  - **Regulatory conditions**
- This reduces the scope for **mass production**.

Cost-Reduction Constraints

- These challenges result in **low cost-reduction potential**, requiring **massive scaling** for **modest gains**.
- Limits **competitiveness** with **solar and advanced fission technologies**.

Quantum No-Cloning Loophole: A Breakthrough for Cloud Storage

Why in News?

- In early 2026, researchers from the **University of Waterloo** and **Kyushu University** experimentally demonstrated a method to create redundant backups of quantum information.
- By utilizing an encryption-based workaround, they effectively bypassed the practical limitations of the **No-Cloning Theorem**, a development with massive implications for future quantum cloud infrastructure.

The No-Cloning Theorem: The Classical Barrier

- **Definition:** A fundamental law of quantum mechanics stating that it is impossible to create an independent and identical copy of an arbitrary, unknown quantum state.
- **The Problem:** In classical computing, "copy-paste" is a trivial operation used for backups and sharing. In quantum systems, information is fragile; attempting to measure or copy a **qubit** (quantum bit) causes it to collapse, destroying the original data.
- **Impact:** This theorem has long been considered a "roadblock" for building reliable quantum memories and fault-tolerant cloud storage.

The "Encrypted Cloning" Loophole

The breakthrough, published in *Physical Review Letters*, does not "break" the laws of physics but works cleverly within them using a protocol called **Quantum Encrypted Cloning**.

1. The Mechanism

- **Encryption via Noise:** Instead of a direct copy, the original quantum information is spread across multiple "signal qubits." Each copy is individually drowned in **quantum noise**.
- **Decryption Key:** The "noise pattern" is stored in a separate set of entangled **noise qubits** (the key).
- **Security:** Without the corresponding noise qubits, an encrypted clone appears as meaningless random data, even to a sophisticated attacker.

2. The "One-Time Use" Rule

- **Consumption of the Key:** To recover a perfect copy of the original state, the user must use the noise qubits to "subtract" the noise.
- **Irreversibility:** The act of decryption involves a quantum measurement that **permanently destroys the key**.
- **Consistency:** Because only **one** perfect recovery is possible before the key expires, the spirit of the No-Cloning Theorem remains intact—you still cannot have two readable, identical copies at the exact same time.

Strategic Applications

1. Quantum Cloud Storage

This breakthrough enables the concept of a **"Quantum Dropbox"** or **"Quantum Google Drive."** * **Redundancy:** A client can store encrypted clones on multiple independent servers (e.g., Server A, B, and C).

- **Reliability:** Even if two servers fail or are hacked, the client can still recover their perfect quantum data as long as at least **one** server and the **decryption key** remain intact.

2. Quantum Memory and Infrastructure

- **Error Correction:** It provides a method for "backing up" information during complex calculations, which is currently difficult due to qubit instability.
- **Network Resilience:** It supports the development of a distributed **Quantum Internet**, where information must be moved and stored across long distances without the risk of permanent loss.

Conclusion

By transforming the task of "moving a qubit" into "distributing encrypted shares," researchers have turned a physical constraint into a high-security feature. This "quantum wolf in sheep's clothing" approach provides the first viable path toward **fault-tolerant quantum architectures** and secure, redundant cloud services.

National Quantum Mission: 1,000-km Quantum Network

Why in News?

- India has achieved a significant milestone under the **National Quantum Mission (NQM)** by developing a **1,000-km quantum communication network**.
- This feat was accomplished in less than two years, well ahead of the original eight-year target of **2,000 km**.
- The network utilizes indigenous technology developed by **QNu Labs** with support from the **Department of Science and Technology (DST)**.

Significance of the 1,000-km Network

- **Enhanced Security:** Built using **Quantum Key Distribution (QKD)**, it is one of the longest deployments globally. It secures sensitive sectors like **defense, finance, and critical infrastructure**.
- **Terrain Versatility:** The technology operates seamlessly across challenging landscapes, including **underwater and underground** environments.
- **Strategic Growth:** Advances India's goal of a secure digital ecosystem, reducing reliance on

foreign technology and strengthening **national security**.

Understanding Quantum Key Distribution (QKD)

QKD is a secure communication method that uses quantum particles (photons) to share secret encryption keys.

- **The Quantum Advantage:** Based on the **observer effect** and the **no-cloning rule**, any attempt to intercept the key disturbs the particles.
- **Intrusion Detection:** This disturbance immediately alerts the communicating parties to a hack attempt, making the system virtually unhackable.

National Quantum Mission (NQM) at a Glance

- **Launch:** Approved in April 2023; officially launched in **October 2024**.
- **Objective:** To position India as a global leader in quantum R&D and industrial scaling.
- **Budget: 6,003 crore** for an eight-year period (**2023-24 to 2030-31**).
- **Implementation:** Led by the **Department of Science and Technology (DST)**.

Key Pillars and Targets

Pillar	Major Targets
Quantum Computing	Develop computers with **50 to 1,000 physical qubits** using superconducting and photonic platforms.
Quantum Communication	Establish **satellite-based** secure links and **inter-city QKD networks** over 2,000 km using optical fibers.
Sensing & Metrology	Create high-precision **magnetometers and atomic clocks** for navigation (GPS) and defense.
Materials & Devices	Synthesize advanced materials like **superconductors** and topological materials for quantum hardware.

Institutional and Startup Ecosystem

- **T-Hubs:** Four **Thematic Hubs** established in top academic institutions to drive research infrastructure.
- **Deep-Tech Support:** The NQM supports **17 ventures** (e.g., QNu Labs) through funding and incubation.
- **Innovative Financing:** Uses **Optionally Convertible Debt (OCD)** to provide capital to startups without immediate equity dilution, attracting private investment.

Strategic Importance

- **Global Standing:** India joins an elite group of nations (USA, China, France, etc.) aggressively pursuing quantum technology.
- **Aatmanirbhar Bharat:** Fosters home-grown innovation and patents, ensuring self-reliance in future-critical technologies.
- **Economic Impact:** Drives high-tech job creation and positions India as a hub for quantum-safe cybersecurity and advanced hardware.

Conclusion

The early success of the **1,000-km quantum network** demonstrates India's rapid progress in the "Quantum Race." By integrating **indigenous R&D** with strategic institutional support, the National Quantum Mission is set to provide a **"quantum jump"** in India's technological and security capabilities.

India's First Semiconductor Fabrication Plant in Dholera

Why in News?

- India has officially notified the establishment of the **country's first semiconductor fabrication plant** (Fab) within a newly designated **Special Economic Zone (SEZ)** in Dholera, Gujarat.
- This milestone is a cornerstone of India's strategy to become a global leader in high-tech manufacturing and electronics.

Context of the Dholera Semiconductor Fab

- The project is being developed under the **India Semiconductor Mission (ISM) 2.0**.

- The dedicated SEZ for Electronic Hardware, Software, and IT/ITES is designed to support the massive infrastructure requirements of a modern fab.
- The facility is projected to generate high-skilled employment for approximately **21,000 people**, fostering a specialized talent pool in Gujarat's "Silicon Valley."

Understanding a Semiconductor Fab

A semiconductor fabrication plant is a multi-billion-dollar facility where microchips are manufactured on silicon wafers.

- **Nanoscale Precision:** Chips are built using layers of transistors so small they are measured in nanometers.
- **Cleanroom Environment:** Operations take place in **Class 1 cleanrooms**, where the air is thousands of times cleaner than a hospital operating room to prevent microscopic dust from ruining the circuits.
- **Key Processes:** Includes **photolithography** (printing patterns), **etching** (removing material), and **doping** (modifying electrical properties).

Strategic SEZ Rule Amendments (June 2025)

To attract capital-intensive investments like semiconductor fabs, the government recently overhauled the **SEZ Rules, 2006**:

- **Land Requirement:** Reduced the minimum land area for sector-specific SEZs from 50 hectares to just **10 hectares**.
- **NFE Flexibility:** Allowed the inclusion of "free-of-cost" supplies in **Net Foreign Exchange (NFE)** calculations, easing financial compliance.
- **DTA Access:** Permitted domestic sales in the **Domestic Tariff Area (DTA)** upon payment of duties, allowing fabs to serve the massive Indian consumer market.
- **Encumbrance Norms:** Introduced greater flexibility in property and land encumbrance rules to facilitate easier financing.

Strategic Significance

Category	Impact & Vision
Value Chain	Moves India from chip design to **actual manufacturing**, covering chemicals, gases, and machinery.
Import Security	Reduces heavy reliance on imports from East Asia, securing the supply chain for defense and telecommunications.
Economic Growth	Positions India as a "Plus One" destination for global tech giants looking to diversify beyond China.
AI & Future Tech	Provides the hardware backbone for India's growing AI, 5G, and Electric Vehicle (EV) ecosystems.

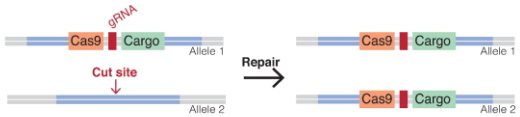
India Semiconductor Mission (ISM) 2.0

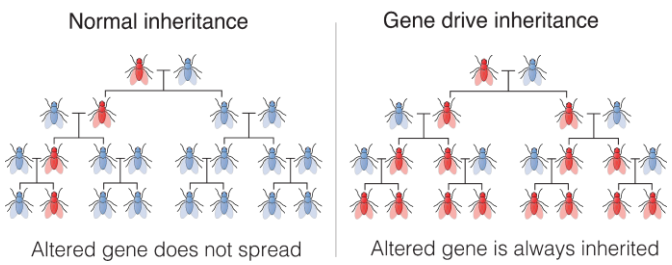
- The ISM 2.0 represents an evolved policy framework that provides higher fiscal support—up to **50% of the project cost**—for setting up silicon fabs, display fabs, and compound semiconductors.
- By integrating the SEZ reforms with these incentives, the government aims to create a "plug-and-play" environment for global players like Micron, Tata Electronics, and PSMC.

Conclusion

The notification of the Dholera Fab marks the transition of India's semiconductor dream from policy to reality. By combining progressive SEZ regulations with a dedicated mission-mode approach, India is not just building a factory, but an entire industrial ecosystem that will define its technological sovereignty and economic trajectory for decades to come.

Gene Drives and Malaria Control: A Genetic Breakthrough





Why in News?

- Recent research has demonstrated that **genetically modified mosquitoes** using **gene drives** can effectively suppress malaria transmission in real-world conditions.
- This offers a potential breakthrough in global malaria control, particularly as traditional interventions face growing biological resistance.

Context of the Malaria Challenge

- Malaria is a **vector-borne infectious disease** caused by the *Plasmodium* parasite and transmitted via the bite of infected female *Anopheles* mosquitoes.
- Despite the use of bed nets and antimalarial medicines, the disease still causes over **5 lakh deaths annually**.
- The emergence of insecticide-resistant mosquitoes and drug-resistant parasites has made existing tools less effective, necessitating the development of advanced genetic technologies.

The Science of Gene Drives

- **Mechanism:** A gene drive is a technology that bypasses traditional Mendelian inheritance rules using the **CRISPR-Cas9** gene-editing tool.
- **Inheritance:** In standard breeding, a gene has a 50% chance of being passed on. In a gene drive system, the modified gene copies itself onto the partner chromosome, ensuring it is passed to **over 90% of offspring**.
- **Speed:** This allows a specific trait to spread rapidly through a wild population across just a few generations.

Primary Genetic Strategies

Strategy	Biological Mechanism	Outcome
Population Suppression	Targets essential genes like the **doublesex gene** to disrupt female fertility or development.	Causes the local mosquito population to shrink or collapse.
Population Modification	Engineers mosquitoes to produce molecules (e.g., antimicrobial peptides) in their midgut.	The mosquito survives but cannot develop or transmit the *Plasmodium* parasite.

The 'Transmission Zero' Breakthrough

Significant studies conducted in **Tanzania** have moved beyond the laboratory, showing that modified mosquitoes can block malaria parasites from real human infections. This "Transmission Zero" approach proves that genetic modification remains stable and effective under complex real-world environmental conditions.

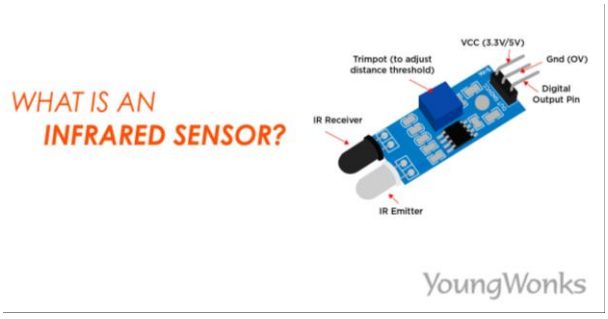
Challenges and Ethical Considerations

- **Ecological Risks:** There are concerns regarding the unintended consequences of eliminating or modifying a species within an ecosystem. Consequently, no gene-drive mosquitoes have been released into the wild yet.
- **Integration:** These technologies are not standalone "silver bullets" and must be integrated with **vaccines, bed nets, and robust surveillance** systems.
- **Regulatory & Social Barriers:** Future deployment requires rigorous risk assessments, international regulatory frameworks, and deep **community engagement** to ensure public trust and consent.

Conclusion

The application of CRISPR-based gene drives represents a paradigm shift in public health. While technical and ecological hurdles remain, the ability to "engineer out" malaria transmission provides a powerful new weapon in the global effort to eradicate a disease that has plagued humanity for millennia. Success will depend on balancing this scientific prowess with ethical responsibility and ecological caution.

Sensor-Based Devices: The Science of Infrared Technology



Why in News?

- The widespread adoption of **sensor-based devices** has highlighted the critical role of **Infrared (IR) technology** in enabling touchless operations.
- From public hygiene systems like automatic washbasins to security doors and remote controls, IR sensors have become foundational to modern automated infrastructure.

The Physics of Light and the Spectrum

To understand IR sensors, one must first understand the nature of light as an **electromagnetic wave**.

- **The Spectrum:** The electromagnetic spectrum is the full range of waves arranged by frequency and wavelength. It includes radio waves, microwaves, infrared, visible light, ultraviolet, X-rays, and gamma rays.
- **Invisible Range:** Humans can only perceive a tiny fraction of this spectrum called **visible light**. **Infrared radiation** lies just below the frequency of red light. While invisible to the human eye, it carries energy that can be detected by specialized electronic components.

Core Components of an IR System

Component	Scientific Role	Function
IR LED	**Emitter**	A light-emitting diode that produces invisible infrared waves.
Photodiode	**Sensor**	A semiconductor device that acts as a light-sensitive switch, converting light into an electrical current.
Control Circuit	**Processor**	Interprets the electrical signal from the photodiode to trigger a specific mechanical action (e.g., opening a valve).

How Touchless Sensors Work: The Reflection Mechanism

Most touchless devices, such as automatic taps or hand dryers, utilize an **active IR sensor** mechanism:

1. **Continuous Emission:** The IR LED constantly sends out pulses of infrared light.
2. **The Obstacle:** Under normal conditions, the light travels into the open air and does not hit the sensor.
3. **Reflection:** When a hand or object is placed in front of the device, the IR waves hit the surface and **reflect back**.
4. **Activation:** The photodiode detects these reflected waves, allows a small current to flow, and signals the system to activate (turn on the water or start the motor).

Applications in Modern Automation

- **Hygiene & Sanitation:** Automatic washbasins, soap dispensers, and flush valves prevent cross-contamination.
- **Security & Access:** Automatic doors in malls and elevators use IR beams to detect movement.
- **Consumer Electronics:** Remote controls use IR pulses to send binary codes to televisions.
- **Safety Systems:** Escalators and dryers use sensors to save energy by operating only when a user is detected.

The Scientific Foundation

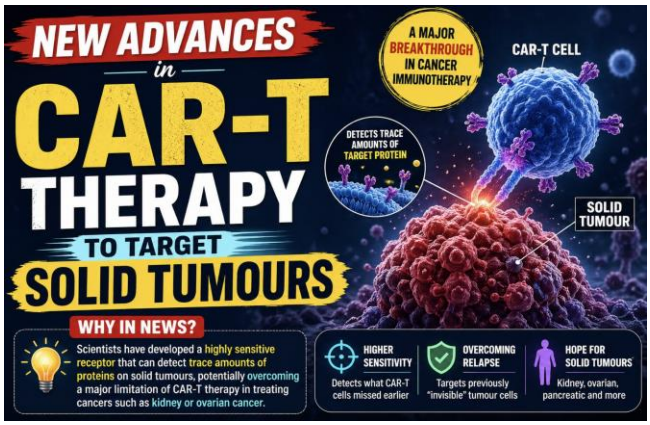
The development of IR sensors is an interdisciplinary achievement:

- **Optics:** Managing the reflection and refraction of light waves.
- **Electromagnetism:** Understanding how oscillating fields travel and interact with matter.
- **Condensed Matter Physics & Quantum Mechanics:** The "Photovoltaic Effect" or "Photoelectric Effect" in semiconductors, where light energy knocks electrons loose to create a detectable electrical current.

Conclusion

Infrared technology is a prime example of how complex physics is distilled into simple, everyday utility. By harnessing the invisible portion of the electromagnetic spectrum, sensor-based devices provide a seamless, hygienic, and efficient interface between humans and machines, supporting the broader push toward smart cities and automated living.

Breakthrough in CAR-T Therapy: Conquering "Invisible" Solid Tumours



Why in News?

- In **early 2026**, a groundbreaking study published in the journal *Science* revealed a significant leap in **CAR-T (Chimeric Antigen Receptor T-cell) therapy**.
- Researchers have engineered a new type of immune cell capable of detecting and destroying cancer cells that were previously "hidden" or "invisible" to conventional treatments, specifically within **solid tumours** like those found in the kidney, ovary, and pancreas.

1. The Challenge of Solid Tumours

While CAR-T therapy has revolutionized the treatment of blood cancers (Leukemia/Lymphoma), it has historically struggled against solid tumours due to two main factors:

- **Antigen Heterogeneity:** Not all cells in a solid tumour express the same amount of target proteins (antigens). Some cells have high levels, while others have very low levels.
- **Pseudo-Heterogeneity:** The study found that many cancer cells are not actually "antigen-negative." Instead, they express the target protein (such as **CD70**) at such low levels that standard CAR-T cells simply cannot "see" them. This allows the cancer to evade the immune system and cause a relapse.

2. The Breakthrough: HIT Receptors

To solve this "visibility" problem, scientists developed the **HLA-independent T-cell (HIT) receptor**.

Feature	Conventional CAR-T	New HIT T-cell
Sensitivity	Requires a high density of antigens to activate.	Can detect and respond to **very low** antigen densities.
Activation	Uses an artificial signaling pathway.	Links directly to the T-cell's **natural activation pathway**.
Result	Leaves "low-antigen" cells behind (Relapse).	Eliminates "hidden" cells, achieving complete tumour removal.

- **Mechanism:** Researchers discovered that an enzyme called **EZH2** modifies the structure of cancer DNA (chromatin) to suppress the CD70 protein. By using HIT receptors, the immune cells can find the tiny amounts of CD70 that the cancer cell *must* keep to survive.

3. Understanding CAR-T Cell Therapy

CAR-T is often called a **"living drug"** because it involves using a patient's own cells to fight their disease.

The Process

1. **Extraction:** T-cells (the "soldiers" of the immune system) are collected from the patient's blood.
2. **Engineering:** In a lab, a new gene is inserted into the T-cells so they grow **Chimeric Antigen Receptors (CARs)** on their surface.
3. **Multiplication:** These "supercharged" cells are grown by the millions.
4. **Infusion:** The cells are put back into the patient, where they hunt down cancer cells like heat-seeking missiles.

4. Limitations and Risks

Despite its potential, CAR-T therapy carries significant challenges:

- **Cytokine Release Syndrome (CRS):** An "immune system storm" that causes high fever and organ dysfunction.
- **Neurotoxicity:** Can cause temporary confusion or seizures (ICANS).
- **High Cost:** Because it is highly customized (autologous), it is one of the most expensive treatments in the world.

- **Time-Consuming:** Manufacturing takes weeks, which some aggressive cancers don't allow.

5. India's Indigenous Progress: NexCAR19

India achieved a major milestone in **October 2023** with the approval of **NexCAR19**, the country's first indigenous CAR-T therapy.

- **Collaborators:** IIT Bombay, ImmunoACT, and Tata Memorial Hospital.
- **Democratizing Care:** While imported CAR-T therapies can cost **Rs 3-4 crore**, NexCAR19 is available for approximately **Rs 40 lakh**. This 90% reduction in cost makes it a global model for affordable, high-tech healthcare.

6. Summary for Students: Why This Matters

For medical and biology students, this study is a masterclass in **Epigenetics** and **Immunology**:

1. **Antigen Density:** The study proves that "off" doesn't always mean "gone." Low-level expression is enough for cancer survival.
2. **Targeting CD70:** Since CD70 is absent in most vital organs but present in kidney and pancreatic cancers, it provides a safe "target" for high-sensitivity HIT cells.
3. **Solid vs. Liquid:** The transition from treating blood cancers to solid tumours is the "holy grail" of oncology, as solid tumours represent 90% of adult cancer cases.

Conclusion

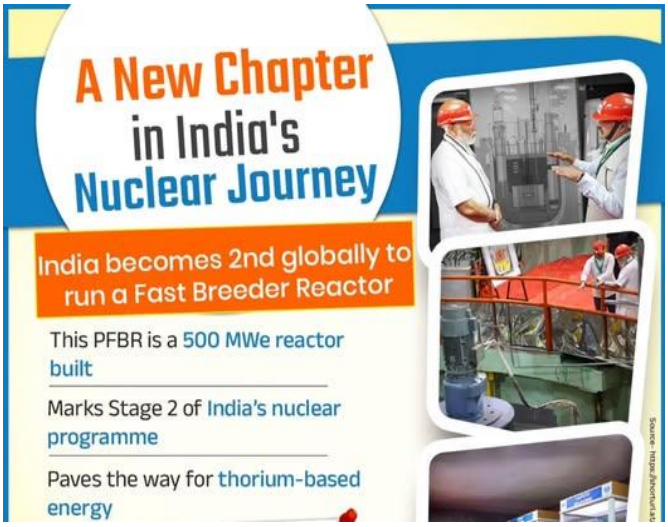
The evolution from conventional CAR-T to **HIT-enabled therapy** represents a shift from "brute force" to "extreme sensitivity." By making the invisible visible, scientists are finally cracking the code of solid tumours. For India, the success of **NexCAR19** combined with these global breakthroughs offers hope that "untreatable" cancers may soon become manageable conditions.

EDITORIALS

Crux of The Hindu & Indian Express

Science & Technology

A New Chapter in India's Nuclear Journey (PFBR Criticality – 2026)



1. Why in News?

- On **6 April 2026**, India achieved a major milestone when the **Prototype Fast Breeder Reactor (PFBR)** attained **first criticality**.
- The reactor is located at **Kalpakkam, Tamil Nadu** and has a capacity of **500 MWe (Megawatt electrical)**.
- It has been built by Bharatiya Nabhikiya Vidyut Nigam Limited.
- This event marks:
  - The beginning of a **sustained nuclear chain reaction**
  - India's **entry into Stage 2** of its nuclear programme

This is a **historic development in India's nuclear energy programme and clean energy transition**

2. What is "First Criticality"?

- **Criticality** refers to the stage when a **self-sustaining nuclear chain reaction begins** inside a reactor.
- At this point:
  - Neutrons produced = neutrons consumed

- The reactor becomes **operational at basic level**

It is the **first and most important milestone** before full power generation

3. Global Significance

- Once fully operational, India will become:
  - The **second country in the world after Russia** to operate a **commercial Fast Breeder Reactor (FBR)**

This gives India a **strategic and technological advantage** in nuclear energy

4. Vision Behind India's Nuclear Programme

- The **three-stage nuclear programme** was designed by Homi Jehangir Bhabha
- It is based on:
  - **Limited uranium reserves in India**
  - **Abundant thorium reserves**

The aim is to achieve:

- **Energy security**
- **Self-reliance in nuclear fuel**

5. India's Three-Stage Nuclear Power Programme

Stage 1: Pressurised Heavy Water Reactors (PHWRs)

- Fuel used: **Natural Uranium**
- Output:
  - Generates electricity
  - Produces **Plutonium (Pu-239)** as by-product

This plutonium is used in Stage 2

Stage 2: Fast Breeder Reactors (FBRs)

- Fuel used:
  - **Plutonium from Stage 1**
- Key Feature:
  - These reactors **produce more fuel than they consume**
- The **PFBR at Kalpakkam** marks India's entry into this stage

It also helps in producing **Uranium-233 from Thorium**

Stage 3: Thorium-Based Reactors

- Fuel:
  - **Uranium-233 (derived from Thorium)**
- Importance:
  - India has **large thorium reserves**

This stage will ensure **long-term sustainable energy supply**

Overall Concept

- The programme follows a **closed nuclear fuel cycle**

Meaning:

- Waste fuel is **reprocessed and reused**

6. PFBR: Detailed Overview

Development

- Developed by Indira Gandhi Centre for Atomic Research
- Operated by Bharatiya Nabhikiya Vidyut Nigam Limited

Fuel Type

- Uses **MOX Fuel (Mixed Oxide Fuel)**
- Composition:
  - **Uranium + Plutonium**
- Source:
  - Reprocessed fuel from **PHWRs**

Breeder Concept

- Core is surrounded by **Uranium-238 blanket**
- Process:
  - Fast neutrons convert U-238 → Plutonium-239

This allows the reactor to:

- **Generate more fuel than it consumes**

Bridge to Stage 3

- PFBR can use **Thorium-232 in future**
- Conversion:

- Thorium → **Uranium-233**

This is crucial for **Stage 3 (thorium-based reactors)**

Closed Fuel Cycle

- Spent fuel is:
  - **Reprocessed**
  - **Recycled back into reactor**

This ensures:

- Maximum utilization of nuclear resources
- Minimum waste

7. Current Nuclear Power Status in India

- **Installed Capacity**:
  - Around **8.78 GW**
- **Electricity Generation (2024–25)**:
  - **56,681 Million Units**
- **Share in Total Electricity**:
  - Around **3.1%**

Nuclear power currently plays a **small but stable role**

8. Future Expansion Plans

- India plans to increase capacity to:
  - **22.38 GW by 2031–32**
- Development includes:
  - **700 MW indigenous reactors**
  - **1000 MW reactors with international cooperation**

International Cooperation

- India has signed agreements with:
  - **18 countries** for civil nuclear cooperation

This reflects **global trust in India's nuclear programme**

9. Long-Term Nuclear Energy Mission

- Announced in **Union Budget 2025–26**
- Target:
  - **100 GW nuclear capacity by 2047**
- Linked to:
  - **Net Zero target by 2070**

Key Measures

Financial Investment

- Allocation of **Rs 20,000 crore**
- Focus on:
  - **Small Modular Reactors (SMRs)**

SMR Development

- Target:
  - At least **5 SMRs by 2033**
- Designs by Bhabha Atomic Research Centre:
  - **BSMR-200 (200 MWe)**
  - **SMR-55 (55 MWe)**
  - **High-Temperature Gas Reactor** (for hydrogen production)

Legal Reform

- Introduction of **SHANTI Act, 2025**
- Features:
  - Modernises nuclear laws
  - Allows **limited private sector participation**
  - Ensures regulatory oversight

10. Significance of PFBR Achievement

Energy Security

- Reduces dependence on imported fuels

Clean Energy Transition

- Nuclear energy is:
  - **Low-carbon**
  - Reliable

Supports **climate goals**

Technological Advancement

- Demonstrates **indigenous capability**

Strategic Importance

- Positions India among **advanced nuclear nations**

11. Challenges

- High **cost of nuclear infrastructure**
- Safety and **waste management concerns**
- Need for strong **regulatory mechanisms**
- Public perception and **acceptance issues**

12. Conclusion

- The achievement of **first criticality of PFBR** marks a **turning point in India's nuclear journey**
- It shows:
  - Progress from **planning to implementation**
  - Strength of **indigenous scientific capability**
- With expansion and policy support, nuclear energy will play a **larger role in India's future energy mix**

South Atlantic Anomaly (SAA) – "Bermuda Triangle of Space"

1. Why in News

- The **South Atlantic Anomaly (SAA)** is gaining attention because it is causing **operational problems for satellites and spacecraft**.
- Due to a **weaker magnetic field** in this region:
  - Satellites face **high radiation exposure**
  - There is increased risk of **system glitches and hardware failure**
- Even the **Hubble Space Telescope** switches off some instruments while passing through this region.

2. What is South Atlantic Anomaly (SAA)

- The **South Atlantic Anomaly (SAA)** is a region where:
  - **Earth's magnetic field becomes weaker than normal**
- It is often called:
  - **"Bermuda Triangle of Space"**
- Because:
  - It allows **high-energy charged particles and cosmic rays** to come closer to Earth

3. Location

- The SAA is located:
  - Between **South America and southern Africa**
- Extends roughly:
  - **5° to 40° South latitude**
  - **0° to 80° West longitude**
- The size and intensity:
  - **Change over time and seasons**

4. Why Does SAA Occur

- Earth's magnetic field normally acts as a:
  - **Protective shield against solar and cosmic radiation**
- However, in the SAA region:
  - The magnetic field is **weaker and dips closer to Earth's surface**

Main Cause

- The **Van Allen Radiation Belt (inner belt)** comes:
  - **Closest to Earth in this region**
- This leads to:
  - Increased flow of **energetic charged particles**

👉 Result:

- Radiation penetrates deeper into atmosphere

5. Impact of SAA

On Satellites and Spacecraft

- Increased exposure to:
  - **High-energy radiation**
- Causes:
  - Electronic glitches
  - Damage to instruments
  - Temporary shutdown of systems

On Space Missions

- Astronauts and spacecraft face:
  - **Radiation risk**
- Space agencies take:
  - Preventive measures during passage

On Earth Systems

- Can affect:
  - Aircraft navigation systems
  - Communication and positioning systems

6. What are Van Allen Radiation Belts

- The **Van Allen Radiation Belts** are zones of:
  - **Charged particles trapped around Earth**
- These particles come mainly from:
  - **Solar wind**

- They are held by:
    - Earth's **magnetic field (magnetosphere)**

Structure of Belts

- **Inner Belt**
    - Formed due to interaction of **cosmic rays with atmosphere**
- **Outer Belt**
    - Contains high-energy particles from the **Sun**

Distribution

- Strongest:
    - Near the **equator**
- Weak or absent:
    - Near the **poles**

Discovery

- Discovered in **1958** by James Van Allen

7. Role of Van Allen Belts

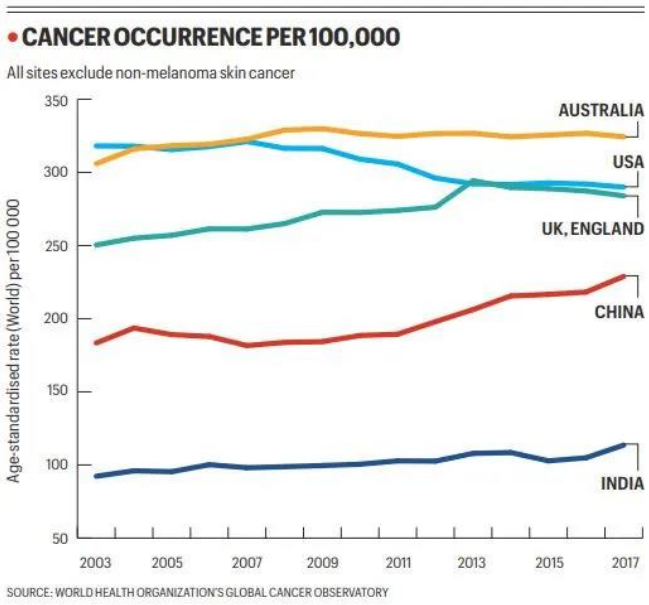
Protective Role

- Shield Earth from:
    - Harmful cosmic radiation

Hazardous Role

- Can damage:
    - Satellites
    - Spacecraft electronics
- Pose risks to:
    - Human space missions

Keytruda (Pembrolizumab) and India's Cancer Treatment Landscape



1. Why in News

- **Keytruda (pembrolizumab)** has gained attention due to:
    - Rising **cancer burden in India**
    - High **treatment cost and accessibility issues**
    - Emergence of a **counterfeit drug market**
- It is one of the **most widely used and highest-selling cancer drugs globally**
- The issue highlights the challenges of:
    - **Advanced medical technology vs affordability in India**

2. What is Keytruda

- **Keytruda** is the brand name of:
    - **Pembrolizumab**, a cancer drug
- Manufactured by:
    - Merck & Co
- It belongs to:
    - **Immunotherapy drugs**, specifically **checkpoint inhibitors**

Mechanism of Action :

- The human body uses **T-cells** to identify and destroy harmful cells
- Cancer cells escape detection by:
    - Using **PD-L1 proteins** to deactivate T-cells
- Keytruda works by:
    - Binding to **PD-1 receptors on T-cells**
    - Blocking interaction with **PD-L1 on cancer cells**

👉 Result:

- T-cells are reactivated
- Immune system starts **attacking cancer cells effectively**

3. What is Immunotherapy

- Immunotherapy is a treatment approach where:
    - The **body's own immune system is used to fight disease**

Comparison with Traditional Treatments

Chemotherapy and Radiotherapy

- Directly kill:
    - Cancer cells

- Also damage **healthy cells**
- Side effects:
  - Hair loss, fatigue, immune suppression

Immunotherapy

- Works indirectly by:
  - Activating immune response
- Advantages:
  - More **target-specific**
  - Fewer side effects
  - Effective in **advanced cancers**
- Limitations:
  - Expensive
  - Not effective for all patients

4. Types of Immunotherapy

(A) Checkpoint Inhibitors

- Example:
  - Keytruda
- Function:
  - Remove "brakes" on immune system

(B) Monoclonal Antibodies

- Lab-made molecules targeting:
  - Specific cancer proteins
- Keytruda belongs to this category

(C) CAR-T Cell Therapy

- Process:
  - Patient's T-cells extracted
  - Genetically modified
  - Reintroduced to attack cancer
- Indian example:
  - **NexCar19 (indigenous CAR-T therapy)**

(D) mRNA Cancer Vaccines

- Purpose:
  - Prevent recurrence of cancer
- Work by:
  - Training immune system to detect **neoantigens (cancer markers)**

5. Medical Uses of Keytruda

- Approved for treatment of:
  - Lung cancer
  - Cervical cancer
  - Kidney cancer
  - Breast cancer
- Initially approved:
  - **2014 by US FDA**
- Has shown:
  - Tumour shrinkage
  - Complete disappearance in some advanced cases

6. Global Importance

- Keytruda is:
  - **World's best-selling drug**
- Revenue:
  - Around **$29.5 billion in 2024**
- Accounts for:
  - Nearly **half of Merck's revenue**

7. Availability in India

- Available in:
  - **Tertiary care hospitals**
- Similar immunotherapy drugs available:
  - Trastuzumab
  - Nivolumab

Access Channels

- Direct purchase from hospitals
- Patient Access Programme
- Government schemes:
  - CGHS
- Insurance:
  - Limited coverage under general insurance
  - Better coverage under **specialised cancer policies**

8. Cost of Treatment :

- Standard dosage:
  - **200 mg every 3 weeks**
- Price:
  - ₹1.5 lakh per 100 mg vial
- Monthly cost:
  - Around **₹3 lakh or more**

Patient Access Programme

- Structure:
  - Buy 5 vials → Get 30 free
- Approximate cost:
  - Around **₹10 lakh initially**
- Eligibility:
  - Income/sum insured below ₹25 lakh

👉 This programme improves **partial affordability**

9. Why is Keytruda Expensive

(A) Complex Production

- Monoclonal antibodies require:
  - Advanced biotechnology
  - High production cost

(B) Patent Protection

- Patent valid till:
  - **2028**
- Prevents:
  - Cheap generic versions

Future Possibility

- After patent expiry:
  - Costs may reduce by **up to 70%**

10. Cancer Burden in India

Cancer Numbers

Country	INDIA	CHINA	AUSTRALIA	UK	US
New Cases	14,13,316	48,24,703	212332	454954	2380189
Deaths	916827	2574176	51884	181807	605761
Incidence rate*	98.5	201.6	462.5	307.8	367
Mortality rate**	64.4	96.5	84.6	98.3	82.3

*Occurrence per 100,000 population ** Cancer deaths per 100,000 population) SOURCE: GLOBOCAN, 2022

- Increasing trend:
  - 1990: 84.8 per 100,000
  - 2023: 107.2 per 100,000

Current Data

- 2022:
  - **14.13 lakh cases**

Future Projection

- By 2045:
  - **24.56 lakh cases**

👉 Indicates urgent need for:

- **Advanced cancer treatments**

11. Government Initiatives

- Government removed:
  - **Basic customs duty on Keytruda**
- Announced by:
  - Nirmala Sitharaman
- Included in:
  - **36 life-saving drugs exempted**

👉 Objective:

- Improve **access and affordability**

12. Counterfeit Drug Issue

- Investigation revealed:
  - Rise in **fake Keytruda market**

Reasons

- High cost
- Limited access

Key Concerns

- Fake drugs sold in:
  - Original packaging
- Difficult to detect:
  - Even by experts
- Possible involvement of:
  - Hospital staff

Risks

- Treatment failure
- Health complications
- Loss of trust in healthcare system

Prevention Measures

- Purchase only from:
  - **Hospital pharmacies**
- Use:
  - Official **patient access programme**

13. Challenges

- High cost limits access
- Limited insurance coverage
- Regulatory gaps in drug supply
- Technology-intensive treatments

ANRF Initiatives – SARAL AI and Mission-Mode Research (2026)

1. Why in News

- The Government reviewed the progress and future roadmap of the Anusandhan National Research Foundation (ANRF) under the leadership of Jitendra Singh

- Key developments include:
  - Launch of **AI platform 'SARAL AI'**
  - Introduction of **MAHA mission programmes**
  - Steps to improve **ease of doing research**
- The focus is on:
  - **Mission-mode research**
  - **Societal impact of science**
  - **Public accessibility of scientific knowledge**

2. What is ANRF

- ANRF is a national-level body created to:
  - Strengthen India's **research and innovation ecosystem**
- It aims to:
  - Promote collaboration between **academia, industry and government**
  - Support **high-quality scientific research**
- It plays a central role in:
  - Funding and guiding **mission-driven research in India**

3. SARAL AI Platform :

- ANRF is developing an AI-based platform called **SARAL AI**
- Objective:
  - Convert **complex research and scientific content** into **simple, understandable formats**

Key Features

- Transforms:
  - Research papers
  - Patents
  - Technical documents
- Into:
  - Podcasts
  - Short videos
  - Posters
  - Business briefs
  - Social media content

Language Inclusion

- Content will be available in:
  - **18 Indian languages**

👉 This ensures:

- Wider reach
- Inclusivity
- Public awareness

Significance

- Bridges gap between:
  - **Scientists and common citizens**
- Promotes:
  - **Scientific awareness and literacy**
- Helps people understand:
  - Real-life impact of research

4. MAHA Programmes (Mission for Advancement in High Impact Areas)

- ANRF has launched **MAHA programmes**
- These are:
  - Large-scale **mission-mode research initiatives**

Objective

- Deliver:
  - **High-impact outcomes in priority sectors**
- Focus on:
  - Translating research into **real-world applications**

Key Areas Covered

- Pollution control
- Climate resilience
- Disaster management
- Sustainable agriculture
- Transportation and safety
- Infrastructure development
- Public health
- Energy efficiency
- Economic inclusion

Special Initiative

- "**Leapfrog Demonstrators for Societal Innovation**"
- Focus:
  - Rapid development of **scalable solutions** for societal problems

5. Research Ecosystem Growth

- ANRF has evaluated:
  - Nearly **20,000 research proposals** in 4 months

- Major schemes include:
  - **Advanced Research Grant (ARG)**
  - **Prime Minister Early Career Research Grant (PM-ECRG)**

👉 Indicates:

- Strong participation
- Expanding research ecosystem

6. Outreach and Communication Initiatives

- ANRF launched:
  - **PMECRG Lightning Talk Series**
- Purpose:
  - Allow researchers to present work in:
    - Short
    - Engaging formats

Digital Engagement

- Promotion of:
  - Webinars
  - Social media communication
- Platforms launched:
  - WhatsApp channels
  - Arattai communication channels

👉 Improves:

- Real-time communication
- Research visibility

7. Ease of Doing Research

- ANRF has introduced:
  - Administrative simplification measures

Key Step

- Appointment of:
  - **Nodal officers in ~250 institutions**

Role of Nodal Officers

- Assist:
  - Researchers and Principal Investigators
- Ensure:
  - Smooth execution of research projects

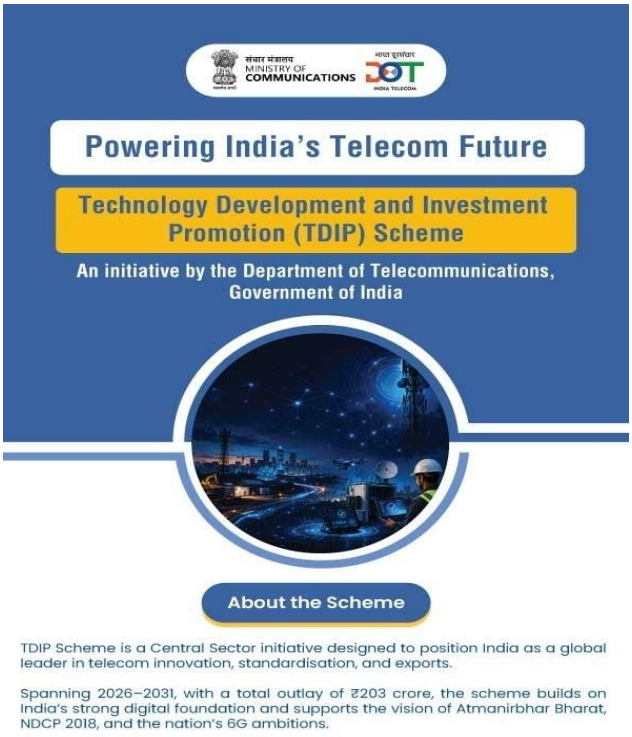
👉 Reduces:

- Bureaucratic delays
- Administrative burden

8. Policy Direction

- Government emphasises:
  - **Mission-mode research** instead of fragmented projects
- Focus on:
  - Fewer but **high-impact flagship programmes**
- Priority:
  - Research with **clear societal relevance**

Technology Development and Investment Promotion (TDIP) Scheme – Revised Guidelines (2026)



Why in News

- The Union Minister for Communications Jyotiraditya Scindia released the **revised guidelines of the Technology Development and Investment Promotion (TDIP) Scheme**.
- Implemented by the Department of Telecommunications.
- Scheme period: **2026–2031** with an outlay of **₹203 crore**.
- Aim: Strengthen India's role in **global telecom standards, indigenous innovation, and 6G ecosystem development**.

Key Points

About TDIP Scheme

- A **telecom technology development and investment promotion framework**.

- Focuses on building India's capacity in **next-generation telecom technologies** such as **5G Advanced and 6G**.
- Aims to shift India from a **technology adopter → global standard setter**.

Key Objectives

- Increase India's participation in **global telecom standardisation**
- Promote **indigenous telecom innovation and intellectual property creation**
- Enhance **export competitiveness of Indian telecom products**
- Accelerate **6G ecosystem development**
- Strengthen **industry–academia–government collaboration**

Strengthening Global Standardisation Role

- Focus on participation in key international bodies:
  - International Telecommunication Union (ITU)
  - 3GPP
  - oneM2M
- Support provided for:
  - Participation in **global meetings**
  - Submission of **technical contributions**
  - Leadership roles in **study groups**
  - Hosting **international standardisation events in India**

Expanded Ecosystem Coverage

- Inclusion of:
  - **Startups**
  - **MSMEs**
  - **Academia and research institutions**
  - **Telecom service providers**
  - **Industry players**
- Supports **pilot projects and proof-of-concept (PoC) initiatives**
- Focus on bridging **research → real-world deployment**

Institutional Framework for Implementation

- Implementing agencies include:
  - **Telecommunications Standards Development Society, India (TSDSI)**
  - **Telecom Centres of Excellence (TCoE India)**
  - **Telecommunications Consultants India Limited (TCIL)**
- Functions:
  - Facilitate **coordination and capacity building**
  - Promote **industry participation in global standards**
  - Enable **structured engagement with global telecom ecosystem**

Complementary Policy Ecosystem

- Works alongside:
  - **Telecom Technology Development Fund (TTDF)**
  - **Bharat 6G Mission**
- Together aim to create a **complete R&D-to-deployment telecom innovation pipeline**

Strategic Significance

For India's Telecom Sector

- Strengthens India's position in **global telecom governance**
- Promotes **indigenous IP creation and innovation ecosystem**
- Enhances **export potential of telecom technologies**
- Supports development of **secure and resilient digital infrastructure**

6G and Future Technologies

- Positions India as a potential leader in **6G and future communication systems**
- Encourages **early-stage standard-setting participation**
- Builds capability in **next-generation wireless technologies**

Significance

- Transition from **technology consumer → technology standard setter**
- Strengthens **digital sovereignty and strategic autonomy**
- Promotes **innovation-led growth in telecom sector**

- Integrates India into **global technology governance structures**

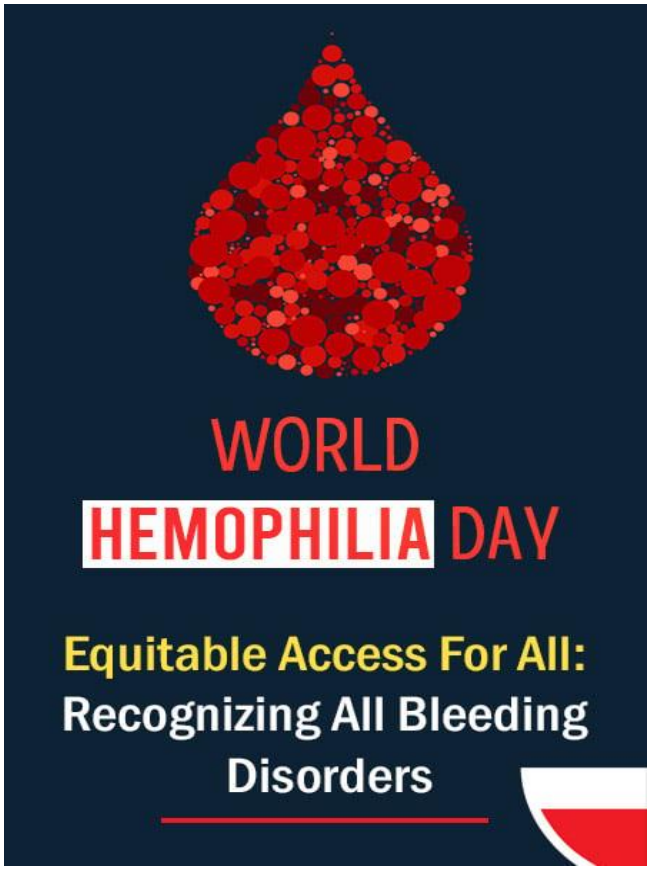
Challenges

- High cost of **R&D and global participation**
- Competition from advanced economies in **standard-setting bodies**
- Need for stronger **industry–academia coordination**
- Bridging **research-to-commercialisation gap**

Way Forward

- Increase **public–private collaboration in telecom R&D**
- Strengthen **domestic manufacturing under telecom ecosystem**
- Expand funding for **deep-tech startups and universities**
- Build long-term **global leadership in 6G standards**

Haemophilia and Global Health Equity



Why in News

- The World Health Organization has advanced a **new resolution to improve care equity for haemophilia**.
- India carries the **second-largest global burden**, with an estimated **~1.4 lakh cases**.
- Highlights the need for **better diagnosis, treatment access, and national registries**.

Key Points

1. What is Haemophilia?

- Haemophilia is a **rare inherited bleeding disorder** where blood **fails to clot properly**.
- Caused by **deficiency of clotting factors**, which are essential proteins for blood clotting.

Types

- **Haemophilia A**: Deficiency of **Factor VIII** (most common)
- **Haemophilia B**: Deficiency of **Factor IX** (also called **Christmas Disease**)

2. Causes and Genetic Pattern

- **X-linked recessive disorder**:
  - Mostly affects **males**
  - Females usually **carriers**
- **Spontaneous mutations**:
  - Around **one-third cases** occur without family history
- Root cause: **absence or low levels of clotting proteins**

3. Signs and Symptoms

- **Prolonged bleeding** after injury or surgery
- **Easy bruising**
- **Haemarthrosis (joint bleeding)** causing pain and swelling
- **Internal bleeding** in severe cases (brain/organs)
- **Chronic joint damage** leading to disability

4. Diagnosis

- **Blood tests** such as:
  - Complete Blood Count (**CBC**)
  - **aPTT (Activated Partial Thromboplastin Time)**
  - **Clotting factor assays**
- Classified into **mild, moderate, severe** based on factor levels

5. Treatment and Management

- **Clotting factor replacement therapy**
- **Prophylaxis**: Regular infusion to **prevent bleeding episodes**

- **Modern therapies**:
    - Non-factor drugs (e.g., **emicizumab**)
    - **Gene therapy** (long-term potential cure by enabling body to produce clotting factors)

Significance for India

- Large **undiagnosed population (~1 lakh)** indicates a **hidden public health burden**
- Need for:
    - **National registry systems**
    - **Early screening and diagnosis**
    - **Affordable treatment access**
- Burden disproportionately affects **economically weaker sections**

Global Significance

- Focus on **health equity** and access to treatment
- Example of **rare disease policy challenges**
- A key area in **genetic and gene therapy research**

Challenges

- **High cost of treatment** (factor therapy)
- **Limited awareness and diagnosis**
- Inadequate **health infrastructure** in rural areas
- Lack of **comprehensive data and registry**

Way Forward

- Expand **screening and awareness programs**
- Strengthen **public healthcare infrastructure**
- Promote **local production of clotting factors**
- Encourage **research in gene therapy**
- Integrate haemophilia care into **universal health coverage frameworks**

FSSAI Advisory on Ashwagandha in Supplements

Why in News?

- The **Food Safety and Standards Authority of India (FSSAI)** recently issued a critical advisory regarding the use of **Ashwagandha** in nutraceuticals and health supplements.
- The directive clarifies which parts of the plant are safe for human consumption in food products, aiming to prevent potential health risks associated with unapproved plant extracts.

Context of the Advisory

- Under the **Food Safety and Standards Regulations, 2016 (Schedule IV)**, the government maintains a list of permitted plant parts for health supplements.
- The latest move aligns food safety standards with traditional Ayurvedic wisdom and modern toxicological data to ensure that "wellness" products do not inadvertently cause harm.

About Ashwagandha (Withania somnifera)

- **Classification:** Known as an **adaptogen**, a substance that helps the body manage physiological and psychological stress.
- **Benefits:** It is widely recognized for enhancing immunity, improving cognitive function, lowering blood sugar levels, and reducing symptoms of anxiety and depression.
- **Applications:** Common in Ayurvedic medicines, herbal teas, protein blends, and wellness supplements.

The Prohibition on Leaves

The FSSAI and the **Ministry of AYUSH** have specifically prohibited the use of Ashwagandha **leaves and their extracts** in food supplements, mandating that only **roots** be used.

Plant Part	Status	Reasoning
Roots	**Permitted**	Contains balanced levels of bioactive compounds suitable for long-term dietary use.
Leaves	**Prohibited**	Contain significantly higher concentrations of **withanolides** (specifically **Withaferin-A**), which may pose safety concerns and toxicity risks if consumed regularly without medical supervision.

Food Safety and Standards Authority of India (FSSAI)

- **Nature:** An autonomous **statutory body** established under the **Food Safety and Standards Act, 2006**.
- **Nodal Ministry:** Functions under the **Ministry of Health & Family Welfare**.
- **Role:** Responsible for protecting and promoting public health through the regulation and supervision of food safety across India.

Compliance for Manufacturers

- **Strict Adherence:** Food Business Operators (FBOs) must ensure their formulations contain only root extracts within prescribed limits.
- **Labeling:** Products must accurately reflect the plant part used to ensure transparency for consumers.
- **Enforcement:** Non-compliance with Schedule IV of the 2016 Regulations can lead to product recalls and legal penalties under the FSS Act.

Conclusion

The FSSAI advisory serves as a reminder that "natural" does not always mean "safe" in every concentration or form. By restricting supplements to root extracts, the regulator is ensuring that the burgeoning nutraceutical market in India remains grounded in safety and traditional efficacy, protecting consumers from the potent pharmacological effects of concentrated leaf extracts.

❐❐❐

Ecology & Environment

India Amends Plastic Waste Management Rules, 2016 (2026 Revision)

Why in News?

- India has **amended its Plastic Waste Management Rules, 2016** to **ease compliance norms** for companies while **retaining recycling targets** under the **Extended Producer Responsibility (EPR) framework**.

Key Features of Plastic Waste Management Rules, 2016 (Amended 2026)

Compliance Provisions

- Companies **failing to meet 2025–26 recycling targets** will **not face immediate penalties**.
- **Unfulfilled targets** can be **carried forward for up to three years (2026–27 to 2028–29)**, with a **mandatory clearance of at least one-third of the deficit annually**.

Recycling Targets

- **Phased framework** for **recycled content and reuse targets** in plastic packaging:
  - **Rigid plastic (Category I)**: **30% recycled material (2025–26)**, increasing to **60% by 2028–29**.
  - **Flexible plastics (Category II)**: **10% recycled content**, rising to **20%**.
  - **Multi-layered plastics (Category III)**: **5% recycled content**, increasing to **10%**.
- **Reuse targets for rigid packaging**:
  - **10%** for small containers (0.9–4.9 litres).

- **70%** for large water packaging.
- **10%** for large non-water packaging.

Tradable Certificate System

- Companies can **purchase tradable credits** from firms exceeding their recycling targets to meet their own obligations.
- **Flexibility** reduces costs but may **encourage avoidance of direct recycling**.
- **Central Pollution Control Board (CPCB)** identified **over 6 lakh fake certificates in 2023**.

Exemptions

- **FSSAI regulations** may exempt **food and beverage packaging** from using recycled plastic.

Implementation Mechanism

- **Centralized EPR portal** monitors compliance, with **CPCB oversight** for tracking, reporting, and enforcement.
- Companies must **collect and process 100% of plastic introduced by 2024–25**, but **compliance relies on self-reporting** with **no comprehensive verification system**.
- **20.7 million tonnes of plastic waste recycled since 2022**, yet **4.13 million tonnes generated annually (2022–23)**, highlighting gaps in coverage.

Plastic Categories

- **Category I (Rigid Plastics)**: Easiest to collect (e.g., **HDPE, PET containers**).
- **Category II (Flexible Plastics)**: Moderate difficulty (e.g., **carry bags, snack wrappers**).
- **Category III (Multi-layered Plastics)**: Hardest to recycle (e.g., **Tetra Pak cartons, foil wrappers**).

Background

- India **banned single-use plastic items in 2022**.

Key Terms Defined in Plastic Waste Management Rules (Amendment 2026)

End of Life Disposal

- Use of plastic waste for **energy recovery**, including:
  - **Co-processing** in cement and steel industries.
  - **Waste-to-energy, waste-to-oil conversion**.
  - **Road construction**.
- **Excludes** conversion into new plastic or chemicals (classified as **recycling**).

Recycling

- Transformation of plastic waste into **new products or energy generation**.
- **Amendment expands scope** to include **energy generation** alongside traditional recycling.

Plastic Waste Processors

- Now includes **recyclers and end-of-life disposal entities** (e.g., waste-to-energy operators, co-processors).
- **Previously limited to recyclers only**.

Registered Environment Auditor

- **Authorized under Environment Audit Rules, 2025** to **verify EPR compliance and recycled content usage**.
- Serves as an **alternative to designated agencies** for compliance checks.

Reuse

- Using material **again for the same or different purpose without structural changes**.
- Relevant for **reuse obligations in rigid plastic packaging (Category I)**.

Seller

- **Newly introduced term** for entities selling **plastic raw materials** (e.g., resins, pellets, intermediate inputs).
- **Expands regulatory accountability** to include **raw material suppliers** for the first time.

India's Green Pathway: A Holistic Approach to Climate and Sustainability

Why in News?

- India has introduced its **"Green Pathway"** initiative, marking a **shift from traditional conservation to integrated climate action**.
- The nation is **aligning biodiversity protection with economic progress and sustainable development**.
- India is emerging as a **leading global advocate for climate justice and sustainable practices**.

India's Progress in Biodiversity and Sustainable Development

Biodiversity and Conservation Efforts

- **A Biodiversity Hotspot**:
  - Covers **2.4% of the world's land area** but hosts **8% of all recorded species**.
  - Home to **over 96,000 animal species** and **47,000 plant species**.
- **Legal Framework**:
  - **Biological Diversity Act of 2002** aligns with the **1992 Convention on Biological Diversity (CBD)**.
- **National Biodiversity Strategy and Action Plan (NBSAP) 2024–2030**:
  - Launched at **UNCCD – COP 16 in Saudi Arabia**.
  - **Goal**: Halt and reverse **biodiversity loss by 2030**.
  - **Vision**: Humans living in **harmony with nature by 2050**.
  - **Key Objectives**:
    - Restoring **ecosystems**
    - Recovering **endangered species**
    - Protecting **wetlands and coastal areas**
    - Strengthening **governance** through local and national biodiversity committees

Protected Areas and Wildlife Conservation Initiatives

- **Expansion of Protected Areas**:
  - **745 in 2014 → 1,134 in 2025**.
  - Focus on creating **wildlife corridors** for safe animal movement.
- **Key Wildlife Conservation Projects**:
  - **Project Tiger**: **58 Tiger Reserves** (newest: **Madhav Tiger Reserve**).
  - **Project Elephant**: **33 reserves**, securing **150 elephant corridors** across **15 states**.
  - **Project Cheetah**:
    - Population: **30 cheetahs (including 19 cubs born in India)**.
    - Expanding to **Gandhisagar Wildlife Sanctuary**.
  - **Project Snow Leopard**:
    - First assessment: **718 snow leopards** (highest in **Ladakh**).
    - **Phase 2.0 launched in late 2025**.
  - **Project Dolphin**:
    - Population: **6,327 riverine dolphins (2021–2023)**.
    - **Second range-wide survey launched in January 2026**.
- **International Big Cat Alliance (IBCA)**:
  - Launched in **2023** during the **50th anniversary of Project Tiger**.
  - **Approved by Union Cabinet**, with **secretariat in India**.
  - **95 countries** involved in **collaborative action and knowledge sharing**.
- **Wildlife Week 2025**:
  - New national projects for **Sloth Bear** and **Gharial**.
  - **Landscape-level strategy**: Combines **species protection** with **forest ecosystem restoration**.

Forest and Biosphere Conservation

- **Biosphere Reserves**:
  - **18 Biosphere Reserves** in India.
  - **13 recognized** under **UNESCO's World Network**.
  - Latest addition: **Cold Desert Biosphere Reserve (Himachal Pradesh)** in **September 2025**.

- **Forest Fire Management**:
  - **24/7 satellite-based real-time monitoring** by **Forest Survey of India**.
  - **Instant SMS and email alerts** for climate-induced risks.
- **Mass Afforestation Drive**:
  - **Ek Ped Maa Ke Naam (Plant4Mother) campaign**: **262.4 crore saplings planted** by **2025**.

Wetlands and Coastal Ecosystems

- **Mangrove Restoration**:
  - **MISHTI (Mangrove Initiative for Shoreline Habitats and Tangible Incomes)**:
    - **4,536 hectares restored in 2025**.
    - **22,560 hectares identified** across **13 States/UTs** for future plantation.
- **Ramsar Sites**:
  - **11 new sites declared in 2025**, totaling **98** (highest in **Asia**, 3rd globally).
  - **Udaipur and Indore**: India's first **Ramsar-accredited Wetland Cities**.
- **National Coastal Mission**:
  - Extended to **2031** for:
    - **Coastal climate resilience**
    - **Erosion management**
    - **Coral reef protection**
- **Blue Flag Beaches**:
  - **18 beaches** across **7 states and 4 UTs** achieved **international certification** by **2025–26**.

Human-Wildlife Conflict Management

- **Strict Guidelines**:
  - Identify **conflict hotspots**.
  - Mandate **coordinated action**.
  - Establish **rapid response teams**.
- **Ex gratia relief** for death/injury: **Disbursed within 24 hours**.
- **Centre of Excellence for Human-Wildlife Conflict Management** launched.
- Special project: **"Tigers Outside Tiger Reserves"**.

Pollution Control and Circular Economy Initiatives

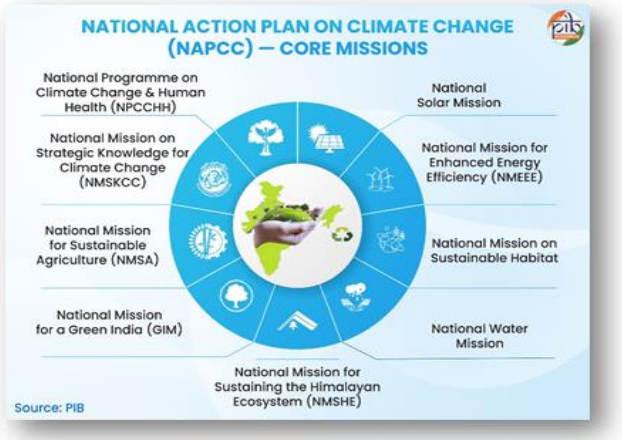
- **National Clean Air Programme (NCAP) Success**:
  - **103 out of 130 cities** reduced **PM10 levels** by **2024–25** (vs. 2017–18).
    - **64 cities**: **20% reduction**.
    - **25 cities**: **40% reduction**.
- **Fly Ash Utilization**:
  - **100% utilization mandate** for thermal power plants.
  - **2024–25**: **332.63 MT repurposed** out of **340 MT generated**:
    - **32% in roads**.
    - **27% in cement**.
    - **14% in bricks**.
- **Recycling Infrastructure**:
  - Number of **waste recycling plants** nearly **quadrupled (2019–2025)**.
- **Extended Producer Responsibility (EPR)**:
  - By **December 2025**:
    - **71,000+ producers** registered.
    - **4,400+ recyclers** registered.
    - **375 lakh tonnes of waste recycled**.
  - **Plastic Waste Management Rules, 2016**:
    - **EPR targets**: **100% by 2024–25**.
    - **2026 Amendments**: Allow **carry-forward of unmet targets for 3 years**, with **1/3 cleared annually**.

Sustainable Development and Inclusive Growth

- **NITI Aayog's SDG Score**: **57 (2018) → 71 (2023–24)**.

India's Climate Action Strategy

Climate Policies and Targets



- **National Action Plan on Climate Change (NAPCC)**:
  - **9 sectoral missions** for **adaptation and mitigation**.
- **Nationally Determined Contribution (NDC 3.0) for 2031–2035**:
  - **60% non-fossil electricity capacity** by **2035** (solar, wind, hydro, biomass, nuclear).
    - **Progress**: **52.57% achieved (Feb 2026)** (surpassed **2030 target of 50%**).
  - **Emissions Intensity Reduction**: **47% by 2035** (vs. 2005).
    - **Progress**: **36% reduction (2020)** (on track for **2030 target of 45%**).
  - **Carbon Sink Target**: **3.5–4.0 billion tonnes CO_2e** via **forest/tree cover by 2035**.
    - **Progress**: **2.29 billion tonnes CO_2e (2025)**.
- **Net-Zero and Green Hydrogen**:
  - **Net-Zero Target**: **2070**.
  - **National Green Hydrogen Mission**: **5 MMT annual production by 2030**.
- **Mission LiFE**:
  - **Grassroots movement** for sustainable living.
  - **Engagement**: **6 crore+ people**.
  - **Pledges**: **5 crore (Dec 2025)**.

Clean Energy Expansion

- **Current Capacity (Jan 2026)**:
  - **Total**: **~520.5 GW**.
    - **Non-fossil**: **~272 GW** (majority).
    - **Fossil**: **~248.5 GW**.
- **Global Rankings (2025)**:
  - **3rd** in **solar power**.
  - **4th** in **wind power** and **renewable energy**.
- **Milestone Projects**:
  - **Modhera (Gujarat)**: **First 24x7 solar-powered village**.
  - **Omkareshwar (MP)**: **Largest floating solar park**.
- **Efficiency Gains**:
  - **CO_2 intensity**: 61.45 → 40.52 tonnes/₹ crore GDP (2015–2023).

Carbon Markets and Industrial Decarbonization

- **Carbon Trading**:
  - **Domestic Carbon Credit Trading Scheme** operationalized.
- **Industrial Accountability**:
  - **490 major entities** covered under **GHG targets (Jan 2026)**.
- **Carbon Capture (CCUS)**:
  - **Rs 20,000 crore** allocated over **5 years (2026–27 Budget)**.

Global Leadership and Multilateral Engagement

- **COP30 (Brazil, 2025)**:
  - Advocated for **tech transfers**.
  - Joined **Tropical Forests Forever Facility (TFFF)**.
- **Solar and Ozone Initiatives**:
  - Hosted **8th ISA Assembly (2025)**.
  - **Montreal Protocol**: **67.5% HCFC phase-down (2025)**.

Conclusion

India is **integrating domestic actions** (renewable energy, pollution control, habitat restoration, citizen engagement) with **global cooperation**. With **measurable progress**, India is on track to achieve its **2050 vision of "living in harmony with nature."**

India's Withdrawal from COP33 Presidency

Why in News?

- India has officially **withdrawn its candidacy** to host the **33rd Conference of Parties (COP33)** to the UNFCCC in 2028. The government cited a "review of its commitments for 2028" as the primary reason.
- Analysts suggest this move may be aimed at avoiding the logistical pressure of other potential major events (like the **2030 Commonwealth Games**) or shielding the country from intensified pressure to commit to higher climate targets during the **2nd Global Stocktake** scheduled for 2028.
- Following this withdrawal, **South Korea** remains the sole contender from the Asia-Pacific group for the 2028 presidency.

United Nations Framework Convention on Climate Change (UNFCCC)

About and Objective

- **Primary Treaty:** The UNFCCC is the lead international agreement tasked with preventing "dangerous human interference with the climate system."
- **Establishment:** Adopted in **1992** at the **Rio Earth Summit**; entered into force in **1994**.
- **Core Goal:** Stabilize greenhouse gas (GHG) concentrations to allow ecosystems to adapt naturally, ensure food security, and permit sustainable economic development.

Guiding Principles

- **CBDR-RC:** The principle of **"Common But Differentiated Responsibilities and Respective Capabilities."** It mandates that while all nations must act, developed nations must lead due to their historical emissions and greater financial resources.
- **Sustainable Development:** Ensures that climate action does not compromise the economic growth of developing nations.

Operating Mechanism

- **COP (Conference of the Parties):** The supreme annual decision-making body.
- **Secretariat:** Located in **Bonn, Germany**.
- **Reporting:** Countries submit **"National Communications"** and **"Biennial Transparency Reports"** to track emissions and policy progress.
- **Hosting:** Rotates among **5 UN regional groups**. India last hosted in **2002 (COP 8)** in New Delhi.

Financial Pillars (Status 2026)

Fund	Purpose
Green Climate Fund (GCF)	World's largest dedicated fund; recently reached **USD 20 billion** in total financing.
Global Environment Facility (GEF)	Provides "seed money" for large-scale environmental and energy transitions.
Loss and Damage Fund (FRLD)	Assists vulnerable nations in recovering from immediate climate-induced disasters.
Adaptation Fund	Supports resilience projects like drought-resistant farming and sea walls.

The Ambition Cycle: Global Stocktake (GST)

- The UNFCCC operates on a **5-year cycle** to assess collective progress.
- The **1st GST** concluded in **2023** (Dubai).
- The **2nd GST** is scheduled for **2028**, making it a high-stakes year for global climate ambition.

India's Climate Commitments (Updated 2026)

In March 2026, India announced updated **Nationally Determined Contributions (NDCs)** for 2035:

- **Non-Fossil Capacity:** Source **60%** of installed electricity capacity from non-fossil sources.
- **Emissions Intensity:** Reduce emissions intensity of GDP by **47%** (from 2005 levels).
- **Carbon Sink:** Create an additional carbon sink of **3.5-4 billion tonnes** of CO_2 equivalent through forest and tree cover.

Mass Mortality of Himalayan Griffon Vultures in Dudhwa

Why in News?

- Recently, **25 Himalayan Griffon vultures** were found dead in the **Dudhwa Tiger Reserve**.
- The cause is suspected to be **secondary poisoning** after the vultures scavenged on stray dog carcasses that had consumed pesticide-laced rice.

Dudhwa Tiger Reserve: Key Facts

- **Location:** Situated in the **Lakhimpur Kheri and Bahraich districts** of Uttar Pradesh, along the Indo-Nepal border.
- **Region:** Part of the fertile **Terai belt**.
- **Components:** It comprises three protected areas:
    1. **Dudhwa National Park**
    2. **Kishanpur Wildlife Sanctuary**
    3. **Katarniaghat Wildlife Sanctuary**
- **Hydrology:** The reserve is primarily drained by the **Mohana and Suheli rivers**.

Himalayan Griffon Vulture (*Gyps himalayensis*)

Profile

- **Classification:** An **Old World vulture** belonging to the family *Accipitridae* (the same family as eagles and hawks).
- **Size:** It is the **second-largest** Old World vulture, surpassed only by the Cinereous vulture.
- **Physical Traits:** Khaki-colored body, dark flight feathers, and a head covered in white down. They possess a distinct **"ruff"** of pale brown feathers around the neck.
- **Wingspan:** Massive reach of **2.5-3 meters**.

Habitat and Behavior

- **Altitude:** Typically found in high-altitude regions between **1,200 and 5,500 meters**.
- **Range:** Distributed across the Himalayas (**India, Nepal, Bhutan**) and the **Tibetan Plateau** (China), extending into Central Asia.
- **Nesting:** They are **colonial nesters**, building large nests on steep, inaccessible rock cliffs.
- **Diet:** Scavengers that feed almost exclusively on **carrion** (dead animal carcasses).

Conservation and Threats

- **Threats:** * **Poisoning:** Highly sensitive to **Diclofenac** and other veterinary drugs found in livestock carcasses.
    - **Secondary Poisoning:** Vulnerable to pesticides used to target "nuisance" animals like stray dogs.
- **Conservation Status:**
    - **IUCN Red List:** Near Threatened.
    - **Wildlife Protection Act, 1972:** Schedule I (Highest legal protection).
    - **CITES:** Appendix II.

What are Old World Vultures?

Unlike New World vultures found in the Americas, **Old World vultures** are found in **Europe, Asia, and Africa**.

- They rely primarily on **sight** rather than smell to find food.
- Biologically, they are more closely related to hawks and eagles than their American counterparts.

Modern Biomass-Based Improved Cookstoves (ICS)

Why in News?

- Amidst recent **LPG supply crises** and fluctuating costs, the relevance of **Improved Cookstoves (ICS)** has surged.
- As many rural households revert to traditional firewood due to the high price of LPG (>1000 per cylinder), ICS has emerged as a critical bridge toward cleaner cooking alternatives and energy security.

Context :

- **The Tech:** ICS are advanced biomass stoves engineered to maximize heat transfer and minimize toxic emissions compared to traditional open-fire *chulhas*.
- **Efficiency:** Operates at **38–45% efficiency**, a massive leap from the ~10% efficiency of traditional stoves.
- **The Goal:** To reduce indoor air pollution and resource pressure while providing a cost-effective alternative to expensive fossil fuels.

Key Advantages of Improved Cookstoves

Feature	Impact & Benefit
Indoor Air Quality	Uses **secondary aeration** to capture soot and harmful gases before they become smoke, reducing respiratory risks.
Fuel Economy	Reduces firewood consumption by **50–66%**, significantly lowering the burden of fuel collection on women.
Cost Savings	Firewood (≈10/kg) is far cheaper than LPG; switching can offer **over 60% savings** for rural families.
Fuel Flexibility	Compatible with **pellets, briquettes, crop residue, and dung**, promoting a circular rural economy.
Sustainability	Emission reductions can be monetized via **carbon credits** to subsidize the upfront cost of the stoves.

Scalability and Implementation

- **Local Availability:** Unlike LPG, which requires a centralized bottling and distribution infrastructure, ICS fuels (biomass) are **locally accessible** in every village.
- **Financial Models:** Microfinance and **CSR initiatives** are being leveraged to make these stoves affordable for low-income households.
- **Decentralized Growth:** Large-scale adoption relies on strong **last-mile delivery** and local partnerships rather than massive government subsidies.

Challenges Hindering Adoption

- **Upfront Costs:** While fuel is cheaper, the initial purchase price of a high-quality ICS remains a barrier for the poorest households.
- **Emissions Gap:** Although significantly cleaner than traditional stoves, ICS emissions may still be higher than **LPG or electric cooking**, making them a "transitional" rather than a "final" solution.
- **Maintenance:** Sustained usage requires **after-sales support** and user awareness to ensure the technology is used correctly.

Conclusion

Improved Cookstoves represent a pragmatic solution for India's energy transition. By upgrading traditional biomass usage through better engineering, ICS addresses the immediate dual crisis of **fuel affordability and indoor air pollution**, supporting the health and economic stability of rural Bharat.

Microplastics Impact on Sundarbans' Blue Carbon Ecosystem

Why in News?

- A study by the **Indian Institute of Science Education and Research (IISER), Kolkata**, reveals that **microplastics** are disrupting the food web and altering the carbon cycle in the **Sundarbans**.
- This pollution raises critical concerns over the long-term stability of this vital "blue-carbon" ecosystem.

Key Findings of the IISER Study

- **Surging Pollution:** High concentrations of microplastics were found in the **Mooriganga**

estuary. Levels surged by **40% during the monsoon**, as heavy rainfall washes urban waste and "colourless fragments" from inland areas into the delta.

- **Sources:** Approximately 50% were **fibres** (textiles), followed by fragments of **polypropylene** (packaging) and **PET** (bottles).
- **Formation of 'Plastispheres':** Weathered plastics break down into **nanoplastics**, developing cracks that host complex microbial communities known as **plastispheres**.
- **Artificial Carbon Sinks:** As these plastics (90% carbon) degrade, they leach **Dissolved Organic Carbon (DOC)**. This acts as an artificial food source, causing marine bacteria to multiply rapidly and accelerating the natural carbon cycle.
- **Threat to 'Blue Carbon':** The resulting microbial bloom disrupts the mangroves' natural ability to sequester atmospheric Co2, potentially making the Sundarbans **"less blue"** and less efficient as a carbon sink.

Microplastics and Nanoplastics: Scale and Origin

Category	Size & Scale	Origin & Examples
Microplastics	< 5 millimetres (5 mm)	Roughly the size of a sesame seed or smaller.
Nanoplastics	< 1 micrometre (1 µm)	Extremely minute breakdown products of larger plastics.
Primary	Intentionally manufactured	**Microbeads** in toothpaste/scrubs; **microfibres** from synthetic clothes.
Secondary	Environmental breakdown	Fragmentation of bottles, bags, and nets due to **UV radiation** and waves.

Environmental Impact: The "Trojan Horse" Effect

- **Bioaccumulation:** Marine life, from zooplankton to whales, mistakes plastics for food. These accumulate and magnify up the food chain (**Biomagnification**).
- **Chemical Sponges:** Plastics absorb toxic **Persistent Organic Pollutants (POPs)** and heavy metals from the water, delivering a concentrated dose of toxins to any animal that ingests them.

Profile of the Sundarbans Ecosystem

- **Geographic Status:** The largest contiguous mangrove forest in the world, spread across **India (West Bengal)** and Bangladesh. It sits on the delta of the **Ganges, Brahmaputra, and Meghna** rivers.
- **The 'Sundari' Tree:** Named after the *Heritiera fomes* (Sundari tree), characterized by **pneumatophores** (breathing roots) that grow upward to survive in oxygen-poor mud.
- **Natural Bio-shield:** Acts as a crucial barrier protecting coastal communities from storm surges, tsunamis, and cyclones originating in the **Bay of Bengal**.

Conservation & Global Status of Indian Sundarbans

Year	Designation / Status
1973	Declared a **Tiger Reserve** under Project Tiger.
1984	Upgraded to a **National Park**.
1987	Designated a **UNESCO World Heritage Site**.
2001	Recognized as a **UNESCO Biosphere Reserve** (MAB program).
2019	Declared a **Ramsar Site** (largest in India).

Biodiversity Highlights

- **Royal Bengal Tiger:** The only mangrove forest in the world inhabited by tigers.
- **Rich Fauna:** Supports the **Estuarine (Saltwater) Crocodile**, the critically endangered **Northern River Terrapin**, and **Gangetic dolphins**.

Conclusion

The IISER study highlights a shifting threat: the Sundarbans is facing a transition from being a pristine carbon-sequestering "bio-shield" to a plastic-polluted "plastisphere." Addressing this requires a shift in waste management upstream to ensure that India's most critical blue carbon sink does not lose its ecological integrity to microscopic plastic debris.

Safety Regulations and Sustainable Alternatives to Fireworks

Why in News?

- Recent devastating fireworks accidents in **Kerala** and safety concerns during major festivals like **Thrissur Pooram** have reignited the national debate on the safe handling of explosives.
- As traditional pyrotechnics continue to pose severe health and fire risks, there is a renewed push toward **Green Crackers** and advanced technologies like **Cold Spark** machines.

The Legal and Regulatory Framework

India's fireworks industry is regulated through a combination of century-old laws and modern judicial oversight:

- **Primary Laws:** Governed by the **Explosives Act, 1884** and **Explosive Rules, 2008**, which control the entire lifecycle of fireworks from manufacture to use.
- **Nodal Agency:** The **Petroleum and Explosives Safety Organisation (PESO)**, under the DPIIT (Ministry of Commerce and Industry), is responsible for safety certification and regulating hazardous substances.
- **Supreme Court Directives:**
    - **Arjun Gopal vs Union of India (2018):** Banned non-certified crackers and those containing **barium salts**. Only "Green Crackers" are permitted.
    - **Lari Ban:** The court prohibited "joined firecrackers" (series crackers) due to their excessive noise and solid waste pollution.
    - **Noise Pollution (V) In Re (2005):** Recognized that noise pollution violates **Article 21 (Right to Life)**, leading to strict timing restrictions for fireworks.

Primary Concerns with Traditional Fireworks

Hazard Category	Specific Impacts
Toxic Chemicals	**Strontium (Red):** Impairs bone growth; **Barium (Green):** Causes respiratory distress; **Copper (Blue):** Endocrine disruption.
Air Pollution	Causes massive spikes in **PM2.5 and PM10**, worsening the "Great Smog" in North India during winter.
Safety Gaps	Unauthorized storage and illegal manufacturing in hubs like **Sivakasi** lead to frequent catastrophic fires.
Noise Trauma	Exceeds limits of the Noise Pollution Rules, 2000, causing trauma to the elderly, infants, and pets.

What is Cold Spark Technology?

Cold spark technology (often called **Sparkulars**) is an advanced pyrotechnic system that simulates the visual effect of fireworks without the actual explosion.

- **Working Mechanism:** It uses a specialized alloy powder (titanium/zirconium) that is heated and dispersed. Unlike traditional fireworks that burn at **1200°C**, cold sparks operate at much lower temperatures (**60–100°C**).
- **Safety Profile:** The sparks are "cold" to the touch and non-flammable. They produce **zero smoke** and no toxic odor, making them ideal for indoor celebrations and crowded public events.

Safer and Sustainable Alternatives

1. Green Crackers (Developed by CSIR-NEERI)

These are eco-friendly alternatives that reduce emissions by **30–35%** and eliminate heavy metals like lead, arsenic, and barium.

- **SWAS (Safe Water Releaser):** Releases water vapor upon bursting to suppress dust and particulate matter.
- **STAR (Safe Thermite Cracker):** Features reduced sound intensity and lower particulate emissions.
- **SAFAL (Safe Minimal Aluminium):** Uses magnesium instead of aluminium, significantly reducing smoke.

2. Modern Technological Substitutes

To completely eliminate the risk of fire and pollution, many cities are transitioning to "Light-based" celebrations:

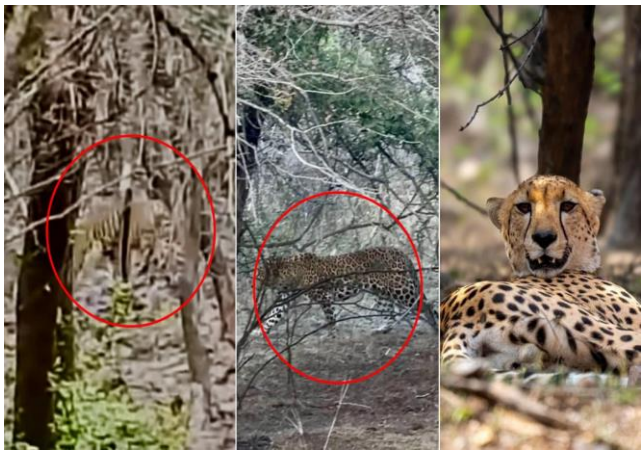
- **Drone Swarms:** Hundreds of LED-equipped drones synchronized via GPS to create 3D animations in the sky (e.g., used in the **Beating Retreat** ceremony).
- **Laser & Projection Mapping:** High-power lasers and digital animations projected onto

monuments provide a massive visual spectacle without physical debris or smoke.

Conclusion

The transition from traditional fireworks to sustainable alternatives is a necessity for public health and safety. While the "Green Cracker" initiative provides a middle ground, the future of large-scale celebrations lies in **Drone and Laser technology**. For India to maintain its vibrant cultural traditions while upholding the **Right to Life (Article 21)**, administrative enforcement must bridge the gap between judicial bans and ground-level manufacturing.

Uncommon Coexistence: Tiger, Leopard, and Cheetah in Ranthambore



Why in News?

- A rare ecological event was recorded in **Ranthambore Tiger Reserve (RTR)** near the Chakal River, where a **tiger, leopard, and cheetah** were documented within the same spatial and temporal window (an approximate 1–2 km radius).
- This constitutes a highly uncommon overlap of apex and meso-predators in a single landscape.

The Science of Niche Partitioning

Coexistence among these three predators is atypical because they usually follow **niche partitioning** to minimize interspecific competition. They differentiate themselves through:

- **Habitat Use:** Cheetahs prefer open plains; Tigers dominate dense cover; Leopards utilize rugged terrain or trees.
- **Prey Selection:** Differing in the size and type of ungulates they hunt.
- **Temporal Activity:** Shifting active hours (e.g., diurnal vs. nocturnal) to avoid direct physical encounters.

The convergence at RTR is interpreted as a **transient ecological coincidence**, likely driven by prey movement, dispersal dynamics, or landscape connectivity near the river, rather than a shift toward stable cohabitation.

Comparative Behavioural Ecology

Predator	Ecological Role	Behavioral Traits
Tiger	Solitary Apex Predator	Territorially dominant; exerts ecological control and often displaces subordinate carnivores.
Leopard	Flexible Mesopredator	Highly adaptable; shifts to nocturnal activity or rugged terrain to avoid tigers.
Cheetah	Diurnal Pursuit Predator	Adapted to open habitats; relies on high-speed chases rather than the ambush tactics of tigers/leopards.

Ranthambore Tiger Reserve (RTR)

- **Geography:** Located in Sawai Madhopur, Rajasthan, at the junction of the **Aravalli and Vindhya** hill ranges.
- **Composition:** Includes Ranthambore National Park, Sawai Madhopur Sanctuary, Keladevi Sanctuary, and parts of the National Chambal Gharial Sanctuary.
- **Historic Landmark:** Home to the 10th-century **Ranthambore Fort**, a UNESCO World Heritage Site.

Ecosystem Profile

- **Hydrology:** Bound by the **Banas River** (North) and **Chambal River** (South). Key lakes include Padam Talab, Raj Bagh Talab, and Malik Talab.
- **Flora:** Dominated by the **Dhok tree** (*Anogeissus pendula*), along with Babul, Khair, and Gum trees. The vegetation is primarily dry deciduous forest.
- **Fauna:** In addition to the "Big Three" cats, the reserve hosts caracals, sambar, chital, chinkara, and bird species like the Sarus crane and serpent eagle.

Tiger Population Status

- As per the **2023 Tiger Census**, RTR shelters **71 tigers and cubs**. It is currently the **third most densely populated** tiger reserve in India, following Jim Corbett and Kaziranga.
- This high density increases the likelihood of territorial overlaps and transient encounters between different predator species.

Conclusion

The simultaneous presence of three distinct feline predators in Ranthambore underscores the reserve's role as a critical biodiversity hotspot. While such overlaps are usually avoided to prevent lethal competition, this event provides researchers with a unique opportunity to study how landscape connectivity and prey density can temporarily override traditional behavioral boundaries in a shrinking wilderness.

Sustainable Aviation Fuel (SAF) and ATF Regulatory Reforms

Why in News?

- The **Ministry of Petroleum and Natural Gas** has amended the **Aviation Turbine Fuel (Regulation of Marketing) Order, 2001**.
- The amendment expands the definition of Aviation Turbine Fuel (ATF) to include blends with **synthesised hydrocarbons** derived from non-petroleum sources.
- This policy shift provides the legal framework necessary to scale **Sustainable Aviation Fuel (SAF)** in India.

The Strategic Objective

- **Energy Security:** Much like ethanol blending in petrol, the goal is to reduce **import dependence** on crude oil, a critical priority given the supply chain vulnerabilities exposed by the **West Asia crisis**.
- **Decarbonisation:** The reform aligns India with international aviation standards, specifically the **International Civil Aviation Organisation's (ICAO)** Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), which becomes mandatory in 2027.

What is Sustainable Aviation Fuel (SAF)?

SAF is a biofuel produced from renewable feedstocks that is chemically similar to conventional petroleum-based ATF.

- **"Drop-in" Fuel:** It is fully compatible with existing aircraft engines and fueling infrastructure, requiring no modifications to the aircraft.
- **Carbon Footprint:** SAF can reduce lifecycle carbon emissions by up to **80%** compared to traditional jet fuel.

Feedstock and Conversion Pathways

Feedstock Category	Examples
Oils and Fats	Used cooking oil (UCO), animal fats, algae oils, non-edible oilseeds.
Agricultural Waste	Sugarcane bagasse, rice husk, forestry residues.
Municipal Waste	Solid waste from cities diverted from landfills.
Alcohols	Ethanol or butanol (requires **Alcohol-to-Jet** conversion).

Note on Ethanol: Unlike petrol, ethanol **cannot** be directly blended into jet engines. It must undergo the **Alcohol-to-Jet (ATJ) pathway**, where it is chemically converted into synthesised hydrocarbons before blending.

India's Blending Roadmap

The government has established indicative blending targets to signal demand to domestic biofuel producers:

- **2027:** 1% SAF blending (aligning with CORSIA mandate).
- **2028:** 2% SAF blending.
- **2030:** 5% SAF blending.

Global Context

- India joins a growing group of nations, including the **European Union, UK, USA, Japan, and Singapore**, that have implemented SAF mandates.
- These targets are essential for the aviation industry to reach **Net-Zero by 2050**, as electric and hydrogen-powered flight remains technologically unfeasible for long-haul commercial travel in the near term.

Conclusion

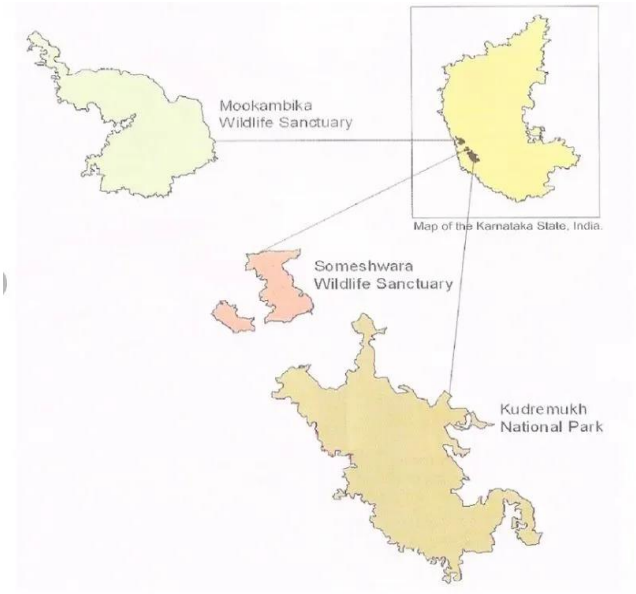
The amendment to the 2001 Order is a landmark step in making India's aviation sector "future-ready." By leveraging its vast agricultural and municipal waste resources, India can transition from a mere consumer of jet fuel to a potential global hub for SAF production, ensuring that the growth of **Viksit Bharat** is both high-speed and low-carbon.

EDITORIALS

Crux of The Hindu & Indian Express

Ecology & Environment

Temple Tourism and Environmental Stress in Western Ghats – Mookambika Wildlife Sanctuary Issue



Why in News

- Sewage from **temple-based tourism activities in Kollur (Udupi district, Karnataka)** is polluting the **Souparnika River**, which flows through Mookambika Wildlife Sanctuary.
- The issue has intensified due to **rapid tourism growth, unregulated commercialisation, and failure of sewage treatment systems**.
- The pollution is now threatening the **core biodiversity zone of the Western Ghats ecosystem**.

Key Points

1. About the Issue

- The Souparnika River is carrying **untreated sewage and sludge** from Kollur town into the sanctuary.
- Rapid expansion of **hotels, homestays, and tourism services** has increased waste discharge.
- Local authorities have permitted around **50 commercial establishments**, with additional unregulated units operating.

2. Environmental Impact

- Pollution is affecting the **river ecosystem and forest habitat**.
- Threats include:
  - Contamination of **drinking and bathing water sources**
  - Spread of **water-borne diseases**
  - Degradation of **aquatic and riparian ecosystems**
  - Stress on **wildlife dependent on river systems**

3. Biodiversity Significance of Mookambika Sanctuary

- Located in the **Western Ghats**, a global biodiversity hotspot.
- Notified in **1978**, covering around **247 sq km** (part of larger ecological landscape).
- Important species include:
  - **Tiger, leopard, wild dog, sloth bear**
  - **Lion-tailed macaque (endangered)**
  - **Malabar civet, giant squirrel, king cobra**

- Part of ecological corridor with:
    - Someshwara Wildlife Sanctuary
    - Kudremukh National Park

4. River System and Ecology

- Important rivers:
    - **Souparnika River** (currently polluted)
    - Chakra River
- Supports **dense evergreen and semi-evergreen forests**
- Critical habitat connectivity for **Western Ghats fauna movement**

5. Legal and Institutional Issues

Wildlife Protection Act Violation

- Under Section 29 of Wildlife Protection Act, 1972:
    - Destruction or alteration of wildlife habitat is a punishable offence
    - Punishment: up to **3 years imprisonment + fine**
    - Strict provisions for **Schedule I species protection**

Institutional Response

- Karnataka State Pollution Control Board (KSPCB) has issued **notices and restraining orders**
- Sewage Treatment Plant (STP) of **1.5 MLD capacity has become non-functional**
- Case reportedly under consideration of the **National Green Tribunal (NGT)**
- Forest Department has repeatedly flagged the issue to pollution authorities

6. Cause of the Problem

- **Unplanned tourism expansion**
- Failure of **wastewater management systems**
- Weak enforcement of **environmental regulations**
- Lack of coordination between **tourism, urban, and forest departments**

7. Broader Environmental Context

- Western Ghats is a **UNESCO-recognised biodiversity hotspot region**
- Acts as a critical **ecological corridor in peninsular India**
- Increasing pressure from:
    - **Religious tourism**
    - Infrastructure expansion
    - Urbanisation in eco-sensitive zones

Significance

- Highlights conflict between **religious tourism and ecological sustainability**
- Shows failure of **wastewater governance in eco-sensitive zones**
- Threatens **endangered and endemic species of Western Ghats**
- Undermines **India's commitments to biodiversity conservation**

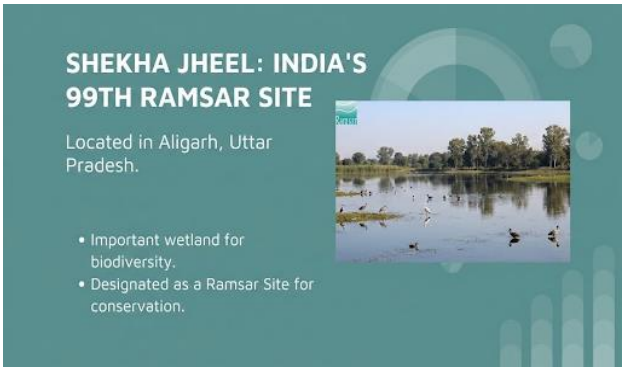
Challenges

- Weak enforcement of **environmental clearance norms**
- Poor maintenance of **sewage treatment infrastructure**
- High dependence on **tourism economy in local areas**
- Fragmented governance between **forest, urban, and pollution control bodies**

Way Forward

- Strict enforcement of **Eco-Sensitive Zone (ESZ) regulations**
- Upgrade and ensure functioning of **STPs with real-time monitoring**
- Introduce **carrying capacity-based tourism limits**
- Promote **eco-tourism instead of mass religious tourism**
- Strengthen **inter-departmental coordination (Forest–Urban–Tourism)**
- Use **NGT and CPCB monitoring for compliance enforcement**

Shekha Jheel: India's 99th Ramsar Site



Why in News?

- The Union Ministry of Environment, Forest and Climate Change has designated **Shekha Jheel Bird Sanctuary** in Aligarh, Uttar Pradesh, as a **Ramsar site** (Wetland of International Importance).
- This addition brings India's total count of Ramsar sites to **99** and strengthens Uttar Pradesh's position as a leader in wetland conservation with **12** designated sites.

Historical Origin

- **Formation:** Shekha Jheel is a **25-hectare freshwater perennial wetland**.
- **Genesis:** It was formed in **1852** as a byproduct of the construction of the **Upper Ganga Canal**.
- **Structure:** The canal effectively bisects the lake into two distinct segments, creating a unique hydrological environment.

Ecological Significance

The sanctuary serves as a vital biological corridor in the Indo-Gangetic plain:

- **Avian Habitat:** It acts as a critical wintering ground for over **166 water bird species**. Key migratory residents include the **Bar-headed Goose** (known for high-altitude migration) and the **Painted Stork**.
- **Mammalian Fauna:** The surrounding grasslands support the **Blackbuck** (protected under Schedule I of the Wildlife Protection Act) and the **Blue Bull** (Nilgai).

Flora and Native Vegetation

The wetland's periphery is dominated by ecologically significant trees:

- **Arjun Tree (*Terminalia arjuna*):** Known for its water-purifying qualities and riverbank stabilization.
- **Jamun (*Syzygium cumini*):** Provides a critical food source for local and migratory fruit-eating birds.

Environmental Challenges and Threats

Threat	Impact on the Ecosystem
Invasive Species	Aggressive spread of **Water Hyacinth**, **Lantana camara**, and **Parthenium** is choking native biodiversity.
Eutrophication	Uncontrolled weed growth depletes oxygen levels in the water, leading to a "dead zone" for aquatic life and reduced waterfowl habitat.
Siltation	Caused by unscientific mound construction in the 1990s, reducing the lake's depth and water-holding capacity.
Commercial Pressure	Aggressive **Water Chestnut (Singhara) farming** covers the water surface, preventing migratory birds from foraging.
Habitat Loss	Encroachment through land distribution schemes and poaching risks due to increased road proximity.

Ramsar Designation: A Conservation Catalyst

The Ramsar status is expected to trigger several protective measures:

1. **Management Plan:** Development of a "Wise Use" plan to balance local community needs (like fishing) with ecological conservation.
2. **Restoration Funds:** Access to international and central funding for desilting and the removal of invasive alien species.
3. **Eco-Tourism:** Strengthening the site as a destination for bird-watching, thereby providing sustainable livelihoods for the local population in Aligarh.

Conclusion

The designation of Shekha Jheel as a Ramsar site marks a significant victory for the "wetland-as-infrastructure" philosophy. By recognizing this 19th-century man-made marvel as a site of global importance, India reaffirms its commitment to the **Amrit Dharohar** initiative, ensuring that these "kidneys of the landscape" continue to support biodiversity and climate resilience for future generations.

The Synchronised Nilgiri Tahr Survey 2026

Why in News?

In early 2026, the **Tamil Nadu Forest Department**, in close coordination with the Kerala Forest Department, launched the **third synchronised Nilgiri Tahr survey**. This massive exercise aims to provide a definitive population count of this endangered species across its fragmented habitats in the **Western Ghats**.

- **Synchronisation:** By counting simultaneously across state boundaries (Tamil Nadu and Kerala), the survey avoids "double counting" individuals that migrate across state borders, ensuring high statistical accuracy.
- **Scale:** The survey covers over **3,100 km** across 14 forest divisions, stretching from **Ashambu Mottai** in the south to **Tavalamalai** in the north.

1. Technology and Scientific Rigour

To move away from traditional manual estimates, the 2026 survey integrates modern digital tools and independent oversight:

- **"Varudai" Mobile App:** A dedicated app for real-time data collection. It uses **GPS tracking** to map the exact location of sightings and provides a standardised reporting format for field guards.
- **Independent Verification:** Institutions like the **IUCN**, **Wildlife Trust of India**, and the **Botanical Survey of India** participate as observers to ensure the data is scientifically credible and free from administrative bias.

2. Profile of the Nilgiri Tahr (*Nilgiritragus hylocrius*)

The Nilgiri Tahr is a unique "mountain goat" (caprine ungulate) and is the only species of its genus found in the tropics.

- **Endemic Status:** It is found **only** in the Western Ghats of South India. It is the **State Animal of Tamil Nadu**.
- **Habitat:** They are "cliff-dwellers," inhabiting **montane grasslands and Shola forests** at high elevations (1,200–2,600 m). They rely on steep, rocky cliffs to escape predators.
- **Key Populations:**
    - **Eravikulam National Park (Kerala):** Home to the largest single population.
    - Other pockets include Anamalai Hills, Palani Hills, and the Agasthiyar Range.

3. Conservation Status and Threats

Category	Status/Detail
IUCN Red List	**Endangered**
Wildlife Protection Act, 1972	**Schedule-I** (Highest legal protection)
Lifespan	Approximately **9 years** in the wild.
Activity Pattern	**Diurnal** (Active during the day).

Major Threats

1. **Habitat Fragmentation:** Conversion of grasslands into monoculture plantations (like Eucalyptus or Tea) and hydroelectric projects.
2. **Livestock Competition:** Local cattle grazing in Tahr habitats leads to forage scarcity and potential disease transmission.
3. **Local Extinction:** The species has already vanished from certain historical ranges, such as the highlands of Karnataka.

4. Project Nilgiri Tahr

Launched in **October 2023**, this project is modeled after 'Project Tiger' and 'Project Elephant'.

- **Focus:** Habitat restoration (removing invasive species from grasslands), intensive population monitoring, and reintroduction of the Tahr into its historical ranges where it has gone extinct.

India's Vision for E100: The Road to Energy Self-Reliance

Why in News?

- In **April 2026**, the Union Minister for Road Transport and Highways set a bold new target

for India: transitioning toward **100% Ethanol Blending (E100)**.

- This move is designed to insulate the Indian economy from global oil supply shocks, particularly the volatility caused by conflicts in West Asia and the strategic vulnerability of the **Strait of Hormuz**.
- Having achieved the **E20 (20% blending)** target in 2025—five years ahead of schedule—India is now pivoting from being an importer of fossil fuels to a producer of homegrown biofuels.

1. Understanding the Ethanol Ecosystem

Ethanol (Ethyl Alcohol) is a biofuel produced primarily through the fermentation of sugars. In India, it has evolved from a byproduct of the sugar industry into a mainstream energy pillar.

The Generation Gap in Biofuels

- **1G (First Generation):** Derived from edible sources like sugarcane molasses, corn, and surplus rice. While technologically mature, it triggers the "Food vs. Fuel" debate.
- **2G (Second Generation):** Produced from non-edible agricultural residue like **paddy stubble** and bamboo. This is critical for solving North India's air pollution (stubble burning).
- **3G (Third Generation):** Derived from **Algae**. It offers high yields without requiring arable land, though it is currently in the R&D stage.
- **4G (Fourth Generation):** Focuses on genetically modified crops and carbon capture technologies.

2. The Shift from E20 to E100

While E20 is now the national standard, E100 represents a total shift in automotive technology.

Fuel Grade	Composition	Vehicle Requirement
E10 / E20	10% or 20% Ethanol + Petrol.	Standard Internal Combustion Engines (ICE).
E100	**Pure Ethanol** (No Petrol).	**Flex-Fuel Vehicles (FFVs)** with corrosion-resistant parts and advanced sensors.

The Brazil Model: India aims to replicate Brazil's success, where **FFVs make up 80% of the market**. Since 2003, Brazilian sensors have allowed engines to automatically adjust to any mix of ethanol and petrol in the tank.

3. Impact of the Ethanol Blending Programme (EBP)

India's journey from 2 billion liters of production in 2014 to **20 billion liters in 2026** has had transformative effects:

- **Economic Security:** Saved over **Rs 1.4 lakh crore** in foreign exchange. It transforms farmers from *Annadatas* (food providers) into **Urjadaatas** (energy providers), with procurement earnings exceeding Rs 1.18 lakh crore.
- **Environmental Gains:** E20 blending has already reduced CO_2 emissions by **832 lakh metric tonnes**. Ethanol, being oxygenated, ensures more complete combustion in engines.
- **Circular Economy:** Grain-based ethanol produces **DDGS (Dried Distillers Grain with Solubles)**, a high-protein byproduct used as premium cattle feed.

4. Challenges in the E100 Transition

Scaling beyond E20 faces significant structural and ecological hurdles:

1. **The Mileage Gap:** Pure ethanol has **45–55% less energy density** than petrol, meaning vehicles get fewer kilometers per liter.
2. **Water Stress:** Sugarcane is a "thirsty" crop. Producing one liter of ethanol requires nearly **3,000 liters of water**, threatening groundwater in states like Maharashtra.
3. **Infrastructure Costs:** Fuel stations need specialized underground tanks and dispensing units for E100, as ethanol is highly corrosive to standard rubber and plastic parts.
4. **Taxation:** Ethanol attracts **5% GST**, but petrol is under the Excise/VAT regime. Without a clear price advantage at the pump, consumers may resist E100.

5. The Way Forward: Sustainability and Innovation

To reach E100 without compromising food security or water levels, the government is focusing on:

- **2G Acceleration:** Moving away from sugarcane toward "Waste-to-Wealth" using agricultural stubble.
- **CAFE III Norms (2027):** Linking ethanol targets with **Corporate Average Fuel Efficiency** standards to force automakers to produce affordable Flex-Fuel engines.
- **Beyond Transport:** Exploring ethanol for **clean cooking stoves** (via IIT R&D) and blending in **Diesel**, which accounts for the bulk of India's fuel consumption.

Conclusion

India's E100 strategy is not just about fuel; it is about **Strategic Autonomy**. By localizing energy production, India is decoupling its growth from global geopolitical shocks. However, for E100 to be truly "green," the transition must be fueled by **2G and 3G sources** rather than water-intensive sugarcane.

❐❐❐

Geography

IMD Summer Forecast 2026

Colour Code	Alert	Warning	Impact	Suggested Actions
Green (No action)	Normal Day	Maximum temperatures are near normal	Comfortable temperature. No cautionary action required.	Nil
Yellow Alert (Be updated)	Heat Alert	Heat wave conditions at isolated pockets persists on 2 days	Moderate temperature. Heat is tolerable for general public but moderate health concern for vulnerable people e.g. infants, elderly, people with chronic diseases	(a) Avoid heat exposure. (b) Wear lightweight, light-coloured, loose, cotton clothes. (c) Cover your head: Use a cloth, hat or umbrella
Orange Alert (Be prepared)	Severe Heat Alert for the day	(i) Severe heat wave conditions persists for 2 days (ii) Through not severe, but heat wave persists for 4 days or more	High temperature. Increased likelihood of heat illness symptoms in people who are either exposed to sun for a prolonged period or doing heavy work. High health concern for vulnerable people e.g. infants, elderly, people with chronic diseases.	(b) Avoid heat exposure– keep cool. Avoid dehydration. (b) Drink sufficient water- even if not thirsty. (c) Use ORS, homemade drinks like lassi, torani (rice water), lemon water, buttermilk, etc. to keep yourself hydrated
Red Alert (Take Action)	Extreme Heat Alert for the day	(i) Severe heat wave persists for more than 2 days. (ii) Total number of heat/severe heat wave days exceeding 6 days.	Very high likelihood of developing heat illness and heat stroke in all ages.	Extreme care needed for vulnerable people.

Why in News?

The India Meteorological Department released its **Summer Forecast (April–June 2026)** predicting:

- Increase in **heatwave days** across several regions
- Rise in **minimum (night-time) temperatures**
- Possible emergence of El Niño conditions affecting the **monsoon**

Key Highlights of IMD Summer Forecast 2026

Heatwave Trend

- **Above-normal heatwave days** expected over **East, Central, Northwest India** and the **Southeast Peninsula**
- Indicates **intensification of extreme heat events**

Temperature Pattern

- **Above-normal temperatures** likely over **East and Northeast India**, **eastern Central India**, and adjoining **peninsular regions**
- Other regions may experience **normal to below-normal temperatures**

North India Exception

- Likely to experience a **cooler-than-normal summer**
- Reflects **regional variability in climate behaviour**

Heatwave-Prone Areas

- **Odisha, West Bengal**
- **Tamil Nadu, Puducherry**
- **Andhra Pradesh**
- Parts of **Gujarat, Maharashtra, Karnataka**

Western Disturbances

- Around **12% above-normal rainfall** expected in April
- Due to higher frequency of Western Disturbances
- Leads to **temporary moderation of temperatures**

El Niño Concern

- Likely development by **July**
- May weaken **monsoon circulation**, reduce **rainfall**, and affect **onset** due to weaker **land heating**

What are Heat Waves?

A **heat wave** is a period of **abnormally high temperatures** relative to the normal climate of a region.

- Occurs mainly between **March and June (peak in May)**

- Not classified as a disaster under the Disaster Management Act 2005

IMD Criteria for Declaring Heat Waves

Based on Temperature Thresholds

- Plains: **≥ 40°C**
- Hilly regions: **≥ 30°C**
- Coastal areas: **≥ 37°C** with **departure ≥ 4.5°C**

Based on Departure from Normal

- Heat wave: **+4.5°C to +6.4°C**
- Severe heat wave: **> +6.4°C**

Based on Actual Temperature

- Heat wave: **≥ 45°C**
- Severe heat wave: **≥ 47°C**

Spatial Condition

- At least **2 stations** in a **meteorological subdivision**
- Persistence for at least **2 consecutive days**

Causes of Heat Waves

Geographical Factors

- **Latitude**: Regions near the **Tropic of Cancer** receive intense solar radiation
- **Terrain**: **Rocky and black soils** retain heat longer
- **Distance from sea**: Inland areas lack **moderating maritime influence**
- **Urban Heat Island effect**: Built-up areas trap heat and raise local temperatures

Climatic Factors

- **Lack of moisture**: Dry soils reduce **evaporative cooling**
- **Clear skies**: Allow direct **solar radiation**
- **Wind and pressure**: **Weak winds** and **high-pressure systems** trap heat near the surface
- **Global drivers**: **El Niño** reduces rainfall and enhances heating
- **Local winds**: Hot winds such as the **"Loo"** increase temperatures

Impacts of Heat Waves

Public Health

- **Heatstroke, dehydration, cardiovascular stress**
- High vulnerability among **elderly, children, outdoor workers**
- Significant **heat-related mortality** reported in recent years

Agriculture

- **Accelerated crop maturity** leading to **reduced yields**
- Particularly affects **Rabi crops** like wheat

Water Resources

- Increased **evaporation** and declining **groundwater levels**
- Rising **water demand**

Economy

- Reduced **labour productivity**
- Increased **energy demand** for cooling

Environment

- Increased **forest fire incidents**
- **Ecosystem degradation** and **biodiversity loss**

India's Mitigation Measures

Heat Action Plans (HAPs)

- **Early warning systems**, **vulnerability mapping**, and **coordinated response**

IMD Warning System

- **Colour-coded alerts** for timely preventive action

Jal Shakti Abhiyan

- Focus on **water conservation** and **resource management**

Smart Cities Mission

- Promotes **green infrastructure** and **urban cooling strategies**

Cool Roof Initiatives

- Use of **reflective materials** to reduce **indoor temperatures**

Analytical Points

- Heatwaves are **slow-onset disasters** but lack **formal disaster classification**
- Rising **minimum temperatures** increase health risks due to reduced **night-time recovery**
- **Climate variability**, especially **El Niño**, is intensifying extreme heat events
- Need for integrating heatwave management into **disaster policy**, improving **urban planning**, and strengthening **climate-resilient agriculture**

Cotton Crisis in India: Structural Stress in "White Gold" Economy

Why in News?

- The convergence of **pest resistance**, **market volatility**, and rising **input costs** has made cotton cultivation economically unviable in several regions, especially Haryana.
- This is leading to a shift away from cotton towards **water-intensive paddy**, worsening groundwater stress.

Overview

- India's cotton sector is under pressure from **biological, economic, and ecological stresses**. Once a profitable **Kharif cash crop**, cotton is now facing declining profitability and shrinking acreage.

Key Challenges in Cotton Farming

Pest Resistance Crisis

- **Pink Bollworm** has developed resistance to Bt cotton since around 2014
- Yield has fallen from **10–12 quintals/acre to 3–4 quintals/acre**
- Effectiveness of Bt technology has significantly reduced

Economic Non-Viability

- Farmers face average losses of about **₹15,000 per acre**
- Input costs (~₹40,000/acre) exceed returns (~₹25,000/acre)
- Cotton cultivation is increasingly financially unsustainable

Declining Cultivation Area

- Area reduced from **0.72 million hectares (2019–20)** to **0.40 million hectares (2024–25)**
- Reflects falling farmer confidence in the crop

MSP and Market Issues

- Farmers often sell below **Minimum Support Price (MSP)**
- Private traders exploit **quality disputes and weak procurement systems**
- Ineffective procurement reduces price assurance

Shift to Paddy and Ecological Stress

- Farmers shifting to **paddy cultivation** despite incentives like "Mera Pani-Meri Virasat"
- Leads to **groundwater depletion** in semi-arid regions such as Sirsa and Hisar

Terms of Trade Imbalance

- Rising input costs vs stagnant output prices
- Continuous decline in **real income of farmers**

Socio-Economic Impact

- Cotton is **labour-intensive**, supporting women and local rural workers
- Shift to mechanised crops reduces local employment
- Leads to **migration and loss of seasonal livelihoods**

Insurance and Policy Gaps

- Under **Pradhan Mantri Fasal Bima Yojana (PMFBY)**, delays and rejections in claims persist
- Weak grievance redressal reduces farmer trust

Cotton in India: Key Facts

Overview

Cotton, known as **"White Gold"**, is a major commercial crop and a backbone of the **textile industry**.

Climate and Soil Requirements

- Temperature: **21°C–30°C**
- Rainfall: **50–100 cm**
- Requires **~210 frost-free days**
- Grows best in **black cotton soil**, also in alluvial and red soils

Production Status

- India is the **2nd largest producer** after China
- Accounts for about **20% of global production**
- Has the **largest cotton cultivation area globally (~40%)**

Major Cotton Zones

- North: Punjab, Haryana, Rajasthan
- Central: Gujarat, Maharashtra, Madhya Pradesh
- South: Telangana, Andhra Pradesh, Karnataka, Tamil Nadu

Varietal and Technology Profile

- India grows all **four cotton species**, including G. hirsutum (dominant)
- About **95% area under Bt cotton**
- Bt cotton introduced in 2002 to control bollworm

Economic Importance

- Supports around **6 million farmers** and **40–50 million allied workers**
- Major **export commodity** (second largest exporter after China)
- Key markets include Bangladesh, Vietnam, China, Indonesia
- Backbone of India's **textile industry and GDP contribution**

Government Initiatives

- **MSP support** for medium and long staple cotton
- Cotton Corporation of India: price support and procurement agency
- **"Kasturi Cotton India"** branding initiative for global premium positioning
- **Mission for Cotton Productivity** to improve yield
- **PM MITRA Parks** for integrated textile value chain
- Other initiatives include Cott-Ally App, National Technical Textiles Mission, and Cotton Development Programme

Way Forward

Next-Generation Seeds

- Develop advanced Bt and hybrid varieties
- Address **Pink Bollworm resistance**

High-Density Planting System (HDPS)

- Increase plant density per acre
- Improve yield and mechanisation efficiency

Long-Staple Cotton Promotion

- Reduce import dependence on high-quality cotton
- Encourage cultivation in suitable regions

Strengthening Branding

- Expand **"Kasturi Cotton India"**
- Improve traceability and global competitiveness

Infrastructure Modernisation

- Upgrade ginning and pressing units
- Improve fibre quality and reduce contamination
- Integrate value chain via PM MITRA

Integrated Pest Management

- Promote biological controls like pheromone traps and beneficial insects
- Reduce chemical pesticide dependence

Digital Integration

- Use blockchain for traceability
- Satellite monitoring for crop estimation and insurance transparency

Conclusion

India's cotton crisis reflects a deeper **agricultural structural imbalance** driven by pest resistance, market inefficiencies, and ecological pressures. A coordinated strategy combining **technology, policy reform, and value-chain integration** is essential to restore cotton's viability as India's key commercial crop.

Rohingya Maritime Crisis in the Andaman Sea

Why in News?

- In **April 2026**, the United Nations Refugee Agency (**UNHCR**) and the International Organization for Migration (**IOM**) reported a tragic maritime disaster in the Andaman Sea.
- An overcrowded trawler carrying approximately **250 individuals**, primarily **Rohingya refugees** and Bangladeshi nationals, capsized while en route to Malaysia, leaving hundreds feared dead or missing.

Context :

- **The Incident:** The vessel departed from **Teknaf, Bangladesh**, on March 26 and reportedly sank on **April 9, 2026**, due to rough seas, heavy winds, and extreme overcrowding.
- **Casualties:** While **9 survivors** were rescued near the Andaman Islands, roughly **250 people** remain missing.
- **A Growing Crisis:** 2025 was the deadliest year on record for this route, with nearly **900 deaths**. The trend has intensified in 2026, with over **2,800 individuals** attempting the crossing in the first quarter alone.

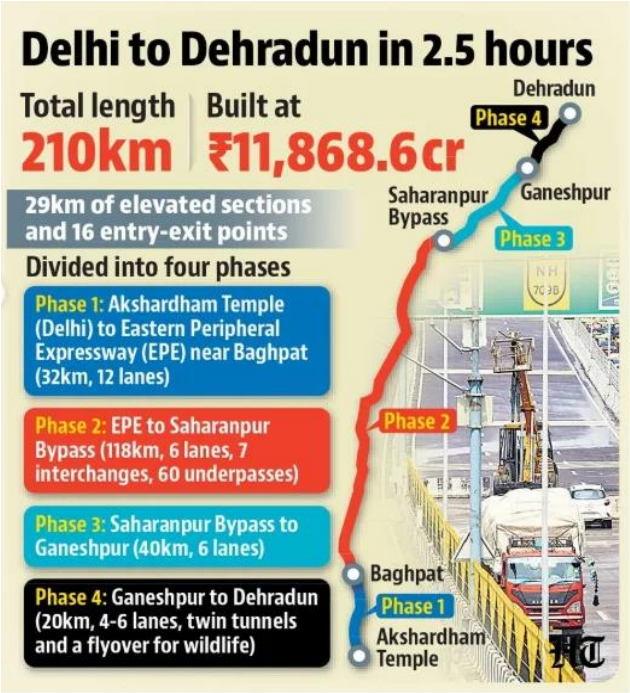
Geography of the Andaman Sea

Feature	Description
Location	A marginal sea of the northeastern **Indian Ocean**.
Boundaries	Bordered by **Myanmar and Thailand** (North/East), the **Malay Peninsula and Sumatra** (South), and separated from the Bay of Bengal by the **Andaman and Nicobar Islands** (West).
Key Waterways	Narrows into the **Strait of Malacca**, a vital global trade corridor linking the Indian and Pacific Oceans.
Major Inflows	Receives water from the **Irrawaddy, Salween, and Sittang** rivers.

Push Factors: Why Refugees Take the Risk?

- **Conditions in Myanmar:** Ongoing conflict, persecution, and the absence of citizenship prospects in **Rakhine State** leave the Rohingya with no safe way to return home.
- **Camps in Bangladesh:** In refugee camps like **Cox's Bazar**, severe funding shortfalls have led to **food ration cuts**, limited education, and rising insecurity, pushing families to seek better lives in **Indonesia or Malaysia**.
- **Regional Inaction:** A lack of coordinated search-and-rescue efforts and restricted legal pathways for asylum force refugees into the hands of smuggling networks.

Delhi–Dehradun Economic Corridor



Why in News?

- In early **2026**, the **Delhi–Dehradun Economic Corridor** was officially inaugurated.
- This flagship infrastructure project is designed to drastically improve regional connectivity, promote tourism in the Himalayan foothills, and serve as a model for balancing rapid industrial development with environmental conservation.

Project Overview

- **Scale:** A **210-km**, six-lane access-controlled expressway.
- **Design Speed:** Minimum speed of **100 kmph**.
- **Cost:** Built at an estimated cost of **11,868 crore**.
- **Travel Impact:** Reduces travel time between Delhi and Dehradun from **5–6 hours to just 2–2.5 hours**.
- **Operational Efficiency:** Features FASTag-based tolling and dedicated service roads for local traffic to ensure smooth, congestion-free transit.

Connectivity and Phasing

Phase/Segment	Type	Details
Akshardham to Khekra	Brownfield	A **31.6 km** elevated stretch starting from Delhi.
Baghpat to Saharanpur	Greenfield	A **120 km** section passing through Uttar Pradesh.
Saharanpur to Ganeshpur	Existing/Upgraded	A completed **42 km** segment.
Ganeshpur to Dehradun	Greenfield/Tunnel	Final **20 km** segment entering Uttarakhand.

- **Regional Integration:** Includes a spur to **Haridwar** (connecting to the Char Dham Highway) and integrates with the **Delhi-Mumbai**, **Delhi-Katra**, and **Delhi-Meerut** Expressways.

Environmental and Wildlife Measures

The corridor is hailed for its "nature-first" engineering approach, particularly in the ecologically sensitive Shiwalik range:

- **Asia's Largest Wildlife Corridor:** Features a **12-km elevated stretch** (the longest of its kind in Asia) that allows wildlife in **Rajaji National Park** to move freely underneath the expressway.
- **Wildlife Crossings:** Includes dedicated elephant underpasses and a specialized tunnel near the **Daat Kali Temple** to prevent man-animal conflicts.
- **Sustainability:**
  - **Fuel Savings:** Expected to reduce fuel consumption by **19%**.
  - **Carbon Footprint:** Projected to reduce **CO2 emissions by 240 million tonnes** over the next 20 years.

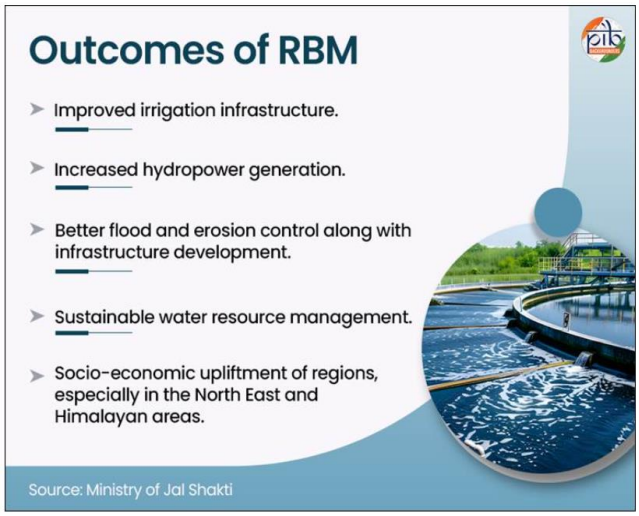
Economic and Social Impact

- **Tourism Surge:** Provides seamless access to major spiritual and tourist hubs like **Rishikesh, Haridwar, and Mussoorie**, significantly boosting Uttarakhand's hospitality sector.
- **Logistics & Industry:** Facilitates the growth of warehousing and industrial clusters along the Saharanpur-Baghpat belt.
- **Agricultural Reach:** Enhances market access for farmers and livestock owners in Western UP and Uttarakhand, allowing perishable goods to reach Delhi markets faster.
- **Employment:** Generated thousands of construction jobs and is expected to create long-term opportunities in the service and maintenance sectors.

Conclusion

The Delhi–Dehradun Economic Corridor is a landmark in India's **Gati Shakti** vision. By cutting travel time by more than half while simultaneously protecting the migration paths of the Shivalik elephants, it demonstrates that large-scale economic infrastructure and environmental stewardship can coexist.

River Basin Management (RBM) Scheme: Extension to 2031



Why in News?

- The **River Basin Management (RBM) Scheme** has been extended for the **16th Finance Commission** period, spanning **2026–27 to 2030–31**.
- This extension underscores India's commitment to integrated and sustainable water resource management, treating river basins as single, interconnected ecosystems.

Context of the RBM Scheme

- The RBM Scheme is a central sector initiative under the **Ministry of Jal Shakti**. Its primary philosophy is to move away from fragmented water management and toward a "basin-level" approach.

- This involves the integrated planning of surface and groundwater, including rivers, tributaries, and lakes, to ensure long-term water security and ecological stability.

Institutional Framework

The scheme is implemented through three specialized bodies, each with a distinct geographic and functional mandate:

- **Brahmaputra Board:** Dedicated to the **North Eastern Region**, focusing on flood control, erosion management, and drainage development in the Brahmaputra and Barak basins.
- **Central Water Commission (CWC):** Conducts critical surveys and prepares Detailed Project Reports (DPRs) for water projects, especially in **remote and hilly terrains**.
- **National Water Development Agency (NWDA):** Leads national-level planning for the **Interlinking of Rivers (ILR)** programme by preparing feasibility and link reports.

Key Objectives and Priorities

- **Geographical Focus:** Strategically targets water-rich but underdeveloped regions critical for national security, such as the **Indus, Teesta, and Brahmaputra basins** (J&K, Ladakh, and NE States).
- **Flood & Erosion Management:** Executing physical protection works, such as the ongoing efforts to protect **Majuli Island** in Assam from the Brahmaputra's currents.
- **Technological Modernization:** Integrating advanced tools like **GIS, LiDAR, and drone surveys** for high-precision topographical and hydrological mapping.
- **Resource Development:** Preparing DPRs to harness hydropower potential and expand irrigation capacity in the Himalayan rivers.
- **Community Practices:** Promoting **springshed management** to protect vital water sources for tribal and rural communities in hilly areas.

River Basins in India: A Profile

Category	Criteria / Details
Definition	The entire land area drained by a main river and its tributaries; the basic hydrological unit for planning.
Major Basins	Catchment area **>20,000 sq km**. Includes 12 basins (e.g., Ganga, Indus, Godavari, Krishna, Narmada).
Medium Basins	Catchment area between **2,000 and 20,000 sq km**.
Minor Basins	Catchment area **<2,000 sq km**.
Largest Unit	The **Ganga–Brahmaputra–Meghna** basin, covering ~43% of the total major river catchment area.

Significance of the Scheme

- **Water Security:** By focusing on inter-state river basins—which cover **81% of India's area**—the scheme minimizes conflicts and optimizes resource sharing.
- **Climate Resilience:** Integrated management helps buffer against extreme weather events, such as flash floods in the Himalayas or bank erosion in the Northeast.
- **Sustainable Hydropower:** Provides the technical groundwork for clean energy projects that are vital for India's net-zero transition.

Conclusion

The extension of the RBM Scheme to 2031 reflects a strategic shift toward scientific and data-driven water governance. By treating the river basin as the fundamental unit of development, India is better positioned to manage cross-border water issues, mitigate flood disasters, and ensure that its "water towers" in the North and Northeast are utilized sustainably for the nation's growth.

Supreme Court Warning on Illegal Sand Mining in Chambal

Why in News?

- The **Supreme Court** has issued a stern warning to Madhya Pradesh, Rajasthan, and Uttar Pradesh to curb rampant illegal sand mining in the **National Chambal Gharial Sanctuary**.
- The apex court indicated that failing strict enforcement, **paramilitary forces** may be deployed to protect this ecologically fragile zone.

Context of the Crisis

- Illegal sand mining is causing severe **habitat degradation**, specifically targeting the sandbanks where gharials nest.
- This activity threatens the survival of endangered species and disrupts the river's natural flow.
- The states have been directed to implement high-tech surveillance, including **CCTV monitoring, GPS tracking of vehicles**, and joint inter-state patrols.

National Chambal Gharial Sanctuary: Profile

- **Unique Status:** It is India's **only tri-state protected area**, managed jointly by Rajasthan, Madhya Pradesh, and Uttar Pradesh.
- **Scale:** Spans approximately **5,400 sq km** along a **600 km stretch** of the Chambal River.
- **Project Crocodile:** The sanctuary is a core part of the **Project Crocodile** initiative launched in **1975** to prevent the extinction of crocodilians.
- **Ecological Uniqueness:** The Chambal is one of India's cleanest rivers, characterized by deep channels, expansive sandbanks, and the famous **Chambal ravines (beehad)**.

Biodiversity Highlights

Species	Conservation Significance
Gharial	Harbors nearly **90%** of the world's remaining wild population.
Ganges River Dolphin	A significant population of this endangered freshwater mammal resides here.
Red-crowned Roof Turtle	Critically endangered; the sanctuary is one of its last strongholds.
Indian Skimmer	One of the 330+ bird species that utilize the river's sandbanks for nesting.
Other Fauna	Smooth-coated otter, Marsh crocodile (mugger), and striped hyena.

Conservation and Global Recognition

- **Important Bird Area (IBA):** Recognized globally for its diverse avian population.
- **IUCN Category IV:** Classified as a habitat/species management area focused on the protection of specific species.
- **Future Status:** It is a **proposed Ramsar Site** and a candidate for **UNESCO World Heritage Site** status.

Threats Beyond Mining

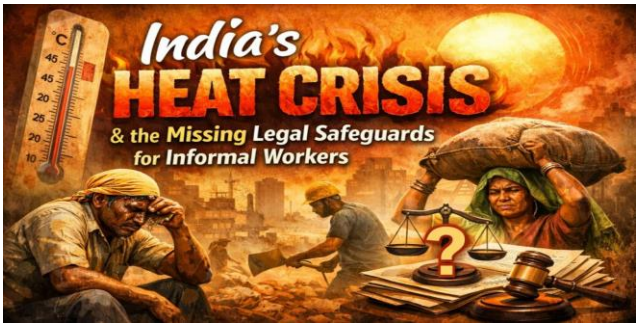
While sand mining is the most immediate threat, the sanctuary also faces challenges from:

- **Water Diversion:** Irrigation projects that reduce river flow and shrink habitats.
- **Pollution:** Run-off from nearby agricultural fields affecting water quality.
- **Illegal Fishing:** Depleting the prey base for gharials and dolphins.

Conclusion

The Supreme Court's intervention underscores the urgent need for a unified, technology-driven approach to conservation. Protecting the National Chambal Sanctuary is not just about a river; it is about preserving the last natural refuge for the gharial and ensuring the health of one of the few remaining unpolluted riverine ecosystems in the Indian subcontinent.

Thermal Injustice and the Extreme Heat Crisis in India



Why in News?

- India is witnessing an alarming rise in **extreme heat events**, with over **57% of districts** now classified as heat-prone.
- Policy experts highlight how the absence of a robust legal framework is worsening the vulnerability of informal workers, turning

heatwaves into a systemic socio-economic and human rights crisis.

The Concept of "Thermal Injustice"

Thermal injustice occurs when the burden of extreme heat falls disproportionately on vulnerable populations due to poverty, overcrowding, and inadequate infrastructure. While affluent households use private purchasing power for air-conditioning and insulated housing, the poor are left with limited cooling autonomy.

- **Demographic Risk:** 57% of districts, housing 76% of the population, face high to very high heat risk.
- **Urban Heat Islands:** Densely built neighborhoods intensify temperatures, sharply dividing impacts along class, caste, and gender lines.
- **Labor Vulnerability:** 400 to 490 million informal workers (construction, delivery, sanitation) operate in hazardous micro-climates with zero "cooling autonomy."

Economic and Health Impacts

- **Productivity Loss:** In 2024, India lost **247 billion labor hours** and approximately **USD 194 billion in income** due to heat.
- **Survival Dilemma:** Workers often choose between biological survival (taking a break) and economic survival (earning daily wages), as heat alerts lack wage compensation.
- **Under-recorded Suffering:** Gaps between suspected heatstroke cases and confirmed deaths suggest weak surveillance and an injustice in whose suffering is officially addressed.

India Cooling Action Plan (ICAP)

Launched in 2019, ICAP makes India the **first country** to develop a national policy for cooling.

- **Vision:** A 20-year perspective (2018–2038) to reduce cooling demand by **20–25%** and energy requirements by **25–40%**.
- **Kigali Amendment:** India will phase down **Hydrofluorocarbons (HFCs)** in a four-step schedule starting in 2032, reaching an 85% reduction by 2047.

Legal and Policy Gaps

Policy Area	Existing Gap
Disaster Law	Heatwaves are **not** a "notified disaster" under the Disaster Management Act, 2005, limiting SDRF/NDRF funding.
Labour Rights	The Factories Act, 1948 protects only indoor workers; the OSHWC Code, 2020 lacks enforceable heat safety standards.
Measurement	Relies on "dry-bulb" temperature, ignoring **humidity**, which is a critical factor in heat stress.
Gig Economy	Algorithmic pressure on delivery partners ignores extreme heat, with no mandated rest periods or hazard pay.

The Heat Index: Understanding "Feels-Like" Temperature

The **Heat Index** is a metric that combines air temperature and relative humidity. High humidity prevents sweat from evaporating, making the body feel significantly hotter than the actual thermometer reading, which increases the risk of heat exhaustion.

Measures to Address the Crisis

- **National Disaster Status:** Formally include heatwaves in the Notified National Disaster list for 2026–31 to unlock funding.
- **Transition to Heat Index:** Use the Heat Index as the primary legal trigger for declaring heatwaves, particularly for coastal protection.
- **Recognize 'Right to Cool':** Derive a constitutional "Right to Cool" from the **Right to Life (Article 21)**, requiring ULBs to provide cooling shelters and public water.
- **Binding Work-Rest Cycles:** Mandate protected breaks and specialized PPE (like insulated flasks) under the OSHWC Code.
- **Financial Buffers:** Launch parametric insurance models (like the SEWA blueprint) to compensate for income lost during extreme heat days.

Conclusion

As climate change accelerates, India must transition its approach from mere mortality prevention to **livelihood protection**. Bridging the legislative vacuum requires treating heat as a labor rights and constitutional issue, ensuring thermal safety becomes a non-negotiable component of the social contract.

India's Forest Carbon Storage Potential by 2100

Why in News?

- A recent study published in *Environmental Research: Climate* reveals that **India's forests could nearly double their carbon storage** by 2100.
- While this highlights a massive climate mitigation potential, researchers also warn of "masked stresses" that could threaten long-term ecological stability.

Context of Carbon Biomass Growth

- The study projects a significant rise in vegetation carbon biomass across different climate pathways.
- By 2100, storage is expected to increase by **35%** under low-emissions, **62%** under medium-emissions, and up to **97%** under high-emissions scenarios.
- The most rapid acceleration is anticipated to occur after **2050**.

Core Drivers of the Increase

- **CO_2 Fertilization:** Elevated atmospheric CO2 levels enhance photosynthesis and improve water-use efficiency in plants.
- **Increased Precipitation:** Rising global temperatures are expected to increase rainfall in several Indian regions, providing more moisture to support denser tree growth.

Geographical Shifts in Carbon Storage

Region Type	Projected Trend	Reasoning
Arid & Semi-Arid Zones	**Highest relative increase** in Rajasthan, Gujarat, and Western MP.	Transition of drylands into greener zones due to increased moisture.
Western Ghats & Himalayas	Smaller relative increases.	These regions face **ecological saturation** and specific climatic pressures.
Forest Heartlands	Steady but moderate growth.	Established forests have less "room" for massive percentage jumps compared to drylands.

The "Masked Stress" Caveat

Researchers caution that a higher carbon stock does not automatically equal a healthier ecosystem. Current models may suffer from:

- **Nutrient Limitations:** Soil may lack the necessary nitrogen or phosphorus to sustain such rapid growth.
- **Climate Disturbances:** Increased risks of **wildfires, droughts, and pest outbreaks** could lead to sudden, large-scale carbon releases.
- **Instability:** Rapid biomass accumulation in non-traditional forest zones can lead to ecological degradation if not managed scientifically.

Comparison: Long-term Models vs. Official FSI Data

The study's projections diverge from the **Forest Survey of India (FSI)**, which relies on field observations and remote sensing:

- **FSI Data (2013-2023):** Shows a modest rise from 6.94 to 7.29 billion tonnes.
- **FSI 2030 Projection:** Aims for 8.65 billion tonnes.
- **The Study (2100):** Suggests a much more aggressive, non-linear growth curve driven by atmospheric changes rather than just plantation drives.

Significance for National Climate Goals

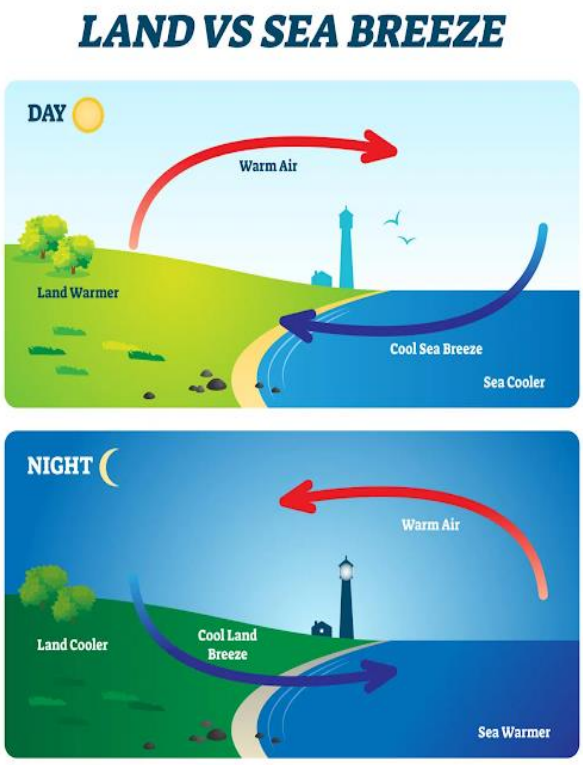
- Understanding these dynamics is vital for India's **Nationally Determined Contribution (NDC)**.

- For the **2031–2035** period, India has raised its forest carbon sink target to **3.5–4 billion tonnes of CO2 equivalent**.
- Achieving this requires balancing the natural growth driven by climate change with active protection against the risks of forest instability.

Conclusion

The potential doubling of India's forest carbon sink offers a glimmer of hope for climate mitigation. However, the geographical shift toward arid zones and the risk of "masked stress" suggest that India's future forest policy must move beyond simple tree-planting to sophisticated, risk-aware ecosystem management. Ensuring that these future forests remain stable is as important as growing them.

Impact of Global Warming on Sea-Land Breeze Systems



Why in News?

- A recent study has reported that **global warming** is significantly weakening the sea-land breeze systems in coastal cities.
- This reduction in the natural cooling effect is intensifying urban heat stress and posing a long-term threat to the habitability of coastal megacities.

Context of Global Warming

- Global warming refers to the long-term rise in Earth's average surface temperature, primarily driven by the emission of **greenhouse gases (GHG)** such as **carbon dioxide (CO2)** and **methane (CH4)**.
- These gases trap heat in the atmosphere, leading to a warming of both the land and the oceans, which disrupts localized weather patterns.

Mechanism of Sea and Land Breezes

The sea-land breeze is a local wind system driven by **differential heating**:

- **Sea Breeze (Daytime):** During the day, land heats up faster than the ocean. The warm air over land rises, creating low pressure. Cooler, higher-pressure air from the sea rushes in to fill the gap, providing a natural cooling effect.
- **Land Breeze (Nighttime):** At night, the land cools faster than the sea. The sea remains relatively warmer, causing air to rise over the water. This creates higher pressure over the land, and the wind reverses, blowing from the land toward the sea.

Key Findings of the Study

- **Reduced Thermal Contrast:** Rising ocean temperatures are closing the temperature gap between land and sea. This diminished contrast weakens the pressure gradient that drives the breeze.
- **Declining Frequency:** The number of sea-breeze days has already declined by approximately **3%** across 18 major coastal megacities, including **Mumbai** and **Miami**.
- **Regional Variation:** Mid-latitude cities like **London, New York, Shanghai, and Buenos Aires** have experienced even sharper declines in breeze intensity.
- **Future Projections:** By 2050, sea breezes could weaken up to **4.5 times faster** if global emissions remain on a high-growth trajectory.

Socio-Economic and Environmental Impacts

Impact Category	Consequence
Urban Heat	Intensification of the **Urban Heat Island** effect as natural cooling disappears.
Air Quality	Weakened breezes fail to disperse pollutants, leading to higher concentrations of smog and particulate matter.
Public Health	Increased risk of heat-related illnesses and respiratory issues due to stagnant, hot air.
Energy Demand	Higher reliance on air conditioning, leading to increased electricity consumption and carbon emissions.

Conclusion

The weakening of the sea-land breeze is a "silent" climate impact that removes a vital natural defense against extreme heat. As coastal populations grow, the loss of this circulation system makes the transition to sustainable urban planning and stringent emission cuts even more urgent to prevent coastal cities from becoming unbearable heat traps.

World Earth Day 2026: "Our Power, Our Planet"

Why in News?

- **World Earth Day**, also known as **International Mother Earth Day**, is observed annually on **22nd April**.
- In 2026, the global community marked the 56th anniversary of this movement, focusing on the urgent need to transition to renewable energy and hold entities accountable for environmental degradation.

2026 Theme: "Our Power, Our Planet"

The 2026 theme emphasizes that environmental progress is sustained by the **daily actions of communities**, educators, and families rather than just political cycles.

- **Renewable Energy:** A core focus is tripling global renewable energy generation by 2030 to alleviate "energy poverty" for the 3.8 billion people living below the Modern Energy Minimum.
- **Accountability:** The theme drives a shift toward making "environmental democracy" a reality, where individuals have the power to defend protections for land, air, and water.

Historical Origins and Evolution

Year	Milestone
1970	First Earth Day initiated by **U.S. Senator Gaylord Nelson** following the 1969 Santa Barbara oil spill.
1970s	Led to the creation of the **U.S. Environmental Protection Agency (EPA)** and the Clean Air/Water Acts.
1992	The first **Earth Summit** in Rio de Janeiro integrated environment-talism into global diplomacy.
2009	The **UN General Assembly** formally designated 22nd April as **International Mother Earth Day**.

India's "Panchamrit" Commitments: Progress in 2026

India's climate strategy is guided by the **Panchamrit** (Five Nectars) framework, moving the nation toward its 2070 Net-Zero target. As of 2026, India has intensified its sectoral interventions:

- **Renewable Transition:** Rapidly expanding toward the goal of **500 GW non-fossil fuel capacity** by 2030. Installed renewable capacity crossed 180 GW by late 2024, with massive solar parks currently under development.
- **Carbon Intensity:** Aiming to reduce the carbon intensity of the GDP by **45% (over 2005 levels)** by 2030 through industrial efficiency schemes like **PAT** (Perform, Achieve, and Trade).

- **Lifestyle for Environment (LiFE):** A flagship mass movement encouraging mindful utilization over "mindless consumption" to reduce the individual carbon footprint.

Practical Pathways for Sustainability in India

- **FAME Scheme:** Driving the adoption of electric vehicles (EVs) to decarbonize the transport sector.
- **National Clean Air Programme (NCAP):** Targeting a 20-30% reduction in particulate matter concentration in 131 cities.
- **Green Hydrogen Mission:** Aiming to make India a global hub for the production and export of green hydrogen, essential for "hard-to-abate" sectors like steel and cement.
- **Bio-shield Conservation:** Strengthening the **Project Tiger** and **Project Elephant** frameworks to protect biodiversity hotspots that act as natural carbon sinks.

Global Significance

- Now observed in over **190 countries**, Earth Day has evolved from a student-led protest in 1970 to a massive annual mobilization of over **one billion people**.
- It serves as a vital reminder that while policy provides the framework, it is the collective "power" of the people that ensures the resilience of the "planet."

Conclusion

The 2026 observance of World Earth Day underscores a transition from climate rhetoric to tangible responsibility. As India aligns its developmental needs with its **Panchamrit** goals, the focus remains on ensuring a "just transition"—where economic growth and environmental preservation coexist for the benefit of all future generations.

Amazon and TGRA: Landmark Rice Carbon Credit Deal

Why in News?

- In **April 2026**, Amazon announced a landmark **$30 million** (approx. ₹250 crore) long-term offtake agreement with **The Good Rice Alliance (TGRA)**.
- This deal is one of the world's largest agricultural carbon credit agreements and the first of its scale in India, focusing on reducing **methane emissions** from rice cultivation.

The Good Rice Alliance (TGRA)

TGRA is a private sector-led initiative specifically designed to scale sustainable rice farming.

- **Backing:** The alliance is owned by **Bayer** and supported by **GenZero** (backed by Temasek) and **Shell Nature-Based Solutions**.
- **Scale:** The project currently partners with over **13,000 smallholder farmers** across **35,000 hectares** of farmland in India.
- **Mandate:** To provide agronomic training, on-ground field support, and financial incentives to help farmers transition from traditional flooded paddy farming to low-emission techniques.

Methane Mitigation Strategies

Conventional rice farming relies on continuous flooding, creating anaerobic conditions where methane-producing bacteria thrive. TGRA promotes two primary scientific interventions:

Method	Technique	Environmental Impact
Alternate Wetting and Drying (AWD)	Periodic drying of fields instead of continuous submergence.	Reduces methane emissions by **30–70%** and cuts water use by up to **30%**.
Direct Seeded Rice (DSR)	Sowing seeds directly into the soil, bypassing the nursery and flooding stage.	Reduces methane by up to **40%** while lowering labor and irrigation costs.

The Carbon Credit Agreement

- **Offtake Volume:** Amazon has committed to purchasing more than **685,000 metric tons of**

CO2 equivalent carbon credits during the initial phase.

- **Quality & Integrity:** Credits are certified under the **Verra Verified Carbon Standard (VCS)** using the VM0051 methodology.
- **Verification:** The project utilizes a "measurement-first" approach, combining field-based data from the **International Rice Research Institute (IRRI)** with digital monitoring and satellite remote sensing to audit practice changes.

Socio-Economic and Climate Benefits

- **Livelihood Gains:** Participating farmers benefit from higher yields (often increasing by **10–15%**), reduced input costs (less water and fuel for pumps), and direct financial incentives from carbon revenue.
- **Water Security:** Rice production consumes nearly **30% of global freshwater**. The shift to AWD/DSR significantly alleviates local water stress in drought-prone Indian states.
- **Global Impact:** With rice cultivation responsible for **8–10% of global methane emissions**, this scalable model provides a blueprint for other major rice-producing nations in Southeast Asia.

Conclusion

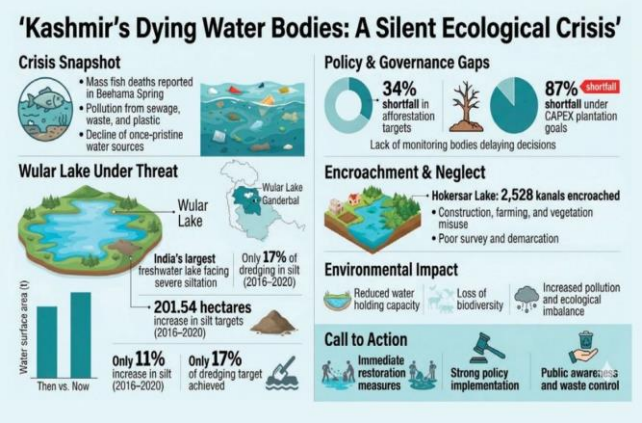
The Amazon-TGRA partnership represents a shift in the carbon market from "avoidance" to high-integrity "mitigation" within the food supply chain. By turning methane reduction into a bankable asset for small farmers, the initiative ensures that climate action in India is both economically viable and scientifically verifiable, supporting the broader goal of **Net-Zero by 2070**.

EDITORIALS

Crux of The Hindu & Indian Express

Geography

Wular Lake Restoration (2026)



1. Why in News

- Restoration of **Wular Lake** is showing **positive results**
- Key work done:
  - Removal of **1.31 lakh willow trees**
  - Dredging of **78.43 lakh cubic metres silt**
  - **5 sq km area reclaimed**
- Aim:
  - Restore **wetland ecology**
  - Improve **water storage and flood control**

2. About Wular Lake

- **Largest freshwater lake in India**
- **Second largest in Asia**
- Location:
  - Bandipore district, Jammu & Kashmir
  - ~32 km from Srinagar
- Altitude:
  - ~1580 m
  - Foothills of **Haramuk Mountain**
- Formed due to:
  - **Tectonic activity**
- Controls flow of:
  - **Jhelum River**
- Area varies:
  - **30 to 260 sq km (seasonal)**
- Ramsar Site since:
  - **1990**

3. Importance

- Acts as:
  - **Flood buffer**
  - **Water storage system**
- Supports:
  - Fish, birds, wetland biodiversity
- Provides:
  - **~60% fish yield of Kashmir Valley**

4. Restoration Measures

- Willow removal:
  - Reduced **encroachment and siltation**
- Dredging:
  - Increased **depth and water capacity**
- Bund strengthening (15 km):
  - Prevents **floods and encroachment**
- Afforestation:
  - **19 lakh trees planted**
  - Reduces **soil erosion**

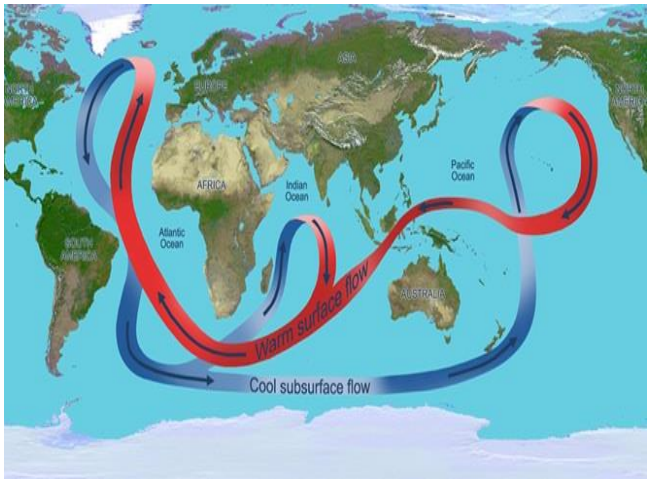
5. Development Works

- 2.5 km walkway with:
  - Cycling tracks
  - Viewing points
- Parks developed for:
  - **Eco-tourism**
- Revenue generated:
  - **₹31.95 crore**

7. Significance

- Ecological:
  - Restores **wetland health**
- Hydrological:
  - Improves **flood control**
- Economic:
  - Boosts **fisheries and tourism**
- Climate:
  - Wetlands act as **carbon sinks**

Atlantic Ocean Current (AMOC) Weakening and Climate Impact (2026)



1. Why in News

- Recent studies show that the **Atlantic Meridional Overturning Circulation (AMOC)** is **steadily weakening**
- Scientists warn that a **possible collapse** could:
  - Increase **global warming**
  - Disrupt **climate systems worldwide**
- Research published in scientific journals highlights:
  - Risk of **tipping point behaviour**

👉 This is a major concern for **global climate stability**

2. What is AMOC

- **AMOC (Atlantic Meridional Overturning Circulation)** is a system of:
  - **Ocean currents acting like a conveyor belt**

How it Works

- Warm surface water moves:
  - From **tropics → North Atlantic (Arctic region)**
- Cold dense water sinks and returns:
  - From **North Atlantic → tropics (deep ocean currents)**

👉 This circulation helps in:

- Regulating **global climate**
- Maintaining **temperature balance**

3. Importance of AMOC

- Controls:
  - Climate of **Europe and North America**
- Helps in:
  - **Heat distribution across Earth**
- Acts as:
  - A **climate stabilising system**

Tipping Element

- AMOC is one of the **Earth's climate tipping elements**

👉 Meaning:

- It can undergo **sudden and irreversible change**

4. Evidence of Weakening

- Observations over the **last two decades** show:
  - Continuous decline in AMOC strength

- Data collected from:
  - Multiple ocean monitoring systems (mooring arrays)
- Strongest decline observed at:
  - Around **16.5°N latitude**

👉 Indicates AMOC may be approaching a **tipping point**

5. Causes of AMOC Weakening

(A) Global Warming

- Increase in **greenhouse gases** raises temperature

(B) Melting of Greenland Ice Sheet

- Releases large amounts of **freshwater into ocean**

(C) Reduction in Salinity

- Freshwater reduces:
  - **Salt concentration (salinity)**
- This affects:
  - Water density
  - Ocean circulation

👉 Key Problem:

- Weakens the **sinking process of cold water**

6. Risk of Collapse

- Studies suggest collapse could occur between:
  - **2037 and 2109**
- Even without additional warming:
  - Collapse is still possible

👉 Recovery may not occur in a **warming world**

7. Impact of AMOC Collapse

(A) Global Warming Increase

- Additional warming:
  - Around **0.2°C globally**

(B) Carbon Cycle Disruption

- Release of:
  - **47–83 gigatonnes of CO_2**
- Southern Ocean may change from:
  - Carbon sink → Carbon source

(C) Regional Temperature Changes

Northern Hemisphere

- Arctic cooling:
  - Up to **7°C decrease**
- Cause:
  - Reduced heat transport

Southern Hemisphere

- Antarctica warming:
  - Up to **6–10°C increase**

(D) Climate Imbalance

- Uneven temperature distribution
- Disruption of:
  - Weather patterns
  - Ocean systems

8. Sea-Ice Albedo Feedback (Important Concept)

- Ice reflects more sunlight than water
- More cooling leads to:
  - More ice formation
- More ice increases:
  - Reflection (albedo)

👉 This creates a **feedback loop of further cooling**

9. Scientific Modelling (CLIMBER-X)

- Scientists used:
  - **CLIMBER-X climate model**
- Simulation method:
  - Added freshwater to North Atlantic
  - Adjusted salinity globally

Key Findings

- AMOC can collapse:
  - Even without major warming
- Recovery is:
  - Difficult in current climate conditions

10. Broader Implications

- Risk of:
  - **Abrupt climate change**
- Impacts on:
  - Agriculture
  - Fisheries
  - Ecosystems
- Could trigger:
  - **Chain reactions in climate system**

11. Challenges in Monitoring

- Difficult to:
  - Measure ocean circulation continuously
- Scientists use:
  - **Ocean Bottom Pressure (OBP)** data

👉 Need for:

- Better long-term monitoring systems

Sagarmala Programme – Transforming India's Maritime Sector (2026)

1. Why in News

- The Sagarmala Programme has shown major progress:
  - 845 projects worth ₹6.06 lakh crore
  - 315 projects completed worth ₹1.57 lakh crore
- India's major ports handled:
  - Record 915 million tonnes of cargo in FY 2025–26
- Sagarmala 2.0 announced with:
  - ₹85,482 crore budget support
  - ₹3.6 lakh crore expected investment

2. Background: India's Maritime Importance

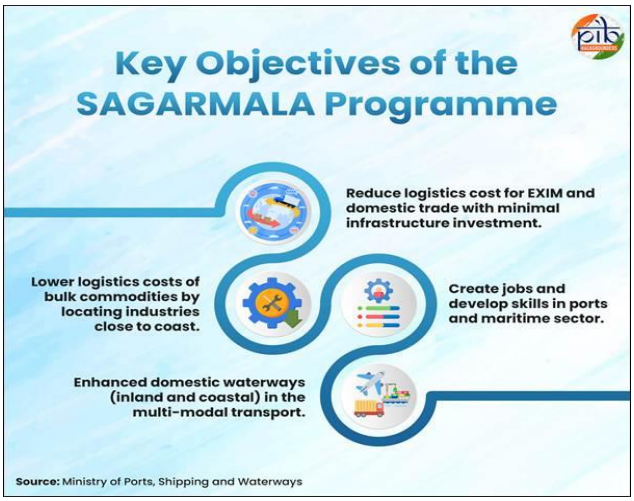
- India has:
  - 11,099 km coastline
  - 14,500 km navigable waterways
- Trade dependence:
  - 95% by volume
  - 70% by value through maritime routes
- Port structure:
  - 12 major ports (central government)
  - 200+ non-major ports (state governments)
- Ports handle:
  - Crude oil, coal, containers, fertilizers, agricultural goods

3. About Sagarmala Programme

- Launched in 2015
- Main aim:
  - Port-led development

Key Objectives

- Improve logistics efficiency
- Reduce transportation cost
- Promote coastal shipping and inland waterways
- Encourage public and private investment



4. Components of Sagarmala (5 Pillars)

(1) Port Modernization and New Port Development

- Upgrade existing ports
- Develop new ports
- Introduce mechanisation and digital systems

(2) Port Connectivity Enhancement

- Improve connectivity between ports and hinterland
- Develop multimodal transport (road, rail, waterways)

(3) Port-Led Industrialization

- Develop industrial clusters near ports
- Reduce logistics cost for industries

(4) Coastal Community Development

- Improve livelihoods in coastal areas
- Promote fisheries, tourism and skill development

(5) Coastal Shipping and Inland Waterways

- Promote cost-effective transport
- Reduce congestion on roads and railways

5. Key Achievements

(A) Project Status

- Total projects: 845
- Completed: 315
- Under implementation: 210
- Under planning: 320

(B) Infrastructure Development

- Fishing harbours:
  - 11 projects completed
  - Benefit to 30,000+ fishermen
- Coastal berths:
  - 7 projects completed
  - Added 9.84 MTPA capacity

(C) Port Performance

- Cargo handled:
  - 915.17 million tonnes (FY 2025–26)
- Growth:
  - 7.06% increase
- Turnaround time:
  - Reduced from 96 hours (2014) to 49.5 hours (2025)

(D) Global Ranking

- 9 Indian ports in top 100 globally
- Visakhapatnam Port among top 20

(E) Inland Waterways

- Cargo increased from:
  - 18.1 MTPA to 145.5 MTPA
- Growth of around 700%

6. Passenger and Transport Connectivity

Ro-Pax and Ferry Services

- 29 projects launched (₹1,233 crore)
- 17 projects completed
- 35 lakh passengers benefited

Examples

- Ghogha–Hazira:
  - Travel time reduced from 10 hours to 4 hours
- Mumbai–Mandwa:
  - Distance reduced from 109 km to 18.5 km

7. Coastal Community Development

- Skill development under DDU-GKY
- 7,600+ people trained
- 3,100+ people placed

Employment Potential

- Total: 1 crore jobs
  - 40 lakh direct
  - 60 lakh indirect

8. Institutional Framework

National Sagarmala Apex Committee (NSAC)

- Provides policy guidance

Maritime States Development Council (MSDC)

- Ensures coordination between Centre and States

State Sagarmala Committees (SSCs)

- Identify and monitor projects

Sagarmala Finance Corporation Limited (SMFCL)

- Maritime-focused NBFC
- Provides financing support
- ₹4,300 crore loan sanctions (2025)

9. Sagarmala 2.0

Objective

- Make India a global maritime hub

Focus Areas

- Port modernization
- Connectivity
- Inland waterways
- Coastal development
- Sustainability

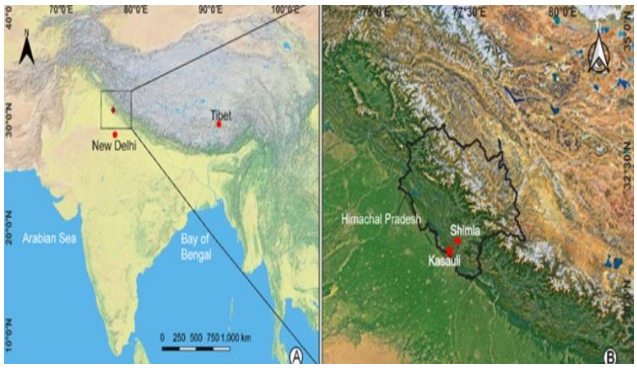
Financial Plan

- Budget support: ₹85,482 crore
- Total investment: ₹3.6 lakh crore

Vision Alignment

- Maritime India Vision 2030
- Maritime Amrit Kaal Vision 2047

India as the Cradle of Jamun Evolution



Why in News?

- A breakthrough study published in the *Journal of Palaeogeography* in **April 2026** has fundamentally revised the evolutionary history of **Jamun (*Syzygium*)**.
- Led by the **Birbal Sahni Institute of Palaeosciences (BSIP)**, the research identifies India not just as a habitat, but as the primary center for the early diversification and global dispersal of this genus.

Revised Evolutionary Timeline

For decades, scientists believed *Syzygium* originated in Australia or Southeast Asia approximately 51 million years ago. However, this new multidisciplinary study reveals a much deeper history:

- **Ancient Origins:** The genus originated around **80 million years ago** in **East Gondwana**.
- **India as the Hub:** Following the Gondwana breakup, India served as a critical refugium and diversification center.
- **The Dispersal Narrative:** The genus likely **spread from India to Southeast Asia and Australia**, reversing the previously held "Out-of-Australia" theory.

Fossil Evidence from the Himalayas

The discovery of **11 well-preserved fossil leaves** from the **Kasauli Formation** in Himachal Pradesh provided the "missing link" for this revision:

- **Age:** These Miocene fossils date back to approximately **20 million years**.
- **New Species:** The fossils led to the identification of a new extinct species, ***Syzygium paleosalicifolium***.
- **Continuous Presence:** By re-examining older Indian fossils (Eocene period, ~55 million years ago), researchers established that Jamun has had a **continuous presence** on the Indian landmass for over 50 million years.

Jamun (Syzygium cumini)

Category	Details
Common Names	Indian Blackberry, Black Plum, Jambul, or Java Plum.
Family	**Myrtaceae** (the same family as cloves and eucalyptus).
Ecosystem	Thrives in **moist deciduous and riverine forests**; highly tolerant of salinity and waterlogging.
Keystone Species	Plays a vital ecological role by providing food to pollinators and supporting diverse seed dispersers (birds and bats).

Nutritional and Medicinal Significance

Jamun is a powerhouse of bioactive compounds, making it a cornerstone of both traditional and modern medicine:

- **Metabolic Health:** Contains **jamboline**, a glycoside found in the seeds that prevents the conversion of starch into sugar, making it a potent adjuvant for **diabetes management**.
- **Antioxidant Profile:** Rich in **anthocyanins** (which give the fruit its deep purple color),

vitamin C, and iron, boosting immunity and preventing oxidative stress.

- **Ayurvedic Heritage:** Historically, India was referred to as **"Jambudveepa"** (the island of Jambu trees), reflecting the tree's deep-rooted cultural and medicinal status.

Climate and Conservation Insights

- The study of these fossils also provides clues about ancient climates.
- The presence of *Syzygium* in the Kasauli beds indicates that 20 million years ago, the Himalayan foothills were at a **much lower elevation** with a **tropical, moist climate**, contrasting sharply with the cooler, higher-altitude conditions today.

Conclusion

The identification of India as the "cradle" of Jamun evolution elevates the country's status in global plant biogeography. It underscores the importance of the Indian subcontinent as a biotic ferry that transported Gondwanan lineages to the rest of Asia. As India works toward **biodiversity conservation**, protecting these ancient lineages becomes a matter of preserving both ecological heritage and future food security.

New Broad-Gauge Rail Line for Odisha's Bauxite Hills

Why in News?

- The Government of India has proposed a new **broad-gauge railway line** starting from **Tikiri** to connect the **Sijimali and Kutrumali bauxite hills** in Odisha.
- Notified under the **Railways Act, 1989**, the project aims to provide the necessary logistical infrastructure to facilitate large-scale mining operations in one of India's most mineral-rich regions.

Geographical Context

- **Location:** The Sijimali and Kutrumali hills are situated across the **Rayagada and Kalahandi** districts of Odisha.
- **Terrain:** These hills form a critical part of the **Eastern Ghats**, a discontinuous and ancient mountain range stretching along India's eastern coast.
- **Mineral Wealth:** The region sits on massive deposits of high-grade bauxite, essential for the global aluminium supply chain.

Bauxite: The Source of Aluminium

- **Nature:** Bauxite is the primary ore used to manufacture **aluminium**. It is not a specific mineral but a rock high in aluminium content.
- **Geology:** It is typically found in **tertiary deposits** and is closely associated with **laterite rocks**, which form through the intense weathering of tropical soils.
- **Distribution in India:**
    - **Odisha:** The undisputed leader, contributing over half of India's production, with major hubs in **Kalahandi, Koraput, Sambalpur, and Bolangir**.
    - **Other Regions:** Significant reserves exist in the **Amarkantak plateau** (Chhattisgarh), Lohardaga (Jharkhand), and parts of Gujarat and Maharashtra.

Key Concerns and Tribal Resistance

Issue	Impact & Perspective
Fifth Schedule Rights	The hills are located in **Fifth Schedule Areas**, where tribal communities have constitutional protections and the right to self-governance via the **Gram Sabha**.
Water Security	These hills act as "water towers," hosting numerous perennial streams that sustain local agriculture. Mining poses a threat to these **watershed systems**.
Livelihood Loss	Local Dongria and Kutia Kondh tribes rely on the forest for **Minor Forest Produce (MFP)** and traditional "Podu" (shifting) cultivation.
Ecological Fragility	Large-scale infrastructure and mining in the Eastern Ghats can lead to irreversible biodiversity loss and increased man-animal conflict.

The Economic vs. Ecological Debate

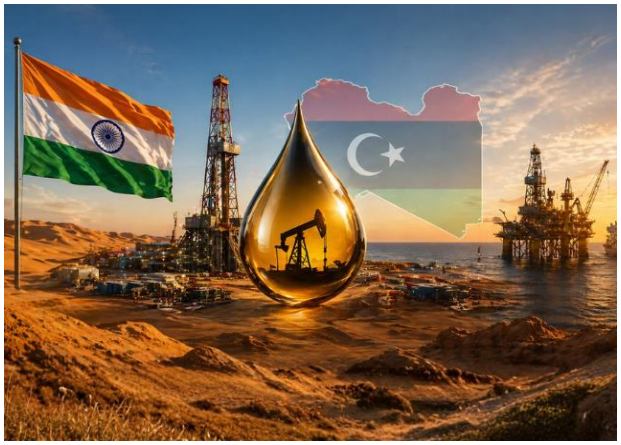
The project highlights the classic tension between industrial growth and environmental preservation:

- **Industrial Perspective:** Aluminium is a "metal of the future" due to its role in the green energy transition (EVs, solar frames). Accessing these reserves is seen as vital for **Atmanirbhar Bharat**.
- **Tribal Perspective:** The hills are often considered sacred (Deomali/Niyamgiri-like status). Proponents of tribal rights argue that the **Railways Act** should not be used to bypass the mandatory consent of the Gram Sabha as required under **PESA (1996)**.

Conclusion

The Tikiri-Sijimali rail link is more than just a transport project; it is a gateway to one of the last untapped mineral frontiers in the Eastern Ghats. While the economic potential is immense, the success of the project will depend on the government's ability to ensure **equitable compensation**, environmental restoration, and the strict protection of the constitutional rights of the tribal inhabitants.

Oil India Ltd. Discovery in Libya: A Strategic Energy Win



Why in News?

- In **May 2026**, state-run **Oil India Ltd. (OIL)** reported a significant fresh oil and gas discovery in **Libya's Ghadames Basin**.
- This discovery is a major milestone for India's "Energy Security" strategy, which focuses on acquiring and developing hydrocarbon assets abroad to reduce domestic supply risks.
- **The Milestone:** This is the **fifth hydrocarbon discovery** in the specific onshore exploration block (Area 95/96) by Libya's National Oil Corporation (NOC).
- **Operational Recovery:** Exploration in this block had been stalled for years due to civil unrest but resumed in **June 2023** after the lifting of *force majeure* (a legal clause used when extraordinary events prevent a party from fulfilling a contract).

1. The Ghadames Basin: Africa's Hydrocarbon Hub

The discovery is located in the **Ghadames Basin**, one of the most prolific sedimentary basins in North Africa.

- **Geography:** It spans the western part of Libya and extends into parts of Algeria and Tunisia.
- **Geological Profile:** The basin is known for its high-quality "sweet" crude oil (low sulfur content) and significant natural gas reserves trapped in ancient sedimentary layers.
- **Resource Potential:** Because the basin is onshore, the cost of extraction is generally lower than offshore deep-water drilling, making it a highly profitable asset for Oil India Ltd.

2. Libya: An Energy Superpower in Transition

Libya is a critical player in the global energy landscape, despite its recent turbulent history.

- **Oil Reserves:** Libya holds the **largest proven oil reserves in Africa** (estimated at around 48 billion barrels).
- **Bordering Nations:** It is a Mediterranean nation bordered by **Egypt, Sudan, Chad, Niger, Algeria, and Tunisia**.
- **Political Context:** The country has faced significant political instability since 2011. This instability often leads to the declaration of **Force Majeure**, where oil production and exploration are halted due to security threats or protests.

3. Strategic Significance for India

Objective	Impact of Libya Discovery
Diversification	Reduces India's over-reliance on a few Middle Eastern suppliers.
Equity Oil	India "owns" a share of the production, providing a buffer against global price spikes.
Technical Expertise	Demonstrates the capability of Indian PSUs (Public Sector Undertakings) to operate in complex, high-risk international environments.
Bilateral Ties	Strengthens India-Libya economic relations, paving the way for further infrastructure and health-sector cooperation.

Conclusion

Oil India's success in the Ghadames Basin highlights the "persistence of diplomacy." By staying committed to the Libyan blocks through years of conflict, India has secured a high-value asset that will contribute to its energy basket for decades. As the global energy market remains volatile, such **overseas onshore assets** are the keys to maintaining India's economic momentum.

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Internal Security

INS Dunagiri and Project 17A Frigates

Why in News?

- The Indian Navy has inducted **'Dunagiri (Yard 3023)'**, marking a major advancement in India's push for **Aatmanirbharta (self-reliance)** in **warship design and maritime security**.

About INS Dunagiri

Historical Legacy

- Named after the earlier INS Dunagiri which served from **1977 to 2010**
- Represents continuity in **naval traditions and operational legacy**

Indigenous Design

- Designed by the Warship Design Bureau
- Around **75% indigenous content**
- Involved **200+ MSMEs**, boosting:
    - Domestic defence manufacturing
    - Employment generation
    - Industrial ecosystem

Technical Features

Propulsion System

- Uses **Combined Diesel or Gas (CODOG)** configuration
- Equipped with **Controllable Pitch Propellers (CPP)**
- Managed by an **Integrated Platform Management System (IPMS)**
- Ensures **fuel efficiency, flexibility, and optimal performance**

Combat Capabilities

- Equipped with advanced **weapon and sensor systems**:
    - BrahMos Surface-to-Surface Missiles
    - **MFSTAR radar** (multi-function surveillance and threat alert)
    - **MRSAM air defence system**
    - **Anti-Submarine Warfare (ASW)** systems including rockets and torpedoes
- Provides **multi-dimensional combat capability**:
    - Surface warfare
    - Air defence
    - Sub-surface warfare

Project 17A (Nilgiri Class Frigates)

- **Dunagiri** is the **5th ship** under Project 17A
- Represents **next-generation stealth frigates**

Key Features of Project 17A

- Successor to **Shivalik-class frigates**
- Focus on:
    - **Stealth technology**
    - **Advanced automation**
    - **Network-centric warfare capabilities**

Shipbuilding Distribution

- Mazagon Dock Shipbuilders Limited (MDL):
    - Nilgiri, Udaygiri, Taragiri, Mahendragiri
- Garden Reach Shipbuilders and Engineers Limited (GRSE):
    - Himgiri, Dunagiri, Vindhyagiri

Strategic Significance

- Strengthens India's **maritime security architecture**

- Enhances **blue-water naval capabilities**
- Reduces **dependence on foreign defence imports**
- Promotes **indigenisation and defence industrial base**
- Supports India's vision of becoming a **net security provider in the Indian Ocean Region**

Analytical Perspective

- Project 17A reflects a shift from **licensed production to indigenous design capability**
- Integration of advanced systems like **BrahMos and MRSAM** enhances deterrence
- High indigenous content aligns with **Make in India in defence**
- Future focus should be on:
    - Increasing **technology self-reliance**
    - Strengthening **private sector participation**
    - Enhancing **export potential of defence platforms**

India–China Military Gap and Multi-Domain Deterrence (MDD)

Why in News?

- Strategic assessments indicate a **widening military capability gap between India and China**, primarily due to rapid modernisation of the **People's Liberation Army (PLA)** of China.
- This has raised concerns about India's **deterrence posture**, leading to increased focus on a **Multi-Domain Deterrence (MDD)** strategy.

Overview

- India faces growing asymmetry in conventional and emerging warfare capabilities vis-à-vis China.
- In response, India is shifting towards a **system-integrated deterrence model** that combines **military, technological, and non-military domains** to strengthen national security.

What is Multi-Domain Deterrence (MDD)?

- **Multi-Domain Deterrence (MDD)** is a strategic framework that integrates national capabilities across:
    - **Land**
    - **Air**
    - **Sea**
    - **Cyber**
    - **Space**
    - **Cognitive / Information domain**
- The objective is to create a **holistic deterrence architecture** that prevents conflict by making aggression **unsustainable and costly**.

Key Features

From Isolated to Integrated Warfare

- Moves beyond **service-specific operations** (Army, Navy, Air Force working separately)
- Enables a **networked "system-of-systems"** where:
    - Sensors
    - Command systems
    - Strike platforms are digitally interconnected

Deterrence by Denial

- Focuses on ensuring the adversary:
    - Cannot achieve objectives (operational failure)
    - Faces **high multi-domain costs simultaneously**

Alignment with ARADO Concept

- Linked to **All Realm All Domain Operations (ARADO)**
- Emphasises **"intelligent warfare"** combining kinetic and non-kinetic tools

- Focus on **non-nuclear escalation management**

Need for MDD in India

1. China's Military Modernisation

- PLA's **AI-enabled warfare systems**
- Extensive **satellite network and precision missile systems**
- Creates a widening **capability gap with India**

2. Two-Front Security Challenge

- Possibility of coordinated pressure from **China and Pakistan**
- Requires **multi-domain force integration**

3. Grey Zone Warfare

- Increasing use of:
  - Cyberattacks
  - Disinformation campaigns
  - Economic coercion
- MDD helps respond below conventional war thresholds

4. Maritime Vulnerability

- Over **90% of India's trade passes through Indian Ocean Region (IOR)**
- Requires integrated **naval, air, cyber, and space-based surveillance systems**

Strategic Choices for India

1. Technological Leapfrogging (Bold Approach)

- Focus on **AI, autonomous systems, quantum technologies**
- Risk: High dependence on **industrial readiness and execution capacity**

2. Incremental Integration (Conservative Approach)

- Combine **legacy systems with emerging technologies**
- Suitable for short conflicts but insufficient for **long-term balance against China**

3. Middle Path (Most Practical)

- Retain legacy platforms while developing **enabling layers**:
  - Command and Control (C2)
  - Intelligence, Surveillance & Reconnaissance (ISR)
  - Logistics and strike systems
- Gradual transition to a **syncretic multi-domain force**

Systemic Challenges in India's Deterrence Posture

Weak Defence Industrial Base

- Limited capacity for **rapid, large-scale production**
- Overdependence on public sector reduces **innovation and agility**

Inefficient Procurement System

- Long acquisition cycles and bureaucratic delays
- Lack of prioritisation in **critical capability areas**
- Emphasis on platforms rather than **systems integration**

Fragmented C4ISR Architecture

- Weak integration of **command, control, communication, intelligence, surveillance, reconnaissance**
- Gaps in **cyber, space, and electronic warfare capabilities**

Doctrinal and Inter-Service Gaps

- Limited clarity on operationalising **Multi-Domain Operations (MDO)**
- Weak alignment between services in **theatre command structure**

Policy and Institutional Constraints

- Absence of unified national consensus on **deterrence strategy**
- Slow pace of defence reforms despite shrinking strategic timelines

Way Forward

System-Wide Capability Development

- Shift from platform-centric to **integrated system-based warfare capability**

Strengthening Private Sector Role

- Expand participation through:
  - Innovations for Defence Excellence
  - Long-term defence contracts
- Encourage startups and private defence manufacturing ecosystem

Institutional Integration

- Align defence R&D, industry, and armed forces
- Promote **outcome-based planning and stable funding mechanisms**

Operationalisation of Theatre Commands

- Establish **Integrated Theatre Commands** for unified decision-making
- Improve coordination across domains

Strengthening Enabling Layers

- **C4ISR:** Build resilient, layered surveillance and communication systems
- **Strike capability:** Integrate missiles, drones, and air power
- **Close combat systems:** Modernise land warfare platforms
- **Logistics:** Develop sustainable supply chains for prolonged conflicts

Conclusion

India's deterrence against China will not depend on a single weapon system but on a **cohesive, multi-domain ecosystem of capabilities**. A successful transition to **Multi-Domain Deterrence** requires:

- Strong **defence industrial base**
- Integrated **doctrinal framework**
- Faster **institutional reforms**
- Sustained investment in **enabling technologies and systems**

The strategic window for transformation exists, but it is **gradually narrowing due to rapid PLA modernisation and evolving warfare dynamics**.

Elimination of Left Wing Extremism (LWE) in India

Why in News?

- The Union Home Minister stated that Maoist presence has been "more or less wiped out" from **Bastar region of Chhattisgarh**, historically the strongest LWE stronghold.
- He also indicated that India is moving towards becoming **"Naxal-free" by March 2026**.

Overview

India's progress against Left Wing Extremism is based on a combined strategy of:

- Strong **security operations**
- Large-scale **development interventions**
- Improved **governance delivery in tribal areas**

While significant territorial gains have been made, sustaining peace depends on addressing deeper structural issues.

India's Strategy to Eliminate LWE

Policy Framework

- India follows the **National Policy and Action Plan (2015)** which treats LWE as a **security + development + governance challenge**, not just a law-and-order issue.

The core approach is the **Clear–Hold–Build model**:

- Clear: Remove Maoist armed presence
- Hold: Establish security dominance
- Build: Deliver governance and development

Security Strategy

SAMADHAN Doctrine

The operational framework guiding anti-LWE efforts is **SAMADHAN**, which includes:

- Smart leadership
- Aggressive strategy
- Motivation and training
- Actionable intelligence
- Dashboard-based monitoring
- Use of technology
- Area-specific action plans
- Cutting off financial networks

Operational Measures

- Deployment of specialised forces:
  - CoBRA (CRPF)
  - Greyhounds
  - District Reserve Guard (DRG)
- Intelligence-driven operations targeting Maoist leadership
- Major operations like **Operation Octopus, Double Bull, Chakrabandha, and Kagar (2025)**

- Creation of **Forward Operating Bases (FOBs)** deep inside forest regions such as Abujhmad to restrict Maoist movement
- Financial disruption using **NIA and Enforcement Directorate** to dismantle extortion networks

Development Strategy (Build Component)

Connectivity Infrastructure

- Road construction under **RCPLWEA (Road Connectivity Project for LWE Areas)**
- Expansion of all-weather roads to remote tribal regions

Digital Inclusion

- Installation of mobile towers in LWE districts
- Expansion of **4G connectivity**, integrating remote areas into digital economy

Human Development

- Establishment of **Eklavya Model Residential Schools (EMRS)**
- Skill development through ITIs
- Financial inclusion via banks and post offices

These measures aim to reduce **youth vulnerability to radicalisation**.

Targeted Welfare

- **Dharti Aaba Janjatiya Gram Utkarsh Abhiyan** ensures saturation of basic services in tribal villages

Understanding Maoism in India

- Maoism is a form of revolutionary ideology based on **protracted armed struggle to capture state power**
- In India, it is known as **Naxalism**, originating from the **1967 Naxalbari uprising**
- The main organisation is the **Communist Party of India (Maoist)** formed in 2004
- It operates through armed cadres and overground networks
- It is banned under the **Unlawful Activities (Prevention) Act, 1967**

Challenges After Decline of LWE

Security Vacuum

Withdrawal of central forces may lead to:

- Emergence of **splinter groups**
- Rise of local criminal networks if state policing is weak

Shift to Organised Crime

Maoist-linked extortion networks may transform into:

- Mining mafias
- Illegal trade syndicates

Weak Governance Delivery

- Infrastructure exists, but **service delivery is inconsistent**
- Shortage of teachers, doctors, and officials in remote areas

Urban Support Ecosystem

- Ideological and financial support networks may persist in urban areas
- "Urban sympathisers" can sustain narratives indirectly

Residual Violence Risk

- Possibility of **tactical counter-attacks during vulnerable periods**

Way Forward

Strengthening State Police

- Shift responsibility from central forces to **capable state police systems**
- Police stations should function as **local governance support centres**, not just enforcement units

Community-Based Policing

- Institutionalise **Civic Action Programmes**
- Build trust between state and tribal communities

Legal and Rights-Based Approach

- Ensure strict implementation of:
  - Forest Rights Act (FRA), 2006
  - PESA Act, 1996
- Strengthen **Gram Sabha control over land, forest, and resources**

Tribal-Centric Development

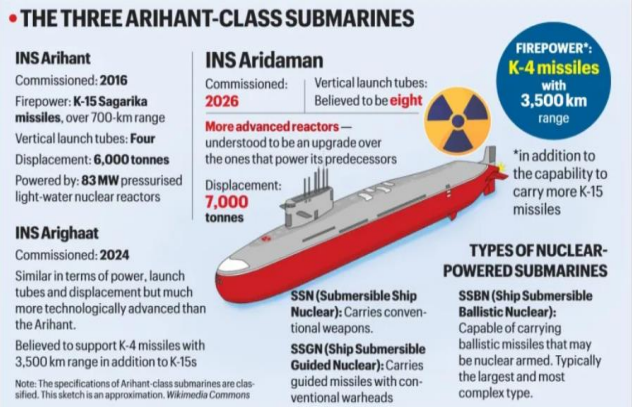
- Transparent use of **District Mineral Foundation (DMF) funds**
- Ensure mining revenues directly benefit affected tribal populations

Conclusion

India is closer than ever to eliminating Left Wing Extremism through a mix of **security dominance and**

development outreach. However, long-term stability will depend on transitioning from a **force-centric approach to trust-based governance**, ensuring that structural grievances in tribal regions do not re-emerge in new forms.

India Strengthens Naval Capabilities with INS Aridaman and INS Taragiri



Why in News?

- India **inducted INS Aridaman**, its **third nuclear-powered ballistic missile submarine (SSBN)**, enabling **three operational SSBNs at sea** for the first time.
- **INS Taragiri**, a **stealth frigate**, was commissioned to **boost Indian Navy's presence in the Indian Ocean Region (IOR)**.

INS Aridaman: India's Third SSBN

- **Third submarine** in the **Arihant-class**, following **INS Arihant (2016)** and **INS Arighat (2024)**.
- Developed under the **Advanced Technology Vessel (ATV) project**.
- **7,000-tonne submarine** with **8 vertical launch tubes** for **K-15 (700 km range)** and **K-4 (3,500 km range) SLBMs**.

Evolution of India's SSBN Fleet

- **INS Arihant (2016)**: Established **sea-based nuclear deterrence**; completed **first deterrence patrol in 2018**.
- **INS Arighat (2024)**: Strengthened **continuous deep-water presence**.

Strategic Significance

- **Completes India's nuclear triad** (land, air, sea), ensuring **second-strike capability** under **"No First Use" doctrine**.
- Places India among **six nations** (US, Russia, UK, France, China) with **undersea nuclear deterrence**.
- *Fourth SSBN (S-4)** under construction, expected by **2027**.
- **SSN programme** and **Project-75I (AIP-equipped submarines)** in progress.

INS Taragiri: Stealth Frigate

- Enhances **Indian Navy's operational reach** in the **Indian Ocean Region (IOR)**.
- Strengthens **maritime security** and **deterrence capabilities**.

e-SafeHER Cyber Security Awareness Programme

Why in News?

- The **e-SafeHER Cyber Security Awareness Programme** was recently launched to empower **one million women in rural India**.
- The initiative is designed to ensure that women can safely participate in the digital ecosystem, thereby strengthening inclusive and secure digital access across the country.

Context

- **The Initiative:** A specialized cybersecurity training program aimed at creating a community-led, gender-responsive model for digital safety.
- **Key Actors:** Anchored by **MeitY (ISEA Programme)** and implemented by **C-DAC** in partnership with the **Reliance Foundation**.
- **The Goal:** Training "Cyber Sakhis" to act as digital safety ambassadors within rural communities.

Program Details & Institutional Framework

Feature	Description
Nodal Ministry	Ministry of Electronics and Information Technology (MeitY).
Implementing Agency	**C-DAC** (Centre for Development of Advanced Computing).
Target Audience	**1 Million rural women** over a period of three years.
Operational Period	Phased scaling up through **2029**.
Initial Coverage	Starting in **Madhya Pradesh and Odisha**, with nationwide expansion to follow.

Key Objectives

- **Development of "Cyber Sakhis":** Building a cadre of trained women who promote secure digital habits, awareness, and confidence in online transactions.
- **Digital Empowerment:** Equipping rural women with the knowledge to identify phishing, social engineering scams, and secure their digital identities.
- **Peer-Led Training:** Utilizing existing **Self-Help Groups (SHGs)** to ensure the training is community-based and reaches the "last mile."

Significance of e-SafeHER

- **Scalability & Sustainability:** By integrating with existing women empowerment and digital literacy programs, it avoids the need for parallel infrastructure and ensures long-term continuity.
- **Closing the Gender Gap:** Addresses the systemic digital gender divide by providing women with the tools to navigate the internet without fear of exploitation.
- **Economic Security:** Enhances confidence in **digital financial transactions**, which is crucial for rural entrepreneurs and women-led micro-enterprises.
- **Cyber Resilience:** Strengthens the overall national cybersecurity posture by educating a traditionally vulnerable demographic against evolving cyber risks.

Conclusion

The e-SafeHER programme is a vital step toward creating a **secure Digital Bharat**. By transforming rural women from passive users into informed "Cyber Sakhis," the initiative not only protects individuals from fraud but also fosters a culture of digital trust that is essential for the success of India's digital public infrastructure.

Legal and Technical Framework Against Film Piracy

Why in News?

- The Tamil film *Jana Nayagan* was leaked online in high quality prior to its theatrical release.
- This incident has reignited serious concerns regarding **film piracy** and the effectiveness of intellectual property (IP) law enforcement in the Indian digital landscape.

Legal Framework Regarding Piracy

Act/Provision	Key Features & Penalties
Copyright Act, 1957	Protects movies, books, and software. Penalties include up to **3 years imprisonment** and fines up to **2 lakh**. Bypassing DRM carries a 2-year sentence.
Cinematograph (Amendment) Act, 2023	Introduces massive deterrents; courts can impose fines equivalent to **5% of a film's audited gross budget**.
IT Act, 2000 (Section 79)	Platforms (Telegram, ISPs) enjoy "Safe Harbor" unless they fail to remove pirated content after a government/court notice.
Blocking Orders	The Ministry of I&B recently blocked over **3,100 Telegram channels** and **800 websites** for facilitating piracy.

Judicial Interventions

- **Dynamic Injunctions:** Allows filmmakers to continuously update and block new "mirror" URLs as pirates change domain names to evade bans.
- **John Doe Orders:** Pre-emptive orders issued **before** a film's release, enabling immediate blocking of rogue platforms the moment piracy is detected.
- **Pre-emptive ISP Blocking:** Forces Internet Service Providers to block known torrent sites as soon as a movie hits theaters.

How Studios Fight Piracy

- **Digital Rights Management (DRM):** Encrypts video streams on OTT platforms so only authorized devices with specific "keys" can play the content.
- **Encrypted Distribution (DCP & KDM):** Theatrical films are sent as **Digital Cinema Packages** on encrypted drives. They require a **Key Delivery Message (KDM)** programmed for a specific projector and time window.
- **Forensic Watermarking:** Studios embed invisible, unique marks into audio/video. If a leak occurs, investigators can trace the file back to the specific theater or technician (VFX/Dubbing house) where it originated.

Enforcement Deficits in India

- **"Whack-a-Mole" Effect:** When one site is blocked, a mirror site with a slightly different URL appears within minutes.
- **Offshore Servers:** Piracy syndicates use servers in countries with lax laws, making it difficult for Indian police to seize data without slow international treaties (**MLATs**).
- **Encryption Shield:** The shift to **Telegram and WhatsApp** makes monitoring difficult, as encrypted messages prevent authorities from intercepting files without direct infiltration.
- **Slow Judicial Process:** Trials for copyright infringement often drag on for years, neutralizing the deterrent effect of the law.
- **Technical Gap:** A lack of specialized **Intellectual Property (IP) and Cyber Courts** means complex digital cases are handled by generalist benches.

Conclusion

Combatting digital piracy requires more than just stringent legislation. Success depends on shifting the focus toward **capacity building in cyber forensics**, establishing **specialized fast-track IP courts**, and forging real-time international intelligence-sharing networks to tackle offshore syndicates.

SEBI and FIU-IND Strategic Partnership Against Financial Crimes

Why in News?

- The **Securities and Exchange Board of India (SEBI)** and the **Financial Intelligence Unit-India (FIU-IND)** have signed a Memorandum of Understanding (MoU) to bolster efforts against **money laundering** and financial crimes.
- This partnership aims to integrate market oversight with financial intelligence to protect the integrity of India's capital markets.

Context of the Partnership

- The agreement focuses on creating a unified front against terrorist financing and money laundering.
- By formalizing intelligence sharing, both regulators aim to identify suspicious transaction patterns that often span multiple bank accounts and trading platforms, ensuring that the securities market is not exploited for illicit activities.

Key Features and Objectives

- **Intelligence Sharing:** Facilitates the seamless exchange of financial intelligence and database information between the two agencies to track the flow of "dirty money."
- **Reporting Mechanisms:** Establishes clear protocols under the **Prevention of Money-Laundering Rules** for regulated entities (like brokers and fund houses) to report suspicious activities.
- **Risk Monitoring:** Focuses on identifying **"red flag" indicators** and conducting joint

assessments of money laundering and terror financing risks.

- **Capacity Building:** Includes specialized training and outreach programs to enhance the **AML (Anti-Money Laundering)** and **CFT (Combating the Financing of Terrorism)** capabilities of market intermediaries.

Organizational Profiles

Organization	Role & Statutory Status
FIU-IND	The central national agency for receiving, analyzing, and disseminating information on suspect financial transactions; coordinates global efforts against terror financing.
SEBI	The statutory regulator of the Indian securities market (est. 1992); mandated to protect investor interests and ensure market transparency.

Global Cooperation and Standards

- **Egmont Group:** The partnership enables information exchange with **foreign FIUs** under the **Egmont Principles of Information Exchange**, ensuring India remains aligned with global financial safety standards.
- **International Alignment:** The move ensures that India's regulatory framework stays in sync with the recommendations of the **Financial Action Task Force (FATF)**.

Significance of the MoU

- **Market Integrity:** Prevents market manipulation and the entry of illicit funds into the stock market, which can cause artificial price volatility.
- **Investor Protection:** By curbing financial crimes, SEBI reinforces trust among retail and institutional investors.
- **Enforcement Synergy:** Reduces the time lag between the detection of a suspicious transaction by FIU-IND and enforcement action by SEBI.

Conclusion

The collaboration between SEBI and FIU-IND marks a significant step in hardening India's financial defenses. By bridging the gap between market regulation and financial intelligence, the government is ensuring a "zero-tolerance" environment for money laundering, thereby fostering a safer and more transparent investment climate in the country.

New Deportation Policy and the Immigration Act, 2025

Why in News?

- The Union Ministry of Home Affairs (MHA) has formulated a comprehensive new deportation policy to expedite the identification and removal of illegal migrants.
- This move follows the enactment of the **Immigration and Foreigners Act, 2025**, which consolidates India's decades-old immigration laws into a modern, stricter regulatory framework.

Context of the New Policy

- The policy is driven by heightened internal security imperatives following events like the **Pahalgam terror attack** (April 2025) and the subsequent **Operation Sindoor**.
- Geopolitical shifts, such as the regime change in Bangladesh in August 2024, have further prompted the MHA to track individuals living on forged documents to prevent resource strain and demographic shifts in border states.

Key Highlights of the Deportation Policy

- **District-Level Task Forces:** States must establish a Special Task Force in every district to detect and identify undocumented migrants, submitting monthly status reports to the Centre.
- **Verification Timeline:** A strict **90-day limit** has been set to verify the antecedents of suspected nationals, even if they claim residency in different states.
- **Holding Centres:** Mandates specialized centres (not in jails) with basic amenities like medical dispensaries and separate enclosures.

Crucially, the policy requires that **families must be housed together** to prevent separation.

- **Foreigners Identification Portal (FIP):** A new digital platform captures biometric (fingerprints/facial) and demographic data of all intercepted foreigners.
- **Document Cancellation:** Any illegally obtained documents (Aadhaar, PAN, Driving Licenses) must be uploaded to a portal for immediate cancellation and the individuals blacklisted by the **Bureau of Immigration**.

Legal Framework: Immigration and Foreigners Act, 2025

Feature	Details
Consolidation	Replaces the **Foreigners Act, 1946**, Registration of Foreigners Act, 1939, and two other legacy laws.
Compulsory Reporting	Hotels, hospitals, and educational institutes must report foreign nationals; carriers must share advance passenger data.
Bureau of Immigration	Provides statutory backing to the Bureau for identification, detention, and deportation.
Enforcement	Empowers the government to shut down premises frequented by foreigners on security grounds.

Deportation vs. Pushback

- **Deportation:** A formal legal process where identity is confirmed by the home country, and all legal avenues (including Foreigners' Tribunals in Assam) are exhausted before removal.
- **Pushback:** An informal procedure where border forces use discretion to return individuals immediately at the border. While faster, it raises concerns regarding **non-refoulement** and international humanitarian obligations.

Challenges and Concerns

- **Identification Dilemma:** The lack of standard birth certificates for millions of genuine Indian citizens born before the mid-1980s risks harassment during identification drives.
- **Statelessness Risk:** Deportation requires the "parent country" (Bangladesh/Myanmar) to accept the individual. If they refuse, the person may languish indefinitely in holding centres.
- **Institutional Strain:** Local police units often lack the specialized training required for complex nationality verification within the mandated 90-day window.
- **Human Rights:** Despite India's election to the **UN Human Rights Council (2026–28)**, prolonged detention of women and children remains a point of international scrutiny.

Measures for Strengthening the Policy

- **CIBMS Implementation:** Scaling the **Comprehensive Integrated Border Management System** and smart fencing to prevent infiltration at the source.
- **SOPs with Neighbors:** Establishing streamlined Standard Operating Procedures with neighboring nations for the timely acceptance of deported individuals.
- **Algorithmic Verification:** Using multiple data points and Local Intelligence Units (LIU) to ensure the verification process is transparent and protects legitimate citizens.

Conclusion

The 2025 deportation framework marks a decisive shift toward a technology-driven and security-centric migration policy. While it streamlines the removal of illegal residents, its ultimate success rests on balancing national security with humanitarian standards and ensuring that the rights of genuine Indian citizens remain uncompromised during enforcement.

Indigenous 1,000-kg Aerial Bomb Development

Why in News?

- The **Ministry of Defence** has initiated the indigenous design and development of a **1,000-kg aerial bomb** for the **Indian Air Force (IAF)**.
- Currently, the IAF relies on imported **Mk-84** class general-purpose bombs; this project aims to replace those imports with a domestic alternative, significantly boosting defense self-reliance.

Context of the Development

- This initiative is a strategic move under the **Aatmanirbhar Bharat** mission to reduce dependence on foreign Original Equipment Manufacturers (OEMs).
- By developing high-caliber munitions domestically, India secures its supply chain for critical aerial ordnance, which is essential for long-range strike capabilities and high-intensity conflict scenarios.

Implementation and Procurement Framework

Feature	Details
Regulatory Route	Executed under **Defence Acquisition Procedure (DAP) 2020** via the **Make-II** (industry-funded) route.
Procurement Category	Follows the **Buy (Indian-IDDM)** category, ensuring the product is indigenously designed, developed, and manufactured.
Indigenisation	Mandates a minimum of **50% indigenous content** to qualify for procurement.
Industry Participation	Open to the **Indian private sector**, with provisions for technology transfers and joint ventures with foreign firms.

Technical Features and Compatibility

- **Munition Type:** A high-caliber, **natural fragmentation** bomb designed for maximum blast effect.
- **Destructive Power:** Engineered with significant **peak over-pressure** capability to destroy reinforced structures, runways, and armored concentrations.
- **Platform Neutrality:** The bomb is being designed for "universal compatibility," meaning it can be deployed from both **Russian-origin** (e.g., Su-30MKI) and **Western-origin** (e.g., Rafale, Mirage 2000) aircraft in the IAF fleet.

Project Timeline

The development-to-procurement cycle is designed to be lean and rapid:

- **Duration:** Estimated at **2.5 years** from the initial Expression of Interest (EoI) to the final contract.
- **Phases:** This period includes design, prototype development, rigorous ballistic trials, and final IAF evaluation.

Significance for the IAF

- **Strategic Autonomy:** Eliminates the risk of supply disruptions during diplomatic or geopolitical crises.
- **Cost Efficiency:** Domestic production is expected to be significantly more cost-effective than per-unit imports from global OEMs.
- **Integration with Precision Kits:** This 1,000-kg bomb can serve as the "warhead" for indigenous precision-guided kits (like the LRB or Sudarshan), transforming a "dumb" bomb into a smart, long-range weapon.

Conclusion

The indigenous 1,000-kg bomb project marks a transition for India from being a consumer of heavy aerial munitions to a developer. By leveraging the **Make-II** route, the government is incentivizing private industry to invest in high-tech defense R&D, ensuring that the IAF's future strike power is "Made in India" and globally compatible.

India's Transition to a Maoist-Free Era

Why in News?

- On **March 31, 2026**, the Union Home Minister formally announced that **India is now free from Maoist insurgency**.

- This marks a historic culmination of a decades-long struggle against Left Wing Extremism (LWE), which was once described as India's "most serious internal security threat."
- The focus has now officially shifted from **kinetic security operations** to **inclusive governance** and sustainable development.

Significance of the Transition

The shift from conflict to relative peace carries profound strategic, economic, and social implications:

- **Restoration of Sovereignty:** The dismantling of "Janatana Sarkars" (Maoist parallel governments) has restored the state's monopoly on force and constitutional jurisdiction over "liberated zones."
- **Strategic Redeployment:** Neutralizing the LWE threat allows for the potential recalibration of over 100 **CAPF battalions**, freeing them to secure volatile international borders or address emerging internal threats.
- **Unlocking the "Resource Curse":** Regions like **Bastar (Chhattisgarh)** and **Saranda (Jharkhand)**, rich in iron ore, bauxite, and coal, can now integrate into the mainstream economy, reducing security-related costs for development.
- **Deepening Democracy:** Voter turnouts in erstwhile hyper-sensitive booths signify the reintegration of Adivasi populations into the democratic mainstream—moving from the **"bullet to the ballot."**

Key Challenges in the Post-LWE Phase

Challenge	Impact
Administrative Vacuum	Reluctance of civil servants (doctors, teachers) to serve in remote areas hinders the transition from "area domination" to "routine governance."
The De-risking Paradox	Peace may lead to a rapid influx of extractive industries, potentially accelerating **Adivasi displacement** and recreating the conditions that birthed Maoism.
Criminalization of Vacuum	The collapse of ideological leadership can leave a void co-opted by **organized crime syndicates**, timber mafias, and localized cartels.
Judicial Chokepoints	Thousands of tribal youths remain incarcerated under laws like **UAPA (1967)** without trial dates, creating a class of disenfranchised and resentful citizens.

Measures for Successful Transformation

1. The AIEEEE Framework

The government is adopting a multi-pronged strategy: **Accountability, Innovation, Evidence, Equity, Empathy, and Efficiency**.

- **Case Study (Dantewada):** By pooling **District Mineral Foundation (DMF)** and **Aspirational Districts Programme (ADP)** funds, the administration built "Education Hubs" to replace the optics of military occupation with empathetic governance.

2. Economic Empowerment via PESA & FRA

Empowerment must go beyond land titles. As per the **Virginius Xaxa Committee (2014)**, qualitative ownership of **Minor Forest Produce (MFP)** is essential.

- **Bastar Procurement Model:** By raising the MSP for *tendu* leaves and establishing **Van Dhan Vikas Kendras**, the state bankrupted the Maoist "grey economy" and transferred capital directly to tribal households.

3. Infrastructure as a Security Tool

- **SETU Framework (Odisha):** In the "Swabhiman Anchal," the construction of the **Gurupriya Bridge** was followed by a saturation of 5G towers, bus routes, and health centers, proving that infrastructure is the most lethal weapon against ideological isolation.

4. Transition to SMART Policing

The state must shift from heavy central deployment to **specialized, locally recruited forces**.

- **The Greyhound Model (AP/Telangana):** This model proved that small, culturally integrated forces fluent in local dialects are superior for maintaining trust and gathering intelligence compared to large, alienated central forces.

Conclusion

The end of the Maoist insurgency is not the end of the state's responsibility but the beginning of a more difficult phase of **"predictable and rights-affirming governance."** To ensure that the "red corridor" does not turn into a "grey corridor" of crime, the state must strictly adhere to the **PESA Act** and the **Forest Rights Act**, ensuring that the tribal population remains the primary beneficiary of the peace dividend.

Operation Global-Hunt: India's Major Crackdown on International Drug Cartels

Why in News?

- In a significant breakthrough for Indian law enforcement, the **Narcotics Control Bureau (NCB)** successfully secured the return of high-profile drug trafficker **Mohammad Salim Dola** from Türkiye.
- This marks the **first major success** under **Operation Global-Hunt**, a strategic initiative launched to dismantle the international infrastructure of narcotics smuggling targeting India.

1. Operation Global-Hunt: A Strategic Offensive

Operation Global-Hunt is not just a single raid, but a **three-year comprehensive strategy** designed to neutralize the "untouchable" kingpins operating from foreign soil.

- **The Target:** It aims to dismantle approximately **100 international drug networks** led by Indian fugitives.
- **Substance Focus:** The operation specifically targets the high-value trade of **Heroin, Cocaine, Fentanyl**, and increasingly dangerous **synthetic drugs** (like Methamphetamine).
- **The Toolkit:**
    - **INTERPOL Notices:** Leveraging Red Corner Notices to restrict the movement of fugitives.
    - **Asset Freezing:** Targeting the "money trail" to choke the financial oxygen of these cartels.
    - **Cross-Border Synergy:** Coordinated action between the NCB, Mumbai Police, Gujarat ATS, and international intelligence agencies.

2. Policy Framework: "Zero Tolerance"

The operation is a pillar of India's broader anti-narcotics policy, which has shifted toward a more aggressive, tech-driven approach.

- **NCORD (Narco Coordination Centre):** A four-tier mechanism that ensures seamless information sharing between District, State, and Central levels.
- **Mission 2029:** India has set a roadmap to achieve a "Drug-Free India" by 2029 through a combination of strict enforcement and a massive nationwide public awareness campaign.

3. The Narcotics Control Bureau (NCB): The Apex Watchdog

Established in **1986**, the NCB is India's primary intelligence and enforcement agency for drug-related crimes.

- **Statutory Basis:** It derives its powers from the **Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985**—one of the strictest laws in India where the "burden of proof" is often on the accused.
- **Ministry:** It operates under the **Ministry of Home Affairs (MHA)**.
- **Core Responsibilities:**
    1. **Inter-Agency Coordination:** Acting as a bridge between state police forces and international bodies like the UNODC (United Nations Office on Drugs and Crime).
    2. **Intelligence Gathering:** Monitoring the "Dark Web" and maritime routes (like the 'Death Crescent' and 'Golden Triangle') used for smuggling.

4. India and the Global Anti-Drug Regime

India is a key signatory to several international treaties that facilitate the extradition of traffickers like Mohammad Salim Dola:

Convention	Focus
Single Convention on Narcotic Drugs (1961)	Controls the cultivation and trade of plants like Poppy and Coca.
Convention on Psychotropic Substances (1971)	Targets synthetic drugs like LSD and Amphetamines.
UN Convention against Illicit Traffic (1988)	Focuses specifically on international smuggling and money laundering.

Conclusion

The return of Dola under Operation Global-Hunt signals that the "geographic boundaries" that once protected drug lords are disappearing. By combining **asset freezing** with **international extradition**, the NCB is moving toward a strategy that targets the leadership of the cartels rather than just the low-level "mules."

EDITORIALS

Crux of The Hindu & Indian Express

Internal Security

India–Egypt Joint Special Forces Exercise 'Cyclone – IV' (2026)

1. Why in News

- The **Indian Army contingent** has departed for Egypt to participate in **Exercise Cyclone – IV**
- This is the **4th edition** of the **India–Egypt Joint Special Forces Exercise**
- It will be conducted:
  - From **09 to 17 April 2026**
  - At **Anshas**

The exercise reflects **growing defence cooperation between India and Egypt**

2. About Exercise Cyclone

- **Exercise Cyclone** is a:
  - **Joint Special Forces military exercise**
- Conducted between:
  - **India and Egypt**
- Previous edition:
  - Held in **India**

It is part of **regular bilateral military engagement**

3. Indian Contingent

- Comprises:
  - **25 personnel**
- From:
  - **Indian Army Special Forces units**

These are highly trained troops for:

- **Counter-terrorism and special operations**

4. Objectives of the Exercise

(A) Improve Interoperability

- To enhance:
  - Ability of both forces to **operate together effectively**

(B) Joint Mission Planning

- Focus on:
  - Coordinated **planning and execution of operations**

(C) Exchange of Best Practices

- Sharing:
  - **Tactics, techniques, and procedures (TTPs)**

Helps in:

- Learning from each other's **operational experience**

5. Key Training Areas

- Training will be conducted in:
  - **Desert and semi-desert terrain**

Major Focus Areas

- **Special operations tactics**
- **Counter-terrorism operations**
- **Combat drills in harsh environments**
- **Survival and mobility in desert conditions**

This is important because:

- Many modern conflicts occur in **challenging terrains**

6. Importance of the Exercise

(A) Defence Cooperation

(B) Strategic Partnership

(C) Capacity Building

(D) Cultural Exchange

India–Uzbekistan Joint Military Exercise 'DUSTLIK' (2026)

1. Why in News

- The Indian Army contingent has departed for the **7th edition of Exercise DUSTLIK**, a joint military exercise between India and Uzbekistan.
- The exercise is being conducted:
  - From **12 to 25 April 2026**
  - At **Gurumsaray Field Training Area**
- The previous edition was held in India at **Aundh (Pune) in April 2025**.

2. About Exercise DUSTLIK

- **Exercise DUSTLIK** is a **bilateral joint military exercise** conducted annually between India and Uzbekistan.
- It is held:
  - **Alternately in India and Uzbekistan**
- The exercise focuses on:
  - Enhancing **defence cooperation**
  - Improving **joint operational capability**

3. Participating Forces

- The Indian contingent consists of **60 personnel**:
  - **45 personnel from Indian Army**, mainly from a battalion of the **MAHAR Regiment**
  - **15 personnel from Indian Air Force**
- The Uzbekistan contingent also includes:
  - Around **60 personnel** from their Army and Air Force

4. Aim of the Exercise

- The main aim is to:
  - Strengthen **military cooperation between the two countries**
- It also seeks to:
  - Enhance **combined capability to conduct joint operations**
  - Improve coordination in **semi-mountainous terrain conditions**

5. Key Training Focus

- The exercise emphasises:
  - High level of **physical fitness**
  - **Joint planning of operations**
  - Execution of **joint tactical drills**
- It also includes:
  - Training in **specialised arms and operational skills**

6. Operational Activities

- The participating troops will practice:
  - **Land navigation techniques**
  - **Strike missions on enemy bases**
  - **Seizure of enemy-held areas**
- The exercise will conclude with:
  - A **48-hour validation exercise**

Validation Exercise Focus

- Testing:
  - Preparedness for **joint special operations**
- Objective:
  - **Neutralisation of unlawful armed groups**

7. Interoperability and Coordination

- A key goal is to establish:
  - A **unified operational algorithm**
- This involves:
  - Coordination between **command-and-control structures**
- It improves:
  - **Interoperability between armed forces**
  - Joint decision-making capability

8. Mutual Learning and Exchange

- Indian forces will:
  - Learn **operational procedures of Uzbekistan Armed Forces**
- Uzbekistan forces will:
  - Gain insights from **India's operational experience**
- Both sides will share:
  - **Best practices in Tactics, Techniques and Procedures (TTPs)**

Promotion and Regulation of Online Gaming (PROG) Rules, 2026

Why in News

- The Ministry of Electronics and Information Technology has notified the **Promotion and Regulation of Online Gaming (PROG) Rules, 2026**, effective from **1 May 2026**.
- The Rules operationalise the Promotion and Regulation of Online Gaming Act, 2025, creating a **comprehensive national framework** for regulating online gaming.
- The move comes amid concerns over **addiction, fraud, and regulatory fragmentation across states**.

Key Points

1. About PROG Rules, 2026

- Establish a **structured regulatory framework** for online gaming in India.
- Aim to regulate **online money games (banned)** while promoting **safe gaming and e-sports**.
- Designed to position India as a **global hub for digital gaming and e-sports**.

2. Objectives

- Protect users from **financial risks and addiction**
- Ensure **regulatory clarity and uniformity** across India
- Prevent **illegal financial activities and fraud**
- Promote **responsible gaming ecosystem**
- Strengthen **inter-agency coordination**

3. Online Gaming Authority of India (OGAI)

- Set up under MeitY as a **digital-first regulator**
- Headquarters: **New Delhi**
- Composition: Representatives from ministries of **Home Affairs, Finance, I&B, Sports, Law**
- Powers and Functions:
  - Classify games (**money game, social game, e-sport**)
  - Issue **binding directions and codes of practice**
  - Maintain **list of banned games**
  - Handle **user grievances and enforcement**

4. Determination Framework (Key Innovation)

- Introduces a **"determination test"** to classify games based on:
  - **Monetary stakes**
  - **Rewards and incentives**
  - **Monetisation model**
- Not mandatory for all games; triggered when:
  - Directed by regulator
  - Game seeks **e-sports recognition**
  - Government notifies certain categories
- Decision timeline: **within 90 days**
- Valid unless **payment structure changes**

5. Registration Framework

- **Selective, not universal**
- Mandatory only for:
  - **E-sports recognition**
  - Certain **notified high-risk or large-scale games**
- Validity: **up to 10 years**
- **Online money games are completely ineligible** for registration or e-sports status

6. Role of Financial Institutions (New Addition)

- Banks and payment intermediaries must:
  - **Verify regulatory status of games**
  - **Block/suspend transactions** linked to banned games
- Makes the **payments layer a key enforcement mechanism**

7. User Safety and Responsible Gaming

- Mandatory **user safety features**:
  - **Age verification and age-gating**
  - **Time limits**
  - **Parental controls**
  - **Reporting tools**
  - **Counselling support**
  - **Fair-play monitoring**
- Platforms must **disclose safeguards and grievance mechanisms**

8. Grievance Redressal Mechanism

- **Two-tier system**:
  - First: **Platform-level grievance system**
  - Second: **Appeal to OGAI**
- Final appeal to **Appellate Authority (Government/MeitY)**
- Time-bound resolution: **30 days per stage**

9. Penalties and Enforcement

- **Digital enforcement proceedings**
- Timeline: **within 90 days**
- Penalties based on:
  - **Severity of violation**
  - **User harm/loss**
  - **Repeat offences**
  - **Financial gains from violation**

10. Data Localisation Requirement (New Feature)

- Platforms must **store user and traffic data within India**
- Enhances **data security, sovereignty, and regulatory oversight**

Background: Online Gaming in India

Definition

- Games played via **digital devices and internet**, enabling **real-time interaction**.

Classification under Law

- **E-sports**: Competitive, skill-based
- **Online social games**: Entertainment, no monetary stakes
- **Online money games**: Involving stakes (completely banned)

Market Trends

- India has **hundreds of millions of users**
- Rapid growth driven by **smartphones and digital payments**
- Projected to become a **multi-billion-dollar industry**

PROG Act, 2025 – Key Features

- Provides **legal framework for regulation and promotion**
- Imposes **complete ban on online money games**
- Empowers authorities under Information Technology Act, 2000 to **block illegal platforms**
- Applies to **domestic and offshore platforms**

Significance

- Creates **uniform national regulation**, replacing fragmented state laws
- Protects users from **addiction, fraud, and financial exploitation**
- Boosts **legitimate e-sports ecosystem**
- Enhances **India's digital economy and innovation potential**

Challenges

- Enforcement against **offshore and illegal platforms**
- Defining **skill vs chance** in hybrid games
- Risk of **over-regulation impacting startups**
- Compliance burden for **smaller gaming companies**

Way Forward

- Strengthen **global cooperation for enforcement**
- Regularly update **classification and compliance norms**
- Promote **industry self-regulation**
- Enhance **digital awareness and responsible gaming practices**

INS Nireekshak Participates in India–Sri Lanka Diving Exercise (DIVEX 2026)

Why in News

- Indian Naval Ship INS Nireekshak arrived at **Colombo, Sri Lanka on 21 April 2026 to** participate in the **4th edition of the India–Sri Lanka Diving Exercise DIVEX 2026**.
- The exercise highlights India's commitment to maritime security and its role as a regional first responder in the Indian Ocean Region (IOR).

About DIVEX 2026

- A bilateral naval exercise between India and Sri Lanka focused on **diving and underwater operations**
- Conducted in Colombo from **21–27 April 2026**
- Aims to strengthen maritime cooperation and operational coordination between both navies

Objectives

- Enhance interoperability between diving teams
- Improve underwater **search, rescue, and salvage capabilities**
- Strengthen coordination during maritime emergencies
- Promote exchange of best practices and professional synergy

Key Activities

- Advanced underwater drills including **deep-sea and mixed-gas diving**
- Wreck exploration of World War-era ships like **SS Worcester and SS Perseus**
- Training in rescue, salvage, and diving operations
- Joint activities such as **yoga sessions, sports, and beach clean-ups**
- Naval-level professional interactions and discussions

Humanitarian & Medical Diplomacy

- India handed over **BHISHM (Bharat Health Initiative for Sahyog Hita & Maitri) cubes** under the Aarogya Maitri initiative
- Portable medical units capable of handling **around 200 emergency cases**
- Equipped with **AI and RFID-based systems**
- Can be deployed via air, sea, or drones for rapid disaster response

Defence Cooperation Support

- India supplied **50,000 rounds of 9 mm ammunition** to the Sri Lanka Navy
- Strengthens operational readiness and capacity building
- Senior naval-level discussions held to enhance future cooperation

INS Nireekshak: Key Features

- Role: Diving Support and Submarine Rescue Vessel (DSRV)
- Built by Mazagon Dock Limited; commissioned in 1995
- Holds record for **deepest dive (257 metres)** in India
- Equipped with diving bell and recompression chambers

India–Sri Lanka Defence Cooperation

- Based on a **5-year MoU signed in 2025** during visit of Narendra Modi
- Covers military exchange, maritime surveillance, and HADR operations
- Reflects growing **strategic trust and shared security approach** in the IOR

Strategic Significance

Maritime Security

- Improves underwater operational capability
- Enhances safety of shipping lanes and infrastructure

- Builds readiness for submarine and deep-sea emergencies

Geopolitical Importance

- Strengthens India's role as a **first responder in IOR**
- Reinforces SAGAR vision (Security and Growth for All in the Region)
- Deepens India–Sri Lanka defence partnership

Challenges

- Increasing presence of extra-regional powers in IOR
- Need for continuous capacity building
- Managing regional sensitivities in defence cooperation

Way Forward

- Expand bilateral and multilateral naval exercises
- Strengthen disaster response and HADR cooperation
- Enhance technology sharing in underwater systems
- Deepen cooperation under SAGAR framework

Conclusion

DIVEX 2026 goes beyond a routine naval exercise. It reflects India's integrated approach combining **security, diplomacy, and humanitarian assistance**. With assets like INS Nireekshak and initiatives like BHISHM cubes, India is strengthening its role as a reliable maritime partner in the Indian Ocean Region.

❐❐❐

History, Art & Culture

Odisha Day (Utkal Divas): Historical and Constitutional Background

Why in News?

- The Union Home Minister and Minister of Cooperation extended greetings on the occasion of **Odisha Day (Utkal Divas)**, observed on **1 April**, marking the formation of the state on a linguistic basis.

Foundation and Significance

- Odisha Day commemorates the creation of the **separate Orissa Province in 1936**, making it the **first Indian state formed on a linguistic basis under British rule**.
- It symbolises the assertion of **linguistic and cultural identity** in modern Indian state formation.

Historical Background of Odisha

Ancient Period

- The region was historically known as **Kalinga**
- Conquered by **Ashoka in 261 BCE**, after the Kalinga War, which led to his transformation and adoption of Buddhism
- Later, **King Kharavela** of the Mahameghavahana dynasty revived regional power and promoted **art, architecture, and trade**

Medieval Period

- **Gajapati Mukunda Deva** was the last independent Hindu ruler
- After his defeat in **1576**, Odisha came under:
    - Mughal rule
    - Maratha control
    - Finally British colonial administration

Colonial Era and Administrative Fragmentation

Under British rule, Odisha lost administrative unity:

- Odia-speaking regions were split across:
    - Bengal Presidency
    - Madras Presidency
    - Central Provinces
    - Bihar

This fragmentation led to:

- Weak administrative cohesion
- Cultural and linguistic marginalisation
- Loss of unified identity for Odia-speaking population

Odisha Statehood Movement

Early Demand

- The idea of a separate province was examined in **1928** by a British subcommittee chaired by **Clement Attlee**

Key Support and Developments

- Strong advocacy by **Maharaja Krushna Chandra Gajapati** at the Round Table Conference (1930)
- **Samuel O'Donnell Boundary Commission (1932)** recommended formation of Odisha province

Formation of State

- After sustained political and intellectual efforts, **Odisha Province was created on 1 April 1936**
- First Governor: **Sir John Austin Hubback**

Nature of Movement

- Largely **peaceful and non-violent**
- Relied on:
    - petitions
    - conferences
    - intellectual discourse
    - youth participation

Role of Key Leaders and Institutions

Prominent leaders of the movement:

- **Madhusudan Das**
- **Gopabandhu Das**
- **Fakir Mohan Senapati**
- **Pandita Nilakantha Das**

Institutional backbone:

- **Utkal Sammilani (Odisha Association)** played a central role in unifying Odia-speaking regions
- First major conference held in **Cuttack (1903)**, demanding a separate province

Constitutional Evolution of the State Name

- Originally named **Orissa**
- Renamed **Odisha in 2011**
- Achieved through:
    - **113th Constitutional Amendment Bill, 2010**
    - Later enacted as the **96th Constitutional Amendment Act**
    - Supported by the **Orissa (Alteration of Name) legislation**

Conclusion

Odisha Day reflects not only the formation of a linguistic state but also a long historical struggle for **cultural recognition, administrative unity, and regional identity**. It stands as an early example of how **linguistic nationalism shaped India's federal structure**.

Samrat Samprati Museum Inauguration and Jain Heritage

Why in News?

- On the occasion of **Mahavir Jayanti (31 March 2026)**, the Prime Minister inaugurated the **Samrat Samprati Museum** in Koba, Gandhinagar.
- The museum is dedicated to preserving **Jain history** and highlighting the contribution of **Samrat Samprati**, often compared with Ashoka for his role in spreading religion through state patronage.

Who was Samrat Samprati?

Historical Background

- Fifth ruler of the **Mauryan Empire** (c. 224–215 BCE)
- Grandson of **Ashoka the Great**
- Son of **Kunala**
- After Ashoka's death, Mauryan authority was divided between **Samprati and Dasharatha**

Religious Identity

- Strong patron of **Jainism**, especially the **Shvetambara tradition**
- Often called the **"Jain Ashoka"** for his role in promoting Jain values and institutions

Contribution to Spread of Jainism

Temple Building and Religious Expansion

- Large-scale construction and renovation of Jain temples across India
- Traditionally credited with:
    - Building around **125,000 temples**
    - Renovating nearly **36,000 older temples**
- Commissioned installation of numerous **Tirthankara idols** made of stone and metal
- Established Jainism as a **visible institutional religion through temple culture**

Missionary Expansion

- Sent Jain missionaries across and beyond the Mauryan territory
- Spread Jain teachings of **Ahimsa (non-violence)** to:
    - Afghanistan
    - Nepal
    - Sri Lanka
    - Myanmar
    - Central Asia regions
- Strengthened Jain presence in:
    - Gujarat, Rajasthan, Maharashtra
    - Karnataka, Tamil Nadu, Andhra Pradesh

State Support and Governance

- Provided royal patronage to Jain institutions from capitals like **Ujjain and Pataliputra**
- Aligned governance with Jain ethics, especially **Karuna (compassion)**
- Established around **700 charitable institutions (Sada-vratas)** offering:
    - Food
    - Shelter
    - Medical care

Support to Monastic Life

- Ensured safe travel routes for Jain monks
- Facilitated access to **pure and permissible food (as per Jain discipline)**
- Strengthened monastic networks across the empire

Major Sects of Jainism

Shvetambara Sect ("White-Clad")

- Predominant in **Gujarat and Rajasthan**
- Monks wear **white clothing**, symbolising purity and discipline
- Accepts **Jain Agamas** as authentic scriptures
- Believes **women can attain moksha in the present life**
- Sub-sects:
    - Murtipujaka (idol worshippers)
    - Sthanakavasi (non-idol worshippers)
    - Terapanthi (strict reformist tradition)

Digambara Sect ("Sky-Clad")

- Predominant in **Karnataka and parts of central India**
- Monks practice **complete renunciation, including clothing**
- Believes original scriptures were **lost over time**
- Holds that **women must be reborn as men to attain moksha**
- Sub-sects:
    - Bisapantha
    - Terapantha
    - Taranapantha (Samaiyapantha)

Conclusion

The inauguration of the **Samrat Samprati Museum** highlights the enduring legacy of Jain cultural and philosophical traditions. Samprati's reign reflects how **state patronage can shape religious expansion, ethical governance, and cultural continuity**, making him a key figure in India's ancient heritage narrative.

Union Home Minister Pays Tribute to Chhatrapati Shivaji Maharaj

Why in News?

- **Union Home Minister** and **Minister of Cooperation** paid tributes to **Chhatrapati Shivaji Maharaj** on his **Punyatithi (Death Anniversary)**.

Chhatrapati Shivaji Maharaj: Life and Legacy

- Born on **19th February 1630** at **Shivneri Fort near Pune**.
- **Founder of the Maratha Empire** and a **visionary leader** who **resisted Mughal rule** and **championed self-governance**.

Vision of Hindavi Swarajya

- Pledged to establish **Hindavi Swarajya (Self-Rule)**, emphasizing:
  - **Indigenous sovereignty**
  - **Ethical governance**
  - **Political independence** from foreign domination
- United masses around **Swadharma (one's duty)**, **Swaraj (self-rule)**, and **Swabhasha (native language)**.
- Replaced **Persian** with **Marathi and Sanskrit** in administration.

Major Battles

- **Battle of Pratapgad (1659)**: Defeated **Afzal Khan** using the **Wagh Nakh** (tiger claws).
- **Battle of Pavan Khind (1660)**
- **Battle of Surat (1664)**
- **Battle of Purandar (1665)**
- **Battle of Sinhagad (1670)**
- **Battle of Sangamner (1679)**

Military and Naval Genius

- Pioneered **Guerrilla Warfare (Ganimi Kava)**.
- Known as the **"Father of the Indian Navy"** for building a **strong naval fleet** and **coastal forts** (e.g., **Sindhudurg**) to protect the **western seaboard**.

Administration

- Established the **Ashtapradhan Mandal (Council of Eight Ministers)** for governance.
- Introduced **direct revenue collection** from cultivators, reducing intermediary exploitation.

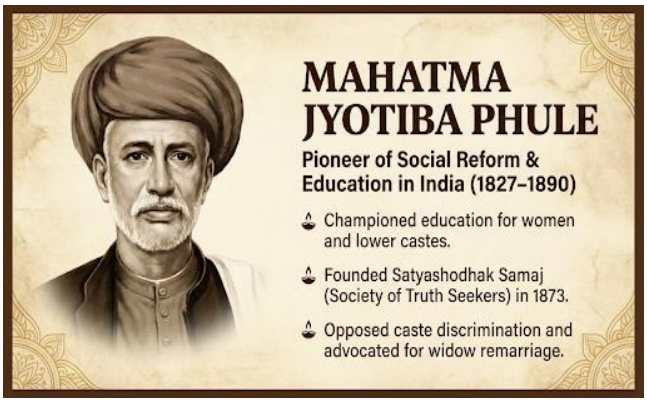
Titles and Honors

- **Chhatrapati** (Sovereign)
- **Shakakarta** (Founder of an Era)
- **Kshatriya Kulavantas** (Progenitor of the Warrior Clan)
- **Haindava Dharmodhhaarak** (Protector of Hindu Dharma)

Final Days

- Passed away on **3rd April 1680** at **Raigad Fort** due to severe health complications.

Jyotiba Phule: Pioneer of Social Justice and Constitutional Thought



Why in News?

- The **200th birth anniversary** (bicentenary) of **Jyotiba Phule** (1827-1890) was recently commemorated.
- The event brought renewed focus to his legacy as a radical social reformer and a foundational figure in Indian constitutional thought.
- Phule's vision centered on restructuring society through the lenses of **equality, human dignity, and the redistribution of power**, specifically addressing the ties between social hierarchy and economic marginalization.

Key Facts About Jyotiba Phule

Profile

- **Birth:** 11 April 1827.
- **Core Focus:** Challenging Brahmanical dominance and advocating for the emancipation of Dalits, Shudras, and women.
- **Title:** Honored with the title **'Mahatma'** on 11 May 1888, by social activist Vithalrao Krishnaji Vandekar.

- **Influences:** Greatly inspired by **Thomas Paine's** work, *The Rights of Man*.

Educational Initiatives

- **Pioneering Girls' Education:** Established India's first school for girls in 1848 alongside his wife, **Savitribai Phule**.
- **Night Schools:** Launched night schools in 1855 specifically for the working class, farmers, and women in Pune.

Social and Political Philosophy

- **Satyashodhak Samaj (1873):** Founded the "Truth Seekers' Society" to advocate for social rights and political liberty for underprivileged groups.
- **Critique of 1857 Revolt:** Characterized the uprising as an attempt by upper castes to reinstate Brahminical hegemony rather than a struggle for universal liberation.
- **Support for British Rule:** Viewed British administration as a necessary tool to dismantle traditional caste oppression and provide education to the masses.
- **Deenbandhu:** This Marathi weekly, started by Krishnarao Pandurang Bhalekar in 1877, acted as the primary voice for the Satyashodhak movement.

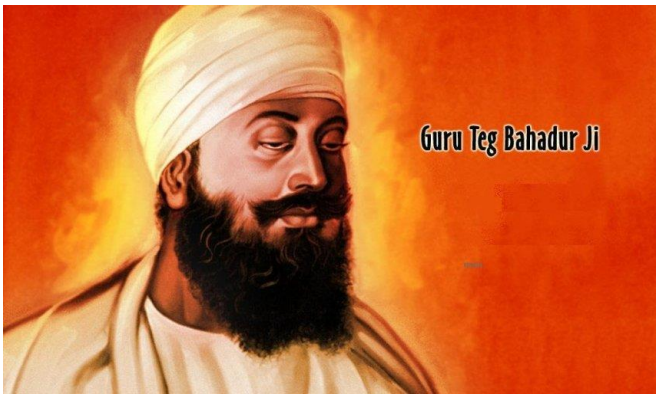
Major Works and Ideologies

- **Gulamgiri (Slavery, 1873):** Dedicated this work to the American movement to abolish slavery, drawing parallels with the caste system in India.
- **Shetkaryanche Asud (Cultivator's Whipcord, 1881):** A scathing critique of how the Shudra peasantry was exploited by the nexus of the British bureaucracy and local elites.
- **Sarvajanik Satya Dharma Pustak:** Published posthumously, it advocated for a "Universal Religion of Truth" based on rationality and the rejection of traditional religious hierarchies.
- **Satsar (1885):** A journal where he defended individuals like **Pandita Ramabai**, supporting the right to religious freedom and conversion.

Summary of Publications

Year	Title	Primary Theme
1855	**Tritiya Ratna**	A play highlighting the importance of education.
1869	**Bhosle Yancha Powada**	A ballad praising Chhatrapati Shivaji Maharaj.
1873	**Gulamgiri**	Critique of caste as a form of slavery.
1881	**Shetkaryacha Aasud**	Economic exploitation of farmers.
1891	**Sarvajanik Satya Dharma Pustak**	Rationalism and social equality.

Guru Teg Bahadur: The Epitome of Sacrifice and Religious Freedom



Why in News?

- The Union Home Minister and Minister of Cooperation recently extended greetings on the occasion of **Prakash Purb**, celebrating the birth anniversary of the 9th Guru of Sikhism, **Guru Teg Bahadur Ji**, famously known as **'Hind di Chadar'**.

Life and Spiritual Succession

Early Life

- **Birth:** Born as **Tyag Mal** on 1 April 1621, in Amritsar.
- **Parentage:** He was the son of the 6th Sikh Guru, **Guru Hargobind**.
- **Valour:** Earned the title **'Tegh Bahadur'** (Mighty of the Sword) after demonstrating exceptional bravery in the **Battle of Kartarpur (1634)** against Mughal forces.

Succession

- He succeeded the 8th Guru, **Guru Harkrishan**, to become the **9th Sikh Guru**.

Philosophy and Contributions

Core Beliefs

- **Doctrine:** Carried forward Guru Nanak's message of **'Ik Onkar'** (the oneness of God).

- **Values:** Promoted a life defined by **'Nirbhau'** (fearlessness) and **'Nirvair'** (malice toward none).
- **Authority:** His spiritual outlook was shaped by the concept of **Miri and Piri** (the balance of temporal and spiritual power).

Key Establishments and Travels

- **Spreading the Word:** Traveled extensively through Northern and Eastern India, including regions like **Assam and Dhaka**, to preach the tenets of Sikhism.
- **City Foundation:** Founded **Chak Nanaki** in the Shivalik foothills, which eventually evolved into the historic city of **Anandpur Sahib**.

Literary Work

- **Gurbani:** His spiritual legacy includes hymns in **15 Raags**, consisting of **59 Shabads** and **57 Shaloks**.
- **Integration:** These compositions were formally added to the **Guru Granth Sahib** by his son and successor, Guru Gobind Singh.

The Supreme Sacrifice

Confronting Persecution

- During the reign of **Emperor Aurangzeb**, Guru Teg Bahadur stood as a protector for **Kashmiri Brahmins** facing forced religious conversions.
- **Martyrdom (1675):** After refusing to renounce his faith, he was publicly executed in Delhi. His disciples **Bhai Mati Das, Bhai Sati Das, and Bhai Dayal Das** were also martyred alongside him.

Historical Landmarks in Delhi

- **Gurudwara Sis Ganj:** Built at the site of his execution.
- **Gurudwara Rakab Ganj:** Built at the site where his body was cremated by Lakhi Shah Vanjara.

Legacy and Significance

- **'Hind di Chadar':** Revered as the "Shield of India" for sacrificing his life to protect the religious freedom of a community other than his own.
- **Catalyst for Change:** His martyrdom was a turning point in Sikh history, leading his son, **Guru Gobind Singh**, to formalize the **Khalsa** and militarize the community against injustice.

Ancient Stepped Reservoir Discovered on Elephanta Island

Why in News?

- In April 2026, the **Archaeological Survey of India (ASI)** unearthed a sophisticated **1,500-year-old stepped reservoir** on Elephanta Island.
- This discovery reveals advanced ancient water management and confirms the island's role as a major maritime trade hub connecting India with the Mediterranean and West Asia.

Key Discovery: The Stepped Reservoir

- **Architecture:** A **T-shaped** structure measuring 14.7 meters in length and reaching a depth of 5 meters.
- **Engineering:** Features **20 precisely aligned stone steps**. Notably, the stone blocks were **ferried from the mainland**, indicating high-level logistics and planning.
- **Purpose:** Designed to harvest monsoon runoff. Since the island's rocky terrain prevents water from seeping into the soil, this reservoir was essential for sustaining the settlement.
- **Significance:** Unlike the island's known rock-cut cisterns, this is a built architectural structure, representing a mature phase of civil engineering.

Numismatic and Chronological Evidence

Excavations yielded approximately **60 coins** made of copper, lead, and silver, which help anchor the site's timeline:

- **Kalachuri Dynasty:** Several copper coins belong to **ruler Krishnaraja (6th century CE)**.
- **Iconography:** The coins feature a **seated bull (Nandi)** on the obverse and a **temple symbol** with the legend *Sri Krishnaraja* on the reverse.
- **Context:** This confirms Kalachuri political influence over coastal Maharashtra during the 6th century, the same period during which the famous Shiva caves were likely patronized.

Evidence of Global Maritime Trade

The site provided massive evidence of long-distance trade during the Early Historic period:

- **Amphorae Sherds:** Discovery of ~3,000 sherds of **Mediterranean origin**, typically used for transporting wine, oil, and fish sauce from Rome.
- **Torpedo Jars:** Originating from **West Asia (Mesopotamia)**, these were used for liquid storage and transport.
- **Strategic Hub:** These findings verify that Elephanta was a critical node linking the Indian mainland to the Persian Gulf and the Roman Empire.

Industrial and Cultural Insights

- **Textile Economy:** Discovery of a brick structure, likely a **dyeing vat**, suggests the island was a center for textile production.
- **Daily Life:** Other recoveries include terracotta figurines, glass and stone bangles, and beads made of **carnelian and quartz**.
- **Historical Geography:** The island functioned through three main port localities: **Morabandar, Rajbandar, and Shethbandar**.

Existing Heritage Context

- **Elephanta Caves (Gharapuri):** A UNESCO World Heritage Site famous for its **5th-century CE** rock-cut temples.
- **Iconic Sculpture:** Home to the 20-foot **Trimurti** (three-headed Shiva) representing the Creator, Preserver, and Destroyer.
- **Historical Naming:** The name "Elephanta" was given by the Portuguese in the 16th century after a large stone elephant statue found near the landing area.

107th Anniversary of Jallianwala Bagh Massacre

Why in News?

- On **13th April 2026**, the nation paid homage to the martyrs of the **Jallianwala Bagh massacre**.
- This year marks the **107th anniversary** of the tragic event that remains one of the most harrowing chapters of India's struggle for independence.

Background: The Road to the Massacre

- **The Rowlatt Act (1919):** Also known as the "Black Law," it allowed the British government to imprison political activists for up to **2 years without trial**.
- **Nationwide Protest:** Mahatma Gandhi organized a **hartal on 6th April 1919**, the first all-India mass protest, declaring it **"Black Day."**
- **Arrests in Punjab:** Tensions peaked in Amritsar following the secret arrest and deportation of local leaders **Dr. Saifuddin Kitchlew** and **Dr. Satyapal** on 9th April.
- **Martial Law:** Following local riots, control of Amritsar was handed to **Brigadier General Reginald Dyer**, who banned all public gatherings.

The Day of the Massacre: 13th April 1919

- **The Gathering:** Thousands, including women and children, gathered at **Jallianwala Bagh** on the occasion of **Baisakhi**. Many were unaware of the ban on assemblies; others were there to protest peacefully.
- **Dyer's Action:** General Dyer blocked the only narrow exit with troops (Gurkha and Baloch regiments).
- **The Carnage:** Without any warning to disperse, he ordered his men to open fire on the unarmed crowd. Approximately **1,000+ people** lost their lives in the firing.

Official and Non-Official Inquiries

Inquiry Body	Findings & Actions
Hunter Commission (1919)	Censured Dyer and forced his resignation but recommended **no legal or penal action** against him.
INC Inquiry Committee	Boycotted the Hunter Commission. Leaders like **Motilal Nehru and C.R. Das** condemned the act as "calculated inhumanity."

Impact and Aftermath

- **Renunciations of Titles:**
  - **Rabindranath Tagore** renounced his **Knighthood**.
  - **Mahatma Gandhi** returned the **Kaiser-i-Hind** medal.
- **Resignation of Sir Sankaran Nair:** He resigned from the **Viceroy's Executive Council** in protest. His book *Gandhi and Anarchy* (1922) openly blamed Michael O'Dwyer for the atrocities.
- **Launch of Non-Cooperation:** The Punjab wrongs, combined with the Khilafat issue, became the catalyst for the **Non-Cooperation Movement (1920–1922)**.
- **Rise of Revolutionaries:** The event radicalized a younger generation, including **Bhagat Singh**, leading to the growth of the **HSRA**.
- **Retribution:** In 1940, **Udham Singh** assassinated **Michael O'Dwyer** (the Lieutenant Governor of Punjab during the massacre) in London as an act of historical revenge.

Conclusion

The Jallianwala Bagh massacre was a turning point that permanently damaged the myth of "benevolent" British rule. It shifted the Indian national movement from seeking moderate reforms to a resolute demand for **Purna Swaraj** (Complete Independence).

135th Birth Anniversary of Dr. B.R. Ambedkar

Why in News?

- On **14th April 2026**, the nation celebrates the **135th Birth Anniversary** of **Dr. Bhimrao Ramji Ambedkar**.
- Known as the chief architect of the Indian Constitution, he was a pioneering social reformer, jurist, and economist who dedicated his life to eradicating social inequality and caste-based discrimination.

Who was Dr. B.R. Ambedkar?

- **Early Life:** Born on **14th April 1891** in Mhow, Madhya Pradesh, into the **Mahar caste**. He faced systemic discrimination which fueled his lifelong crusade for justice.
- **Scholarship:** Earned doctorates in economics from **Columbia University** and the **London School of Economics**.
- **Political Role:** Served as the **First Law Minister** of Independent India and Chairman of the **Drafting Committee** of the Constituent Assembly.
- **Posthumous Honor:** Awarded the **Bharat Ratna** in 1990.

Organizations and Literary Works

Category	Contributions
Organizations	**Bahishkrit Hitakarini Sabha** (1924); **Independent Labour Party** (1936); **Scheduled Castes Federation** (1942).
Journals	**Mooknayak** (1920); **Bahishkrit Bharat** (1927); **Samatha** (1929); **Janata** (1930).
Major Books	**Annihilation of Caste** (1936); **The Untouchables** (1948); **Buddha or Karl Marx** (1956); **The Buddha and His Dhamma** (1957).

The 'Panchteerth' (Five Holy Sites)

The Government of India has developed five key sites to preserve his legacy:

1. **Janma Bhoomi:** Mhow (Birthplace).
2. **Shiksha Bhoomi:** London (Residence during studies).
3. **Deeksha Bhoomi:** Nagpur (Where he embraced **Buddhism** in 1956).
4. **Mahaparinirvan Bhoomi:** Delhi (Place of passing).
5. **Chaitya Bhoomi:** Mumbai (Place of cremation).

Key Contributions

1. Social Reform & Anti-Caste Crusade

- **Mahad Satyagraha (1927):** Asserted the right of untouchables to use water from the public **Chavdar tank**.
- **Temple Entry:** Led the **Kalaram Temple** movement (1930) to secure religious rights for marginalized castes.
- **Poona Pact (1932):** An agreement with Mahatma Gandhi that secured **reserved seats** for depressed classes within the general electorate, replacing separate electorates.

2. Constitutional & Democratic Legacy

- **Architect of the Constitution:** Integrated safeguards for minorities and women. He was deeply inspired by the ideals of **liberty, equality, and fraternity**.
- **Article 32:** Defined the **Right to Constitutional Remedies** as the **"heart and soul"** of the Constitution.

3. Economic & Labor Reforms

- **RBI Foundation:** His book *"The Problem of the Rupee"* provided the conceptual framework for the **Hilton Young Commission**, leading to the birth of the RBI.
- **Labor Rights:** Introduced the **8-hour workday** (reduced from 14), equal pay for equal work, and maternity benefits.

4. Women's Empowerment

- **Hindu Code Bill:** Proposed equal rights in inheritance and marriage. He resigned as Law Minister in 1951 when the bill faced orthodox opposition.

5. Religious Philosophy: Navayana Buddhism

- In 1956, he founded **Navayana (New Vehicle)** Buddhism, a reinterpretation focusing on social equality rather than traditional metaphysics.
- **Dhammachakra Pravartan Din:** Observed on **14th October** to mark his mass conversion at Nagpur.

EDITORIALS

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History, Art & Culture

Baisakhi Festival (2026)

1. Why in News

- The festival of Baisakhi is being celebrated across Punjab and other parts of India with devotion, enthusiasm and a spirit of brotherhood
- Large number of devotees gathered at Takht Sri Kesgarh Sahib
- The day marks the historic event of the **foundation of Khalsa Panth in 1699**
- Sikh devotees are also visiting **Gurudwaras in Pakistan** to celebrate
- The festival also marks the beginning of **wheat harvesting season** for farmers

2. Historical Significance

- In 1699, the Khalsa Panth was established by Guru Gobind Singh
- The event took place at **Anandpur Sahib in Punjab**
- This was a turning point in Sikh history as it created a distinct and disciplined Sikh identity

Meaning of Khalsa

- Khalsa means **"pure" or "free"**
- It represents:
    - Equality
    - Courage
    - Religious discipline
- The event is also celebrated as **Khalsa Sajna Diwas**

3. Religious Importance

- Devotees visit Gurudwaras and participate in:
    - Prayers
    - Kirtan (devotional singing)
    - Community services
- Major celebrations take place at Takht Sri Kesgarh Sahib
- Special religious gatherings are held across India

International Significance

- Sikh devotees travel to Pakistan to visit:
    - Historic Gurudwaras
- This shows the **global importance of Baisakhi for Sikh community**

4. Cultural Significance

- The festival is celebrated with:
    - Bhangra and Gidda dances
    - Fairs and community gatherings
- It promotes:
    - Social unity
    - Cultural identity
- It reflects the **joy and vibrancy of Punjabi culture**

5. Agricultural Significance

- Baisakhi marks:
    - Harvesting of **rabi crop (especially wheat)**
- Farmers celebrate:
    - Successful crop production
    - Beginning of a new agricultural cycle
- It symbolises:
    - Prosperity
    - Hard work
    - New beginnings

6. Calendar and Timing

- Celebrated on:
    - 13 or 14 April every year
- Based on:
    - Solar calendar (month of Vaishakha)
- It also marks:
    - **Sikh New Year**

7. Pan-India Variations (Important)

Baisakhi coincides with New Year festivals in different regions:

- Poila Boishakh (West Bengal)
- Vishu (Kerala)
- Bohag Bihu (Assam)
- Puthandu (Tamil Nadu)
- Vaishakha festival (Bihar, linked to Sun worship)
- These festivals share:
    - Seasonal and agricultural significance

8. Key Concepts

- Harvest Festival
    - Celebration of agricultural yield
- Khalsa Panth
    - Religious order in Sikhism
- Kirtan
    - Devotional singing tradition

Lanjia Saora: Preserving Heritage in Transition

Why in News?

- Recently, the **Lanjia Saora tribe**, a **Particularly Vulnerable Tribal Group (PVTG)** in Odisha, was highlighted for its evolving cultural practices.
- The community is gaining attention for the unique way its younger generation is balancing ancient customs with modern adaptations.

About the Lanjia Saora

- **Identity:** A subgroup of the Saora tribe, which is one of India's most ancient tribal communities.
- **Geographic Spread:** Primarily inhabit the forested hills of the **Rayagada and Gajapati** districts in Odisha. They are also found in Andhra Pradesh, Jharkhand, and Madhya Pradesh.
- **Classification:**
    - **Lanjia Saora:** Hill-dwelling groups practicing shifting cultivation.
    - **Sudha Saora:** Plains-dwelling groups engaged in settled agriculture and wage work.
- **Language:** They speak **Saora**, a Mundari language belonging to the **Austroasiatic family**.

Lifestyle and Cultural Practices

Category	Details
Sustenance	Dependent on **shifting cultivation (Podu)**, foraging, and small-scale farming.
Belief System	Deeply animistic; rituals and daily life are intrinsically tied to nature and ancestral spirits.
Traditional Attire	Distinctive ceremonial gear includes **turbans with crane feathers**, peacock plumes, swords, and umbrellas.
Music & Dance	Characterized by spontaneous songs and vibrant dances using **brass pipes, cymbals, and gongs**.

Unique Traditions and Modern Adaptations

- **Ornaments and Tattoos:**
    - **Traditional:** Known for large metal earrings fixed into stretched earlobes and permanent tattoos featuring geometric and nature-inspired motifs of spiritual significance.
    - **Modern Shift:** Younger members are increasingly opting for **detachable ornaments and temporary tattoos**, allowing them to maintain their cultural identity while navigating modern social environments.
- **Artistic Legacy:** The tribe is also famous for **Idital (Saora Paintings)**, which are intricate wall murals dedicated to their deities and ancestors.

Conclusion

The Lanjia Saora represent a resilient cultural thread in India's tribal tapestry. As a PVTG, their transition toward modern adaptations of traditional ornaments and tattoos highlights the dynamic nature of tribal identity, emphasizing the need for sensitive documentation and support to preserve their unique Austroasiatic heritage.

Subhas Chandra Bose: Philosophical Foundations and Vision

Why in News?

- The life and ideas of **Subhas Chandra Bose** are being revisited, highlighting his unique attempt to **blend Indian spirituality with Western political thought** and his vision for a **modern, socialist India**.

Context of Bose's Philosophical Foundations

- Bose's worldview was a unique synthesis of pragmatic spirituality and scientific progress.
- While initially influenced by **Shankaracharya's Doctrine of Maya** (viewing the world as an illusion), he eventually rejected it, stating a revolutionary must discard what is "not workable."
- Instead, he viewed the world as a real, evolving manifestation of the "Spirit," guided by the fundamental essence of **Love**.

Key Philosophical and Political Concepts

- **Hegelian Dialectics:** Bose adopted **Hegel's dialectics** (thesis, antithesis, and synthesis) to explain historical progress. He believed society evolves through continuous conflict, making active political participation a moral duty.
- **Samyavada (Doctrine of Harmony):** Articulated through the **Forward Bloc (1939)**, this was Bose's indigenous philosophy. It sought to synthesize the strengths of global ideologies like Communism and Fascism while rejecting their extremes.
- **Scientific Industrialization:** Bose sharply diverged from Gandhian agrarianism, championing large-scale production and heavy industries. He institutionalized this by creating the **National Planning Committee** during his 1938 Haripura presidency.
- **Centralized Authority:** Influenced by the rapid modernization of Soviet Russia and Kemalist Turkey, Bose advocated for a **strong Central Government** with temporary authoritarian powers to enforce socialist reforms in a fractured, post-colonial India.

Comparison: The Ideological Triad

Feature	Mahatma Gandhi	Subhas Chandra Bose	Jawaharlal Nehru
Means vs. Ends	Absolute non-violence (**Ahimsa**); means must be as pure as ends.	Geopolitical pragmatism; "Freedom is taken, not given."	Centrist; followed non-violence but was staunchly anti-fascist.
Economic Vision	**Gram Swaraj**; decentralized, village-based cottage industries.	State-led heavy industrialization and abolition of landlordism.	**Mixed Economy**; strong public sector and "temples of modern India" (dams/industry).
Nature of State	Decentralized federation of self-sustaining village republics.	Strong Central Government with **temporary authoritarian powers**.	Resolute **parliamentary democracy** and constitutionalism.
World View	Spiritual/Moral regeneration; moral sympathy for democracies.	Strategic; viewed WWII as an opportunity to strike the British.	Internationalist; anti-racist, later birthed the **Non-Aligned Movement**.

Relevance of Bose's Ideas Today

- **Pioneer of Planning:** His vision laid the intellectual groundwork for India's post-independence **Planning Commission** and the push for scientific reorganization.
- **Inclusive Nationalism:** His uncompromising stance against communalism and his demand for a state that protects minority cultural autonomy remains vital for India's secular fabric.
- **Cautionary Paradox:** Modern democracies study Bose's advocacy for temporary authoritarianism as a cautionary tale, reminding citizens to resist the appeal of "authoritarian shortcuts" in solving structural problems.

Conclusion

Subhas Chandra Bose remains a towering figure who married the spiritual depth of India with the scientific rigor of the West. His blueprint for a modern Indian state—focused on scientific industrialization and social equity—continues to challenge and inspire the nation's journey toward becoming a global power.

Rediscovery of the Oor Pare Rock Art Site

Why in News?

- In **early 2026**, the **Yaakai Heritage Trust** reported the significant rediscovery of a prehistoric rock painting site named **Oor Pare** in the Nilgiris district of **Tamil Nadu**.
- This finding adds a vital chapter to the understanding of the megalithic and prehistoric cultural landscape of South India.

1. Geography and Tribal Context

- **Location:** Situated near **Vellarikombai village** in the **Kotagiri region**, the site sits at an elevation of approximately **1100 meters**.
- **Indigenous Connection:** The rock shelter is not merely an archaeological relic but a living space. It is traditionally used by the **Irula and Kurumba** tribes, particularly as a resting spot during their seasonal honey-gathering expeditions.
- **Accessibility:** The site's high-altitude and rugged terrain have played a key role in preserving the artwork from excessive human interference.

2. Artistic Composition and Style

The Oor Pare paintings are a testament to the aesthetic and ritualistic complexity of ancient inhabitants:

- **Medium:** All figures are executed in **red ochre**, creating a distinct **monochrome composition** typical of the region's prehistoric art.
- **Artistic Techniques:**
    - **Fine Line Drawings:** Precise, thin strokes likely representing early phases.
    - **Thick Stroke Figures:** Bolder representations of human and animal forms.
    - **Geometric Forms:** Complex shapes that suggest a transition toward symbolic communication.

3. Key Depictions and Symbols

The artwork provides a window into the spiritual and social lives of prehistoric humans:

- **Anthropomorphic Figures:** Humans depicted with **conical headdresses**, suggesting high-status individuals or shamans.
- **Anatomy:** Unique depictions including **elongated human forms** and **ladder-like body structures**, which may symbolize spiritual ascension or specific tribal lineages.
- **Ritual Patterns:** Dot-filled rectangular patterns and other ritual symbols point toward a belief in the supernatural or the marking of sacred spaces.

4. Chronology and Superimposition

One of the most scientifically interesting aspects of Oor Pare is the evidence of **multi-phase activity**:

- **Superimposition:** Newer paintings have been drawn directly over older ones. This indicates that the rock shelter remained a site of cultural or religious importance for **different cultural periods** over hundreds or even thousands of years.
- **Repainting:** Some figures show signs of being "touched up," suggesting a continuous tradition of maintenance by successive generations.

5. The Nilgiri Rock Art Circuit

Oor Pare is part of a larger cluster of significant prehistoric sites in the Nilgiris:

- **Eluthuparai:** Famous for its extensive panels of human and animal figures.
- **Tholikkiparai:** Known for its multi-layered chronological traditions similar to Oor Pare.

6. Summary : Archaeological Terms

Term	Description
Monochrome	Artwork created using various shades of a single color (in this case, red).
Ochre	A natural earthy pigment containing hydrated iron oxide, used by prehistoric humans as paint.
Anthropomorphic	Having human characteristics or form, often used to describe depictions of deities or spirits.
Megalithic Period	A period characterized by the use of large stones to construct monuments or burial sites, often overlapping with rock art traditions.

Conclusion

The rediscovery of Oor Pare underscores the need for a **Community-led Conservation** model. Since the Irula and Kurumba communities already have a traditional relationship with these shelters, involving them in the protection of these sites is essential. For historians, these "open-air galleries" are crucial for tracing the migration and settled life of early humans in the Western Ghats.

❐❐❐

PERSONS IN NEWS

Person	Why in News
Sunil Bharti Mittal 	Will step down as Chairman of Airtel Africa in July 2026 after leading the company since its 2019 listing. Under his leadership, Airtel Africa expanded across **14 African countries**, offering telecom services and mobile money solutions, marking a major global expansion phase of Bharti Airtel.
Shravin Bharti Mittal 	Appointed Deputy Chair of Airtel Africa. He is associated with the Airtel Money Board and focuses on **Africa's digital payments ecosystem**, supporting expansion of fintech and mobile financial services in African markets.
Dilip Kumar 	Assumed charge as **Chief Vigilance Officer (CVO) of SAIL** on 27 April 2026. His appointment aims to strengthen transparency, accountability, and anti-corruption mechanisms in one of India's largest steel PSUs.
Sanjay Jamuar 	Appointed as the first CEO of **Delhi Metro International Limited (DMIL)**, a subsidiary of DMRC created to expand India's metro expertise globally through consultancy, operations, and international metro projects.
Ashok Lahiri 	Set to become Vice-Chairman of **NITI Aayog**, succeeding Suman Bery. He is a former Chief Economic Adviser (2002–2007) and is known for expertise in fiscal reforms, macroeconomic policy, and public finance.

Nitu Samra 	Appointed interim CEO of **Noida International Airport (Jewar Airport)** after serving as CFO. The appointment ensures leadership continuity as the airport moves toward operational readiness under regulatory compliance.
Christoph Schnellmann 	Re-designated as Executive Vice Chairman of Noida International Airport. He will continue overseeing strategic planning of one of India's largest upcoming airport projects aimed at reducing Delhi airport congestion.
Dinesh Trivedi 	Appointed India's **High Commissioner to Bangladesh**. A former Union Railway Minister, his appointment is notable as diplomatic posts are usually held by IFS officers. He is expected to strengthen India–Bangladesh ties in trade, connectivity, and regional cooperation.
Sudarshan Pattnaik 	Named **Brand Ambassador for Census 2027**, India's first digital census. A Padma Shri awardee sand artist, he will promote awareness about mobile app-based data collection and self-enumeration.
Chanchal Kumar 	Took charge as Secretary of the **Ministry of Information & Broadcasting** on 1 April 2026. A 1992-batch IAS officer, he will oversee media regulation, broadcasting policy, and digital communication governance including Doordarshan and All India Radio.
Willie Walsh 	Appointed CEO of IndiGo to drive **global expansion strategy**. A former airline executive and ex-IATA Director General, he brings strong international aviation leadership to support IndiGo's long-haul and global network growth.

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* Exclusive Study material (Printed Notes & Current Affairs Assignment).
* Vajirao IAS Pre-cum-Mains GS 18 Set Printed Notes.
* Mains Exam Test Series questions according with UPSC pattern with through coverage of the entire syllabus, detailed model answers.
* Emphasis on answer writing practice.
* Today's Analysis Assignments.
* Senior Expert faculty.
* Subject wise Test.
* Dedicated Current Affairs classes.
* Rich library for every student.
* CRUX of NCERT 10 Set Printed Notes.
* Monthly Current Affairs Magazine.
* Subject Oriented Mentorship Program.
* Hostel facility available in Campus.
* GS Topic-wise printed Assignments.

Note : It has come to our attention that certain coaching centers are misusing names similar to ours, such as Vajirao or Bajirao, in an attempt to mislead and attract students/parents. Please be informed that we have no association with these fake institutes and legal proceedings have already been initiated against them before the Hon'ble Delhi High Court. We urge students and parents to stay vigilant and let us know in case they are approached by such fake institutes.

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