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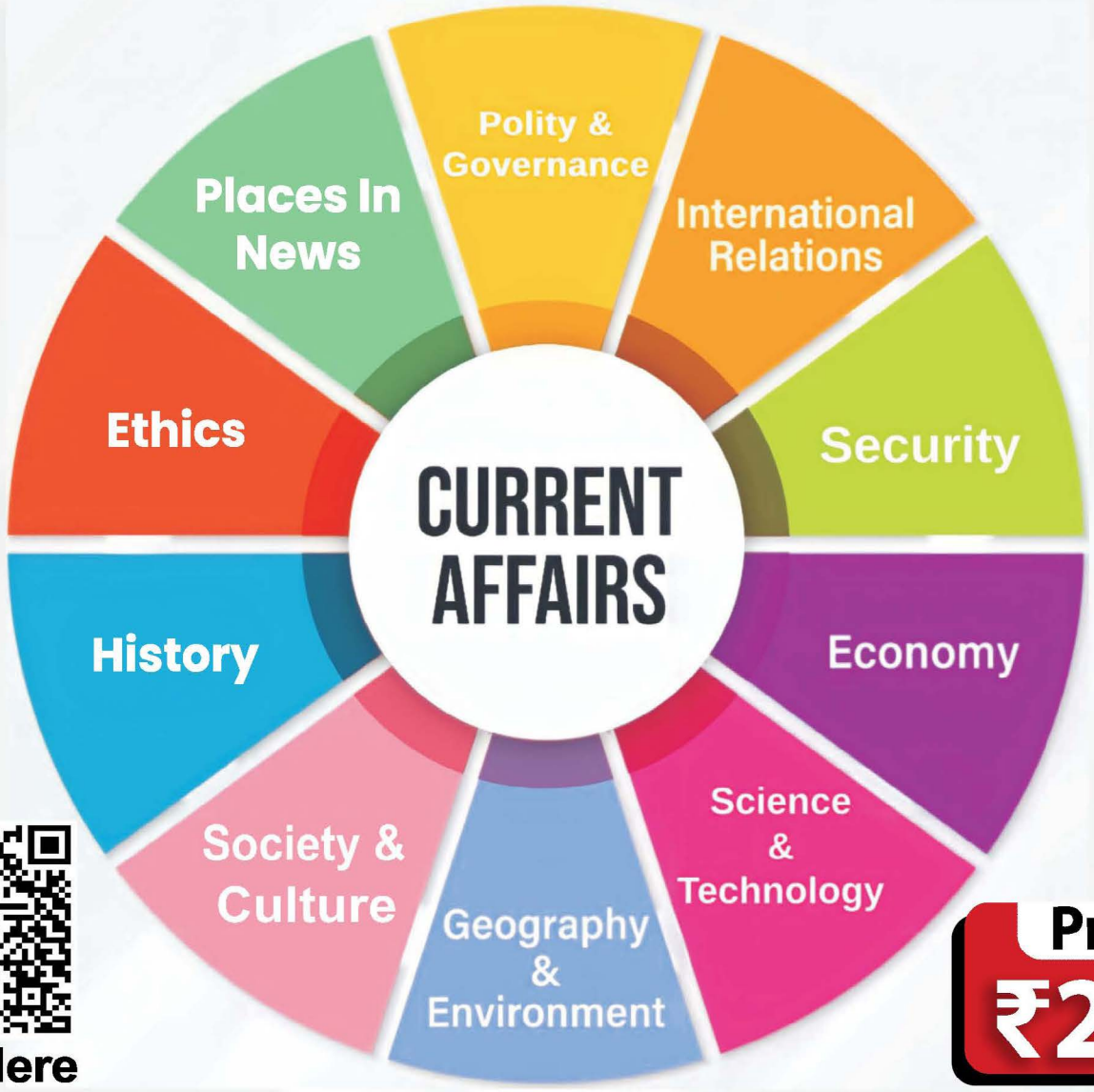

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POLITY & GOVERNANCE

1. Linguistic States Debate

Why in the News?

1. **Tamil Nadu Governor** has sparked controversy by stating that the **linguistic reorganisation of states post-Independence created "second-class citizens"**, weakening national unity.
2. He criticised the **1950s linguistic division** as a move that caused **ethnic fragmentation and internal divisions**, especially in Tamil Nadu and the Northeast.
3. He termed the creation of **ethnicity-based states like Nagaland, Mizoram, and Meghalaya** a "fission reaction", leading to **social fragmentation and insurgency** rather than unity.

What does "Second Class Citizen" mean in this context?

1. If a state is divided on **linguistic basis**, then there will be a majority group speaking that particular language.
2. This will lead to a minority group within the state which does not speak that language. This group becomes the "**Second Class Citizens**".
3. These groups might find it **harder to access state services, education in their mother tongue, or cultural representation**.

Background of Reorganization of States

1. When India got independence, it was divided into British territories, Princely States, Tribal Areas and Other colonial territories.
2. The initial challenge was the integration of princely states such as Hyderabad, Kashmir and Junagadh, which was effectively managed by **Sardar Vallabhbhai Patel**.
3. After the integration, India was divided into:
   a. Part A states: Comprised of **former British provinces**
   b. Part B states: Consisted of **former princely states**
   c. Part C states: Included both **former Chief Commissioners' provinces** and some smaller princely states.
   d. Part D Territories: Other colonial territories

Rationale for Reorganization

1. **Linguistic and Cultural Identity :** Strong demand to align state boundaries with language and cultural communities. Andhra Pradesh became the **first state formed on a linguistic basis** in 1953 (for Telugu speakers).
2. **Tribal and Ethnic Considerations:** Reorganisation aimed to respect and accommodate **distinct tribal and ethnic identities**, especially in the Northeast. (Eg- Nagaland)
3. **Balanced Economic Development:** Smaller or neglected regions sought **better access to resources and governance** through separate statehood. (Eg- Chhatisgarh)
4. **Administrative Efficiency:** Redrawing boundaries helped improve **governance, service delivery, and local administration**. (Eg - Uttarakhand)
5. **National Security Concerns:** In some regions, like the Northeast, reorganisation was also aimed at **containing insurgency and maintaining internal stability**. (Eg - J&K)

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Commissions and Acts for Reorganization

1. **Dhar Commission (1948)**
   a. Rejected the idea of reorganisation on **linguistic basis**.
   b. Recommended creation of **two new provinces**: Assam and North-East Frontier Agency (NEFA).
   c. Suggested reorganisation based on **Geographical continuity, Financial self-sufficiency, Administrative convenience, Future development potential** and emphasised **protection of tribal rights.**
2. **JVP Committee (1948)**
   a. It comprised **Jawaharlal Nehru, Vallabhbhai Patel, and Pattabhi Sitaramayya**.

b. Reiterated opposition to immediate linguistic reorganisation.
c. Gave priority to **National unity and security and Economic prosperity.**
d. Recommended **postponement** of forming new linguistic provinces.

3. **States Reorganisation Commission / Fazl Ali Commission (1953)**
   a. Chaired by **Fazl Ali**, accepted **language** as one of the important criteria for reorganisation.
   b. Considered the following key factors: **Unity and security** of the nation, **Linguistic and cultural homogeneity and Financial, economic, and administrative efficiency.**
   c. Recommended the formation of **16 states and 3 Union Territories**.
4. **Seventh Constitutional Amendment Act, 1956**
   a. Provided constitutional backing for reorganisation of states.
   b. Amended Articles related to the structure of states, high courts, and the classification of states.
5. **States Reorganisation Act, 1956**
   a. Implemented the recommendations of the Fazl Ali Commission.
   b. Abolished the Part A, B, C, D classification of states.
   c. Created a new structure with **14 states and 6 Union Territories**, reorganised largely on **linguistic lines**.

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Linguistic Reorganization after SRC 1956

Year	Description
1957	Naga Hill Tuensang Area out of Assam
1960	Gujarat and Maharashtra out of Bombay
1961	Goa joined India
1962	Pondicherry became a part of India officially
1963	Nagaland granted statehood
1966	Punjab, Haryana, UT's Himachal Pradesh and Chandigarh created
1971	UT Himachal Pradesh granted statehood
1972	Manipur and Tripura - statehood. Mizoram, Meghalaya and NEFA carved out of Assam
1975	Sikkim joined India
1987	UTs Mizoram and Arunachal Pradesh - statehood Goa - statehood, UT of Daman and Diu carved out of it
1991	Delhi - National Capital Territory
2000	Uttarakhand (from UP), Jharkhand (from Bihar) and Chhattisgarh (from MP) created.
2014	Telangana - statehood
2019	J&K split - UTs of J&K and Ladakh

Benefits of Linguistic Reorganization

1. **Preserves Languages and Cultures:** Protected regional languages and traditions.
2. **Better Government Communication:** People could interact with the government in their own language.
3. **Stronger State Administration:** States made policies that matched local needs and culture.
4. **More Political Participation:** People could join politics more easily in their native language.
5. **Less Discrimination:** Minority language speakers felt included and respected.
6. **Fewer Border Disputes:** Clear language-based boundaries reduced conflicts between states.
7. **Better Education:** Teaching in the mother tongue improved learning, especially for children.
8. **Local Leadership Growth:** Encouraged leaders who understood local needs and language.
9. **Improved State Cooperation:** Shared respect for languages strengthened federal unity.

Views of Important Leaders

1. **Dr. B.R. Ambedkar:**
   a. **Supported** states based on language for better administration.
   b. Said: "One state can have one main language," but warned: "Don't try to create one state for every language."
2. **K.M. Munshi: Opposed** language-based states. He feared it would break the country apart.
3. **Jawaharlal Nehru: First supported** linguistic reorganisation. Later became **worried about people fighting over language**. Wanted to **balance local pride with national unity**.

Challenges and Way Forward

Challenges	Way Forward
Narrow Regional Identities – Excessive focus on linguistic pride can alienate non-speakers.	Encourage cultural exchange, multilingual education, and shared national events.
Language for Political Mobilisation – Leaders may exploit linguistic sentiments for votes.	Strict campaign codes, promote issue-based politics, and inclusive narratives.
Uneven Development – Some states remain economically backward post-reorganisation.	Equitable resource allocation, targeted central schemes, and infrastructure push.
Pressure on National Unity – Regional identity may overshadow national identity.	Strengthen constitutional values, promote Hindi/ English alongside regional languages.
Marginalisation of Smaller Language Groups – Minority language speakers may lack representation.	Minority language education, cultural promotion, and governance inclusion.
Local–National Interest Clashes – State demands may conflict with national priorities.	Institutionalised Centre–State dialogue, cooperative federalism.
Border Disputes – Lingual claims fuel inter-state conflicts.	Independent boundary commissions, SC-led mediation.

2. Article 370

Why in the News?

1. August 5, 2025 marks **six years** since the **abrogation of Article 370** which granted special status to Jammu & Kashmir (J&K).
2. However, some security incidents like the **Pahalgam terror attack** have raised concerns about the stability narrative.

Key Highlights

1. **Political Representation with Restrictions**
   a. Political activity has resumed in J&K after years of stagnation.
   b. Panchayat elections and formation of political parties have occurred.
   c. The region **lacks full statehood**, and legislative powers remain curtailed.
2. **Security Landscape**
   a. Security forces have killed **over 720 terrorists** since 2019.
   b. Infiltration has declined (from 130 in 2019 to 27 in 2024).
   c. Despite progress, recent attacks like the **Pahalgam ambush** have shaken the perception of normalcy.
3. **Governance and Institutional Developments**
   a. Introduction of **three-tier Panchayati Raj**.
   b. Increase in the number of districts (from 14 to 20).
   c. Growth in **administrative decentralization** and recruitment of locals in governance.
4. **Economic Growth and Investment**
   a. 2022 saw **₹1,547 crore** worth investment; 2023 saw **₹2,153 crore**.
   b. Over 5 lakh crore investments proposed across sectors like **health, education, IT, and infrastructure.**
   c. Employment generation for over 50,000 locals.
5. **Tourism and Public Perception**
   a. Tourist footfall surged to **2.11 crore in 2023**.
   b. Tourism was recently hit by terror incidents, creating uncertainty (Pahalgam attack).
   c. Centre continues to promote J&K as a **safe and secure destination**, but confidence remains shaken.

About Article 370

1. **Background**
   a. Granted Jammu & Kashmir (J&K) **special autonomous status** under unique post-1947 accession terms.
   b. Before independence, J&K was a princely state; acceded to India in **Oct 1947** after Pakistani tribal invasion.
   c. Drafted by Gopalaswami Ayyangar as a **temporary, transitional provision**.

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2. **Scope of Autonomy**
   a. J&K had its own constitution and control over all matters **except defence, foreign affairs, and communications.**
   b. Indian laws applied only with state government's concurrence via **Presidential Orders**.
   c. **Article 35A** granted permanent residents special rights (property, jobs, etc.).
3. **Criticisms**
   a. Seen as a **barrier to full integration** with India.
   b. Claimed to **hinder economic development and investment**.
   c. Accused of fostering **separatism, militancy, and inequality** for non-residents.
4. **Abrogation**
   a. The **Presidential Order applied the entire Indian Constitution to J&K**.
   b. **Parliament passed a resolution** to abrogate Article 370 and Jammu & Kashmir Reorganisation Act, 2019.
   c. State **bifurcated into Union Territories**: **J&K** (with assembly) and **Ladakh** (without assembly).
5. **Criticism of Abrogation**

a. **Legal**: Alleged bypass of constitutional process (no J&K Constituent Assembly concurrence).
b. **Political**: Viewed as an attack on autonomy and identity.
c. **Human Rights Violation**: Communication blackouts, detentions, movement restrictions.
d. **Local Sentiment**: Risk of alienation and unrest.

Implications

1. **Governance & Representation**
a. Central control improved administrative efficiency.
b. Panchayat decentralization strengthened grassroots participation.
c. No legislative elections limit democratic legitimacy.
2. **Security & Stability**
a. Counter-insurgency enhanced law and order.
b. Reduced infiltration improved border security.
c. Recurring attacks threaten lasting peace.
3. **Socio-Economic Transformation**
a. Real estate, hospitality, and IT attract investors.
b. Youth jobs and skill training are increasing.
c. Regional economic disparities remain.
4. **Tourism & Culture**
a. J&K promoted as global tourism hub.
b. Cultural festivals revived; public engagement rising.
c. Safety perception vital for growth.
5. **National Integration**
a. Article 370 abrogation deepened integration with India.
b. Mixed public view: empowerment vs central overreach.
c. Sustained peacebuilding needed for full integration.

Challenges and Way Forward

Challenges	Way Forward
Recent **terror attacks** have disrupted tourism	**Strengthen intelligence and surveillance systems** in vulnerable zones
Delayed legislative elections and lack of full statehood	Create a **timeline for restoring legislative democracy**
Public mistrust and alienation in parts of the Valley	Increase dialogue, ensure justice and **equitable development**
Investment not evenly distributed	Focus on **balanced regional development** and sectoral diversity
Over-centralization of decision-making	Empower local governance institutions and ensure **people's participation**

3. India's Legal Aid System

Why in the News?

1. The **Legal Services Authorities Act, 1987** mandates **free legal aid** to nearly 80% of India's population, but recent data shows **limited coverage and declining effectiveness**.
2. Between April 2023 and March 2024, **only 15.5 lakh people** availed legal aid services, which is grossly insufficient given the size and vulnerability of the eligible population.
3. Despite a **rise in State budget allocations**, issues like poor fund utilisation, inadequate manpower, and low honorarium for para-legal volunteers persist.

What is Honorarium?

Honorarium is a payment given to a person for services that are rendered **voluntarily** or **without a formal obligation**, especially when the services are not typically compensated with a regular salary or wage.

Key Highlights

1. **Legal Services Institutions and Access**
   a. Legal aid is provided in courts, prisons, and remote areas via legal aid clinics, yet the current reach remains modest.
   b. According to the **India Justice Report 2025**, **one legal clinic serves every 163 villages**.
2. **Budget Allocation and Utilisation**
   a. Legal aid gets **less than 1%** of India's total justice budget.
   b. From 2017–18 to 2022–23, **State allocations doubled** from ₹394 crore to ₹866 crore; however, **NALSA's funds dropped** from ₹207 crore to ₹169 crore.
   c. Fund utilisation fell from 75% to 59%, highlighting administrative inefficiencies.
3. **Expenditure Restrictions and Distribution**
   a. As per NALSA's 2023 Manual, **strict spending guidelines** were introduced: 50% for aid and advice, 25% for outreach, and 25% for ADR.
   b. States require **prior approval** to use NALSA funds for hiring staff, vehicles, or compensation-related expenses.
4. **Decline of Para-Legal Volunteers (PLVs)**
   a. PLVs, the frontliners in community legal awareness and support, **dropped by 38%** from 2019 to 2023.
   b. Deployment rates are low (14,000 deployed out of 53,000 trained in 2023–24), mainly due to **low honorariums** (₹250–₹750/day).
5. **New Scheme: Legal Aid Defence Counsel (LADC)**
   a. Introduced in 2022 to provide exclusive representation to accused persons, modeled on the **public defender system**.
   b. Operational in **610 out of 670 districts** with ₹200 crore allocated in 2023–24 (fully utilised), but allocation dropped to ₹147.9 crore in 2024–25.
   c. Though promising, the scheme is still in its **early stages**.

Chronological Development of Legal Aid in India

1. **Constitution of India, 1950:** Although the **original text of the Constitution** did not explicitly mention "legal aid," foundational provisions laid the groundwork:
   a. Article 21- Right to Life and Personal Liberty
      i. Guarantees the right to a fair, just, and reasonable procedure.
      ii. Basis for interpreting legal aid as an essential component of fair trial.
   b. Article 22(1) – Rights of Arrested Persons
      i. Provides the right to consult and be defended by a legal practitioner of one's choice.
   c. Article 39A – Directive Principle (Added by 42nd Amendment, 1976)
      i. Mandates the **State to provide free legal aid** to ensure equal justice.
      ii. It directs the State to ensure that justice is **not denied to any citizen by reason of economic or other disabilities**.
2. **Judicial Interpretation and Expansion**
   a. Hussainara Khatoon v. State of Bihar (1979)
      i. The Supreme Court interpreted **Article 21** to include **free legal aid** and **Speedy Trial** as a fundamental right.
3. **Enactment of Legal Services Authorities Act, 1987**
   a. The Act came into force fully in **1995**, establishing a **statutory structure** for legal aid.
   b. Created a **three-tier framework**:
      i. National Legal Services Authority (NALSA) at the central level.
      ii. State Legal Services Authorities (SLSAs) at the state level.
      iii. District Legal Services Authorities (DLSAs) and **Taluk Legal Services Committees (TLSCs)** at the grassroots level.

Implications

1. **Access to Justice Gaps:** Large sections, including rural poor, prisoners, and minorities, remain underserved.
2. **Structural Constraints:** Low incentives limit commitment of para-legal staff and empanelled lawyers.

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3. **Legal Representation Impact:** Weak outreach and volunteer shortages hinder legal literacy and mediation.
4. **Scheme Challenges:** LADC's short history and underfunding curb long-term impact; needs strong monitoring, quality checks, and timely funding.

Challenges and Way Forward

Challenges	Way Forward
Poor utilisation and falling share of NALSA funds	Ensure **flexible, timely, and need-based fund disbursement**
Low honorariums and **under-deployment of para-legal volunteers**	**Revise PLV honorariums** regularly and **link them to minimum wage norms**
Regional disparity in legal aid delivery	Encourage **targeted assistance** in low-performing states through special grants
Lack of public trust and legal awareness	Expand outreach and **awareness campaigns** using local languages and media
Inconsistent implementation of new schemes like LADC	Establish **quality benchmarks and independent audits** to track scheme performance

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4. Necropolitics

Why in the News?

1. **Recent violence in Gaza** and the global silence around civilian deaths have raised concerns about how some lives are treated as less valuable.
2. The idea of **"necropolitics"** is being discussed more to understand how governments decide **who gets care and who is left to die**.
3. Events like **India's migrant crisis during COVID-19** show how certain groups are often **ignored or abandoned** by the state.

Key Highlights

1. **Origin and Theoretical Foundations**
   a. Coined by Achille Mbembe (2003; expanded in 2019), building on Michel Foucault's **biopolitics** (governing life).
   b. While biopolitics "makes live," necropolitics **governs death**, deciding whose lives matter and whose are disposable.
   c. Mbembe argues some are not just *let* to die but *made* to die via abandonment, war, neglect, or state terror.
2. **From Biopolitics to Necropolitics: A Shift in State Power**
   a. Foucault: Biopower can "make live and let die."
   b. Mbembe: Necropolitics kills silently through policy, legal exclusion, and structural violence, not just public executions.
3. **Historical and Contemporary Examples**
   a. Bengal Famine (1943) – Deaths caused by colonial policy, not scarcity.
   b. HIV/AIDS Crisis – Neglect of marginalised queer and racial groups.
   c. COVID-19 India Lockdown – Migrants died due to forced long walks without aid.
   d. Gaza Bombings (2023) – Civilian deaths framed as necessary for security.
4. **Key Features of Necropolitics**
   a. State Terror: Use of violence, surveillance, imprisonment, or elimination to suppress dissent.
   b. State–Non-State Collusion: Governments often outsource violence to private militias or criminal networks.
   c. Construction of Enemies: Political identity is forged by projecting threats onto racial, ethnic, or religious others.
   d. War as Economy: Perpetual conflict fuels global surveillance, arms markets, and state legitimacy.
   e. Active Predation: Exploitation of marginalised groups (e.g. tribal displacement for resources) becomes normalised.
   f. Death by Policy: Through drone strikes, starvation, torture, and "disappearances," death is **technocratically managed**.
5. **'State of Exception' and 'Living Dead'**
   a. Borrowing from Agamben: Some communities exist in a **permanent lawless state**, governed through abandonment.

b. "Living dead" are biologically alive but politically/socially erased (e.g., refugee camps, detention centres, caste ghettos).

Implications

1. **Devaluation of Human Life**: Marginalised groups (Dalits, Adivasis, refugees, Muslims, queer people) are denied grief, care, and justice; their suffering is systemic.
2. **Shift in Governance** – State manages life and death via surveillance, logistics, and selective care; everyday bureaucratic acts decide who lives or dies.
3. **Erosion of Law & Morality** – Emergencies become permanent for some; rights are conditional and selectively applied.
4. **Global Hierarchy of Grief** – Deaths are valued differently based on race, class, geography, or religion; many deaths are reduced to statistics.
5. **Need for Ethical Resistance** – Survival must be paired with reclaiming visibility, dignity, and the right to be mourned.

Challenges and Way Forward

Challenges	Way Forward
Structural Normalisation of Death: Death becomes routine and unnoticed.	Create **social audit mechanisms** to assess state policy impacts on dignity, life, and inclusion.
Selective Legality: Some communities are permanently outside the law.	Ensure **equal application of constitutional rights** and strengthen judicial oversight.
Justification via Ideology: Death framed as necessity for nationalism.	Promote **constitutional morality** and inclusive narratives in education and policy-making.
Administrative Dehumanisation: Lives reduced to data and files.	Implement **human-centric governance** and ethical data frameworks with community participation.
Global Silence and Apathy: Selective outrage based on geography.	Strengthen **transnational solidarity movements** and amplify marginalised voices globally.

5. Scope of BNS Section 152

Polity

Why in the News?

1. The Supreme Court asked whether the **"potentiality of abuse"** of **Section 152, Bharatiya Nyaya Sanhita (BNS)**; which penalises acts endangering sovereignty, unity and integrity- can be a ground to **strike the provision as unconstitutional**.
2. The Court **protected** the Founding Editor of "*The Wire*" and members of the **Foundation of Independent Journalism** from **coercive police action** in an FIR registered in Morigaon, Assam.
3. Notices were issued to the **Union government** and the **State of Assam**; the matter raises core questions on **free speech**, **vagueness in penal law**, and **press freedom**.

I.R.

Security

Economy

Key Highlights

1. **Case Posture & Interim Protection**
   a. Petitioners apprehended imminent arrest under **Section 152 BNS** and other offences for a published article.
   b. Bench granted interim protection against coercive steps.
2. **Judicial Observations on Vagueness & Incitement**
   a. Justice Bagchi acknowledged **vagueness** in a penal statute is a **valid ground** to challenge it.
   b. Bench recalled **Kedar Nath Singh**: sedition (and by analogy Section 152) requires **clear incitement to violence or threat to public order/sovereignty**; **mere political dissent is not enough**.
3. **Scope of 'Acts Endangering Sovereignty'**
   a. Justice Kant noted **no exhaustive list** can be pre-set; it must be **case-specific**.
   b. Emphasised that **political dissent per se** cannot be treated as **endangering sovereignty**.
4. **Procedural Issues Raised by the State**
   a. Solicitor-General questioned using a **constitutional challenge** to seek **anticipatory bail/quashing** under CrPC **Section 438**.
   b. Court queried the necessity of **custodial interrogation** of **journalists**, while SG argued journalists are **not a separate class** under law.

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Kedarnath Singh Case

1. In 1962, the Supreme Court in 'Kedarnath Singh v State of Bihar' upheld the constitutional validity of IPC Section 124A.
2. However, the court attempted to restrict its scope for misuse.
3. The court held that **unless accompanied by an incitement or call for violence**, criticism of the government cannot be labelled sedition.

Implications

1. **Constitutional Doctrine & Free Speech**
   a. Outcome may clarify whether **vagueness** and **misuse-risk** alone can invalidate penal provisions.
   b. Could **reaffirm or refine** the **Kedar Nath** incitement standard for national-security speech offences.
2. **Press Freedom & Chilling Effect**
   a. Interim protection signals judicial **sensitivity to press freedom** in national-security cases.
   b. A narrow reading/downstream guidelines could **reduce overbroad policing** of **journalistic work**.
3. **Criminal Justice & Police Powers**
   a. Court's stance on **custodial interrogation** in speech-related offences could **curb coercive tactics**.
   b. May encourage **prior scrutiny** by police/ prosecutors before invoking **Section 152**.
4. **Legislative Drafting & Penal Clarity**
   a. A ruling against overbreadth may push for **clearer statutory language**, **mens rea thresholds**, and **incitement tests** in BNS offences.
   b. Could set **drafting benchmarks** for future national-security provisions.
5. **Federalism & Venue Choices**
   a. FIRs in distant jurisdictions (here, **Assam**) raise access-to-justice issues for national media.
   b. The Court may shape **venue**, **transfer**, or **consolidation** norms for **speech offences** with nationwide impact.

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Challenges and Way Forward

Challenges	Way Forward
Vagueness/ overbreadth of Section 152	Read down the provision to **explicit incitement to violence or imminent lawless action**; incorporate **clear mens rea** and **foreseeability** standards.
Chilling effect on journalists and dissenters	Issue **SC guidelines** requiring **prior DGP/Law Officer sanction** before registering FIRs in speech cases under Section 152; mandate **reasoned orders**.
Inconsistent police application across States	Create **uniform SOPs** under MHA advisories; periodic **training** on constitutional speech standards and **Kedar Nath** ratio.
Overuse of custodial interrogation	Presume **no custodial interrogation** in speech-only offences absent **specific, recorded necessity** tied to evidence tampering or flight risk.
Forum shopping & distant FIRs	Encourage **transfer/consolidation** to the place of publication/ residence; allow **virtual appearances**; fix **expedited quash/ anticipatory bail** timelines.
Lack of oversight in registration of national-security FIRs	Require **post-registration judicial review** (e.g., within **7–14 days**) to assess prima facie **incitement/ intent** before coercive steps.
Balancing security with civil liberties	Periodic **Legislative/Standing Committee review** of Section 152 usage data; **sunset/renewal** clauses or **mandatory reporting** to Parliament.

6. Income Tax Bill, 2025

Why in the News?

1. In **February 2025**, the Centre introduced the **New Income Tax Bill 2025.**
2. It was then given to a **Parliamentary Select Committee** for review which **recommended** some **changes** in **July 2025**.

3. The centre **withdrew** this **older version** of the bill in **August 2025** and **introduced** the **updated version** of it.
4. The **updated bill** incorporated most of the recommendations of the Committee and **corrected** the **anomalies** and **drafting errors**.
5. Then the **updated Income Tax Bill,2025** was **passed** by both **Lok Sabha** and **Rajya Sabha** in **August 2025**.
6. This bill is expected to come into **effect** from **1 April 2026.**

Why was this Bill brought in?

1. The old **Income Tax Act, 1961** has been in use for **over 60 years**.
2. Over time, it became **too long, too complicated, and full of outdated rules**.
3. The **New Income Tax Bill, 2025** is meant to make tax law **shorter, clearer, and easier to follow**.
4. It also updates provisions to match today's **digital world** and **modern business practices**.

How has the law been simplified?

1. **Easier to read:** Uses simpler words, removes old-fashioned language. Adds more **tables** (18 → 57) and **formulae** (6 → 46) to make calculations clear.
2. **Better organisation:** Sections are rearranged in a **logical sequence** so you can find things faster.

Key changes for taxpayers

1. **One single "Tax Year":** The old law had "Previous Year" (when you earn) and "Assessment Year" (when you pay tax). Now both are merged into **one 'Tax Year'** for simplicity.
2. **Late refunds allowed:** Even if you file your return late, you can still get a refund (not possible earlier).
3. **Loss carry-forward stays:** You can still carry forward business losses to adjust against future profits.
4. **Faster TDS corrections:** Time to fix TDS mistakes reduced from **6 years to 2 years**, which will mean fewer pending complaints.
    a. **TDS (Tax Deducted at Source)** is a system where a certain **percentage of your income** is **deducted by the payer** (like employer, bank, etc.) before making payment to you, and **deposited directly with the government** as **advance tax**.
5. **Clearer deduction rules:** The bill clearly tells how much amount is taxable and how much is tax free especially for **commuted pensions** and **gratuity received by family members**. This avoids **confusion** about tax on these retirement-related payments to families.
    a. **Commuted pension:** When your monthly pension is changed into a one-time lump sum payment.
    b. **Gratuity**: A lump sum payment given to you (or your family) when you retire or if the employee dies.

Special provisions for certain sectors

1. **MSMEs:** In this bill, the definitions of MSMEs match with that of the definition given **in** the **MSME Act** for uniformity**.**
2. **Religious trusts:** The provision that a religious trust does not have to give tax on anonymous donation is retained.
3. **Professionals with high earnings:** Professionals earning **₹50 crore+ per year** must use specified electronic payment methods (like bank transfers, UPI, NEFT) for receiving and making payments. This means no large cash dealings. (earlier, this was only for businesses).
4. **Old compulsory investment rule removed:** Certain trusts had to **invest 15% of their income** in **approved ways** (like government bonds or fixed deposits) before using the rest for their work. Now, this **requirement** is **gone**. Trusts can use **all their income directly** for their activities without first locking up 15% in investments.
    a. **Example:** An educational trust earns ₹1 crore in a year. Earlier, it had to first invest ₹15 lakh in approved schemes before spending the rest on school expenses. Now, it can spend the full ₹1 crore directly on education.

Stronger search & seizure powers

1. **Powers to Access "Virtual Digital Space"**
    a. The new Bill keeps the debatable definition of **"virtual digital space."**

b. **Scope of access:** Tax authorities can collect information from email servers, social media accounts, online investment, trading, and banking accounts, remote or cloud servers and digital application platforms.

c. **Purpose:** Applicable during searches and surveys to gather evidence.

d. The Finance Minister said a **Standard Operating Procedure (SOP)** will be issued to guide the handling of personal digital data seized in such operations.

2. **Access to digital data:**
   a. Tax officials can demand passwords/access codes to your **emails, WhatsApp, social media, and other electronic records** during searches.
   b. If you don't share them, they can **override your system** and access it themselves.
3. **Reason for this:**
   a. The committee said evidence of tax evasion is often found in digital form and taxpayers refuse to share passwords.
4. **Criticism:**
   a. Opposition MPs say this could misuse power and **violate Right to Privacy** (as upheld in the **Puttaswamy judgment**).
   b. Some members wanted to keep the old, less intrusive rules from the 1961 Act.

Alternate Minimum Tax (AMT):

1. It is a **special tax rule** in India to prevent taxpayers from **avoiding taxes** by using too many exemptions, deductions, or incentives.
2. Under AMT, if the **normal income tax** you owe is **less than** the AMT calculated, you must **pay the AMT amount** instead.
3. It mainly applies to **non-corporate taxpayers** (like individuals, partnerships, LLPs) who claim certain deductions under the **Income Tax Act**.
4. The idea is to ensure **everyone pays at least a minimum tax**, no matter how many benefits or exemptions they use.
5. **Example:** If your normal tax is ₹50,000, but AMT is ₹70,000 → you must pay ₹70,000.

Taxation Laws (Amendment) Bill, 2025

1. **Why this Bill was passed**
   a. It was passed along with the **Income Tax Bill, 2025.**
   b. It made changes to the **Finance Act, 2025.**
2. **Saudi PIF Tax Benefits**
   a. The **Saudi Public Investment Fund (PIF)** and its fully owned companies will not have to pay income tax in India on:
      i. Dividends
      ii. Interest
      iii. Long-term capital gains
      iv. Other investment income
   b. PIF has investments worth over **$925 billion** worldwide.
   c. It was already given partial tax benefits in 2022, but there were limits for its subsidiary companies.
   d. Now those limits are gone — PIF gets **full tax exemption**, just like the **Abu Dhabi Investment Authority (ADIA)**.
3. **Pension Scheme Tax Benefits**
   a. The **Guaranteed Unified Pension Scheme (UPS)** will now get the same tax benefit as the **National Pension System (NPS)**.
   b. At retirement, you can take **up to 60%** of your UPS savings as a lump sum without paying tax on it

How does this affect you and the economy?

1. **For individuals:**
   a. Filing and understanding taxes will be easier.
   b. Late refund claims are now possible.
2. **For businesses & MSMEs:** Simpler compliance, clear rules, and faster corrections.
3. **For the economy:** Transparent, predictable tax laws → attracts investment and boosts confidence.
4. **For the government:** Better tools to investigate tax evasion, especially in the digital era.

Expert opinion

1. Tax experts say the new law will **reduce disputes, simplify interpretation, and promote fairness**.
2. Ambiguities in earlier drafts (e.g., about property tax, pensions, late submissions) have been fixed.
3. It's expected to be **clearer, fairer, and more future-ready**.

Challenges and Way Forward

Challenges	Way Forward
Privacy concerns due to broad "virtual digital space" definition.	Narrow definition + strong safeguards, independent oversight.
Risk of misuse of search & seizure powers.	Clear SOPs, time-bound review of seized data.
Transition from old Act to new Act may **confuse taxpayers**.	Extensive taxpayer awareness campaigns, FAQs, helplines.
Potential litigation over interpretation of new provisions.	Advance rulings, detailed explanatory notes from Central Board of Direct Taxes (CBDT).
Digital compliance burden for small entities.	Simplified compliance portal, reduced paperwork for low-volume taxpayers.

7. POSH Act Gaps

Why in the News?

1. SC allowed withdrawal of plea challenging exclusion of women political workers from the **Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (PoSH Act)** scope.

Key Highlights

1. **Petition and Withdrawal**
   a. The petitioner moved the Supreme Court arguing that women in politics deserve legal safeguards similar to those in other professions.
   b. The Supreme Court, led by **CJI**, allowed her to **withdraw the plea** and pursue other appropriate remedies.
2. **Exclusion from the POSH Act**
   a. The petition highlighted that the current **definitions of "workplace" and "employer"** under the 2013 Act do not include political parties or their working environment.
   b. As a result, women political workers, especially those at **grassroots levels**, remain **unprotected** under this law.
3. **Demand for Legislative Interpretation**
   a. Senior advocate **Shobha Gupta**, appearing for the petitioner, argued that the Act's definitions need **broadening** to include the **political spectrum**.
   b. The plea sought a **court declaration** stating that political parties are **obligated** to implement POSH mechanisms.
4. **Lack of Remedy for Political Workers**
   a. The absence of inclusion denies affected women access to **Internal Complaints Committees (ICCs)** or grievance redressal mechanisms.
   b. The petition noted the **vulnerability of women during political activities**, such as election campaigns, which are often informal and lack oversight.
5. **Progressive Intent vs Practical Gaps**
   a. While the POSH Act was designed to protect women across sectors, its **narrow institutional definitions** hinder coverage for large sections of women, especially in **unregulated or informal settings** like political activism.

How was the PoSH Act Formed?

1. **1992 – Bhanwari Devi incident:** Rajasthan social worker gang-raped for stopping child marriage.
2. **1997 – Vishakha Guidelines:** SC, noting no workplace harassment law, issued interim guidelines to fill the legal gap.
3. **2007 – PoSH Bill:** Introduced by Women & Child Development Ministry; amended multiple times.
4. **2013 – Enactment:** Passed by Parliament and came into force in December 2013.

Key Provisions of the POSH Act:

1. **Defines sexual harassment:** To include unwelcome acts such as physical, verbal/non-verbal conduct – a demand or request for sexual favours, making sexually coloured remarks, showing pornography, etc.
2. Lists down **five circumstances** that would constitute sexual harassment:
   a. Implied or explicit promise of **preferential treatment** in employment
   b. Implied or explicit threat of **detrimental treatment** in employment

c. Implied or explicit **threat about present or future employment** status
d. Interference with work or creating an **intimidating or offensive or hostile work environment**.
e. **Humiliating treatment** is likely to affect health or safety.

3. **Defines an employee** (not just in accordance with the company law): All women employees, whether employed regularly, temporarily, contractually, on an ad hoc or daily wage basis, as apprentices or interns, can seek redressal to sexual harassment in the workplace.
4. **Expands the definition of 'workplace':** Beyond traditional offices to include all kinds of organisations across sectors, even non-traditional workplaces (for example, telecommuting) and places visited by employees for work.

Implications

1. **Legal Gap:** Exclusion leaves women political workers without statutory protection, weakening gender justice in public life.
2. **Political Participation:** Fear of harassment and lack of redress may deter women, worsening gender imbalance in politics.
3. **Judicial vs Legislative Role:** Shows limits of judicial action; calls for legislative amendments and broader consultations.
4. **Inclusive Definitions:** Need to expand "workplace" to cover political work, gig workers, volunteers, and informal sector.
5. **Political Accountability:** Parties must ensure safe environments through internal codes and gender-sensitive mechanisms.

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Challenges and Way Forward

Challenges	Way Forward
Narrow definitions of "workplace" and "employer" under the POSH Act	Amend the POSH Act to include political activities and informal sector roles
Lack of internal grievance redressal in political parties	Mandate **Internal Complaints Committees** in political organizations
Fear of backlash and social stigma among women complainants	Ensure **confidentiality, legal support, and protection** for complainants
Political parties not bound by POSH provisions	Bring political parties under **regulatory frameworks** ensuring compliance
Limited awareness of rights among grassroots political workers	Conduct **legal literacy programs** and **gender-sensitisation workshops**

8. Stray Dog Management

Why in the News?

1. The **Supreme Court** issued directions in **August 2025**, asking **municipal authorities** in **Delhi** and the **National Capital Region** to capture all **stray dogs** and house them in **dedicated shelters** within eight weeks.
2. The Court took **suo motu cognizance** after a disturbing newspaper report about a six-year-old girl who died from **rabies**, highlighting urgent **public safety concerns**.

Key Highlights

1. **Existing Legal and Policy Framework**
   a. The **Prevention of Cruelty to Animals Act, 1960**, is the foundational **animal rights legislation** aimed at preventing unnecessary **pain or suffering** to animals.
   b. Under this Act, the **Animal Birth Control (Dogs) Rules, 2001**, were introduced mandating **humane capture**, **sterilization**, **immunization**, and **release** of stray dogs to their **original location**.
   c. **Euthanasia** is allowed only if a dog is **critically ill**, **fatally injured**, or **rabid**.
2. **Judicial Precedents and Conflicting High Court Orders**
   a. In 2011, the **Kerala High Court** held that local authorities **cannot kill** stray dogs and must comply with the **1960 Act** and **2001 ABC Rules**.
   b. Conversely, the **Bombay**, **Himachal Pradesh**, and **Karnataka High Courts** held that local authorities may have **discretion** under municipal laws to **kill stray dogs**.

c. The **Supreme Court**, in a **2015 judgment**, required municipal bodies to comply with the **Prevention of Cruelty to Animals Act** and **ABC Rules**, emphasizing a balance between **compassion** and **human safety**.

d. In **2022**, a three-judge bench of the Supreme Court upheld the **Delhi High Court** ruling granting street dogs the **right to food** and citizens the **right to feed** them within the dogs' **territorial limits**.

3. **Updates and Advisories Related to ABC Rules**

a. In **2022**, the **Animal Welfare Board of India** issued an advisory requesting citizens and **Resident Welfare Associations (RWAs)** not to **harm** or **relocate dogs** or obstruct their **feeding**.

b. The **ABC Rules** were updated in **2023** to expand coverage to **stray cats** and to include a **three-tier monitoring structure** for immunization and sterilization efforts.

c. The 2023 rules reclassified stray dogs as **"community animals"** and incorporated provisions for **community feeding**.

d. Despite these expansions, the 2023 rules maintained the principle that stray dogs cannot be **displaced** from their territories.

4. **Statements from Government Officials**

a. In **April 2025**, Union Minister of State for Fisheries, Animal Husbandry and Dairying, stated in the Lok Sabha that the **ABC program** is the only **rational** and **scientific solution** to controlling street dog **overpopulation** and **rabies**.

b. The government has reiterated its commitment to the **humane treatment** of stray animals while focusing on **public safety**.

5. **Supreme Court's August 2025 Order**

a. The Supreme Court directed that all stray dogs in **Delhi-NCR** must be picked up and placed in **shelters** within eight weeks.

b. Justice **J B Pardiwala** emphasized that protecting **infants** and **young children** from **rabies** is paramount.

c. The Court warned that anyone **obstructing** the capture or sheltering of dogs will face **legal action**.

d. The Court criticized the **2023 Animal Birth Control (ABC) Rules** provision requiring the release of sterilized dogs back to the **same locality**.

Implications

1. **Policy Shift:** The Court moves from sterilization-and-release to mandatory sheltering of all stray dogs, prioritizing public safety and rabies prevention.
2. **Legal Conflict:** This order clashes with ABC Rules, 2023, which ban relocating dogs from their local areas—potentially requiring rule amendments or judicial clarification.
3. **Implementation Challenges:** Municipalities face a tight eight-week deadline to capture and shelter dogs, demanding major logistical and resource upgrades.
4. **Animal Welfare Risks:** Overcrowded shelters may cause stress and cruelty unless humane standards are strictly followed.
5. **Public Health Gains:** Keeping stray dogs off streets could reduce bites and rabies cases, especially protecting children and vulnerable groups.

Challenges and Way Forward

Challenge	Way Forward
Scale & Shelter Capacity	Temporary holding zones; adapt municipal buildings; plan permanent shelters with welfare standards.
Legal-Policy Conflict	Form legal-policy panel; clarify rules; align law, policy, and court directions.
Animal Welfare in Shelters	Audit shelters; train staff; set up independent oversight and monitoring.
Financing & Implementation	Use contingency funds; launch PPPs; plan multi-year allocations for ABC and shelters.
Community Trust & Feeders' Rights	Communicate objectives; involve feeders; build community management councils.

Polity

9. Constitution 130th Amendment Bill

Why in the News?

1. The Constitution (130th Amendment) Bill, 2025, has been introduced with the stated aim of promoting *public interest, welfare, and good governance*.
2. Critics argue that the legislation undermines **constitutional principles**, presumption of innocence, and India's federal structure.

I.R.

Key Highlights

Security

1. **Provisions of the Bill**
   a. Ministers, including PM or CMs, will automatically lose their office if arrested or detained for 30 days.
   b. The removal will occur **without a court conviction** and is based solely on arrest or filing of charges.
   c. There is **no provision for reinstatement** even if the individual is acquitted later.

Economy

2. **Deviation from Existing Legal Framework**
   a. Violates **Section 8 of Representation of the People Act (RPA), 1951**, which disqualifies individuals only upon conviction.
   b. Contradicts the principle of **innocent until proven guilty**, reversing the burden of proof.
   c. Omits safeguards like a **sunset clause, review mechanism, or compensation** for wrongful arrest.

Science

3. **Constitutional amendments**
   a. The Bill will amend **Articles 75, 164 and 239AA**.
      i. **Article 75** of the Constitution primarily deals with the appointment and responsibilities of the Council of Ministers, including the Prime Minister.
      ii. **Article 164** of the Constitution outlines the provisions related to the CoMs in a state.
      iii. **Article 239AA** of the Constitution outlines special provisions for the NCT of Delhi.

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Geography

4. **Constitutional Contradictions**
   a. Breaches **Articles 75, 164, and 239AA**, which vest removal powers in the President or Governor on the advice of the PM/CM.
   b. Contravenes **Articles 14, 19, and 21**, which guarantee equality before law, personal liberty, and due process.

Society

   c. Violates **judicial precedents** such as *Rameshwar Prasad v. Union of India* on due process.

History

5. **Empowerment of Central Agencies**
   a. Expands the role of agencies like the **Enforcement Directorate (ED)**, which already has a poor conviction record (only 38 convictions in 5 years).
   b. **95% of ED investigations (2014-2022) targeted Opposition leaders**, showing a pattern of political misuse.
   c. Laws like **PMLA with strict bail conditions** under Section 45 could amplify harassment if the bill becomes law.

Ethics

Implications

1. **Erosion of Federalism** – Destabilises Opposition-led states and weakens cooperative federalism.
2. **Threat to Democracy** – Undermines due process; allows removal of elected representatives without fair trial.
3. **Authoritarian Practices** – Concentrates power in the executive; encourages political vendetta.
4. **Judicial & Governance Issues** – Leads to more litigation and governance instability.
5. **Political Stability & Trust** – Reduces public trust in institutions and increases political polarisation.

P.i.N.

Challenges and Way Forward

Challenges	Way Forward
Violation of presumption of innocence	Ensure **disqualification only upon conviction**, as per RPA, 1951
Breach of federal principles	Include **constitutional safeguards** to prevent misuse against states
Lack of due process	Introduce **judicial review** and independent oversight before removal
Scope for political vendetta	Mandate **parliamentary approval** or court sanction before disqualification
No provision for reinstatement or compensation	Add clauses for **reinstatement and compensation** in case of acquittal

10. Online Gaming Bill, 2025

Why in the News?

1. The **Online Gaming Bill, 2025** was passed by the Rajya Sabha without discussion after being cleared by the Lok Sabha a day earlier.
2. On the last day of the Monsoon Session, the Rajya Sabha referred the **Constitution (130th Amendment) Bill**, along with the **Government of Union Territories (Amendment) Bill**, and the **Jammu and Kashmir Reorganisation (Amendment) Bill** to a **Joint Committee of Parliament**.
3. The Online Gaming Bill seeks to regulate online gaming and curb addiction to money gaming, which is seen as a **public health risk**.

Key Highlights

1. **Passage of the Promotion and Regulation of Online Gaming Bill, 2025**
   a. Passed by **Lok Sabha** and **Rajya Sabha in August 2025**.
   b. Passed **without discussion** due to disruptions in Parliament.
2. **Main Provisions of the Online Gaming Bill**
   a. Promotes **e-sports and online social games** as growth sectors.
   b. Regulates **online money games**, which are linked to addiction and financial loss.
   c. Imposes **penalties**:
      i. Up to **3 years imprisonment**.
      ii. Fine up to **₹1 crore** for violations.
      iii. Enhanced penalties for repeat offenders, including imprisonment between three to five years and fines up to Rs. 2 crore.
3. **Establishment of an Online Gaming Authority**
   a. A key provision of the Bill is the establishment of a **statutory** Online Gaming Authority, which will serve as the **central regulatory body** for the sector. Its core responsibilities include:
      i. Facilitating **coordinated policy support** for the online gaming industry
      ii. **Overseeing** and **regulating gaming platforms** to ensure compliance and integrity
      iii. **Promoting e-sports** and legitimate online social gaming ventures
      iv. Addressing and **mitigating harmful practices** such as money laundering, manipulative algorithms, and fraudulent gaming operations
      v. The Authority is designed to provide consistent legal oversight, fostering a **secure and sustainable environment** for the **growth of online gaming**.
4. **Rationale for the Bill**
   a. Online money gaming is becoming a **public health risk**, similar to drugs.
   b. Causes **psychological disorders, compulsive behaviour, violent behaviour**, and **financial losses for families**, especially middle-class youth.
5. **Significance for India's Digital Future**
   a. The Online Gaming Bill 2025 strikes a vital balance between fostering innovation and protecting public interest. Its significance spans multiple dimensions:
      i. **Youth Protection**: It safeguards young gamers from the risks of addiction and financial exploitation.
      ii. **Industry Advancement**: It offers regulatory clarity and formal recognition to e-sports and social gaming start-ups, paving the way for growth and investment.
      iii. **Societal Well-being**: It tackles pressing issues such as online fraud, money laundering, and the mental health impact of gaming.
      iv. **Governance Reform**: It introduces a long-awaited, unified national framework to replace the previously fragmented regulatory landscape.
      v. **For Digital Economy**
         1. Regulation provides **clarity for gaming companies**.
         2. Promotes **e-sports sector growth**, making India a global hub.
         3. Prevents misuse of gaming platforms for **illegal betting or fraud**.
      vi. **For Federal Structure and Political Accountability**

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1. Referring constitutional amendment bills to a joint committee allows **deeper scrutiny**.
2. Strengthens **checks on ministers accused of corruption**, promoting accountability.

vii. By promoting e-sports, the Bill also supports India's strategic goal of becoming a **global leader in digital entertainment**; especially as the nation gears up to host major international events like the proposed **2036 Olympics**.

Challenges and Way Forward

Challenges	Way Forward
Addiction and Enforcement – Difficult to monitor online money gaming addiction.	Establish **robust monitoring mechanisms** and involve health authorities.
Balancing Regulation and Innovation – Over-regulation may stifle gaming industry growth.	Adopt a **light-touch regulation** for non-gambling games and e-sports.
Jurisdiction Issues – Online gaming crosses **state and national boundaries**.	Develop **central guidelines** with state-level enforcement.
Public Awareness – Lack of awareness among youth and parents about risks.	Launch **digital literacy and awareness campaigns** in schools and media.
Parliamentary Disruptions – Important bills passed without debate.	Strengthen **parliamentary norms** and ensure meaningful discussions.

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11. Special Intensive Revision (SIR)

Why in the News?

1. The Election Commission of India (EC) had declared Special Intensive Revision (SIR) of the electoral rolls in Bihar just before State Legislative Assembly (SLA) elections in Bihar.
2. Before SIR, there were around 8 Crore voters in Bihar but after SIR, only 7.3 Cr Voters remained and 70 lakh got deleted.
3. Out of 70 lakh deleted- 30 lakh-died, 30 lakh permanently migrated & 10 lakh duplicated.
4. The Association for Democratic Reforms (ADR) requested the Supreme Court to direct the EC to publish reasons for deletion of 70 lakh voters from voter list/ electoral roll.
5. The EC has replied that it has shared a list of voters with party **Booth Level Agents/ Officers (BLA/ BLOs)** and deletions will be finalised only after giving opportunity to persons whose name has been deleted.
6. He will be sent prior notice, he will be given hearing and a speaking order will be passed with a 2 tier appeal mechanism.

Why are voter lists/electoral lists revised by EC periodically?

Every year, territorial constituencies face demographic shift because of birth/death/immigration/emigration/18 age/duplication/bogus/deletion/manipulation. So, to keep voters authentic for fair election, addition & deletion are done in the electoral roll periodically.

How many methods of revision are used in ER/ VL?

Normally there are 2 methods of revision:

1. **Regular Summary Revision (RSR)-** It is an annual update where draft rolls are published, and citizens can request additions, deletions, or corrections without home visits.
2. **Special Intensive Revision (SIR)-** It is more detailed verification of voters. It is done by house to house visit & reason for each addition/deletion is to be given.

How ECI did SIR in Bihar?

ECI deployed 2.5 lakh volunteers & BLOs. ECI set up camp for awareness and did newspaper ads. ECI asked Chief Election Officer (CEO) of other states to accept **form 6** from migrants to reduce exclusion.

What is the purpose of form 6 under RPA 1950?

1. **New Voter Registration** – For first-time voters who have attained the qualifying age of 18.

2. **Shifting Constituency** – For voters who have moved from one constituency to another and need their name included in the new constituency's roll.
3. **Reinclusion** – For voters whose names were deleted from the roll and want to reapply.

What are the constitutional frameworks for SIR?

1. **Article 324** of the Constitution of India deals with the **superintendence, direction and control of elections** in the country. It vests these powers in the **Election Commission of India (ECI)** and forms the backbone of India's independent electoral machinery.
2. **Article 325** of the Indian Constitution ensures that no person is ineligible for inclusion in a general electoral roll or denied the right to claim inclusion based on **religion, race, caste, or sex.**
3. **Article 327** empowers **Parliament** to make laws relating to elections to the **Parliament** and **State Legislatures**.
4. **Article 328** allows **State Legislatures** to make laws for elections to their respective **Legislative Assemblies** and **Legislative Councils**, **provided** Parliament has not already legislated on the subject.

What sections of RPA 1950 are relevant for SIR?

1. **Section-15 (Electoral roll for every constituency)**— For every constituency there shall be an electoral roll which shall be prepared in accordance with the provisions of this Act under the superintendence, direction and control of the Election Commission.
2. **Section-16 (Disqualifications for registration in an electoral roll)**
   a. A person shall be disqualified for registration in an electoral roll if he
      i. is not a citizen of India;
      ii. is of unsound mind and stands so declared by a competent court;
      iii. is for the time being disqualified from voting under the provisions of any law relating to corruption practices and other offences in connection with elections.
3. **Section-19 (Conditions of registration)**-- every person who:
   a. is not less than eighteen years of age on the qualifying date,
   b. is ordinarily resident in a constituency, shall be entitled to be registered in the electoral roll for that constituency
4. **Section-21: Preparation and revision of electoral rolls**

What are the implications of SIR?

1. **Disenfranchisement** of many- Electors- to- Adult-Population (EP) ratio may fall sharply in Bihar.
2. **Judicial oversight and potential directives:** The Supreme Court's involvement creates a legal test of the SIR's method and transparency. The Court may require additional disclosure, procedural safeguards, or stay further deletions pending scrutiny.
3. Some **demographic pockets** may be excluded.
4. Courts may require procedural safeguards for proper verification of voters.
5. Administrative burden on DEO, CEO, BLO and State Officers.
6. Economic burden on states in arranging camps for awareness.
7. Political trust decreases especially among opposition parties.
8. Allegation of vote theft & partiality, especially by opposition parties.
9. Transparency vs privacy.

Challenges and Way Forward

Challenges	Way Forward
Conducted close to elections, raising doubts of bias	Schedule revisions well before polls; ensure transparency
Hasty deletions leading to wrongful disenfranchisement	Provide notice, hearing, and appeal; follow inclusion-first approach
Overburdened, under-trained BLOs causing procedural lapses	Train staff, rationalise workload, and deploy skilled officers
Poor/migrant voters lack proper documents for verification	Accept multiple IDs (Aadhaar, voter card, ration card); use digital tools & outreach
Political distrust, allegations of vote theft, and privacy concerns	Ensure multi-stakeholder consultation, independent audits, and data safeguards

INTERNATIONAL RELATIONS

1. Crack in India–U.S. Relations

Why in the News?

1. The **India–U.S. relationship**, once hailed as a defining partnership of the 21st century, is currently facing **turbulence**.
2. Despite sustained cooperation in areas such as **defence**, **space**, **trade**, and **energy**, recent developments have raised concerns about the future trajectory of this bilateral relationship.
3. High-level initiatives like **COMPACT** continue, but deeper **ideological** and **strategic differences** have surfaced, particularly under recent U.S. leadership, highlighting potential structural challenges in the long-term partnership.

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India-USA Relations Timeline

Year	Event
1962	**U.S. Universities Support Indian Technological Institute:** Nine American universities and the **U.S. Agency for International Development (USAID)** help establish one of the first Indian Institutes of Technology.
Oct, 1962	U.S. provides **military aid** during **India–China war:** Recognizes **McMahon Line**; begins U.S. security engagement in Asia.
1974	**India's first nuclear test (Pokhran I)**: Causes estrangement with the U.S.; begins nuclear tension.
1978	U.S. enacts **Nuclear Nonproliferation Act:** Cuts nuclear assistance to India after refusal to accept **IAEA inspections.**
1991	India launches **economic reforms:** Opens the door to **expanded U.S. economic and trade ties.**
1998	**Pokhran-II** nuclear tests: Damages India-U.S. ties; U.S. imposes sanctions.
2000	President Clinton visits India: Begins **reconciliation post-nuclear estrangement.**
2002	General Security of Military Information Agreement **(GSOMA)**
2005	**US Defense Trade and Technology InitiativeIndo**
2016	Logistics Exchange Memorandum of Agreement **(LEMOA)**
2017	**QUAD** revived - for **free and open Indo-Pacific**. Australia, Japan, **India** and the **USA** revived it.
2018	Communications Compatibility and Security Agreement **(COMCASA)**
2020	Basic Exchange and Cooperation Agreement **(BECA)**
2023	**Defense Industry Cooperation Roadmap**
2023	**Initiative on Critical and Emerging Technology**, or **iCET.** **Critical and Emerging Technologies** are a part of advanced technologies which are potentially significant to the national security of a country. It includes: 1. Defence, Innovation and Technology cooperation 2. Resilient Semi-conductor supply chain 3. Space Technologies 4. Next Gen Telecom Communication 5. Strengthening the overall innovation system
2025	U.S.-India **COMPACT** (Catalyzing Opportunities for Military Partnership, Accelerated Commerce & Technology) **initiative.**

Key Highlights

1. **Shifts in the U.S. Trade and Foreign Policy**
   a. The **U.S. administration** recently imposed a **25% tariff** on certain Indian imports and raised

concerns about India's trade relations with **Russia**.

b. These actions have prompted discussions about the **sustainability of the India-U.S. trade relationship**.

c. Experts have begun to question the **strategic alignment** of the two countries, noting differences in their global ambitions and approaches to international issues.

d. **Nationalism** in both nations has contributed to growing mistrust, with India's rise as a **global power** creating discomfort within certain U.S. circles.

2. Rising Skepticism and Structural Tensions

a. Some U.S. policymakers have voiced concerns over India's domestic policies and its **foreign relations**, especially its continued engagement with **Russia** and **Iran**.

b. India's approach to **strategic autonomy**, pursuing independent foreign policies and responding **assertively to regional security threats**, has at times clashed with U.S. expectations, particularly around issues like **terrorism** and the **Russia–Ukraine conflict**.

c. **Protectionist measures** aimed at boosting India's domestic industries have **strained trade relations**, particularly with the U.S., where access to the Indian market is seen as **limited due to regulatory barriers**.

3. Renewed Engagement Between U.S. and Pakistan

a. The U.S. recently announced a trade agreement with **Pakistan**, including collaboration on **oil exploration**, a move that raised concerns in New Delhi, which viewed it as a shift in U.S. policy in South Asia.

b. **U.S. defense cooperation with Pakistan** and other regional moves have affected the perception of India–U.S. relations, particularly as India seeks to maintain a **leading role** in the region.

4. Possible Motivations Behind Recent U.S. Actions

a. Analysts suggest that the U.S. government's approach may be part of a broader **negotiation strategy**, with **tariffs** and diplomatic pressure used as tools in trade and foreign policy.

b. **Public disagreements** over diplomatic issues, such as India's stance on **Kashmir** and U.S. claims about **brokering peace** between India and Pakistan, have further **complicated bilateral relations**.

5. Risk to Strategic Gains

a. **Indian diplomats** have expressed concerns that **recent policy shifts** could undo years of progress in the relationship, which has evolved from **post-Pokhran sanctions** to the landmark **Indo–U.S. Civil Nuclear Deal** and increased **defence cooperation**.

b. Some analysts worry that the **renewed emphasis** on **regional security dynamics** and **shifting alliances** could undermine the gains made in the past two decades of **India–U.S. engagement**.

Implications

1. **Erosion of Strategic Trust –** Waning optimism in U.S.–India ties threatens defence and intelligence cooperation.
2. **Strain on Global Position –** India's non-alignment stance worries the U.S., weakening its role in forums like IPEF.
3. **Reduced Regional Leverage –** Closer U.S.–Pakistan ties and China dynamics erode India's influence in South Asia.
4. **Economic Frictions –** Market access disputes and regulatory barriers slow trade and investment.
5. **Changing Strategic Perception –** Questions over India's policies affect its global image and tech partnership prospects.

Challenges and Way Forward

Challenges	Way Forward
Ideological and nationalist divergence	Establish **Track 1.5 dialogues** to foster **open dialogue** between policymakers, academics, and think tanks
Strategic autonomy challenges	**Develop frameworks** that accommodate India's need for **non-alignment** while maintaining **regional stability**

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Regional security issues	Formulate **joint protocols** to address **counterterrorism**, **regional conflicts**, and **maritime security**
Trade disagreements and economic barriers	Focus on **sectoral agreements** in areas like **semiconductors**, **green technology**, and **digital economy**
Erosion of public and **elite trust** in bilateral ties	Invest in **public diplomacy**, strengthen academic exchange, and engage the **Indian diaspora** to **rebuild confidence.**

2. Africa Wants a New World Map

Why in the News?

1. The **African Union (AU)** has supported the campaign called **"Correct the Map"** to replace the old **Mercator projection** with maps that show Africa's **real size**.
2. The AU has recommended the **Equal Earth projection (2018)** as a better option because it represents countries more accurately.
3. This move follows long-standing criticism that the Mercator map **enlarges Europe and North America** but **shrinks Africa, South America, and India**.

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Key Highlights

1. **Origin of the Mercator Map (1569)**
   a. Designed by **Gerardus Mercator** for sailors so that they could follow straight compass directions on sea routes.
   b. It used a rectangular grid where latitude and longitude crossed at right angles.
   c. The map became very popular in schools and atlases by the 19th century.
2. **Main Problem with the Mercator Map**
   a. To fit the round Earth on a flat surface, the map **stretched the northern and southern regions**.
   b. This made countries near the poles look much larger than they really are.
   c. Example: **Greenland looks as big as Africa**, even though Africa is about **14 times larger**.
3. **Early Criticism and Awareness**
   a. Scholars and activists said the Mercator map promotes a **Eurocentric worldview**.
   b. The American TV show *The West Wing* highlighted this bias.
   c. In 2017, Boston schools replaced Mercator with the **Gall-Peters map**, which shows countries in their true proportion of area.
4. **Equal Earth Projection (2018)**
   a. A modern map designed by cartographers to show countries at their **true size**.
   b. It is more visually balanced than Gall-Peters, while still keeping areas accurate.
   c. It was created especially for education and global representation.
5. **The AU's Stand (2025)**
   a. The AU has urged governments, schools, media, and international bodies to adopt **Equal Earth** maps.
   b. The goal is to give Africa its **"rightful place" on the world stage** and move away from colonial distortions.

Implications

1. **Education and Awareness:** Students will see Africa, India, and South America in their **true scale**. This reduces the **bias** that Africa is small or less important.
2. **Policy and Media Narratives:** Accurate maps can change how the world views Africa's **size, resources, and importance**.
3. **Technology and Mapping Platforms:** Online maps mostly use **Web Mercator** for navigation. For world overviews, platforms can adopt **Equal Earth**, while still using Mercator for GPS and routing.
4. **Global Diplomacy:** Shows Africa's true size in international forums, strengthening its **soft power**. Counters old colonial-era views of Africa as "small and weak."
5. **Business and Trade:** Accurate maps can affect **investment decisions, trade routes, and market studies**. Africa will be seen as a **major economic and demographic hub**.

Challenges and Way Forward

Challenges	Why it matters	Way Forward
Legacy of Mercator	It is still widely used in classrooms, offices, and media.	Governments should issue guidelines to use Equal Earth for all world maps.
Web mapping defaults	Online maps still run on Mercator because of technical ease.	Use Mercator for navigation but Equal Earth for global views.
Trade-offs in projections	No map can preserve both **shape** and **area** perfectly.	Train teachers and students about pros and cons of projections.
Cost of replacement	Updating school maps and atlases will need funds.	Do it in phases with open-source Equal Earth maps to cut costs.
Public acceptance	People are used to the Mercator look.	Run awareness campaigns showing Africa vs Greenland comparisons.

3. India-Philippines Strategic Partnership

Why in the News?

1. India and the Philippines have decided to upgrade their bilateral relationship to the level of a **"Strategic Partnership"** during the state visit of Filipino President Ferdinand Marcos Jr. to India.
2. The announcement came amid increasing geopolitical tensions in the Indo-Pacific, especially in the **South China Sea**, with both countries supporting **freedom of navigation and international law**.
3. This visit marks a significant leap in defence, maritime, economic, and digital cooperation between the two democracies in the Indo-Pacific region.

Key Highlights

1. **Strategic Partnership & Action Plan:** India–Philippines ties upgraded to a Strategic Partnership with a detailed action plan to implement it; Philippines positioned as a key partner in India's Act East Policy.
2. **Defence and Maritime Cooperation:** First deployment of three Indian naval ships and a hydrography vessel for exercises in the Philippines; agreements on capacity building, joint activities, and training across all services; Terms of Reference finalised for Coast Guard cooperation.
3. **Commitment to Indo-Pacific Stability:** Both nations reaffirmed UNCLOS 1982 principles, recognised the South China Sea as a global commons, and supported a rules-based, peaceful Indo-Pacific order.
4. **Connectivity and Tourism:** Direct flights to start in 2025; free one-year e-tourist visa for Filipino nationals from August 2025.
5. **Digital and Legal Cooperation:** India to aid the Philippines' Sovereign Data Cloud pilot project; treaties signed on legal assistance and transfer of sentenced persons; Philippines invited to join India's Information Fusion Centre for the Indian Ocean Region.

Indo-Pacific Region

1. The Indo-Pacific region is a term used to refer to the **vast geographic area** that encompasses the **Indian Ocean and the western and central Pacific Ocean,** including the seas and straits that connect them.
2. It is a region that spans from the **eastern coast of Africa to the western coast of the Americas** and **from the Arctic to the Antarctic**.
3. **Significance** of Indo-Pacific region:
   a. **Geopolitical importance**: It is home to some of the world's most populous and powerful nations, including China, India, Japan, and the United States.
   b. **Economic growth**: contributes 65% of the world's population, accounting for 63% of the world's GDP.
   c. **Security challenges**: such as territorial disputes, piracy, terrorism, and nuclear proliferation.
   d. **Environmental concerns**: related to coral reefs, rainforests, and biodiversity hotspots.
   e. **China's rise and hegemony**: China's rapid economic and military growth has contributed to the shift in global focus towards the Indo-Pacific.
4. **Initiatives** taken by India in the Indo-Pacific region

a. **Hosting HACGAM (2022):** Emphasised open, rule-based maritime borders during the 18th Heads of Asian Coast Guard Agencies Meeting in New Delhi.
b. **SAGAR Initiative:** Framework to deepen strategic partnerships with Indian Ocean littorals in Asia and Africa.
c. **Indo-Pacific Regional Dialogue (IPRD):** A Track 1.5 platform fostering balanced government–non-government policy discussions on Indo-Pacific issues.
d. **Indo-Pacific Oceans Initiative (IPOI):** Cooperation pillars include maritime security, ecology, resources, capacity building, disaster management, science and technology, trade, connectivity, and maritime transport.
e. **QUAD Membership:** Promotes regional security, economic growth, and cooperation with the U.S., Japan, and Australia.
f. **Indo-Pacific Division in MEA:** Dedicated unit to coordinate all matters related to the Indo-Pacific region.

Implications

1. **Strengthening Indo-Pacific Architecture:** Advances India's Act East Policy, builds a democratic security network, and unites regional actors to counter unilateral moves in the South China Sea.
2. **Enhanced Maritime Security:** Joint naval drills, coast guard cooperation, and hydrography efforts boost maritime domain awareness, ensure peaceful seas, and deter coercive actions.
3. **Boost to Trade and Connectivity:** Launch of PTA talks, direct flights, and visa easing expand economic opportunities, deepen people-to-people ties, and reduce reliance on China.
4. **Legal and Digital Infrastructure:** Criminal justice treaties improve extradition and law enforcement cooperation; the Sovereign Data Cloud strengthens digital sovereignty, cybersecurity, and regional tech links.
5. **Multilateral and Institutional Coordination:** Participation in the Information Fusion Centre enhances real-time maritime intelligence, makes India a coordination hub in the Indian Ocean, and promotes collective regional security frameworks.

Challenges and Way Forward

Challenges	Way Forward
Geopolitical pressure from dominant powers in the South China Sea	Strengthen **strategic autonomy and collective diplomacy** with ASEAN partners
Logistical and infrastructure constraints for defence and maritime operations	Invest in **joint capacity-building, defence hardware supply,** and **training**
Delays in finalising trade agreements due to regulatory mismatches	**Focus on early harvest schemes** and sector-specific trade facilitation
Cybersecurity risks in digital collaborations like the Data Cloud	Establish **joint protocols** and ensure data localization with secure frameworks
Visa and connectivity reforms may face bureaucratic hurdles	Ensure **time-bound implementation** of direct flights and e-tourist visa system

4. Hiroshima: 80 Years On

Why in the News?

1. **80th Anniversary of Hiroshima and Nagasaki Bombings (1945):** Marking the use of nuclear weapons in war, which instantly killed over 70,000 in Hiroshima and 40,000 in Nagasaki.
2. **Recent Nuclear Threats and Tensions:** Nuclear rhetoric from Russia during the Ukraine war and India's statements during Operation Sindoor raise concerns about the erosion of the "norm of non-use."
3. **Nobel Peace Prize 2024:** The Hibakusha-led organisation, Nihon Hidankyo, was awarded for decades of nuclear disarmament advocacy.

Key Highlights

1. **Hiroshima and Nagasaki Bombings**
   a. On **August 6 and 9, 1945**, the U.S. dropped atomic bombs on the two cities.
   b. Over **70,000 people died** instantly in **Hiroshima**, and similar numbers later due to radiation.
   c. **Nagasaki's** bombing **killed 40,000** immediately.
2. **Suppression of Early Information and Emergence of Awareness**

a. Post-war U.S. occupation suppressed knowledge of radiation effects.
b. Relief centres were shut down, and thousands died without understanding their ailments.
c. Awareness grew after the **1954 Castle Bravo thermonuclear test**, which exposed a Japanese fishing boat, Fukuryu Maru, to radioactive fallout.

3. **Rise of the Hibakusha Movement**
   a. Survivors formed **Nihon Hidankyo**, advocating global nuclear disarmament.
   b. Their lived experiences humanised the abstract horror of nuclear war.
   c. Recognition came only after decades, culminating in the **Nobel Prize in 2024.**
4. **The Norm of Non-Use**
   a. Despite growing nuclear stockpiles and modernisation, no weapons have been used in war since 1945.
   b. This "norm of non-use" is **not legally binding** but built on moral consensus, deterrence, and international pressure.
5. **Fragile Legal and Normative Framework**
   a. **Nuclear Non-Proliferation Treaty (NPT)** and **Comprehensive Nuclear Test Ban Treaty (CTBT)** regulate proliferation and testing, but **do not ban usage**.
   b. The **2017 Treaty on the Prohibition of Nuclear Weapons** lacks nuclear states' support.
   c. ICJ's 1996 opinion acknowledges legal ambiguity, reinforcing the ethical imperative for restraint.
6. **Nuclear Non-Proliferation Treaty (NPT)**
   a. **Background:** Enforced in 1970.
   b. **Membership:** 191 States.
   c. **India** has **not signed** owing to discrimination of states into "nuclear haves" and "nuclear have-nots."
   d. **Major Provisions of the Treaty**
      i. **Key Principles: Non-Proliferation** (Parties to the Treaty should refrain from acquiring or transferring nuclear-weapons); **Disarmament; Access to Peaceful Nuclear Technology**.
      ii. **Role of International Atomic Energy Agency (IAEA):** Compliance with the Treaty is verified through inspections conducted by IAEA.
      iii. **IAEA** was created in **1957** under the **United Nations** to **promote safe, secure and peaceful use of nuclear technologies.**
      iv. **Review of the operation of the Treaty:** Every five years.
   e. **Significance of NPT in the present times**
      i. **Rising Nuclear Threats:** In the form of small arms, evolving technologies like artificial intelligence, etc.
      ii. **Strengthening of Nuclear arsenals:** As per **Stockholm International Peace Research Institute (SIPRI),** most nations have expanded their nuclear arsenals.
      iii. **Weakening Nuclear Diplomacy:** E.g., Russia withdrew its ratification of the Comprehensive Nuclear-Test-Ban Treaty (CTBT).
7. **Comprehensive Nuclear Test-Ban Treaty (CTBT)**
   a. CTBT is a **multilateral treaty** opened for signature in 1996 by which states agree to **ban all nuclear explosions** in all environments, for **military or civilian purposes**.
   b. It was **signed by 183 states** and **ratified by 164** but has **not entered into force** as **eight specific states** among 44 (so-called Annex-2 states whose signatures are required for the Treaty to enter into force, namely the US, China, Iran, Egypt, Israel, India, Pakistan, and North Korea) have **not ratified the treaty yet.**
   c. In order to verify compliance with its provisions, the treaty establishes a global network of monitoring facilities and allows for **on-site inspections of suspicious events**.

Implications

1. **Erosion of Non-Use Norm:** Geopolitical conflicts like the Russia–Ukraine war are normalising tactical nuclear strategies, weakening long-held restraint.
2. **Recognition of Survivor Voices:** Late acknowledgment of Hibakusha underscores historical neglect; their testimonies challenge narratives supporting nuclear modernisation.
3. **Modernisation Increases Use Risk:** Smaller, more precise nuclear weapons blur the line between deterrence and use, raising deployment likelihood.

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4. **Legal–Moral Gap:** Existing treaties regulate certain actions but stop short of banning use, leaving humanitarian concerns unaddressed.
5. **Complacency and Miscalculation Risks:** Fading public memory of nuclear horrors increases the danger of underestimating consequences, as past incidents like Castle Bravo illustrate.

Challenges and Way Forward

Challenges	Way Forward
Lack of a **legal prohibition** on nuclear use	Push for **universal adoption of the 2017 Treaty** on the Prohibition of Nuclear Weapons
Normalisation of nuclear rhetoric by states	Establish **international red lines** and accountability mechanisms for nuclear threats
Modernisation of nuclear arsenals increases useability	Advocate **global moratorium** on tactical and low-yield nuclear weapons
Public ignorance and fading memory of nuclear consequences	Integrate **survivor narratives** and history into global education and policy forums
Weakening **international arms control regime**	Revive and strengthen **multilateral disarmament talks** and compliance mechanisms

5. India-Japan Relations

Why in the News?

1. The Indian Prime Minister **is visiting Japan (August 29-30, 2025)** for the **15th India-Japan Annual Summit** with the Japanese Prime Minister.
2. This **summit** is expected to **consolidate the Special Strategic and Global Partnership**.
3. The visit comes at a time of **global uncertainties**-trade tensions with the US, changing Indo-Pacific dynamics, and the need for resilient supply chains.

Key Highlights

1. **Historical and Strategic Foundations**
   a. India-Japan ties have evolved from a **Global Partnership (2000)** to a **Strategic and Global Partnership (2006)**, and finally to a **Special Strategic and Global Partnership (2014)**.
   b. The partnership rests on **civilizational ties, shared democratic values, and mutual trust**.
   c. Japan and Russia are India's two oldest **Annual Summit-level mechanisms**.
2. **Defence and Security Cooperation**
   a. Key agreements:
      i. Joint Declaration on Security Cooperation **(2008)**
      ii. Defence Cooperation & Exchanges MoU **(2014)**
      iii. Information Protection Agreement **(2015)**
      iv. Reciprocal Provision of Supplies & Services Agreement **(2020)**
      v. Co-development of **UNICORN naval mast (2024)**
   b. Regular exercises: **Malabar, JIMEX, Milan, Dharma Guardian, Coast Guard cooperation**.
   c. Dialogue mechanisms: **Defence Ministers' meetings, service chiefs' visits, Joint Staff Talks (2024)**.
   d. Both countries will work on **upgrading the 2008 framework** in light of new security challenges.
3. **Economic and Trade Relations**
   a. Bilateral trade: $22.8 billion in 2023-24; $21 billion in Apr-Jan 2024-25.
   b. Investment: Japan is India's **5th largest FDI source** with cumulative $43.2 billion up to Dec 2024.
   c. Business presence: ~1,400 Japanese companies in India; >100 Indian companies in Japan.
   d. Emerging focus: **digital economy (AI, semiconductors), clean energy, supply chain resilience, critical minerals, skill development**.
   e. New initiatives: **Economic security partnership** and possible revision of the **investment target from 5 trillion yen to 7-10 trillion yen**.
4. **Development and Infrastructure Cooperation**
   a. Japan has been India's **largest ODA donor since 1958**; disbursed ~JPY 580 billion ($4.5 billion) in 2023-24.
   b. Flagship project: Mumbai-Ahmedabad High-Speed Rail (bullet train). Latest tranche: JPY 300 billion in March 2023.
   c. Plans to expand into a **Mobility Partnership** covering railways, bridges, and roadways.

d. PM Modi and PM Ishiba to travel on a **bullet train to Sendai**, showcasing Japan's expertise in **semiconductors and transport infrastructure**.

5. **Multilateral and People-to-People Cooperation**
   a. **Multilateral platforms**: Quad, International Solar Alliance (ISA), Coalition for Disaster Resilient Infrastructure (CDRI), Supply Chain Resilience Initiative (SCRI). Focus on a **Free and Open Indo-Pacific (FOIP)**.
   b. **Tourism & culture**: 2023-24 celebrated as Year of Tourism Exchange ("Himalayas with Mount Fuji").
   c. **Education**: 665 academic partnerships, Edu-Connect platform, Universities Forum.
   d. **Skill Connect platform (2023)** links Indian youth with Japanese employers.
   e. **Diaspora**: ~54,000 Indians in Japan, mainly IT professionals and engineers.

Implications

1. **Strategic & Security** – Stronger defence ties, modernised 2008 framework, and deeper Indo-Pacific coordination.
2. **Economic & Trade** – Higher Japanese investment in manufacturing, digital, clean energy; push in semiconductors and AI; major investment targets.
3. **Infrastructure & Development** – Bullet train as a tech-transfer model; ODA projects boost urban growth and transport modernization.
4. **Regional & Multilateral** – Quad and SCRI diversify supply chains; Indo-Pacific cooperation enhances maritime security and global influence.
5. **Socio-Cultural** – Expanded academic exchanges, stronger diaspora role, and Skill Connect for workforce integration.

Challenges and Way Forward

Challenges	Way Forward
Trade imbalance: Japan's exports to India far exceed India's exports.	Diversify India's export basket and negotiate **balanced trade frameworks**.
Project delays: Mumbai-Ahmedabad bullet train project facing land & cost issues.	Enhance **centre-state coordination** and improve project execution efficiency.
Geopolitical pressures: US tariff policies, China's assertiveness, Indo-Pacific uncertainties.	Strengthen **multilateral cooperation** (Quad, SCRI) and adopt **flexible economic strategies**.
Technology gaps: India is still dependent on Japanese expertise in high-tech sectors.	Focus on **joint R&D, skill training, and domestic ecosystem building**.
People-to-people limitations: Language and cultural barriers limit deeper integration.	Expand **language training, exchange programs, and diaspora engagement**.

6. Global Plastics Treaty

Why in the News?

1. Over 190 countries met in **Geneva** for the **second phase of INC-5** (Intergovernmental Negotiating Committee) negotiations to finalize a legally binding Global Plastics Treaty.
2. The talks focus on tackling plastic pollution **across its life cycle**, after the 2023 Busan session failed over disputes on production caps, harmful chemicals, and trade rules.

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Key Highlights

1. **Objective of the Geneva Meeting**
   a. Aims to break the **deadlock from previous negotiations** and draft a treaty to end plastic pollution.
   b. Focus on legally binding rules covering the **entire plastic life cycle**.
2. **Historical Context and Timeline**
   a. In **2022**, the UNEA adopted a resolution in **Nairobi** to develop the treaty by the end of **2024**.
   b. This treaty is considered the **most significant environmental agreement** since the **Paris Agreement (2015)**.
3. **Previous Negotiation Failures**
   a. INC-5's first session in Busan failed due to:
      i. **370 bracketed provisions** in the draft (indicating lack of consensus).
      ii. Contentious issues like **production caps**, **chemical phase-outs**, and **problematic plastic bans**.

iii. Opposition from oil-rich countries to production cuts.

4. **Global Plastics Treaty Initiative**
   a. **What It Is**:
      i. A proposed **legally binding international treaty** under the UN to **end plastic pollution across its entire life cycle**, from production to disposal, by 2024.
      ii. It is being developed through the **Intergovernmental Negotiating Committee (INC)** set up by UNEP.
   b. **Why It Matters**:
      i. Aims to tackle rising plastic pollution that threatens ecosystems, public health, and the climate.
      ii. Global plastic production is expected to **triple by 2060**, while plastic waste and health-related economic costs are already soaring.
   c. **Key Features & Debates**:
      i. The treaty may include **caps on plastic production**, **bans on toxic additives**, and **global compliance rules**.
      ii. However, negotiations are facing resistance from **oil-rich and developing countries**, including India, over production cuts and trade restrictions.
5. **Intergovernmental Negotiating Committee (INC)**
   a. **INC** is a formal international body established to develop a legally binding global treaty or agreement.
   b. In the context of plastics pollution, the INC was set up by the **United Nations Environment Assembly (UNEA)** in 2022 to negotiate an international **legally binding instrument to end plastic pollution**, including in the marine environment.
6. **Key Stakeholder Positions**
   a. **Oil-rich nations**: Oppose production caps; argue it's beyond the 2022 resolution.
   b. **High-ambition countries** (Rwanda, Peru, Mexico): Support production cuts and stronger regulation.
   c. **India**: Wants consensus-based decisions, opposes production cuts and trade barriers, prefers focusing on **reducing plastic pollution** instead.
7. **Scientific and Civil Society Push**
   a. **Lancet report**: Plastic pollution causes disease, death, and **$1.5 trillion in annual health-related economic losses**.
   b. Civil society calls the treaty a **"once-in-a-lifetime opportunity"** to cap plastic production and protect the environment and health.

Implications

1. **Global Environmental Governance:** Could set legal precedents like the Paris Agreement and pave the way for a global plastics regulatory framework.
2. **Health and Economic Gains:** Tackling plastic pollution may cut disease burden, save trillions in health costs, and aid vulnerable communities most impacted by waste.
3. **Climate Change Link:** Reducing plastic production, tied to fossil fuel use, supports wider emission-reduction goals.
4. **Geopolitical and Trade Impact:** Highlights North–South divides and tensions between economic growth and environmental priorities; treaty terms may reshape global plastics and polymer trade.
5. **India's Strategic Position:** Opposing production caps reflects concerns over industrial growth, trade autonomy, and recycling capacity, with India's stance potentially shaping the treaty's final balance.

Challenges and Way Forward

Challenges	Way Forward
Disagreement over **production caps** and definitions of harmful plastics	Use **scientific data** and **consensus mechanisms** to define clear thresholds
Oil-producing nations resisting regulation	Offer **incentives for transition**, such as technology transfer and finance
India and others opposing trade barriers and primary polymer curbs	Promote **flexibility mechanisms** within treaty text
Treaty draft with **370 unresolved bracketed points**	Create **thematic sub-groups** to streamline consensus
Lack of binding accountability and enforcement framework	Establish a **global compliance mechanism** with **monitoring and reporting**

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7. Bengali Migrant Harassment

Why in the News?

1. The harassment and deportation of **Bengali-speaking migrant workers** from West Bengal, accused of being illegal migrants from Bangladesh, have triggered political and social debates.
2. The issue highlights deeper structural contradictions in defining **national identity** and belonging in India.
3. It raises concerns over the growing scrutiny of communities perceived as having "**hyphenated nationalities**" and its implications for citizenship and social harmony.

Key Highlights

1. **Historical Continuity of Identity Crisis**
   a. The question of hyphenated nationality (e.g., Indian-Muslim, Indian-Nepali) is not new in India.
   b. Communities like **Muslims, Sri Lankan Tamils, and Indian Nepalis** have historically faced suspicion and exclusion despite legal citizenship.
2. **Structural Logic of Nationality**
   a. According to French philosopher, **Etienne Balibar**, modern nationality is based on the idea that each nation must preserve and carry forward its ancestors' sacred heritage.
   b. This gives it both **assimilating and civilising power**, but also leads to **domination and exclusion**.
   c. True or "genuine" nationality expects complete loyalty and is tied to a civilisational core within **fixed territorial boundaries**.
   d. This logic creates **hyphenated communities**—people like Muslims, Nepalis, Sinhalese, Tamils, Lhotshampas, Madhesis, Muhajirs, or Bengalis are always associated with their ethnic homelands, even when those homelands were shaped by post-colonial politics.
   e. As a result, identities like a Muslim in India get linked to Pakistan, Sri Lankan Tamils to Sri Lanka, Nepalis to Nepal; similarly, Madhesis in Nepal to India, Lhotshampas in Bhutan to Nepal, Tamils in Sri Lanka to India, and now Bengalis in India to Bangladesh.
3. **Paradox of the Nation-State Model**
   a. The **1648 Westphalian model** created the "**one nation = one state**" formula.
   b. Nation-states require diversity for cultural and economic vitality but demand **homogeneity for political unity**.
   c. This creates an irreconcilable paradox where the state produces inclusion and exclusion simultaneously.
4. **Legal Identity vs. Social Perception**
   a. **Legal citizenship** depends on **documents and juridical recognition**.
   b. **Social legitimacy** depends on **cultural markers** and **primordial identification** with the motherland.
   c. Bengali workers with valid documents were still harassed because **performative identity** (speaking Bengali) overrode legal proof.

Legal frameworks to protect citizens against social prejudice

1. **Constitutional Framework**
   a. **Article 14** – Guarantees **equality before the law** and equal protection of the laws.
   b. **Article 15** – Prohibits **discrimination on grounds of religion, race, caste, sex, or place of birth**.
   c. **Article 17** – **Abolishes untouchability** and forbids its practice in any form.
   d. **Article 21** – Ensures **protection of life and personal liberty**, interpreted to include dignity and equality.
   e. **Article 29 & 30** – Protect **cultural and educational rights of minorities**.
   f. **Directive Principles (Articles 38, 46)** – Direct the State to **promote social justice and protect weaker sections**.
2. **Statutory Laws**
   a. **Protection of Civil Rights Act, 1955** – Penalises untouchability and discrimination.
   b. **Protection of Human Rights Act, 1993** – Provides for the **NHRC** and State Commissions to address rights violations.
   c. **The Representation of the People Act, 1951** – Disqualifies candidates promoting enmity or hatred.

Polity

d. **Indian Penal Code (Sections 153A, 295A)** – Criminalises promoting hatred between communities.

Implications

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1. **Internal Migration & Labour** – Fear of harassment deters migration, reducing labour mobility and security for workers.
2. **Social Cohesion** – Fuels suspicion, weakening unity and deepening linguistic/ethnic divides.

Security

3. **Federal Relations** – Strains inter-state ties and risks reciprocal discrimination.
4. **Citizenship & Governance** – Questions legal protections, pressures NRC and documentation processes.

Economy

5. **Nation-State Model** – Exposes limits of rigid nationalism amid global mobility and economic integration.

Challenges and Way Forward

Science

Challenges	Way Forward
Persistent **identity-based discrimination**	Promote **inclusive narratives** through education and media.
Weak enforcement of migrant protection laws	Strengthen **legal safeguards** and **grievance redressal** for migrant workers.
Politicization of citizenship issues	**Depoliticize identity verification**; adopt a **rights-based approach**.
Lack of clarity in migration and citizenship policies	Implement **comprehensive internal migration** policy with portability of rights.
Tension between **legal and social identity**	Foster **intercultural understanding** and civic nationalism over ethnic nationalism.

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8. India's Diplomatic Dilemma after the Alaska Summit

Ethics

Why in the News?

P.i.N.

1. The **Alaska Moment** refers to the August 2025 meeting between the U.S. **President** and **Russian President**, aiming at ending the **Russia-Ukraine conflict**.
2. The summit has significant implications for **India-U.S.-Russia relations**, particularly in trade, sanctions, and strategic autonomy.

Key Highlights

1. **Expectations from the Alaska Summit**
   a. India hoped for a **U.S.-Russia rapprochement** would reduce pressure on India for its ties with Russia.
   b. Expected rollback of **planned U.S. secondary sanctions** (25%) on India for buying Russian oil.
   c. Hoped for **resumption of India-U.S. trade talks** and **revision of existing tariffs**.
2. **Outcome of the Summit**
   a. No relaxation in **U.S. stance toward India** despite Trump-Putin bonhomie.
   b. Peter Navarro's article in Financial Times stressed that U.S. tariffs on India are a "**two-pronged policy**" to target **Russian oil imports and market access curbs**.
3. **Operation Sindoor and Trump's Narrative**
   a. Trump claimed he mediated the **India-Pakistan ceasefire**, using trade leverage.
   b. Asserted that a **nuclear conflict** was imminent, contrary to India's claim of **zero losses** in the conflict.
   c. This created friction as the government's version differs sharply.
4. **Underlying Reasons for U.S. Actions**
   a. Sanctions appear **political**, not purely linked to punishing Russia.
   b. U.S. trade with Russia and China's larger imports of Russian oil indicate **double standards**.
   c. Trump's personal ambitions for **recognition as peacemaker** and possible **Nobel Prize**.
5. **India's Future Diplomatic Moves**
   a. Explore **alternative trade avenues** (Japan, China, SCO, G20 summits).
   b. Manage upcoming **Quad Summit** and uncertainty of Trump's visit to India.
   c. Rebalance focus from **personal diplomacy ("Summitry")** to **real, detailed negotiations**.

Implications

1. **For India-U.S. Relations**
   a. Increased **trade tensions** due to tariffs and sanctions.
   b. Strained political equation despite earlier close engagements (Howdy Modi, Namaste Trump).
2. **For India's Strategic Autonomy**
   a. Pressure to align with U.S. policies against Russia challenges India's **independent foreign policy**.
   b. Resisting unilateral sanctions strengthens India's position in the **Global South**.
3. **For Regional Stability**
   a. Trump's statements on the India-Pakistan conflict could **destabilize perceptions** in South Asia.
   b. Highlights risk of **external interference** in bilateral disputes.
4. **For Global Diplomacy**
   a. Shows **fragility of personal diplomacy** in international relations.
   b. Emphasizes need for **institutional continuity** over leader-centric foreign policy.
5. **For Trade and Economy**
   a. Reciprocal tariffs make Indian goods **less competitive** in U.S. markets.
   b. Possible impact on **remittances** and **investment flows** if relations worsen.

Challenges and Way Forward

Challenges	Way Forward
U.S. secondary sanctions and tariffs on Indian exports	Diversify trade partners (Japan, EU, ASEAN) and promote **self-reliance** in critical sectors
Overdependence on personal diplomacy ("Summitry")	Focus on **institutional mechanisms** and formal diplomatic channels
Trump's unpredictability and transactional approach	Maintain **strategic autonomy** while engaging constructively with U.S.
Erosion of bipartisan support in U.S. politics	Rebuild **bipartisan relations** across political spectrum
Pressure to comply with U.S. sanctions	Stick to **UN-mandated sanctions only**, reinforcing India's long-standing policy

9. PM's Asian Tour

Polity
I.R.
Security
Economy
Science
Geography
Society
History
Ethics
P.i.N.

Why in the News?

1. **The Asian tour** of the Prime Minister, visiting **Tokyo for bilateral talks with Japan** and **Tianjin for the Shanghai Cooperation Organisation (SCO) summit,** seems to be consequential.
2. This visit comes amid **growing trade tensions between India and the US**, making India's engagements with Japan and China strategically significant.
3. The visit offers a **platform to strengthen India's ties with Japan** while cautiously exploring **stability in relations with China**.

Key Highlights

1. **India-US Tensions and Economic Context**
   a. India faces **trade-related friction with Washington**, particularly under the Trump administration.
   b. Despite tensions, the **US remains India's largest export market** with $88 billion in exports and a $45 billion surplus in 2024.
   c. Russia and China offer limited trade alternatives:
      i. Russia: $5 billion imports from India, $60 billion surplus.
      ii. China: $15 billion imports from India, $100 billion surplus.
2. **India's Economic Vulnerabilities with China**
   a. Heavy dependence on **Chinese industrial goods and technology inputs**.
   b. Examples:
      i. Beijing's **ban on rare earth magnets**, vital for India's automobile sector.
      ii. **Refusal to supply tunnelling equipment** for Himalayan projects.
      iii. **Withdrawal of Chinese engineers** from Apple's iPhone manufacturing in India.
   c. "**Make in India**" and "**Buy Swadeshi**" cannot immediately overcome these structural weaknesses.

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3. **SCO Summit in Tianjin: Strategic Opportunities and Limitations**
   a. SCO is projected as an **anti-US Asian coalition**, but internal contradictions persist.
   b. Key issues for India:
      i. **China-Pakistan nexus** within SCO.
      ii. SCO's **inaction on Pakistan-backed terrorism**, protected by China.
      iii. India's **non-support for BRI**, which is integral to China's agenda.
   c. Possible optics:
      i. Pakistan may push for **India-Pakistan dialogue** at SCO platform.
      ii. China is trying to **deepen South Asian influence** by supporting Bangladesh's SCO entry.
4. **China's Expanding Role in South Asia**
   a. With SAARC inactive since 2014, **China is filling the vacuum** via SCO and new **minilateral initiatives**:
      i. Trilateral talks (China-Pakistan-Afghanistan).
      ii. Engagements with Bangladesh and Myanmar.
   b. Beijing projects itself as **South Asia's development partner and stabiliser**.
5. **Tokyo Visit: Strengthening Strategic Ties with Japan**
   a. India aims to **elevate defence, technology, and trade cooperation** with Japan.
   b. Context: **Northeast Asia's uncertainty** due to Trump's policies on tariffs and defence contributions.
   c. Trump's policies have troubled US allies like **Japan, South Korea,** and **Taiwan**—raising tariffs, pushing for more defence spending, and demanding tech and wealth transfers. These countries still rely on the US but are now seeking more independence.
   d. India sees **opportunity for deeper maritime partnerships** with Japan and other US allies in Asia.

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Implications

1. **Economic Implications: Persistent dependence on China** for critical inputs affects India's strategic autonomy. Limited trade opportunities with Russia and China mean **US market remains crucial**.
2. **Strategic and Security Implications:** SCO offers a **limited platform** to manage tensions with China, but challenges remain due to **Pakistan factor and BRI**. India's **continental strategy constrained** by geography and disputes with China-Pakistan.
3. **Regional Dynamics: China's growing influence in South Asia** challenges India's leadership role in the region. US-China rivalry in South Asia puts **India in a competitive diplomatic environment**.
4. **Bilateral Gains with Japan: Japan-India partnership can expand in technology, infrastructure, and maritime security**, supporting India's Act East Policy. Tokyo visit could **help India diversify strategic dependence away from US and China**.
5. **Diplomatic Significance:** Balancing ties among **US, Japan, and China** remains critical to India's multipolar foreign policy strategy.

Challenges and Way Forward

Challenges	Way Forward
High **economic dependence on China**	Accelerate **domestic industrialisation and technology R&D** under PLI schemes
Limited SCO leverage due to **China-Pakistan axis**	Use SCO for **confidence-building with China** while **raising terror issues**
Weak regional influence due to **SAARC paralysis**	Promote **sub-regional groupings (BIMSTEC, IORA)** as alternatives
Trade tensions with the US	Engage in **negotiated settlements** and diversify export destinations
Uncertainty in global alliances	Strengthen **maritime partnerships with Japan, ASEAN, and QUAD**

SECURITY

1. INS Himgiri

Why in the News?

1. The Indian Navy has received **INS Himgiri**, the third frigate under **Project 17A**, built by **GRSE, Kolkata**.
2. Its delivery follows the recent **decommissioning** of the earlier INS Himgiri, linking naval legacy with modernization.
3. The event marks GRSE's major step forward in **self-reliant warship production**, amid growing Indo-Pacific maritime focus.

Key Highlights

1. **About Himgiri (Yard 3022)**
   a. **INS Himgiri** is a **stealth, multi-role warship** equipped with guided missiles.
   b. It has been built by **Garden Reach Shipbuilders and Engineers (GRSE), Kolkata**.
   c. It is named after and inspired by the **earlier INS Himgiri**, a **Leander-class frigate** that served the Navy for 30 years before being **decommissioned in May 2025**.
      i. It was a **medium-sized naval ship** used for multiple purposes like **patrolling**, **anti-submarine warfare**, and **escorting other ships**.
2. **Advanced Combat and Engineering Capabilities:** Equipped with:
   a. **BrahMos missiles**: These are **very fast missiles** (supersonic) that can **hit enemy ships or land targets** from a long distance.
   b. **Barak 8 missiles**: These are **medium-range air defence missiles** that can **shoot down enemy aircraft, drones, or missiles** before they hit the ship.
   c. **CIWS (Close-in Weapon System)**: A **rapid-fire gun system** that protects the ship from **very close-range threats**, like missiles that slip through other defences.
   d. **CODOG propulsion**: This system uses **either diesel engines or gas turbines** to move the ship; diesel for normal cruising, gas for high-speed moves.
   e. **CPP (Controllable Pitch Propellers)**: These allow the ship to **change speed and direction more easily** without changing engine speed.
   f. **IPMS (Integrated Platform Management System)**: A **smart control system** that helps the crew monitor and manage everything, from engines to power to fire safety, on digital screens.
3. **Stealth and Indigenous Content**
   a. **75% of the ship is made in India**, involving **over 200 small and medium Indian companies (MSMEs)**.
   b. It has an **improved stealth design**, meaning it is **harder to detect** by enemy radar, heat sensors (IR), or sonar (sound-based detection).
   c. Compared to earlier **Project 17 (Shivalik-class) ships**, it shows a **major leap in technology**, including better design, survivability, and combat features.
4. **About Project 17A**
   a. Approved by the **Cabinet Committee on Security (CCS)** in **2015** to build **7 stealth frigates**.
   b. A follow-on to **Project 17 (Shivalik class)** with improved stealth, survivability, and firepower.
   c. Built using **Integrated Construction techniques** to reduce build time.
   d. Project Progress and Delivery: **3 ships delivered** so far
      i. **INS Nilgiri (first)**
      ii. **INS Udaygiri (second)**
      iii. **INS Himgiri (third)**
   e. Remaining ships under construction: **Dunagiri, Vindhyagiri, Taragiri, and Mahendragiri**

Implications

1. **Indigenous Defence Boost** – Showcases India's ability to build complex warships and strengthens MSME-driven defence ecosystem.
2. **Naval Power Projection** – Expands blue-water capability for dominance in the Indian Ocean and Indo-Pacific.
3. **Defence Self-Reliance** – Builds trust in local shipyards, reducing foreign dependence in critical technologies.
4. **Advanced Tech Integration** – Features stealth, integrated combat systems, and multi-role capabilities for modern warfare.
5. **Maritime Diplomacy & Deterrence** – Enhances strategic outreach, deterrence, and role in peacekeeping missions.

Challenges and Way Forward

Challenges	Way Forward
Delays in Warship Construction	Adopt **strict project monitoring**, expand shipyard capacity, and ensure timely vendor supply chains.
Tech Dependence in Subsystems	Boost **domestic R&D** in propulsion, sensors, and missile tech; incentivize public-private defence collaboration.
Budgetary Constraints	Ensure **steady capital allocation** under the Defence Budget for large-scale naval procurement.
Workforce Skill Gaps in MSMEs	Launch **defence-focused skilling programs** and technical training partnerships with institutions like IITs, NITs.
Growing Maritime Threats	Integrate **real-time surveillance, AI-based threat analysis**, and increase interoperability with friendly navies.

2. IAF's Fighter Jet Gap

Why in the News?

1. After over 60 years in service, MiG-21s, once the backbone of the Indian Air Force (IAF), are scheduled to be **formally retired in September 2025**.
2. Their retirement will reduce the IAF's strength from **31 to 29 squadrons**, significantly below the **sanctioned strength of 42 squadrons**, impacting operational readiness.
3. The **LCA-Mk1A** induction, crucial to replace ageing fleets, has been delayed due to **supply chain issues** with GE Aerospace and **slow production**.

Key Highlights

1. **Legacy and Retirement of MiG-21s**
   a. Introduced in **1963**, MiG-21s were India's **first supersonic and non-Western jets**.
   b. Played key roles in the **1965, 1971, Kargil War**, and **2019 Balakot aerial engagement**.
   c. Dubbed "**flying coffins**" due to over **450 crashes** in 60 years, often blamed on ageing platforms and lack of advanced trainers.
   d. Final squadrons (No. 3 Cobras and No. 23 Panthers) to be decommissioned by Sept 2025.
2. **Current Status of IAF Fleet**
   a. Existing fleets of **Jaguars, MiG-29s, Mirage-2000s** will start retiring by **2030**.
   b. Presently operational: **Su-30MKIs**, **two squadrons of LCA Mk1**, and some upgraded Russian fighters.
   c. Contract for **83 LCA Mk1A jets** worth ₹48,000 crore signed, but **no deliveries yet** due to **GE engine delays**.
   d. **Only two GE F404 engines** delivered as of mid-2025; supply of 12 engines expected this fiscal.
3. **Future Procurement & Upgrades**
   a. Over **600 new fighter jets** are planned over the next two decades, including:
      i. **180 LCA-Mk1A**
      ii. **120+ LCA-Mk2**
      iii. **114 MRFA (Medium Role Fighter Aircraft)**
      iv. **120 AMCA (Advanced Medium Combat Aircraft)**
   b. ₹13,500 crore contract signed in 2024 for 12 new **Su-30MKIs** to replace crash losses.
   c. **84 Su-30MKIs** to undergo major upgrades.

4. **Delays and Strategic Concerns**
   a. The **LCA-Mk1A** programme is running **behind schedule**, while LCA-Mk2's first flight is expected only in **2026**.
   b. **AMCA (India's 5th-gen stealth aircraft)** is under development in two phases:
      i. **Mk1 with GE-F414 engines** (interim imported tech)
      ii. **Mk2 with indigenously co-developed 110KN engine** (talks underway with foreign partner)
   c. HAL will have to **compete in open bidding** for AMCA production—signalling a shift from nominated orders.
5. **Interim Options and External Factors**
   a. Due to urgent capability needs, India may **import a limited number** of fifth-generation fighters.
   b. Options under sensitive negotiation: **Russian SU-57** or **American F-35**.
   c. Meanwhile, **China's air power** is rapidly expanding with over **1,900 combat aircraft**, including fifth-gen and stealth fighters.
   d. China is also likely to supply **40 J-35 stealth jets** to Pakistan, increasing regional pressure on IAF.

Implications

1. **Operational Readiness Gap** – IAF faces 30% squadron shortfall, needing 35–40 jets annually to maintain war readiness.
2. **Foreign Dependence** – Delays from GE and reliance on Russian platforms pose supply chain and geopolitical risks.
3. **Indigenous Push** – LCA, AMCA, HAL, and private sector participation aim to boost self-reliance in defence.
4. **Economic Impact** – ₹2.5 lakh crore procurement can drive aerospace growth, jobs, and R&D if managed well.
5. **Geopolitical Significance** – Strong IAF is vital to counter China, Pakistan, and maintain Indo-Pacific influence.

Challenges and Way Forward

Challenges	Way Forward
Delay in LCA-Mk1A deliveries due to engine bottlenecks	Fast-track **GE F404/F414 engine deliveries** and enhance HAL's production lines
Under-strength fighter squadrons (29 vs 42 needed)	Expedite **LCA Mk1A, Mk2, and AMCA** induction with time-bound milestones
Uncertainty around MRFA procurement process	Finalise MRFA through a **transparent and time-bound global tendering process**
Lack of indigenous engine for 5th-gen fighters	Fast-track co-development of **110KN engine** with a foreign partner
Low private sector involvement in aerospace R&D	Encourage **competitive bidding** for AMCA and other fighter production

3. Tackling Money Laundering in India

Why in the News?

1. The Finance Minister reported that since 2015, the **Enforcement Directorate (ED)** has taken up **around 6,000 cases under the Prevention of Money Laundering Act (PMLA), 2002**, with **only 15 convictions** delivered by special courts so far.
2. This has raised serious questions about **effective enforcement**, **legal misuse**, and the **credibility of institutional mechanisms** in tackling money laundering.
3. The Supreme Court has weighed in on critical aspects of the PMLA in multiple cases, pointing out **possible misuse by authorities**, and calling for **greater caution in handling such cases**.

Key Highlights

1. **Scale of Enforcement under PMLA**
   a. Only **15 convictions** highlight a **gap between enforcement and legal closure**.
   b. Despite claims that investigations and **ECIRs (Enforcement Case Information Reports)** have been filed in all cases, the overall **efficacy remains questionable**.

2. **Definition and Legal Framework of Money Laundering**
   a. Under **Section 3 of the PMLA**, money laundering includes **concealing, possessing, acquiring, or using** proceeds of crime, and **projecting it as untainted property**.
   b. The PMLA was enacted in line with the **UN Political Declaration and Global Programme of Action (1990)** to prevent laundering and **confiscate illegally acquired property**.
   c. **Burden of proof lies on the accused**, reversing the general principle of innocent until proven guilty.
3. **Three Stages of Money Laundering**
   a. **Placement**: Illicit funds are introduced into the financial system, often through **smurfing** (breaking large amounts into small, unnoticeable transactions).
   b. **Layering**: Funds are transferred through multiple accounts or investments to **obscure their origin**.
   c. **Integration**: Laundered money is brought back into the economy via **legitimate avenues** like real estate, business ventures, or asset purchases.
4. **Wider Economic and National Security Impacts**
   a. As per the **Supreme Court in P. Chidambaram vs ED (2019)**, laundering affects **financial stability, inflation, and national sovereignty**.
   b. It also contributes to **expansion of the money supply**, which can disturb **monetary policy** and fuel **unregulated inflation**.
   c. According to the **Financial Action Task Force (FATF)**, money laundering can distort **trade flows** and global financial integrity.
5. **Origin and Functioning of Laundromats**
   a. The term "**laundromat**" emerged from **organized crime groups** in the U.S. using laundromats as fronts.
   b. Today, it refers to **financial setups** (often banks or financial service providers) that can help **clean dirty money**, **evade taxes**, **embezzle company funds**, or **transfer wealth offshore**.
6. **Judicial Observations and Legal Loopholes**
   a. In **Vir Bhadra Singh vs ED (2017)**: The **Supreme Court held that ECIRs** are enough to initiate proceedings under PMLA, and **no FIR is required**.
   b. In **Vijay Madanlal Chaudhury vs Union of India (2022)**:
      i. For initiating **attachment of property** under Section 5, no scheduled offence registration is required.
      ii. But for **prosecution under Section 3**, a **scheduled offence** is a precondition.
   c. These judicial interpretations have occasionally **enabled politically motivated misuse** of the law.
7. **International Mechanism: Double Taxation Avoidance Agreement (DTAA)**
   a. India has signed **DTAAs with 85 countries**.
   b. These agreements **facilitate sharing of financial and tax-related data**, which helps:
      i. Enforce tax laws,
      ii. Prevent **tax evasion**,
      iii. Detect **illegal offshore transfers**, and
      iv. Assist in **money laundering investigations**.
   c. However, despite such treaties, **enforcement remains weak** and **illicit flows continue**.
8. **FATF Recommendations and Governance Concerns**
   a. India is expected to adhere to **FATF's global guidelines** on anti-money laundering.
   b. The current **increase in laundering cases**, coupled with **misuse of legal provisions**, undermines both **compliance and credibility**.
   c. There is a need for **greater transparency, institutional accountability**, and **non-partisan enforcement**.

About Prevention of Money Laundering Act 2002 (PMLA)

1. The **Prevention of Money Laundering Act (PMLA), 2002** was enacted in **January 2003.**

2. **Objectives of the Act:** PMLA aims to:
   a. **Prevent and control money laundering** activities.
   b. **Seize and confiscate properties** derived from laundered money.
   c. **Address other issues** related to money laundering in the country.
3. **Definition of Offence (Section 3):** As per Section 3 of the Act
   a. Any person who **directly or indirectly** attempts or assists in any **activity related to proceeds of crime**, and
   b. **Portrays such proceeds as untainted (clean) property**,
   c. Shall be considered guilty of the offence of **money laundering**.
4. **Amendments to the Act:** The PMLA was amended by
   a. **The Prevention of Money Laundering (Amendment) Act, 2009**, and
   b. **The Prevention of Money Laundering (Amendment) Act, 2012**
5. **Major Provisions of PMLA**
   a. **Obligations on Financial Institutions**
      i. Banks, financial institutions, and intermediaries must **verify the identity of clients**, and **maintain records** of all transactions.
   b. **Enforcement Directorate (ED):**
      i. The **ED** is the nodal agency to investigate money laundering offences.
      ii. It is also empowered to **attach and confiscate properties** involved in such crimes.
      iii. The ED originated as the **Enforcement Unit** under the **Department of Economic Affairs**, tasked with enforcing **foreign exchange laws** under FERA, 1947.
   c. **Adjudicating Authority:** The Act provides for setting up an **Adjudicating Authority**. It has the power to **confirm attachment** and **order confiscation** of properties linked to money laundering.
   d. **Appellate Tribunal:** An **Appellate Tribunal** is established under the Act. It hears **appeals** against orders passed by the Adjudicating Authority.
   e. **Special Courts:** PMLA allows for designating **Special Courts** (Sessions Courts) to try offences under the Act.
   f. **International Cooperation:** The Central Government is empowered to sign **agreements with foreign governments** to help enforce the provisions of the Act internationally.
6. **Section 45 (Bail Provisions):** Section 45 is one of the most **controversial provisions** of the PMLA and deals with the **grant of bail** to those accused under the Act. **Key Features**
   a. **Stringent Bail Conditions (Twin Conditions):** Under Section 45(1), bail can only be granted if the court is satisfied that:
      i. There are **reasonable grounds to believe** that the accused is **not guilty** of the offence.
      ii. The accused is **not likely to commit** any offence if released on bail.
   b. **Non-Bailable Offences:** Offences under PMLA are categorized as **non-bailable**. This means **bail is not a right** and is subject to the discretion of the court.
   c. **Judicial Review and Amendments**
      i. In the landmark case **Nikesh Tarachand Shah v. Union of India (2017)**, the **Supreme Court struck down** the twin bail conditions as **unconstitutional**.
      ii. However, these conditions were **reintroduced in 2018** through subsequent **amendments** to the Act.

Implications

1. **Legal and Judicial Integrity at Risk**: Low conviction and reverse burden weaken justice and due process.
2. **Macroeconomic Instability**: Laundering fuels capital flight, inflation, and currency instability.
3. **National Security and Terror Funding**: Dirty money finances terrorism and undermines security.

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4. **Diminishing Global Reputation**: FATF non-compliance risks blacklisting and global isolation.
5. **Misuse of Enforcement Powers**: PMLA tools are misused for politics, eroding public trust.

Challenges and Way Forward

Challenges	Way Forward
Extremely low conviction rate under PMLA	Strengthen **investigative mechanisms** and ensure **speedy trials** with forensic and digital evidence support.
Misuse of ECIRs and attachment without FIR	Enforce **judicial safeguards**; define **clear procedural thresholds** before attachment of property.
Politicisation of Enforcement Agencies	Establish **independent oversight bodies** to ensure **non-partisan application** of laws.
Inadequate cross-border cooperation despite DTAA	Enhance **bilateral enforcement frameworks** and **automated information-sharing systems** with DTAA countries.
Lack of technical capacity and skilled personnel	Invest in **training ED officers**, build **dedicated forensic accounting units**, and adopt **AI-based financial tracking tools**.

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4. Shifting Indo-Pacific UAV Market

Why in the News?

1. **Operation Sindoor (May 7–10, 2024)** highlighted how **UAVs (Unmanned Aerial Vehicles)** and **UCAVs (Unmanned Combat Aerial Vehicles)** are no longer just for **reconnaissance (surveillance)** but have become crucial for **precision strikes** in the **India–Pakistan context**.
2. In 2024, India **finalized an order for 31 MQ-9B Reapers** (variants: **SkyGuardian/SeaGuardian**), marking a big step in **military modernization** and **maritime domain awareness (MDA)**.
3. Globally, the **UAV export landscape is changing**:
   a. **U.S. lagging** due to **MTCR (Missile Technology Control Regime) restrictions** on exports.
   b. **Israel** is **busy** with **West Asia conflicts**.
   c. **China and Türkiye** are rapidly **exporting UAVs**, creating **opportunities for India** to enter this space.

Key Highlights

1. **Battlefield Shift to Unmanned Warfare**
   a. **Nagorno-Karabakh Conflict (2020):** Normalized **drone-led warfare** (drones used for strikes and surveillance).
      i. The **Nagorno-Karabakh conflict (2020)** was a **six-week war** between **Armenia** and **Azerbaijan** over the disputed region of **Nagorno-Karabakh**, which is internationally recognized as part of Azerbaijan but had been controlled by ethnic Armenians since the early 1990s.
   b. **Operation Sindoor (2024):** Confirmed **UAV/UCAV centrality** in **ISR (Intelligence, Surveillance, and Reconnaissance)** + **precision strikes** for India.
   c. **Takeaway:** Air power is now **distributed**, **persistent** (can stay longer), and **attritable** (low-cost, can be risked in combat).
2. **India's Current Inventory and Gaps**
   a. **In Service:**
      i. **Heron** (MALE – Medium Altitude Long Endurance, for ISR)
      ii. **Harop** (Loitering munition – drones that circle and then attack target)
   b. **Gaps:**
      i. **HALE (High-Altitude Long-Endurance)** strike capability with **heavy payloads**.
      ii. **Low-cost swarms** (multiple small drones attacking together).
      iii. **All-weather MDA** (Maritime Domain Awareness – tracking and securing sea areas).
   c. **MQ-9B Purchase:**
      i. Strengthens **maritime ISR and strike**.
      ii. But still **doesn't meet all land-border and high-altitude needs**.

3. **U.S. and Components Strategy**
   a. **MTCR restrictions** limit U.S. drone exports.
   b. U.S. may focus more on **components** like:
      i. **Engines**
      ii. **EO/IR sensors** (Electro-Optical/Infrared for imaging)
      iii. **SATCOM** (Satellite Communication)
      iv. **EW systems** (Electronic Warfare)
   c. India is likely to **import components, not full systems**, and integrate them into **Indian platforms**.
4. **Global Supplier Landscape**
   a. **China and Türkiye:** Cost-effective UAVs, but **strategically off-limits for India**.
   b. **Israel:** Technologically strong, but busy in **West Asia conflicts**.
   c. **Europe:** Offers **tie-ups and JVs (Joint Ventures)**.
   d. **Net Result:** India must **combine imports, co-development, and indigenous production**.
5. **Indo-Pacific Demand and India's Export Potential**
   a. Countries like **Vietnam, Philippines, Taiwan, South Korea, Japan** need **MDA** and **border ISR** due to **gray-zone tactics** (low-level, ambiguous military actions without full war).
   b. Their needs **match India's experience → export potential for India**.
   c. Opportunity for **"drone diplomacy"** and setting **international UAV standards** with like-minded countries.

Implications for India

1. **Force Posture and Deterrence**
   a. Persistent **UAV ISR/strike** → better **border vigilance** along **LAC (China border)** and **LoC (Pakistan border)**.
   b. **Layered fleets**: HALE + MALE + loitering munitions + swarms → **low-risk deterrence**.
2. **Procurement and Industrial Strategy**
   a. Needs **hybrid approach**: **Imports** for niche technology , **JVs for subsystems** and **Make in India** for large-scale production.
   b. **Priorities:** engines, composites, sensors, datalinks, AI-based autonomy, weaponization.
3. **Geopolitics and Market Influence**
   a. **U.S.–Israel bandwidth gap + China/Türkiye rise → space for Indian UAV exports**.
   b. Indian UAVs can **anchor security partnerships** in the Indo-Pacific.
4. **Maritime Security and Gray-Zone Resilience**
   a. Integrated UAV network (Coast Guard + Navy + Air Force) for **MDA**.
   b. **Data fusion** from drones, satellites, and patrol assets → **real-time actionable picture**.
5. **Compliance and Norms**
   a. Exports must align with: **MTCR and IHL (International Humanitarian Law)**
   b. Build **secure supply chains** and **trusted software**.

Challenges and Way Forward

Challenge	Way Forward
Capability gaps in HALE, swarms, all-weather MDA	Fast-track programs with strict timelines
Dependence on foreign tech (engines, sensors)	Co-development, indigenization, vendor guarantees
Slow procurement process	Simplify DPP (Defence Procurement Procedure), trial-while-in-service
Fragmented C2 (Command & Control)	Create tri-service **C2 backbone** with open standards
Export compliance	Set up **UAV Export Cell**, align with MTCR
Financing	Aggregate large orders, enable leasing, export credit
Ethical concerns on autonomy	Define **human-in-loop policy**, maintain IHL standards
Talent shortage	Fund **R&D consortia**, expand testing facilities

Polity

5. Decline of Naxalism in India

Why in the News?

1. Predictions about the end of Naxalism in India have gained attention after the Union Home Minister indicated that **mid-2026 could mark the final demise of Naxalite violence**.
2. This discussion comes against the backdrop of **global concerns about rising terrorism threats**, including the possible use of **AI-enabled attacks and bioweapons**, while India is witnessing a **declining curve in ideologically driven militancy**.

Key Highlights

1. **Global Concerns About Terrorism**
   a. **Persistent Threat:** Even after 25 years of the 9/11 attacks, terrorism remains a serious global issue.
   b. **Rise of Lone-Wolf Attacks:** Instances of copycat killings and Islamic State (IS)-inspired attacks, such as vehicle rammings in the U.S. and Europe, are increasing.
   c. **AI Factor:** Experts warn that terrorists could exploit AI for planning and execution, and even develop bio-weapons, leading to large-scale harm.
2. **Declining Naxalism in India**
   a. **Current Trend:** India is experiencing a decline in Naxalite violence, marking a significant shift from earlier decades.
   b. **Government Statement:** Union Home Minister stated that **Naxalism could end by 2026**, an official assertion never made before.
3. **Historical Background of the Naxalite Movement**
   a. **Left Wing Extremism (LWE),** often referred to as **Naxalism,** is one of India's most serious internal security challenges.
   b. Rooted in **socio-economic inequalities** and fueled by **Maoist ideology**, LWE has historically **affected** some of the **most remote, underdeveloped, and tribal-dominated regions** of the country.
   c. The movement has aimed to **undermine the Indian state** through **armed rebellion** and **parallel governance structures**, particularly targeting **security forces, public infrastructure, and democratic institutions.**
   d. **Origins: Naxalbari movement of 1967** in West Bengal
   e. It spread primarily across the "**Red Corridor**," affecting states like **Chhattisgarh, Jharkhand, Odisha, Maharashtra, Kerala, West Bengal, Madhya Pradesh, and parts of Andhra Pradesh and Telangana**.
   f. The Maoist insurgents claim to **fight** for the **rights of the marginalized**, particularly tribal communities, but their methods include **armed violence, extortion, destruction of infrastructure, and recruitment of children and civilians**.
   g. **Promise of Revolution:** Initially attracted intellectuals and youth with slogans like "**China's Chairman is our Chairman**."
4. **Recent Counter-Naxalite Campaign**
   a. **Offensive Since 2024:** A nationwide, sustained offensive was launched to eliminate Naxalite groups.
   b. **Casualty Figures:** CPI (Maoist) admitted that 357 cadres, including a large number of women, were killed in encounters in the past year.
   c. **Shrinking Influence:** Epicentre of violence remains Dandakaranya, but **internal conflicts** and **leadership crises** have weakened the movement.
5. **Misuse of the Term 'Urban Naxals'**
   a. **Original vs Present:** The original Naxalite movement had a structured ideology, while current so-called 'urban naxals' are **loosely connected intellectuals opposing government policies**.
   b. **Risk of Misclassification:** Wrong classification could lead to flawed policies and unintended consequences.

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6. **Constitutional Provisions**
   a. **Emergency and Security Provisions**
      i. **Article 355:** Duty of the Union to protect states against internal disturbances and ensure governance as per the Constitution.
      ii. **Article 356:** President's Rule in case of breakdown of constitutional machinery due to extremist violence.
      iii. **Article 352:** Allows National Emergency if armed rebellion (includes large-scale internal insurgency) occurs.
   b. **Fundamental Rights & Restrictions**
      i. **Article 19(2) & 19(4):** Reasonable restrictions on freedom of speech and association in the interest of sovereignty, security, and public order (used to curb Maoist propaganda and organizations).
      ii. **Article 21:** Protects citizens from arbitrary state action, but also justifies counter-insurgency operations under legal process.
   c. **Preventive Detention Provisions**
      i. **Article 22:** Allows preventive detention for reasons of security and public order; basis for laws like **UAPA (Unlawful Activities Prevention Act)** and **NSA (National Security Act).**

Implications

1. **For Internal Security**: Decline in Naxalism strengthens security and allows focus on new challenges.
2. **For Policy and Governance**: Declaring its end shows policy success but risks ignoring residual threats.
3. **For Global Terrorism Discourse**: India's gains contrast with AI-driven terror risks, stressing adaptive strategies.
4. **For Social and Political Stability**: Less violence improves governance and development in tribal regions.
5. **For Future Security Risks**: Mislabeling dissent as 'urban naxalism' can erode democracy and alienate society.

Schemes and Initiatives aimed at addressing Left Wing Extremism (LWE)/Naxalism in India:

1. **Security and Police Modernization**
   a. **Security Related Expenditure (SRE) Scheme** (2014–2025): Supports LWE-affected districts by reimbursing costs for:
      i. Training and operations of security forces
      ii. Ex-gratia payments to families of victims
      iii. Rehabilitation of surrendered LWE cadres
      iv. Community policing and village defence committees
      v. Publicity materials
   b. **Assistance to Central Agencies for LWE Management** (2014–2025): Provides funds to CAPFs and IAF for infrastructure and helicopter hiring.
   c. **Civic Action Programme (CAP)** (2014–2025): Aims to build trust between security forces and locals through welfare activities.
   d. **Special Infrastructure Scheme (SIS)**: Enhances capabilities of State Intelligence Branches, Special Forces, and District Police.
   e. **Scheme of Fortified Police Stations**: Total of 612 fortified stations constructed over the last decade (up from 66 in 2014).
2. **Infrastructure Development**
   a. **Special Central Assistance (SCA)** (Approved in 2017): Fills critical gaps in public infrastructure and services in LWE districts.
   b. **Road Requirement Plan-I (RRP-I) & Road Connectivity Project for LWE Areas (RCPLWE)**: Improve road access in 9 LWE-affected states. Supports both security operations and socio-economic development.
   c. **Telecom Connectivity Projects**: Includes Phase-I & II Mobile Connectivity, 4G services in Aspirational Districts, and saturation of 4G coverage. Full mobile coverage expected by December 1, 2025.

3. **Media and Public Awareness**
   a. **Media Plan** (Since 2017–18): Counters Maoist propaganda and promotes democratic values. Activities include **Tribal Youth Exchange, radio jingles, documentaries, and pamphlets.**
4. **Socio-Economic Development**
   a. **Aspirational Districts Programme**: Ministry of Home Affairs monitors development in 35 LWE-affected districts.
   b. **Financial Inclusion** (Since April 2015):
      i. 1,007 bank branches and 937 ATMs opened in 30 key districts.
      ii. 5,731 new post offices were established.
      iii. 37,850 Banking Correspondents made operational.
   c. **Skill Development and Education**:
      i. 48 Industrial Training Institutes (ITIs) and 61 Skill Development Centres (SDCs) functional.
      ii. 178 Eklavya Model Residential Schools (EMRSs) operational in tribal blocks.
      iii. Skill Development Scheme covers all 48 LWE districts.
      iv. 1,143 tribal youths recruited into security forces.
      v. A dedicated vertical of the National Investigation Agency (NIA) created.

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Challenges and Way Forward

Challenges	Way Forward
Residual Pockets of Naxalism in remote forest areas	Continue **focused operations with development initiatives** in affected regions.
Risk of Misclassification (Urban Naxal narrative)	Frame **clear definitions**; avoid politicization of security terminology.
AI-enabled and Bio-weapon Terror Threats globally	Develop robust **AI governance, cybersecurity,** and **biosecurity measures**.
Socio-economic Grievances of Tribal Communities	Ensure **inclusive growth**, land rights protection, and better governance.
Overconfidence in Declining Trend	Maintain **vigilance and intelligence gathering** to prevent resurgence.

6. Integrated Air Defence Weapon System

Why in the News?

1. The **Defence Research and Development Organisation (DRDO)** successfully conducted the **first flight tests** of the Integrated Air Defence Weapon System (IADWS) off the Odisha coast.
2. The test marked a **major milestone in India's indigenous defence technology**, showcasing a multi-layered air defence capability against diverse aerial threats.

Key Highlights

1. **What is IADWS?**
   a. A **multi-layered air defence system** designed to neutralize aerial threats.
   b. Comprises **Quick Reaction Surface-to-Air Missiles (QRSAM)**, **Very Short Range Air Defence System (VSHORADS)**, and a **laser-based Directed Energy Weapon (DEW)**.
2. **Flight Test Details**
   a. Conducted **off the Odisha coast near Chandipur**.
   b. Simultaneous engagement of **three targets**: Two high-speed fixed-wing **unmanned aerial vehicles (UAVs)** and One **multi-copter drone**.
3. **Performance and Results**
   a. All targets were **successfully destroyed at different ranges and altitudes**.
   b. Confirmed by **Integrated Test Range instruments** deployed at Chandipur.
   c. All components worked flawlessly:
      i. Missile systems (QRSAM, VSHORADS).
      ii. High-energy laser weapon.
      iii. Drone detection and neutralization system.
      iv. Communication and radar integration.
4. **Control and Integration**
   a. The entire system operated through a **Centralised Command and Control Centre** developed by DRDO.
   b. Integrated functioning ensures **real-time coordination** between different weapon components.

Implications

1. **National Security** – Multi-layered defence protects critical assets and neutralizes multiple threats.
2. **Indigenous Capability** – DRDO-developed system reduces reliance on foreign air defence.
3. **Strategic Deterrence** – Counters drones, UAVs, and modern aerial threats effectively.
4. **Tech Advancement** – Features Directed Energy Weapons and real-time platform integration.
5. **Economic Impact** – Boosts domestic defence industry and export potential under Atmanirbhar Bharat.

Challenges and Way Forward

Challenges	Way Forward
1. Countering Emerging Threats – Swarm drones and stealth UAVs may evolve beyond current capability.	Continuous R&D in **AI-enabled threat detection** and adaptive weapon systems.
2. High Production Cost – Advanced tech like DEWs and QRSAM is expensive.	Scale up production and **public-private partnerships** to reduce costs.
3. Operational Integration – Seamless coordination with existing defence systems needed.	Develop **network-centric warfare systems** for interoperability.
4. Maintenance and Training – Sophisticated tech needs skilled manpower.	Invest in **training programs and maintenance infrastructure**.
5. Rapid Deployment in Border Areas – Logistical challenges in high-altitude or remote regions.	Create **mobile and modular versions** for faster deployment.

7. Salwa Judum

Why in the News?

1. The Supreme Court's **2011 Nandini Sundar v. State of Chhattisgarh** judgment, which ended the practice of appointing **Special Police Officers** (SPOs) to **fight Maoists**, has once again come into public discussion.
2. The case is being revisited in the context of its **long-term impact** on **counterinsurgency policies**, **human rights**, and **governance** in **conflict-affected regions** like **Bastar**, **Chhattisgarh**.

Key Highlights

1. **Background of Maoist Insurgency (2000s)**
   a. During the **first decade of the 2000s**, Maoist insurgency affected over **200 districts** across multiple states.
   b. Chhattisgarh witnessed **high levels of violence:** between **2005–2011**, official data recorded **1,019** villagers, **726** security personnel, and **422** Maoists killed in **Bastar**.
   c. The state government initiated **Salwa Judum** ("**peace march**" in **Gondi**) as a response to this security challenge.
2. **What was Salwa Judum?**
   a. A **state-sponsored movement** that **mobilised tribal youth** into vigilante groups called **Special Police Officers (SPOs)**, also known as "**Koya Commandos**."
   b. Recruitment was under the **Chhattisgarh Police Act, 2007**, which gave wide discretionary powers to the superintendent of police for appointment, unlike the **Indian Police Act, 1861.**
   c. SPOs, often as young as 18 and with **limited education**, were given firearms, trained briefly, and paid a **monthly honorarium of ₹3,000**.
   d. Their duties included **guiding** security forces, **acting** as translators, **providing** intelligence, and **defending** camps.
3. **Case before the Supreme Court**
   a. In **2007**, sociologist Nandini Sundar, historian Ramachandra Guha, and former IAS officer EAS Sarma **filed a petition** challenging Salwa Judum.
   b. Petitioners argued:
      i. The practice was **unconstitutional**, **violating Articles 14** (equality) and **21** (right to life with dignity).
      ii. It **blurred the line** between civilians and combatants.

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iii. It **exposed poorly trained youth** to violent retaliation.
iv. It caused **large-scale human rights abuses** and displacement of communities.

4. **Arguments Presented by the Governments**
   a. **Union Government**: Explained its **role** was **limited** to approving the number of SPOs for funding under the **Security Related Expenditure** (SRE) scheme; states managed recruitment, training, and deployment.
   b. **Chhattisgarh Government**:
      i. Claimed **recruitment** was **voluntary**, **minimum age** was **18**, and **preference** was given to **victims of Maoist violence**.
      ii. Maintained **SPOs** were **trained** in weapon use, law, and human rights.
      iii. Stated **SPOs had thwarted several Maoist attacks** and helped secure relief camps.
      iv. Presented the **scheme as a livelihood option** in an area with limited opportunities.
5. **Supreme Court's Judgment (2011)**
   a. **Found the practice unconstitutional:**
      i. Many SPOs **lacked minimum education and training**, making them unfit for complex counterinsurgency roles.
      ii. Expecting poorly trained civilians to perform police functions was discriminatory (**violated Article 14**).
      iii. Exposing them to grave risks without adequate safeguards **violated** their right to life with dignity (**Article 21**).
   b. **Rejected the livelihood justification**, stating that risking young lives in combat cannot be considered employment.
   c. **Criticised the state** for treating tribal youth as **expendable instruments** in conflict.
   d. Ordered that SPOs should **not be used in counterinsurgency** and directed that **only trained police and paramilitary forces** handle such operations.

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Implications

1. **Strengthening of Constitutional Oversight**: Judiciary reaffirmed rights over security policies and restricted executive use of civilians in combat.
2. **Human Rights Protections**: Tribal youth vulnerability was recognised, advancing Article 21 jurisprudence on dignity and life.
3. **Shift in Security Policy**: States must depend on trained forces, driving investment in training, infrastructure, and professional strategies.
4. **Impact on Affected Communities**: Displacement and trauma risks were highlighted, stressing rehabilitation for former SPOs.
5. **Judiciary–Policy Interface**: Judicial review shaped security policy to keep rights-based governance central during conflict.

Challenges and Way Forward

Challenge	Why it matters	Way Forward
Balancing security and rights	States face pressure to quickly neutralise insurgency threats.	Invest in professional police and paramilitary units with accountability.
Rehabilitation of ex-SPOs	Disbandment left many youth without jobs or protection.	Provide skill training, alternative livelihoods, and psychosocial support.
Legal clarity on auxiliary forces	Wide discretion under Chhattisgarh Police Act enabled risks of misuse.	Frame clear laws with safeguards, training norms, and oversight mechanisms.
Addressing human rights violations	Past experiences eroded tribal trust in governance.	Strengthen grievance redressal, human rights training, and independent monitoring.
Sustainable community engagement	Conflict displaced communities and weakened trust in institutions.	Promote community development programmes, education, and participatory governance.

ECONOMY

1. PLFS 2025: Trends, Divides, and Lessons

Why in the News?

1. In **August 2025**, the **Ministry of Statistics and Programme Implementation** released the **Periodic Labour Force Survey quarterly data (April–June 2025)** and the **monthly bulletin (July 2025)**.
2. The **Periodic Labour Force Survey** provides estimates on employment and unemployment trends in India.
3. The **unemployment rate** declined to **5.2 percent in July 2025**, compared to **5.6 percent in June 2025**.

What is the Periodic Labour Force Survey (PLFS)?

1. The **Periodic Labour Force Survey (PLFS)** was launched by the **National Statistical Office (NSO) in 2017** to provide more frequent labour market statistics.
2. Its **first annual report (2019)** covered the period **July 2017 - June 2018**.
3. The survey's primary aim is to generate:

a. **Quarterly estimates** of key labour market indicators (for urban areas).

b. **Annual estimates** for both rural and urban regions.

4. PLFS uses the **Current Weekly Status (CWS) approach**, under which a person is considered unemployed if they did not work for **at least one hour during the reference week** but were available for or seeking work.

5. Key Indicators

a. **Labour Force Participation Rate (LFPR):** The percentage of persons in the labour force (working or seeking or available for work) in the population.

b. **Worker Population Ratio (WPR):** Share of employed individuals in the total population.

c. **Unemployment Rate (UR):** Share of unemployed persons among the labour force.

d. As per the **ILO (International Labour Organisation)**, unemployment refers specifically to people who are **without work but actively seeking jobs**; it is not the same as being simply jobless.

6. Activity Status

a. **Usual Status (US):** Based on the principal activity pursued during the **last 365 days** before the survey.

b. **Current Weekly Status (CWS):** Based on activity during the **7 days prior** to the survey.

c. **Comparison:** Unemployment under Usual Status is generally **lower** than CWS, since the likelihood of finding some work in a year is higher than within a week.

Key Highlights of the Survey

1. Labour Force Participation Rate:

a. Rural and Urban Combined:

	July 2025	June 2025
Women	25.5% (marginal increase)	24.5%
Men	57.4% (almost same)	57.4%
Overall	41.4% (marginal Increase)	41%

For people aged 15 years and above

July 2025	Rural Areas	Urban Areas
Men	78.1%	75.1%
Women	36.9%	25.8%
Overall	56.9%	50.7%

Unemployment Rate

July 2025	Rural Areas	Urban Areas	Rural + Urban
Men	4.6%	6.7%	5.3%
Women	3.9%	8.7%	5.1%
Overall	4.4%	7.2%	5.2%

Worker Population Ratio (WPR)

July 2025	Rural Areas	Urban Areas	Rural + Urban
Men	54.1	54.8	54.3
Women	26.6	18.9	24.2
Overall	40.2	37.2	39.2

Polity

Around **57%** of individuals (**55%** of households) surveyed were from **rural** areas, while **43%** of individuals (**45%** of households) were from **urban** areas.

Implications of the Survey Findings

I.R.

1. **Gender Gap** – Women's LFPR is far lower than men (25.5% vs. 57.4%); urban women face greater barriers like lack of flexible jobs and safety issues.
2. **Rural–Urban Divide** – Rural LFPR (56.9%) exceeds urban (50.7%) due to agriculture and informal jobs.

Security

3. **Unemployment** – Overall rate at 5.2%, but urban women face 8.7% vs rural women's 3.9%.
4. **WPR** – Women's employment remains very low in urban areas (18.9%), showing underutilisation of potential.

Economy

5. **Policy Needs** – Skill training, flexible jobs, childcare, rural non-farm diversification, and inclusive urban job creation.

Science

Challenges and Way Forward

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Challenges	Way Forward
Low Female Labour Force Participation	Promote flexible work models, childcare facilities, safe transport, and gender-sensitive workplace policies.
High Urban Unemployment among Women	Encourage women-focused skilling programs, entrepreneurship schemes, and greater inclusion in formal sector jobs.
Rural–Urban Disparities in LFPR and WPR	Strengthen rural non-farm employment, boost MSMEs, and improve urban job creation through labour-intensive industries.
Dependence on Informal Sector in Rural Areas	Expand social security coverage, formalisation of jobs, and enhance rural infrastructure for productive employment.
Youth Unemployment	Align education with market needs, expand apprenticeships, and create start-up ecosystems for young workers.

Geography

Society

History

Ethics

P.i.N.

2. India's Retail Inflation Eases

Why in the News?

1. **Retail inflation** in India eased to **1.55%** in **July 2025**, marking its lowest level since **June 2017**, largely owing to a fall in food prices.
2. This remains below the **Reserve Bank of India's** comfort band of **2%–6%.**

Retail Inflation

1. Retail inflation refers to the rise in the prices of goods and services at the consumer level, measured by the **Consumer Price Index (CPI)**.
2. It affects the **cost of living for households** and **indicates changes** in **purchasing power**.
3. It is calculated **monthly** by **comparing current CPI** values to a **base year**. It is used by the **Reserve Bank of India (RBI)** to set monetary policy targets and maintain price stability.

Key Highlights

1. **Inflation Trend since 2017:**
   a. As per the data published by **Ministry of Statistics and Programme Implementation (MoSPI)**, the **year-on year inflation rate** from **July 2017 to July 2025** is as follows:

Timeline	Inflation Rate
July 2017	2.36%
July 2018	4.17%
July 2019	3.15%
July 2020	6.73%
July 2021	5.59%
July 2022	6.71%
July 2023	7.44%
July 2024	3.6%
July 2025	1.55%

The **Consumer Price Index (CPI)**, released by the **MoSPI** in **August 2025**, showed that inflation has been easing for **nine consecutive months**.

2. **Inflation Trends in Food and Beverages Category**
   a. The **inflation rate in the food and beverages category** stood at **-0.8% in July 2025**, lower than **-0.2% in June 2025** and **5.1% in July 2024**.

b. **Deflation** was observed in **essential food items** such as vegetables, pulses, spices, and meat.
c. Vegetable and pulses inflation contracted by **21% and 14% respectively**, due to a **high base price (2024)** and **falling prices (2025).**
d. **Favourable monsoon progress, sufficient reservoir levels, and strong kharif sowing** are some reasons that supported **agricultural output** and **food price stability**.

3. **Core Inflation and Other CPI categories**
   a. **Core inflation**, which excludes food and fuel components, declined to **4.1% in July 2025**, down from **4.4% in June 2025**, aligning closely with the **RBI's target of 4%**.
   b. **Other major CPI categories** remained largely stable compared to the previous month.
   c. **Inflation in the paan, tobacco, and intoxicants category** held steady at **2.4% in July 2025**, showing no month-on-month change.
   d. **Inflation in the clothing and footwear category** eased marginally in July 2025 compared to the previous month.
   e. **Housing inflation** remained unchanged at **3.2% in July 2025**, while **fuel and light inflation** rose to **2.7% in July 2025**, up from **2.5% in June 2025**.
4. **Statistical High Base Effect:**
   a. The **statistical high base effect** is expected to **suppress inflation rates** between **September and December 2025**, making year-on-year comparisons appear lower.
   b. A **high base** refers to elevated price levels in the same period of the previous year, which mathematically lowers the current year's inflation rate even if prices remain stable.
   c. This leads to a **technical moderation in inflation figures**, without necessarily reflecting a real-time drop in consumer prices.
   d. **Example**: If vegetable prices were ₹100/kg in September 2024 and ₹90/kg in September 2025, the inflation rate would show a **-10% deflation**, even though ₹90/kg may still be considered high by historical standards.
5. **Global and Geopolitical Context**
   a. The **current disinflationary cycle** is working in India's favour, especially as **tariff-driven inflation** remains a central concern in global economic discourse.
   b. **Global growth risks** are expected to exert **downward pressure on international commodity prices**, helping contain imported inflation.
   c. This trend is likely to **partially offset the inflationary impact of elevated tariff rates**, providing relief to domestic price levels.
   d. However, India must remain vigilant in case it is compelled to **halt Russian oil imports** in response to the U.S. **President Donald Trump's demand**, linked to punitive tariff threats and geopolitical pressure.
   e. In this case, **India may diversify its sourcing towards Kuwait and Iraq**, both of which offer **competitive pricing**, **logistical compatibility**, and **refining-grade suitability** for Indian oil infrastructure.

Implications

1. **Monetary Policy Flexibility:** RBI gets more room to maintain an **accommodative stance** and **interest rates** are unlikely to rise in the short term.
2. **Consumer Purchasing Power:** Lower inflation boosts **real income** and **consumer confidence**. This is likely to increase the demand for the goods and services.
3. **Agricultural Stability:** Good monsoon ensures **stable agricultural output**. This helps the **rural economy** through **better farm incomes** and **lower food price volatility**.
4. **Industrial & Services Growth:** Low inflation reduces **input cost pressures** for industries. It encourages private investment and manufacturing expansion.
5. **External Sector Impact:** Stable domestic prices will strengthen the **export competitiveness** in the **foreign market**. Also, **lower fuel prices** will help India to **reduce** the **current account deficit**.

Challenges and Way Forward

Challenges	Way Forward
Dependence on **monsoon** for food price stability	**Diversify cropping patterns** & improve irrigation infrastructure
Risk of global oil price volatility due to geopolitical tensions	**Strategic diversification** of oil import sources
Statistical base effect may wear off by early 2026	**Strengthen supply chains** to keep **inflation stable**
Tariff-related inflation risks globally	**Negotiate trade terms** and **manage import** costs efficiently
Possible disruption in Russian oil supply	**Secure long-term contracts** with **alternative suppliers**

3. RBI's 7 Sutras for Responsible AI in the Financial Sector

Why in the News?

1. The **Reserve Bank of India (RBI)** has released a **report** proposing a framework for **responsible** and **ethical adoption** of **Artificial Intelligence** (AI) in **India's financial sector**.
2. The report, submitted by a **committee** formed by **RBI**, contains **26 actionable recommendations** across **six strategic pillars**, highlighting the **potential of AI** while emphasizing the **need to safeguard** against associated risks.

Key Highlights

1. **Framework for Responsible AI (FREE-AI)**
   a. **Purpose**: The **Framework for Responsible and Ethical Enablement of Artificial Intelligence (FREE-AI)** is designed to guide the **safe** and **effective adoption** of AI by financial institutions.
   b. **Establishment of Shared Infrastructure**: The report emphasizes creating **shared infrastructure for financial entities**, which would help **democratize access** to **critical data** and **computational resources**.
2. **Seven Sutras for AI Adoption**
   a. **Guiding Principles**: The committee has proposed **seven "sutras"** or guiding principles to **ensure ethical AI implementation** in the financial sector.
   b. **Key Sutras**: These include:
      i. **Trust is the Foundation**: AI adoption must be grounded in transparency and reliability.
      ii. **People First**: Focus on human-centric AI that benefits society.
      iii. **Innovation over Restraint**: Encourage innovation while ensuring safety.
      iv. **Fairness and Equity**: Ensure AI systems are unbiased and equitable.
      v. **Accountability**: Financial institutions must be accountable for AI-driven decisions.
      vi. **Understandable by Design**: AI systems should be transparent and explainable.
      vii. **Safety, Resilience, and Sustainability**: Long-term sustainability of AI systems must be prioritized.
3. **Balanced Approach to Innovation and Risk**
   a. **Complementary Goals**: The committee stresses that **innovation** and **risk mitigation** should not be seen as opposing goals but as complementary forces.
   b. The recommendations suggest a **balanced approach** that allows for **technological advancement** while **safeguarding consumers** and the **financial ecosystem**.
   c. **Six Strategic Pillars**: The **26 recommendations** fall under **two major categories**:
      i. **Innovation Enablement**: Infrastructure, Policy, and Capacity.
      ii. **Risk Mitigation**: Governance, Protection, and Assurance.
4. **AI Innovation Sandbox**
   a. **Test Bed for Innovation**: The committee proposes setting up an AI **Innovation Sandbox**, which will allow financial institutions to **experiment** with **AI technologies in a controlled, risk-free environment.**

b. **Testing Financial Models**: This will be crucial in **testing AI solutions** tailored to the unique needs of India's financial sector, which is often underserved by global AI models.

5. **Risk Management and Cybersecurity Measures**
   a. **AI Policies**: Financial institutions (regulated entities or REs) are encouraged to create **board-approved AI policies** to ensure that **AI adoption is thoroughly assessed** at the **highest levels**.
   b. **Expanded Audits and Protection**: The report suggests that **audits, product approval processes, and consumer protection frameworks** should **expand** to **cover AI risks**. This includes **augmenting cybersecurity practices** and **establishing AI-related incident reporting frameworks** to address **emerging risks**.

Implications

1. **Democratizing Data and Technology Access**
   a. **Increased Access to Resources**: Shared infrastructure will allow even smaller financial institutions to access data and computing power that was previously unavailable, leveling the playing field for innovation.
   b. **Collaborative Growth**: By democratizing access, the framework encourages collaboration across financial institutions, which will likely spur innovation across the sector.
2. **Enhanced Consumer Protection and Transparency**
   a. **Fairness and Equity in AI**: The emphasis on fairness, equity, and transparency in AI design will lead to more trustworthy AI systems, ensuring that consumers are treated justly.
   b. **Stronger Consumer Safeguards**: The integration of AI-specific risk assessments into product approval and audits ensures that consumers are better protected against potential financial harm.
3. **Acceleration of AI Adoption in India**
   a. **Localized Solutions**: The proposal to create indigenous AI models tailored to the Indian financial sector will accelerate AI adoption by ensuring that the solutions are contextually relevant and effective for the country's unique needs.
   b. **Innovation Ecosystem**: The establishment of an AI Innovation Sandbox will facilitate testing and refinement of these AI models, making it easier for institutions to adopt and implement them confidently.
4. **Improved Governance and Accountability**
   a. **Board-Approved AI Policies**: Requiring financial institutions to have board-approved AI policies will strengthen governance structures and ensure that AI adoption is always in line with the institution's strategic goals and regulatory requirements.
   b. **Increased Trust**: Accountability frameworks, paired with understandable AI systems, will build trust with consumers and investors alike, ensuring that the financial sector operates transparently.
5. **Sustainable AI in the Financial Sector**
   a. **Long-Term Viability**: Emphasizing safety, resilience, and sustainability will ensure that AI systems in the financial sector are not only cutting-edge but also capable of adapting to future challenges, including potential cybersecurity threats or economic shifts.
   b. **Scalable Solutions**: The holistic focus on infrastructure, capacity building, and innovation ensures that AI adoption in India's financial sector is scalable and sustainable in the long run.

Challenges and Way Forward

Challenges	Way Forward
Data Privacy Concerns	Strengthen data privacy laws and practices to protect consumer data and maintain trust in AI systems.
High Costs for Smaller Institutions	Offer financial incentives, grants, or low-cost solutions to help smaller entities access AI tools and infrastructure.
Lack of Skilled AI Workforce	Invest in AI education, upskilling programs, and collaborations with educational institutions to build a skilled workforce.
Uncertainty in Regulation	Streamline AI-specific regulations, ensuring they are clear, consistent, and conducive to innovation while maintaining oversight.

Cybersecurity Risks	Continuously enhance cybersecurity protocols to address AI-specific vulnerabilities, and build AI-specific incident response frameworks.

4. RBI Rate Cuts on Hold

Why in the News?

1. The **Reserve Bank of India (RBI)**'s **Monetary Policy Committee** decided to **pause rate cuts** despite recent reductions, reflecting caution amid ongoing tariff uncertainties.
2. This decision follows new **tariffs imposed by the U.S.**, including an additional 25% on imports from India, complicating trade relations and impacting economic outlook.

Key Highlights

1. RBI's Rate Cut Pause

a. Since February 2025, RBI has cut rates by a total of **100 basis points (bps)** (1%), but now paused further cuts.

b. Governor Sanjay Malhotra emphasized that the impact of these cuts is still working through the economy and further tariff developments are uncertain.

c. The pause allows RBI to observe whether earlier rate cuts have had the desired effect.

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2. Tariff Uncertainties

a. U.S. President Donald Trump approved an **additional 25% tariff** on imports from India, on top of an existing 25% reciprocal tariff.

b. India is still negotiating a **Bilateral Trade Agreement (BTA)** with the U.S., and final tariff terms are undecided.

c. Similar tariffs on countries buying Russian oil may affect India's **comparative advantage** (ability to trade competitively).

3. Credit Growth Slowing

a. RBI data shows loan growth is slowing:

i. Consumer durable loans contracted by **3%** year-on-year.

ii. Housing loan growth fell sharply to **9.6%** from 36% a year ago.

iii. Vehicle loans slowed by **5 percentage points** in the last year.

iv. Industrial loan growth dropped to **5.5%** from 8.1%.

b. This suggests reduced **borrowing demand**, despite ample liquidity in banks.

4. Monetary Policy Limitations

a. Simply lowering interest rates may not be enough to boost growth if borrowing demand remains weak.

b. Governor Malhotra stressed the need for **stronger policy frameworks across sectors**, beyond just monetary policy.

c. Government action is needed in targeted ways, not just broad increases in **capital expenditure**.

5. Policy Recommendations for Growth

a. Rationalising the **Goods and Services Tax (GST)** rates, which have been promised but delayed, can help businesses and consumers.

b. Reducing **fuel prices** in line with global oil price declines can improve consumer confidence and spending.

c. Unlike RBI, the government cannot "wait and watch" and needs proactive steps to support growth.

Monetary Policy vs Fiscal Policy

Aspect	Fiscal Policy	Monetary Policy
Definition	Government adjusts spending and taxes	Central bank controls money supply & rates
Controller	Government	Reserve Bank of India
Main Goal	Influence overall economic condition	Control inflation and money supply
Key Tools	Public spending, taxation, borrowing	Bank rate, CRR, SLR, repo rate

RBI's Policy Stances

1. **Hawkish:** Focus on controlling inflation by raising interest rates, reducing borrowing and spending.
2. **Accommodative:** Lower interest rates to boost spending and growth during economic slowdown.
3. **Neutral:** Maintain current rates to sustain balanced economic conditions.

4. **Calibrated Tightening:** Gradual rate hikes planned; not necessarily in every meeting.
5. **Dovish:** Low interest rates to stimulate growth and avoid deflation; rare in India, common in stagnated economies.

Implications for the Economy

1. **Monetary Policy Impact**
   a. The RBI's **100 bps rate cuts** are significant but take time to influence the economy due to transmission lags in lending.
   b. Banks have sufficient funds (**ample liquidity**) but are not seeing matching demand from borrowers.
   c. The pause prevents premature cuts before assessing impact fully.
2. **Trade and Tariffs**
   a. Additional U.S. tariffs raise the cost of Indian exports, potentially hurting export growth and widening the trade deficit.
   b. Prolonged trade uncertainty affects **business confidence** and investment decisions.
   c. India's competitiveness may decline if tariffs on Russian oil buyers affect energy costs.
3. **Credit Demand Weakness**
   a. Falling loan growth across consumer durables, housing, vehicles, and industry reflects subdued economic activity and consumer caution.
   b. Lower credit uptake can limit consumption and investment-led growth.
4. **Need for Policy Coordination**
   a. Monetary policy alone is insufficient; fiscal measures and reforms are necessary to stimulate demand and improve the business environment.
   b. Streamlining GST rates and lowering fuel costs are examples of policies that can boost growth and consumption.
5. **Growth Outlook**
   a. RBI's cautious approach allows space to monitor evolving risks from tariffs and credit trends.
   b. The government's active role is critical for reviving economic momentum through targeted reforms.

Challenges and Way Forward

Challenge	Why it Matters	Way Forward
Tariff Uncertainty	Raises trade costs, reduces export competitiveness	Expedite Bilateral Trade Agreement negotiations
Weak Credit Demand	Slows consumption and investment growth	Encourage credit demand via fiscal incentives, improve confidence
Monetary Transmission Lag	Rate cuts take time to affect lending and economy	RBI's pause allows time for effects to materialize
Policy Coordination Gaps	Monetary policy alone cannot revive growth	Government should implement GST rationalization and fuel price reforms
Consumer and Business Confidence	Uncertainty limits spending and investment	Stable policy signals, tariff resolution, and tax reforms needed

5. India's 'Goldilocks' Economy

Why in the News?

1. The **Finance Ministry** calls the **Indian economy** in a **"Goldilocks situation"** with **moderate growth, low inflation, and favourable monetary conditions**, following **7.6% GDP growth** in Q2 FY2024, **stable earnings**, and a **$3.6 trillion GDP at year-end.**
2. Analysts remain **optimistic** for **2025** but warn that **underlying structural imbalances** could temper the upbeat outlook.

Goldilocks Situation

1. **Meaning:** Economy is "just right" – not overheating or slowing.
2. **Growth:** Moderate, sustainable GDP growth supporting jobs/incomes.
3. **Inflation:** Low, stable, preserves purchasing power.
4. **Policy Setting:** Balanced interest rates & fiscal stance.
5. **Outcome:** Predictable, stable environment for investment & consumer confidence.

Polity
I.R.
Security
Economy
Science
Geography
Society
History
Ethics
P.i.N.

Inflation and Stagnant Wage Growth

1. **CPI vs Food Inflation**: While CPI fell from 4.8% (May 2024) to 2.82% (May 2025), food inflation (CFPI) stayed persistently higher, peaking at 10.87% in Oct 2024, disproportionately burdening lower-income groups.
2. **Drivers & Impact**: Unseasonal rains, supply chain bottlenecks, and global price swings keep food costs volatile, eroding real incomes, forcing spending cuts, and destabilising savings.
3. **Core Inflation Focus**: Economists urge tracking core inflation for clearer insights into housing, education, transport, and personal care costs.
4. **Stagnant Real Wages**: Despite nominal hikes (9.2% in 2023; 8.8% projected in 2025), real wage growth remains weak, with inflation eroding gains and increasing household debt reliance.
5. **Fragile Goldilocks Outlook**: Volatile food prices, cost pressures, and stagnant wages undermine the "Goldilocks" narrative, revealing a more vulnerable household economy.

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Headline CPI vs. Core CPI

1. **Headline CPI:** The overall CPI inflation, including all items in the basket (food, fuel, housing, etc.). It reflects the total inflation experienced by households.
2. **Core CPI:** CPI inflation excluding volatile items like food and fuel, to capture persistent price trends.
3. **Why Different:** Food and fuel prices fluctuate sharply due to weather or global markets; excluding them gives a clearer view of underlying, long-term inflation pressures.

Income Inequality

1. **Stagnant Wages & Recovery Limits** – Without sustained real wage growth, consumption demand stays weak, hindering broad-based recovery.
2. **Inequality Metrics & Gaps** – The Gini coefficient shows a formal sector decline (0.489 in AY13 to 0.402 forecast in AY23) but misses the informal economy and wealth disparities.
3. **K-Shaped Recovery** – Affluent groups and certain industries have thrived, while lower-income segments face stagnant wages; billionaire numbers rise even as earnings stagnate.
4. **Impact of Inequality** – Persistent gaps weaken social cohesion, limit access to education and healthcare, and threaten inclusive growth.
5. **Goldilocks Reality Check** – High GDP growth without equitable gains challenges the idea of a universally beneficial "Goldilocks" economy.

K-Shaped Recovery

1. **Definition:** A post-recession recovery where different sectors or groups recover at uneven rates.
2. **Pattern:** Some parts of the economy (upper arm of "K") grow rapidly, while others (lower arm) stagnate or decline.

Example: In India post-COVID, formal sector and stock markets boomed, but informal jobs and small businesses lagged.

Fiscal Pressures

1. **Fiscal Consolidation Path** – Fiscal deficit is set to drop from 6.4% (2022-23) to 4.4% (2025-26 BE), with revenue and primary deficits also narrowing.
2. **Concerns & Risks** – Despite improvement, high deficits mean heavy borrowing, risking a **crowding-out effect** where higher government demand for funds raises interest rates, deters private investment, and slows job creation.
3. **Debt Burden & Citizen Impact** – Public debt (~81% of GDP) exceeds the FRBM 60% target, diverting revenues to interest payments, reducing funds for education, healthcare, and infrastructure, and raising the risk of future tax hikes.
4. **Overall Implication** – High debt and deficit levels could restrict growth potential, limit inclusive development, and strain household welfare despite consolidation efforts.

Complicating the "Goldilocks" Narrative

1. **Structural Pressures** – Volatile food inflation, persistent income gaps, stagnant real wages, and limited fiscal space weaken the economy's foundation despite strong GDP growth.
2. **Macro vs Reality** – The "Goldilocks" sweet spot is unevenly felt, with gains concentrated among the

affluent, while headline indicators fail to capture everyday household struggles.

3. **Risks of the Narrative** – A comforting label may hide deep fragilities and delay policies needed for inclusivity and equitable growth.
4. **True Economic Strength** – Lies in sustained real income growth, reduced inequality, fiscal resilience, and better quality of life for all citizens.
5. **Way Forward** – Focus on correcting structural imbalances and driving inclusive, sustainable prosperity over celebrating short-term macro stability.

Implications for the Economy

1. **Purchasing Power & Demand** – Volatile food inflation and stagnant real wages cut lower-income households' purchasing power, forcing budget tightening, reducing discretionary spending, and slowing demand-driven growth.
2. **Monetary Policy Trade-offs** – Food price swings complicate RBI decisions, as headline CPI may improve while households still feel squeezed; focusing only on core inflation risks downplaying welfare losses and sending misaligned signals.
3. **Investment & Jobs** – High deficits and debt can raise interest rates, crowding out private investment, while capital-intensive growth limits broad-based job creation.
4. **Social Cohesion & Human Capital** – Uneven recovery widens gaps in education, health, and skills, hurting productivity and fuelling social tensions, with stagnant wages increasing vulnerability and debt reliance.
5. **Fiscal Sustainability** – Heavy debt servicing curtails spending on essential public goods and weakens the government's ability to cushion households during economic shocks, heightening long-term fragility.

Challenges and Way Forward

Challenges	Way Forward
Volatile and high food inflation	**Short-term:** Price monitoring, targeted cash transfers, buffer stock release. **Long-term:** Invest in cold-chain, storage, rural logistics; promote resilient crops and market reforms.
Stagnant real wages and weak labour power	**Short-term:** Raise minimum wages, expand wage support, strengthen employment guarantees. **Long-term:** Promote formalisation, vocational training, and labour-intensive manufacturing.
Uneven recovery and rising inequality	**Short-term:** Expand social safety nets (PDS, transfers), skill development in poorer regions. **Long-term:** Reform tax system, broaden tax base, consider wealth/higher income taxes for social spending.
Tight fiscal space and high public debt	**Short-term:** Reprioritise spending to capital and social programmes, plug leakages, improve GST and tax compliance. **Long-term:** Comprehensive tax reforms, rationalise exemptions, adopt medium-term fiscal framework.
Supply-side and structural bottlenecks	**Short-term:** Emergency logistics support, responsive crop insurance. **Long-term:** Invest in rural infrastructure, storage, digital platforms, and regulatory reforms for market integration.

6. Repair Work as Knowledge and Sustainability Practice

Why in the News?

1. In **May 2025**, the Indian government accepted a report proposing a **Repairability Index** for mobile phones and appliances.
2. The **E-waste policy** was updated to include **incentives for formal recycling**, aiming to reduce environmental impact.
3. The move aligns with India's growing emphasis on **sustainable consumption, circular economy**, and **Right to Repair** frameworks.

Key Highlights

1. **Repairability Index and Policy Inclusion**
   a. The government has proposed a **Repairability Index** to rank products based on ease of repair, availability of spare parts, and software support.

b. New e-waste rules provide **minimum payments** to encourage formal recycling practices.

2. **Tacit Knowledge as a Cultural Asset**
   a. Repair knowledge in India is largely **tacit**, passed down informally through observation and practice.
   b. Technicians often rely on **muscle memory, sensory cues**, and improvisation rather than manuals or certifications.
3. **Gap in Digital and Policy Ecosystems**
   a. Despite India's advances in **Digital Public Infrastructure (DPI)** and **AI policy**, informal repair ecosystems are **overlooked**.
   b. Initiatives such as **PMKVY** and **NEP 2020** fail to adequately incorporate or support **hands-on repair skills**.
4. **Global and Domestic Right to Repair Movements**
   a. Globally, the **EU** mandates access to spare parts and repair documentation.
   b. In India, a **Right to Repair framework** was launched in 2022 and expanded via a **national portal** in 2023, covering key sectors.
5. **Design for 'Unmaking' and AI Integration**
   a. Emphasizes designing products that **anticipate repair and reuse**, rather than planned obsolescence.
   b. Suggests using **AI systems** like Large Language Models (LLMs) to digitize and disseminate tacit repair knowledge without losing its local essence.

Implications

1. **Strengthening the Circular Economy**
   a. Promotes **reuse over disposal**, extending the life cycle of products.
   b. Supports a shift from a **linear to a circular economy**, reducing resource consumption and waste.
2. **Empowering Informal Workers**
   a. Recognises informal repairers as **knowledge workers**, not marginal laborers.
   b. Integration into **social protection** schemes like e-Shram enhances dignity and economic security.
3. **Sustainable Technology Ecosystem**
   a. Encourages **repair-friendly designs** as part of sustainability standards.
   b. Helps align India's **AI and digital ambitions** with environmental responsibility.
4. **Preserving Indigenous Knowledge Systems**
   a. Acknowledges repair as part of India's **experiential learning** and **knowledge traditions**.
   b. Offers an opportunity to **document and digitise tacit skills** for future generations.
5. **Policy Innovation and Inter-Ministerial Coordination**
   a. Calls for the involvement of ministries such as: **MeitY** (for embedding repairability in procurement), **MoLE** (recognising informal workers), **MSDE** (designing relevant skill training) and **DoCA** (expanding the Right to Repair framework).

Challenges and Way Forward

Challenges	Way Forward
Informal repairers **lack formal recognition and policy inclusion**	Integrate them into platforms like **e-Shram** and link to social schemes
Product designs increasingly discourage repair	Promote **repair-friendly design standards** through regulation
Skill development programmes **ignore tacit knowledge**	Create **non-standardised, flexible training modules** for diagnostic skills
Limited mention of repair in e-waste and sustainability policies	Amend E-Waste Rules to **prioritise repair as a preventive strategy**
AI systems benefit from repair knowledge without crediting contributors	Use **AI tools to codify and credit repair narratives**, ensuring fair inclusion

7. Cotton Imports and Duty Suspension

Why in the News?

1. In **August 2025**, the Central government suspended the **11% import duty on cotton** till **September 2025**, to ease shortage of raw material for the textile industry.
2. This comes at a time when **domestic cotton production has fallen sharply** to the lowest level in 15 years, and imports are rising steeply.

Key Highlights

1. **When and Why Duty was Introduced (2021)**
   a. In **February 2021**, an 11% import duty was imposed because India was producing **more cotton (350 lakh bales)** than required (335 lakh bales).
   b. The aim was to **protect farmers** since India was exporting cotton while also importing some.
2. **Temporary Relaxation (2022)**
   a. In **April 2022**, the duty was suspended till **October 2022** because the textile industry started facing shortages.
   b. This allowed mills to import cotton at cheaper rates.
3. **Present Situation (2024–25 Season)**
   a. Cotton production has dropped to **294 lakh bales**, while the country needs about **318 lakh bales**.
   b. Imports have gone up sharply - **over 40 lakh bales expected** this year, worth about **$1.2 billion**.
   c. Key suppliers are **Australia, U.S., Brazil, and Egypt**.
4. **Government and Market Actions**
   a. The **Cotton Corporation of India (CCI)** has purchased nearly **100 lakh bales** from farmers at **MSP**, spending ₹37,500 crore.
   b. Out of this, **73 lakh bales** have been released to the market.
   c. For the next cotton season **(2025–26)**, the government has **raised MSP by 8%** to encourage farmers to grow more cotton.
5. **Different Stakeholder Views**
   a. Textile industry: happy with duty suspension as it reduces raw material cost and improves competitiveness in global markets.
   b. International brands: often demand cotton from specific origins, so duty-free imports help.
   c. Farmers' groups: unhappy, saying frequent duty cuts **discourage farmers** and lower their income security.

Implications

1. **For Textile Industry**: Cheaper imported cotton boosts global competitiveness and supports export demand.
2. **For Farmers**: Duty cuts lower prices, discouraging cultivation; MSP hike offers partial relief.
3. **For Trade and Imports**: Rising imports increase dependence on foreign cotton and raise forex outflow.
4. **For Government Finances**: MSP operations strain finances, but cheaper imports can reduce this burden.
5. **For Policy Stability**: Frequent duty changes cause uncertainty; a seasonal, stable duty regime could balance interests.

Challenges and Way Forward

Challenges	Why it Matters	Way Forward
Falling Production	Lowest in 15 years, leading to shortage	Improve seeds, irrigation, and pest control to raise yields
Unstable Import Duty Policy	Sudden changes hurt planning for farmers and mills	Fix a clear seasonal duty policy (e.g., suspend April–Sep each year)
Farmer Confidence	Duty cuts may reduce their interest in cotton farming	Provide steady MSP, procurement support, and extension services
Rising Imports	High import bills and dependence on few countries	Diversify sources and build domestic traceability
MSME Liquidity Issues	Small mills cannot stock cotton during harvest	Provide cheaper credit and working capital support

8. E20 Rollout

Why in the News?

1. India has rolled out **E20 petrol (20% ethanol blend)** nationwide and claims to have met the 20% blending goal ahead of schedule, triggering debate on **consumer impact, vehicle compatibility, and pricing**.
2. The policy's **environmental footprint** is under scrutiny because India relies heavily on **sugarcane**- a water-intensive crop- for ethanol, even as the Centre diversifies to rice and corn.

Polity

3. The **U.S. has objected** to India's ethanol import restrictions, while at home, India's **EV transition is lagging** and faces rare-earth supply shocks; there is **uncertainty** about pushing blending **beyond E20**.

Key Highlights

I.R.

1. E20 rollout and consumer response

a. **Vehicle readiness:** All new vehicles since 2023 are marked **E20-compatible**; older vehicles may need material upgrades (rubber, elastomers, plastics) and **retuning**.

Security

b. **Public sentiment:** A LocalCircles survey reports **two in three petrol owners oppose** the E20 mandate, citing **lower mileage** and **higher maintenance**; NITI Aayog suggested **tax offsets** to compensate for efficiency loss.

Economy

c. **Government stance:** The Centre admits only a **"marginal drop"** in efficiency and calls the backlash a **vilification campaign**; it cites **₹1.40 lakh crore forex savings** from ethanol substitution.

Science

d. **Price pass-through debate:** Despite lower crude and **higher PSU dividends**, the **retail petrol price reduction** has been modest, raising questions about benefits reaching consumers.

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2. Environmental and farm footprint of sugarcane ethanol

Geography

a. **Rapid scale-up:** Sugarcane-based ethanol rose from **40 crore litres (FY14)** to **~670 crore litres (FY24)**, using **~9%** of sugar output.

Society

b. **Water stress:** Sugarcane needs **~60–70 tonnes of water per tonne of cane**; many belts rely on **groundwater extraction**, adding to stress in States like **Maharashtra**.

History

c. **Land degradation:** Nearly **30% of India's land** is degraded; water-intensive cropping and unsustainable irrigation aggravate the problem.

d. **Sticky acreage:** Cane area remains **~57.24 lakh ha** (up slightly), supported by **Fair and Remunerative Price (FRP)**, keeping farmers invested in cane.

Ethics

3. Diversifying feedstocks—and new trade-offs

P.i.N.

a. **Rice & corn:** FCI rice allocation for ethanol jumped to **5.2 MMT (~3.6% of output)**; in 2024-25 **>34% of corn output** was diverted to ethanol.

b. **Imports rise:** Corn diversion led to **~9.7 lakh tonnes** of **corn imports**, a **six-fold** jump year-on-year.

c. **Long-term pull:** OECD-FAO projects **~22% of sugarcane** could go to ethanol by **2034**, deepening the food–feed–fuel balancing act.

Here, **OECD-FAO** refers to the joint outlook reports and projections prepared by:

i. OECD – Organisation for Economic Co-operation and Development

ii. **FAO – Food and Agriculture Organization of the United Nations**

They collaborate annually on the **OECD-FAO Agricultural Outlook**, which provides **10-year projections** for agricultural commodity markets, including crops like sugarcane, to assess trends in food, feed, and biofuel (fuel) usage globally.

4. International dimension: U.S. pushback

a. **Trade pressure:** The U.S. (via the **National Trade Estimate**) labels India's ethanol import policy a **trade barrier**; Washington urges **import relaxation**.

b. **Industry view:** The **Indian Sugar Mills Association (ISMA)** wants **restrictions maintained** to protect domestic investments and capacity.

5. EV transition vs. ethanol pathway

a. **Emissions math:** The Centre credits blending with **700 lakh tonnes CO_2** avoided; yet **EVs promise larger cuts** if powered by **renewables**.

b. **Slow uptake:** EVs formed **~7.6% of sales in 2024**; to meet **30% by 2030**, sales must grow **>22% annually**.

c. **Supply risk:** India imported **~2,270 tonnes of REEs** in 2023-24; **China's curbs** disrupted magnets and components—**Maruti's e-Vitara** timelines were reportedly hit.

d. **Policy uncertainty:** Mixed signals on **blending beyond 20%**—the Petroleum Minister hinted "push beyond E20," while the Centre said **no decision yet**.

Implications

1. **Consumers and auto industry**
   a. **Short-term pain: Lower mileage** and possible **maintenance** for non-E20-ready vehicles; potential **warranty** and **resale** questions.
   b. **OEM costs:** Re-engineering for E20, dual-calibration, and fuel-system materials add cost and complexity.
   c. **Policy lever: Targeted tax relief** on E10/E20 could cushion consumers and reduce resistance.
2. **Environment and water security**
   a. **Mixed climate gains:** Ethanol cuts tailpipe **GHG** per litre, but **lifecycle impacts** vary with feedstock and irrigation.
   b. **Water crisis risk:** Concentration in **water-stressed basins** heightens **aquifer depletion** and drought vulnerability.
   c. **Better biofuel design: Second-generation (2G)** feedstocks (agri-waste), **waste-to-ethanol**, and **drip irrigation** can improve sustainability.
3. **Agriculture, food, and rural incomes**
   a. **Stable cash crop: FRP** keeps cane attractive, supporting farmer incomes and rural cash flow.
   b. **Food-feed trade-offs:** Diverting **rice/corn** toward ethanol can tighten **feed markets**, lift **food prices**, or trigger **imports**.
   c. **Crop planning:** Region-specific **crop diversification** and **price signals** are essential to avoid monoculture risks.
4. **Energy security and fiscal optics**
   a. **Import bill relief:** Forex savings strengthen **macro stability**; blending offers a **hedge** against oil shocks.
   b. **Retail pricing trust:** Limited pass-through amid high PSU dividends can erode **public buy-in**; transparent pricing helps.
   c. **Dual track:** Ethanol gives **near-term** gains; EVs deliver **deeper decarbonisation** over time.
5. **Geo-economics and industrial policy**
   a. **Trade stance:** Holding firm on **ethanol import curbs** protects domestic value chains but may invite **bilateral friction**.
   b. **REE chokepoint: Rare-earth** dependence concentrates risk; **diplomacy with China** is a stop-gap, not a solution.
   c. **Make-in-India push:** Localising **battery materials, motors, and magnets** is vital for **EV scale-up**.

Challenges and Way Forward

Challenges	Way Forward
Consumer pushback over **mileage loss** and **maintenance**	**Targeted tax incentives** on E10/E20; clear **fuel-grade labelling**; OEM–OMC **joint outreach** on care & tuning
Legacy vehicle compatibility and safety	**Retrofit guidelines**, certified material upgrades, and **extended warranties** for E20-ready kits
Water-intensive sugarcane in stressed basins	**Agro-ecological zoning** for cane; **drip/micro-irrigation**; incentivise **less-water crops** where suitable
Food–feed–fuel **trade-offs** from rice/corn diversion	**Caps/guardrails** on edible feedstock use; ramp **2G/ waste feedstocks**; dynamic procurement linked to buffer norms
Limited **lifecycle transparency** on emissions and water	Mandatory **LCA and water accounting** by feedstock and geography; public **dashboards**
Price pass-through opacity and low consumer trust	A **transparent pricing formula** and **time-bound pass-through** commitments; publish PSU dividend–pricing rationale
U.S. trade pressure on ethanol imports	Calibrated **tariff-rate quotas** if needed; prioritise **domestic capacity**; leverage **bilateral talks** for tech transfer
REE supply shocks slowing EV ramp	Fast-track **domestic REE exploration/processing**, **recycling**, and **alt-chemistries** (LFP, ferrite motors)

Polity

Slow **EV adoption** vs 2030 target	**FAME-type** incentives 2.0/3.0, city-level **charging infra mandates**, green **grid integration**
Policy **duality** (ethanol vs EV) and beyond-E20 uncertainty	Publish an integrated **Transport Decarbonisation Roadmap** clarifying **E20 steady-state**, **EV targets**, and **biofuel priorities**

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Security

9. Self-Reliance: Foundation of India's Strength

Why in the News?

Economy

1. In his **Independence Day address**, Prime Minister Narendra Modi stressed that **self-reliance (aatmanirbharta)** is the true basis of a nation's **self-respect (aatma samman).**

Science

2. He announced a set of reforms focused on **strengthening both economic and security frameworks.**
3. Modi clarified that self-reliance goes beyond **import–export balances** or **currency concerns**, and is rooted in India's own **strengths and capabilities.**
4. He also warned against attempts to alter the country's demographic profile.

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Geography

5. The speech gained significance in the backdrop of the U.S. President Donald Trump's recent move to **impose a 50% tariff on Indian goods.**

Society

6. He asserted that India's growth must come from its **own strength**, not from weakening others, while pointing to the **"economic greed" of certain countries** (without naming them).

Security Related Reforms

History

1. **Development in Defence and Economic Sectors** is seen as a key pillar of a developed India.
2. **Operation Sindoor & Self-Reliance**
   a. PM Modi described Operation Sindoor as a **landmark demonstration of India's strategic autonomy and self-reliance in defence**.
   b. Indian armed forces used **indigenously developed weapons** to dismantle terror networks and Pakistan-based infrastructure.

Ethics

   c. He stressed that India will no longer bow to **nuclear blackmail or foreign-imposed conditions**.
3. **Missile Systems & Strategic Autonomy**
   a. India currently operates **three S-400 missile systems** procured from Russia.
   b. These systems were crucial in intercepting Pakistani drones and missiles aimed at more than **15 Indian cities** during Pakistan's retaliation for Operation Sindoor in May 2025.
   c. The **Integrated Air Command and Control System (IACCS)** helped India maintain air superiority over Pakistan.
4. **Self-Reliance as National Strength**
   a. PM Modi declared that **indigenous capabilities allow India to act decisively and independently**, making self-reliance the foundation of national security.
   b. He called self-reliance the **bedrock of strength, dignity, and India's journey to becoming a developed nation by 2047**.
   c. The PM urged innovators and youth to focus on developing **indigenous jet engines**, drawing parallels with India's successes in **COVID-19 vaccines** and the **UPI revolution**.
   d. He framed it as a **direct challenge** for Indian scientists and youth.
5. **Sudarshan Chakra (Shield Weapon System)**
   a. India plans to develop its own **indigenous air defence system** by **2035** as national security cannot be dependent on foreign countries.
   b. It will strengthen India's **strategic autonomy** by enabling **precise counter-strikes** while ensuring **complete security** for both **critical defence assets** and **civilian infrastructure** such as hospitals and railway stations.
   c. It is called **'Sudarshan Chakra'** in honour of **Lord Krishna's mythological shield.**
   d. It is an **advanced multi-tiered air defence system.**
   e. It will provide **complete security coverage** through **modern technology**.

P.i.N.

6. **Indus Waters Treaty**
   a. On the treaty, PM Modi stated firmly: "**Blood and water will not flow together.**"
   b. He called the treaty **unjust**, arguing that Indian farmers suffered while enemy lands were irrigated.
   c. He affirmed that **India will no longer compromise on national interests**.

Economic Reforms

1. **Goods and Services Tax (GST) Reforms**
   a. GST was introduced in **July 2017**.
   b. After 8 years, the Prime Minister has announced **second-generation GST reforms**.
   c. These reforms aim to **reduce** the **prices** of **essential goods**.
   d. The **12% and 28% GST slabs** will be **removed**.
      i. **99% of items** in the 12% slab will move to the **5% rate**.
      ii. **90% of items** in the 28% slab will move to the **18% rate**.
   e. **The rates will be:**

Current Slabs	Proposed Slabs
1. **0.25%** (diamonds and semi-precious stones)	1. **Concessional rate** - below 1% (only for items earlier in 0.25% and 3% slabs)
2. **3%** (jewellery and precious items)	2. **Mains slabs**: 5% and 18%
3. **Others:** 5%, 12%, 18%, 28% and **compensation cess** (extra tax levied on luxury and sin goods under GST to compensate states for revenue loss during the transition to the new tax system).	3. **40% rate** applicable on only 5-7 **sin goods** (products considered harmful to health or society, like tobacco, alcohol, pan masala, and aerated drinks, on which higher taxes are imposed to discourage their use).

   f. **No additional cess** will be levied **over and above GST rate.**
      i. **Additional Cess:** Tax charged over and above the regular GST rate on certain goods or services, usually to raise funds for specific purposes **(e.g., infrastructure, disaster relief, etc).**
   g. **Impacts of these reforms:**
      i. It will **reduce the revenue of the government in the short run** but the decrease is not that large that it will impact the fiscal deficit of the government.
      ii. Lower GST rates may **raise consumption**, **reduce tax evasion** and **widen** the **tax net**.
      iii. In the **long run**, it may lead to **increased revenues**.
   h. As per the **Ministry of Finance**, this proposal of **GST rationalisation and reforms** has been sent to a group of ministers (constituted by **GST council)** to examine the issue.
   i. The GST council will try to **implement** the **majority** of **reforms** within this **financial year**.
   j. The centre will also engage with the states to **achieve a consensus** on these reforms.
   k. To promote **"ease of living"**, the Centre has proposed using technology to make GST processes smoother—by speeding up registration, introducing pre-filled returns to avoid errors, and ensuring quicker, automated refunds with less manual work.

2. **Pradhan Mantri Viksit Bharat Rozgar Yojana**
   a. The scheme aims to **create more jobs** and boost formal employment in India as part of the Viksit Bharat 2047 vision.
   b. This is an **employment-linked incentive scheme**. In this, the **incentive** is given to both **employers** (for creating jobs) and **employees** (for shifting from informal to formal sector).
   c. A new corpus of **₹1 lakh crore** will be created which would give a **₹15,000 one-time grant to first-time employees** in the private sector and **incentives** to the private sector to **create employment**.

3. **MSME Sector**
   a. The government aims to reduce **compliance costs** for **micro, small, and medium enterprises (MSMEs)**.

b. **Compliance cost** refers to the money, time, and effort that businesses spend to follow government rules, regulations, and paperwork.

c. It also seeks to remove the fear of **arbitrary legal action** so that these enterprises can function more freely.

d. These measures are expected to strengthen the **MSME sector**, which is one of the largest **job creators** in the country.

4. **Agriculture**

a. The Prime Minister assured that he would protect the **interests of Indian farmers**, even in the face of global trade pressures like U.S. tariff negotiations.

b. He stressed the urgent need to **reduce India's dependency on imported fertilizers** to safeguard farmers and ensure agricultural self-reliance.

Science and Technology Reforms

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1. **Dependence on Imports:** The Prime Minister noted that a large portion of India's budget goes toward procuring fuel and energy from abroad, stressing the need for **self-reliance in energy**.
2. **Nuclear Energy Expansion:** By **2047**, India aims to **increase nuclear energy capacity more than tenfold**, supported by the development of **10 nuclear power plants**.
3. **Critical Minerals Mission:** The government launched the **National Critical Minerals Mission** to explore **1,200 sites**, ensuring access to essential minerals for energy, technology, and manufacturing.
4. **Clean Energy & Renewables:** Emphasis was placed on expanding **solar and wind energy**, along with strengthening **domestic clean energy initiatives** for sustainable growth.
5. **Technological Self-Reliance:** Self-reliance in key sectors such as **semiconductors, defence, medicines, space, deep-sea exploration, IT, and nuclear energy** was described as the foundation of a **Viksit Bharat by 2047**.
6. **Semiconductor Development:**
   a. A **made-in-India semiconductor chip** is expected to reach the market by the **end of this year (2025)**, reducing dependence on imports.
   b. Six semiconductor units are already on the ground, and four new units have been given approval.
7. **Deep Ocean Mission:** India's **Samudrayaan Mission** aims to send three divers in an indigenous submersible to **6,000 metres below the ocean surface**, building on recent deep-sea trials by Indian aquanauts.
8. **Space Advancements:**
   a. Astronaut **Shubhanshu Shukla** recently journeyed to the **International Space Station**.
   b. The **Gaganyaan Mission** is scheduled to send Indian astronauts into space by **2027**.
   c. Over **300 Indian startups** are actively engaged in the **space sector**, generating jobs and innovation.
9. **Youth & R&D Appeal:** The Prime Minister urged **young scientists, engineers, and professionals** to contribute to complex fields such as **fighter jet engines, pharmaceuticals, and biotechnology**.
10. He highlighted India's **BioE3 Policy** and called upon youth to study and innovate under it.

BioE3 Policy

1. The **BioE3 Policy** stands for Biotechnology for Economy, Environment, and Employment.
2. It provides a roadmap for promoting **sustainable biomanufacturing** in India, using biotechnology to grow the economy, protect the environment, and generate jobs.
3. **Main Goals**
   a. **High-performance biomanufacturing**: Establish shared facilities like **Biofoundries**, **Bio-AI hubs**, and **biomanufacturing centers** to convert research into real products.
   b. **Green growth & circular economy**: Shift from traditional industries to regenerative, bio-based manufacturing that recycles and reduces environmental impact.

4. **Key Focus Areas:** BioE3 targets innovation across six domains:
   a. High-value **bio-based chemicals**, biopolymers, and enzymes
   b. **Smart proteins** and **functional foods**
   c. **Precision biotherapeutics** (advanced medicines)
   d. **Climate-resilient agriculture**
   e. **Carbon capture** and its utilization
   f. **Marine and space biotechnology**
5. **Real-World Application Highlight:** Under this policy, India will conduct its **first-ever biological experiment on the International Space Station (ISS)** to study human life sustainability in space—a milestone enabled by the BioE3 framework.

Demographic Mission

1. Anti-Naxal operations in Chhattisgarh have converted **former conflict areas into green zones**.
2. **Demographic Changes:**
   a. Rising concerns about **illegal migration and infiltration**, particularly from Bangladesh, and its impact on **border districts**.
   b. These demographic shifts are viewed as challenges to **security, stability, and development**.
   c. **Previous Reports:** Police and security agencies have earlier highlighted demographic changes in districts along the **Nepal and Bangladesh borders**.
   d. Studies and reports (using Census, NFHS, voter lists, and local surveys) indicated that **population shifts in border villages and sub-divisions** could pose long-term challenges for governance and security.
3. **Illegal migration/infiltration** is seen as:
   a. Snatching away **livelihood opportunities**.
   b. **Targeting vulnerable groups** (e.g., women and tribals).
   c. **Altering the demographic balance** in sensitive areas.
4. These changes may:
   a. **Hamper unity, integrity, and progress** of the nation.
   b. **Create social tensions** if left unaddressed.
   c. Pose a **direct threat to national security**, especially in border belts.
5. **High-Powered Demographic Mission**
   a. A new **Demographic Mission** has been announced to address issues of population shifts, migration, and related challenges.
   b. The Mission aims to safeguard **livelihoods, land rights, and community security**, especially in sensitive areas.
   c. The Mission will work in a **planned and time-bound manner**.

Women - Not only Beneficiaries but Drivers of Growth

1. PM Modi stated that women are not only beneficiaries of India's rising economy but also **key contributors to its growth**.
2. He honoured the **visionaries who drafted the Constitution**, highlighting the important contributions of **women leaders** like Hansa Mehta and Dakshayani Velayudhan in strengthening its foundation.
3. He highlighted that **every sector now acknowledges the power of women** (nari shakti).
4. From start-ups and the space sector to sports and the armed forces, women are making their mark and standing shoulder to shoulder in nation-building.
5. Special mention was made of the **first batch of women cadets graduating from the NDA**, which he called a historic moment of national pride.
6. **Empowerment through SHGs**
   a. He praised the role of **self-help groups (SHGs)** in transforming women's lives.
   b. Programmes like **'NaMo Drone Didi'** have given rural women a new identity.
   c. He announced that **2 crore women have already become 'Lakhpati Didis'** under the **Lakhpati Didi Yojana**, which helps SHG members achieve an annual household income of ₹1 lakh or more.

Implications

1. **Strategic Autonomy**: Indigenous defence and air defence systems like Sudarshan Chakra reduce dependency on imports and enhance national security.

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2. **Economic Transformation**: GST reforms and MSME support lower compliance costs and boost consumption-led growth.
3. **Technological Advancement**: Push for semiconductors, nuclear power, deep ocean, and space missions strengthen India's knowledge economy.
4. **Social Stability**: Demographic Mission and women empowerment initiatives aim to safeguard unity and promote inclusive development.
5. **Environmental Sustainability**: BioE3 Policy and renewable energy focus align with India's net-zero and green growth goals.

Challenges & Way Forward

Challenges	Way Forward
Heavy import dependence in energy, defence, and semiconductors	Accelerate **domestic R&D** and **incentivize private sector** participation
Short-term revenue loss from GST reforms	**Widen tax base**, improve **compliance** through **tech-enabled** GST system
Rising demographic pressures and migration in border areas	Strengthen **border management**, conduct **periodic demographic surveys**, safeguard land and livelihood **rights**
Limited MSME competitiveness in global value chains	Provide **credit access**, **reduce compliance** burden, **promote digitalisation**
Balancing rapid growth with sustainability goals	Ensure **circular economy**, invest in **green technologies**, expand **renewable energy**

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10. Tourism: India's Tariff-Proof Engine of Growth

Why in the News?

1. The **United States** has recently **raised tariffs** on some Indian exports such as steel pipes and chemicals, underlining the risks of over-dependence on merchandise trade.
2. This development has **renewed the debate on diversifying India's growth drivers** beyond tariff-sensitive sectors.
3. In this context, **tourism emerges as a "tariff-proof" sector**. It is not affected by border duties, generates large-scale employment, earns valuable foreign exchange, and strengthens India's soft power.
4. Scaling up tourism can provide India with a **stable, resilient, and inclusive engine of growth** at a time when external trade is becoming increasingly uncertain.

Key Highlights

1. **Tourism as a Tariff-Free Growth Sector**
   a. Unlike goods exports, **tourism cannot be taxed** at foreign borders.
   b. It **provides jobs** across hotels, transport, handicrafts, wellness, and entertainment.
   c. Both **skilled workers** in cities and **semi-skilled youth** in villages benefit.
2. **India's Current Position vs the World**
   a. Tourism contributes only **5% of India's GDP**, much lower than the **global average of 10%**.
   b. Countries like **Spain and UAE earn ~12% of GDP** from tourism, showing India's untapped potential.
   c. In 2024, India earned **$28 billion (₹2.45 lakh crore)** in foreign exchange through tourism.
3. **Outbound vs. Inbound Tourism**
   a. In 2024, over **28 million Indians** travelled abroad and spent **$28–31 billion**.
   b. Indians are among the **world's highest spenders on luxury and leisure travel**.
   c. Unless India creates world-class experiences at home, this spending will continue to go overseas.
4. **Huge Growth Potential**
   a. If India raises tourism's GDP share from **5% to 10% in the next decade**, it could mean:
      i. **$516 billion** extra contribution to the economy every year.
      ii. **40 million new jobs** across different sectors.
      iii. Foreign exchange earnings rising to **$130–140 billion**.

b. But this needs massive capacity expansion. India must **triple hotel rooms (both branded and unbranded)** to meet demand.

5. **Government's Strategy and Roadmap**
   a. Develop **50 world-class destinations** in partnership with states, with focus on infrastructure and branding.
   b. Make travel easier by **simplifying e-visas, reducing immigration queues, and improving airport experience**.
   c. Expand air connectivity with India's airlines adding **1,000 new aircraft** in coming years.
   d. Use **digital campaigns, influencers, and AI-driven promotion** to showcase India globally.
   e. **Boost private investment** by giving tourism infrastructure status; encourage PPPs in hotels, ropeways, and convention centres.
   f. Strengthen domestic tourism through the **Dekho Apna Desh** campaign, which already makes up **86% of revenues**.

Implications

1. **Macroeconomic resilience and external stability**
   a. A larger tourism sector **reduces dependence on tariff-sensitive goods** exports and strengthens foreign exchange inflows.
   b. **More diversified services receipts** make the current account less vulnerable to single-market shocks.
2. **Large-scale employment and inclusive growth**
   a. Tourism creates **jobs across skill levels:** hospitality professionals, drivers, artisans, guides, and gig workers.
   b. **Community-based tourism** and **MSME linkages** can raise rural incomes and expand women's participation.
3. **Regional development and urban-rural linkages**
   a. **Destination development** spreads economic activity to Tier-2/3 towns, heritage sites, and rural circuits.
   b. Improved connectivity and public amenities **boost local value chains** beyond tourism (construction, retail, logistics).
4. **Revenue retention and reduced outbound leakage**
   a. Better domestic products and luxury offerings can keep part of the **$28–31 billion** Indians currently spending abroad within India.
   b. Increased domestic and inbound spend **raises tax revenues** and **local multiplier effects**.
5. **Soft power and sustainability gains**
   a. Wellness, cultural, spiritual and medical tourism **reinforce India's global image** and **attract high-value visitors.**
   b. When managed well, tourism **supports conservation, green jobs** and **low-carbon livelihoods**.

Challenges and Way Forward

Challenges	Way Forward
Low Share in GDP: Tourism is only **5% of India's GDP**, below the **global average of 10%**.	**Double Contribution to GDP**: Aim to raise share from **5% → 10% in 10 years**.
Infrastructure Gaps: Not enough hotels, convention centres, ropeways, and tourist facilities.	**Expand Hotel Capacity**: **Triple hotel rooms** (budget + luxury) to meet demand.
Seasonality Problem: Tourism is concentrated in a few months and few destinations, leaving others underutilized.	Promote **domestic circuits** under *Dekho Apna Desh* for wider spread.
Weak Global Branding: India's campaigns don't match the global scale of countries like UAE or Thailand.	**Use Technology**: AI-driven marketing, influencer-led digital campaigns, smart booking systems.
Sustainability Concerns: Rising tourism in ecologically fragile areas (Himalayas, beaches) is harming the environment.	**Eco-Tourism Focus**: Sustainable practices in Himalayas, forests, beaches; balance growth with conservation.

Polity

SCIENCE AND TECHNOLOGY

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1. India's Space Law: The Missing Piece in its Space Journey

Why in the News?

1. India celebrates its **second National Space Day on August 23**, marking the Chandrayaan-3 soft-landing (August 23, 2023) and a new phase of ambitious missions like **Gaganyaan**, future **Chandrayaan** follow-ons, and the proposed **Bharat Antariksh Station**.
2. Despite the scientific momentum, **India's legal architecture lags**: there is still **no comprehensive Space Activities Act** to translate international obligations into clear domestic rules for government and private actors.
3. With rapid **commercialisation of space** and the rise of Indian startups, a modern, **predictable legal framework** is now essential to manage risk, attract investment, and ensure responsible operations.

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Key Highlights

1. **What does the Outer Space Treaty of 1967 stipulate?**
   a. **Province of all humankind and non-appropriation:** Outer space, including the Moon and other celestial bodies, cannot be claimed by sovereignty, use, occupation, or any other means.
   b. **Peaceful purposes and due regard:** Activities must be for peaceful purposes, with due regard to the interests of other states and avoidance of harmful contamination.
   c. **State responsibility and authorisation:** States are **internationally responsible** for national activities in outer space, whether conducted by governmental or non-governmental entities; they must authorise and continually supervise private activities.
   d. **Other treaties connected with the Outer Space Treaty:** The Rescue Agreement (1968) requires helping astronauts in distress; the Liability Convention (1972) makes countries liable for damage caused by their space objects; and the Registration Convention (1975) requires states to maintain records of space objects launched. Together, they create a complete framework of responsibilities for states.
2. **Is the treaty self-executing? Why must countries enact national space legislation?**
   a. The United Nations treaties on outer space are **not self-executing**; they lay down principles but do not automatically apply within domestic legal systems.
   b. **National laws are needed** to make these principles enforceable within countries and to create specific rules for licensing, penalties, and responsibilities.
   c. Without national legislation, regulators cannot enforce safety standards, supervise private operators, or assign liability in case of accidents.
   d. **Predictability for investors:** Investors require legal clarity on issues such as licensing, dispute resolution, and intellectual property rights, which only a national law can guarantee.
   e. **Avoiding international disputes:** If a private company causes damage in space, the country will be held responsible internationally. Having a national law helps distribute responsibility fairly between the government and the private company.
   f. **Harmonisation with global practice:** Most major spacefaring nations like the United States, Japan, and Luxembourg already have such laws, allowing them to balance innovation with accountability.
3. **Why India needs a national space law now**
   a. **Legal clarity and predictability:** A statute would convert policy intent into enforceable rights, duties, and timelines for licensing, spectrum/data use, liability, and penalties, improving ease of doing business.

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b. **Compliance with international law:** It would formalise authorisation and supervision, registration of space objects, liability sharing, and debris mitigation consistent with United Nations guidelines.

c. **Safety and sustainability:** Codifying accident investigation, space debris mitigation, end-of-life disposal, and collision-avoidance responsibilities reduces systemic risks in crowded orbits.

d. **Capital access and insurance:** Clear liability caps, minimum insurance requirements, and government backstops (where appropriate) unlock domestic and foreign financing, especially for startups.

4. **What has been India's approach so far?**

a. **Step-by-step regulatory progress:** India has not rushed into legislation but instead created smaller frameworks to prepare the ground.

b. The **Indian Space Policy, 2023** defines the vision, roles of organisations like Indian Space Research Organisation (ISRO), Indian National Space Promotion and Authorisation Centre (IN-SPACe), and NewSpace India Limited (NSIL), while also encouraging private players to participate in all aspects of space activities.

c. The **IN-SPACe Norms, Guidelines and Procedures (NGP)** explain the detailed process for authorisation of space activities like satellite launches, ground stations, or satellite communication services. This gives companies a structured way to seek approvals.

d. A **Catalogue of Indian Standards for Space Industry** is being developed to ensure that safety and quality benchmarks are met in every project.

e. **Foreign Direct Investment (FDI) liberalisation (2024):** The government **now allows 100% FDI** under the **automatic route** in satellite components, ground equipment, and user segments. Up to **74% is allowed in satellite manufacturing** and operations. Launch vehicles, being sensitive technology, have lower automatic FDI limits.

f. The **Telecommunications Act, 2023** also impacts the space sector by creating new rules for spectrum allocation and satellite communication licensing.

g. **Gap remains:** All of these are useful but piecemeal measures. A comprehensive **Space Activities Law** is still missing, and IN-SPACe currently functions without statutory powers, making its decisions open to challenge.

5. **Why creating affordable insurance frameworks for space startups is crucial**

a. Under the **Liability Convention (1972) and the Outer Space Treaty**, India is internationally liable for any damage caused by its national space objects.

b. To reduce risk to public finances, private companies must carry **third-party liability insurance**.

c. Space activities are high-value and high-risk, making insurance premiums very expensive. Without affordable insurance, startups will find it hard to survive.

d. Other countries like the United States cap insurance at the level of **"Maximum Probable Loss"** and the government shares liability above that cap. This keeps insurance affordable while still protecting the public.

e. If India adopts a similar model, it can attract investment, ensure startups are covered, and build a robust commercial space ecosystem.

Implications

1. **Rule-of-law compliance and credibility**

a. A statute operationalises **Article VI obligations** (authorisation/ supervision) and aligns India with mature spacefaring jurisdictions.

b. It strengthens India's voice in international bodies like the Committee on the Peaceful Uses of Outer Space and the United Nations Office for Outer Space Affairs.

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2. **Investment, FDI, and startup scale-up**
   a. Clear licensing, defined timelines, appeal mechanisms, and insurance caps de-risk projects and lower cost of capital.
   b. Complements FDI reforms by giving investors statutory certainty beyond policy statements.
3. **Safety, sustainability, and public protection**
   a. Mandated accident investigation protocols, in-orbit servicing and de-orbit duties, and debris rules reduce externalities in Low Earth Orbit and Medium Earth Orbit.
   b. Insurance and risk-sharing ensure prompt third-party compensation after mishaps.
4. **Innovation and intellectual property security**
   a. Statutory intellectual property protections, data governance, and export-control clarity help retain technology and talent in India.
   b. Encourages industry–academia–government collaboration under predictable rules.
5. Whole-of-government coherence
   a. Harmonises IN-SPACe, Department of Space/ ISRO, Telecom Regulatory Authority of India/ Department of Telecommunications, Bureau of Indian Standards, and Defence interfaces.
   b. Reduces duplicative approvals by creating a single-window statutory regulator with defined coordination protocols.

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Challenges and Way Forward

Challenges	Way Forward
No umbrella Space Activities Act: Leaves Article VI obligations and private authorisation/ supervision only on a policy footing; creates legal uncertainty	Enact a **Space Activities Act** that codifies authorisation, supervision, registration, safety, enforcement, penalties, and operator duties aligned to UN treaties and guidelines.
IN-SPACe lacks explicit statutory basis: Decisions vulnerable to procedural challenge; fragmented inter-ministerial clearances	Provide **statutory status** to IN-SPACe with clear powers, defined timelines, and single-window authority.
Licensing complexity and overlap: Time/ cost overruns for startups; inconsistent conditions	Create a **consolidated licensing code** with standardised application processes, eligibility criteria, and an independent appellate body.
Liability and high insurance costs: Startups face unaffordable premiums; uncertainty deters investors	Adopt **Maximum Probable Loss-based insurance caps** with government indemnification above that level; also create pooled insurance schemes for small operators.
Space debris and safety obligations not yet binding: Rising congestion raises collision and re-entry risks	Make **debris mitigation and disposal measures** legally binding; require debris mitigation plans and safe de-orbiting.
Standards adoption: Quality/safety variance increases mission risk	Reference Indian and global standards in licences; require audits and conformity checks.
FDI clarity beyond components: Capital inflows hinge on predictable ownership limits	Embed FDI thresholds in the Act and provide automatic routes for low-risk areas.
Data/IP/export-control ambiguity: Risk of technology loss and compliance delays	Define clear rules on intellectual property rights, government rights over data, and export controls.
Accident/incident investigation: Ensures accountability and lessons-learned	Establish independent investigation boards with defined timelines and reporting obligations.
Dispute resolution: Project delays due to legal uncertainty	Create a specialised appellate tribunal or arbitration framework for space disputes.

2. PSLV-C61 Mission Failure

Why in the News?

1. The **failure analysis committee** has completed its investigation into the **PSLV-C61/EOS-09** mission failure that occurred on **May 18, 2025**, and the report will soon be submitted to **Prime Minister Narendra Modi**.
2. According to **ISRO Chairman V. Narayanan**, the issue was a "small" technical problem, but its details will be shared only after the report is submitted.
3. The failure marked a rare setback for the **Polar Satellite Launch Vehicle (PSLV)**, considered ISRO's **trusted workhorse**.

Key Highlights

1. **About the PSLV-C61/EOS-09 Mission**
   a. Launched on **May 18, 2025**, from **Satish Dhawan Space Centre**, Sriharikota.
   b. Aim: To place the **EOS-09 satellite** into a **sun-synchronous polar orbit**.
   c. Vehicle: **PSLV-C61**, one of ISRO's most reliable rockets.
2. **What Went Wrong?**
   a. Initial performance: **Lift-off and first two stages were successful.**
   b. Third stage malfunction led to failure in achieving the desired orbit.
3. **Failure Analysis and Investigation**
   a. A **failure analysis committee** was constituted immediately after the incident.
   b. The committee has now **completed its investigation**.
   c. ISRO Chairman termed the issue as "small," indicating it may have been **minor but mission-critical**.
4. **Significance of PSLV in ISRO's History**
   a. The **PSLV** has been operational since **1993** and has had over **50 successful launches**.
   b. Known for placing satellites in **LEO, sun-synchronous**, and **sub-GTO orbits**.
   c. Its failure is **rare**, and hence this incident draws special attention.
5. **Next Steps**
   a. The report will soon be **submitted to the Prime Minister**.
   b. Details will be made public **after official clearance**.
   c. The findings are expected to shape **future design and safety protocols**.

About PSLVs

1. **Overview**
   a. The **Polar Satellite Launch Vehicle (PSLV)** is **India's third-generation** and most **reliable launch vehicle**, developed by **ISRO**.
   b. It was the **first Indian rocket to use liquid stages** and is **expendable**, meaning each rocket is used only once.
   c. After its **first successful launch in 1994**, the PSLV earned a global reputation for **cost-effective and precise satellite launches**.
   d. Major achievements include launching:
      i. Chandrayaan-1 (2008) – India's first lunar mission.
      ii. Mars Orbiter Mission (2013) – India's first interplanetary mission.
      iii. Astrosat – India's first space observatory.
2. **Launch Capabilities**
   a. PSLV can launch satellites into **Low Earth Orbit (LEO)**, **Sun-Synchronous Polar Orbit (SSPO)**, **Sub-Geostationary Transfer Orbit (Sub-GTO)**, and **Geostationary Transfer Orbit (GTO)**.
   b. It is used for launching satellites related to: **Earth observation, communication, navigation, scientific experiments and space exploration.**
3. **Key Features:**
   a. Type: Expendable, four-stage launch vehicle.
   b. Payload to Sun Synchronous Polar Orbit: up to 1750 kg
   c. Payload to sub-GTO: up to 1425 kg
   d. It has a multi-payload capacity.
   e. Launch Flexibility: Capable of placing satellites in different orbits in a single mission.
4. **Four Stages of PSLV:**
   a. First Stage (PS1): Solid rocket motor (S139), equipped with **6 strap-on solid boosters** and provides the initial thrust for liftoff.

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b. **Second Stage (PS2):** Liquid-fuel engine (Vikas engine) and offers better fuel efficiency and control.

c. **Third Stage (PS3):** Solid rocket motor. Powers the rocket after it exits the dense atmosphere

d. **Fourth Stage (PS4):** Liquid stage with **two engines.** Delivers the payload into the final orbit and can be **restarted multiple times** for precise deployment (e.g., PSLV-C43, PSLV-C58)

5. **Innovations: PSLV Orbital Experimental Module (POEM)**
   a. POEM uses the **spent PS4 stage** as a platform for **in-orbit scientific experiments**.
   b. It has **Solar panels and lithium-ion battery with navigation and control systems.**
   c. Example: **POEM-3** on **PSLV-C58** carried experiments after deploying **XPoSat**.

Implications

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1. **Setback to ISRO's Operational Credibility:** The PSLV's reliability is a **cornerstone of India's commercial space image**. Even a single failure can affect **international confidence** in ISRO's launch services.
2. **Impact on Earth Observation Program:** The failure of EOS-09 delays **remote sensing and strategic applications**, including **agriculture, border monitoring, and disaster management**.
3. **Need for Enhanced Stage-Wise Monitoring:** The anomaly occurred in the **third stage**, which demands **better real-time telemetry** and **redundancy checks** in upper stages.
4. **Pressure on Future Launches:** Upcoming missions, including **Gaganyaan and SSLV launches**, will be under increased scrutiny. Emphasis on **error-proofing and simulation testing** will grow.
5. **Policy and Budgetary Implications:** ISRO may seek **additional funding** for R&D to enhance **system resilience**. Report findings could lead to **revised standard operating procedures (SOPs)** for future missions.

Challenges and Way Forward

Challenges	Way Forward
Third-stage malfunction caused mission failure	Strengthen design validation and testing of upper-stage propulsion systems
Loss of a satellite (EOS-09) and its data potential	Develop **rapid replacement strategies** and satellite redundancy planning
Risk to ISRO's reputation for reliability	Ensure **transparent disclosure** and apply corrective actions systematically
Pressure on future mission safety	Increase **simulation trials** and **pre-flight fault analysis mechanisms**
Delay in Earth observation capability	Accelerate deployment of **backup Earth observation payloads**

3. Agni-5 Test

Why in the News?

1. On **August 20, 2025**, India successfully test-fired the **Agni-5**, a nuclear-capable **Surface-to-Surface Ballistic Missile (SSBM)**, from the **Integrated Test Range (ITR), Chandipur, Odisha**.
2. The launch was conducted under the **Strategic Forces Command (SFC)** and validated **all operational and technical parameters**, according to the Defence Ministry.
3. This follows the **March 11, 2024 "Mission Divyastra" trial**, in which the Agni-5 was tested with **Multiple Independently Targetable Re-entry Vehicle (MIRV) technology**, placing India in an elite group of nations with MIRV-capable missiles.

Key Highlights

1. **About Agni-5 Missile**
   a. A **Nuclear-capable Surface-to-Surface Ballistic Missile (SSBM)** designed by **DRDO**.
   b. Powered by a **three-stage solid-fuel engine**, giving it high reliability and quick launch readiness.
   c. **Range:** Over 5,000 km, putting it in the **Intermediate-Range Ballistic Missile (IRBM)**

class, at the upper end, close to **Intercontinental Ballistic Missile (ICBM)** capability.

2. **Technological Strengths**
   a. Can carry **both nuclear and conventional warheads**, giving India flexibility in deterrence.
   b. The road-mobile launcher system enhances survivability.
   c. Designed with **advanced guidance systems** for precision strike.
3. **MIRV Breakthrough (2024)**
   a. In the 2024 "Mission Divyastra" trial, the Agni-5 demonstrated **MIRV technology**, which allows one missile to deliver **multiple warheads independently** to different targets.
   b. This breakthrough makes missile defence interception much harder.
   c. With MIRV, India joins powers like the **US, Russia, China, and France**.
4. **Programme Lineage: IGMDP and the Agni Family**
   a. The Agni series is part of the **Integrated Guided Missile Development Programme (IGMDP)** launched in 1983.
   b. IGMDP also produced other missiles: **Prithvi (short-range ballistic missile), Trishul (short-range SAM), Akash (medium-range SAM), and Nag (anti-tank guided missile)**.
   c. The Agni-5 represents the most advanced system within this legacy.
5. **Classification of Ballistic Missiles**
   a. Short-range ballistic missiles: **less than 1,000 km** (e.g., Prithvi).
   b. Medium-range: **1,000–3,000 km**.
   c. Intermediate-range ballistic missiles (IRBM): **3,000–5,500 km** (Agni-4, Agni-5).
   d. Intercontinental ballistic missiles (ICBM): **more than 5,500 km** (India is close with Agni-5).

Key Terminologies

1. **Intercontinental Ballistic Missile (ICBM)**
   a. Range: > 5,500 km.
   b. Capable of striking across continents.
   c. Generally nuclear-capable.
   d. India is close to this class with Agni-5 (~5,000 km).
2. **Multiple Independently Targetable Re-entry Vehicle (MIRV)**
   a. Technology allows **one missile to carry several warheads**.
   b. Each warhead can be directed at a different target.
   c. Reduces vulnerability to missile defence.
   d. Tested successfully with Agni-5 in March 2024.
3. **Integrated Guided Missile Development Programme (IGMDP)**
   a. Launched in **1983** by DRDO.
   b. Developed **five missile systems**: Prithvi, Agni, Trishul, Akash, and Nag.
   c. Aimed at **self-reliance in missile technology**.
   d. Successfully matured into India's modern missile arsenal.
4. **Missile Prithvi**
   a. **Short-range ballistic missile** (150–350 km).
   b. First missile developed under IGMDP.
   c. Can carry nuclear and conventional warheads.
   d. Variants for Army, Air Force, and Navy.
5. **Missile Trishul**
   a. **Short-range surface-to-air missile (SR-SAM)**.
   b. Developed under IGMDP for quick-reaction air defence.
   c. Served as a **technology demonstrator** for other SAMs.
   d. Contributed seeker and guidance tech.
6. **Missile Nag**
   a. **Third-generation anti-tank guided missile (ATGM)**.
   b. Fire-and-forget capability with day/night operation.
   c. Mounted on NAMICA (Nag Missile Carrier).
   d. Designed to defeat modern armoured vehicles.
7. **Missile Akash**
   a. **Medium-range surface-to-air missile (MR-SAM)**.
   b. Effective against aircraft, drones, and helicopters.
   c. Inducted into the Indian Army and Air Force.
   d. Upgraded versions (Akash-NG) in development.
8. **Nuclear vs Conventional Warheads**
   a. **Nuclear warheads:** Use fission/fusion reactions; massive destructive power; long-term radiation effects.

b. **Conventional warheads:** Use high explosives; designed for fragmentation, penetration, or incendiary effects.
c. **Flexibility:** Missiles like Agni-5 can be fitted with either type.
d. **Strategic role:** Nuclear warheads serve deterrence; conventional are for battlefield use.

Implications

1. **Enhanced Strategic Deterrence**
   a. The Agni-5 gives India the ability to reach almost all of Asia, parts of Europe, and Africa.
   b. With MIRV, its deterrent value against adversaries with missile defences is significantly strengthened.
2. **Indigenous Technological Capability**
   a. Developed entirely by **DRDO**, in continuation of **IGMDP**, proving India's capacity for **self-reliance in strategic technologies**.
   b. Enhances India's status among technologically advanced nations.
3. **Geopolitical Significance**
   a. Strengthens India's posture vis-à-vis neighbours like **China and Pakistan**.
   b. Places India among the very few countries with near-ICBM and MIRV capability.
4. **Military Readiness**
   a. Under the **Strategic Forces Command**, the missile is tested in operational settings, ensuring readiness for deployment.
   b. Strengthens India's **nuclear triad**, supporting second-strike capability.
5. **Nuclear vs Conventional Options**
   a. The Agni-5 can carry **nuclear warheads** for strategic deterrence and **conventional warheads** for limited conflict scenarios.
   b. This flexibility allows India to maintain **credible minimum deterrence** under its **No-First-Use nuclear policy**.

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Challenges and Way Forward

Challenges	Way Forward
Keeping pace with global missile defence systems	Accelerate work on **MIRV, decoys, and advanced guidance** to overcome missile defence.
High costs of advanced missile programmes	Increase **indigenous production** to reduce costs and reliance on imports.
International pressure & arms control regimes	Maintain India's **No-First-Use** and **credible minimum deterrence** posture.
Sustaining reliability across diverse conditions	Conduct more **user trials under SFC** in varied conditions.
Balancing nuclear vs conventional use	Clearly integrate **dual-use doctrine** within India's strategic command structure.

4. Brain-Eating Amoeba (Naegleria fowleri)

Why in the News?

1. A nine year old child has died and two others, including a three month old baby, were infected with **Primary Amoebic Meningoencephalitis (PAM)** (a rare brain infection caused by an amoeba) in **Kozhikode, Kerala** in recent days.
2. Kerala has recorded **eight confirmed cases and two deaths in 2025 till August**, with **no clear link between the three recent cases in August**.
3. PAM is caused by **Naegleria fowleri**, a free-living **"brain-eating" amoeba** that thrives in **warm freshwater**.

Key Highlights

1. **Timeline and Burden:Global to Kerala**
   a. **Global rarity (very few cases):** Since 1965, fewer than 500 PAM cases have been reported worldwide, across all continents **except Antarctica**.
   b. **India's first case (1971):** Marked the country's entry into the global case list.
   c. **Kerala's first case (2016):** The state began reporting cases; **2016–23: eight cases** documented.
   d. **Recent surge:**
      i. **2024 saw 36 cases and nine deaths** in Kerala
      ii. **2025 till August: eight cases and two deaths**, but with a **state fatality rate (~25%)** much lower than the **global rate (~97%)**.

2. **The Pathogen (disease-causing organism) and Where It Lives**
   a. **Organism:** Naegleria fowleri is a **single-celled amoeba (tiny organism seen only under microscope)** that lives in **warm freshwater and soil**, tolerating temperatures **up to ~46°C (sometimes higher)**.
   b. **Habitats:** Found in **lakes, rivers, pools, splash pads, surf parks**, and other **poorly maintained or low-chlorine water bodies**.
   c. **Non-communicable (not spread between people):** The disease spreads only from **environment to human**, not human-to-human.
3. **How Infection Happens**
   a. **Entry route:** The amoeba **enters through the nose** during water-related activities.
   b. **Pathway:** It then **travels via the olfactory nerve (nerve for smell)** to the brain.
   c. **Effect:** In the brain, it **destroys tissue**, causing **Primary Amoebic Meningoencephalitis (PAM)** (brain inflammation and infection).
   d. **Risk factors:** Swimming/diving in **unclean water**, **nasal rinsing with unsafe water**, and **lack of chlorination** raise chances.
4. **Clinical Course, Outcomes, and Treatment**
   a. **Early symptoms:** Headache, fever, nausea, vomiting.
   b. **Later stage:** Stiff neck, confusion, seizures (uncontrolled fits), hallucinations, and coma.
   c. **Fatality (death risk):** Most patients die **within 1–18 days after symptoms start**.
   d. **Treatment:** No single effective cure exists. Doctors use **drug combinations** like amphotericin B, fluconazole, azithromycin, rifampin, miltefosine, and dexamethasone.
   e. **Survival record:** In **July 2024**, a **14 year old boy in Kozhikode** became **India's first survivor**, among **only 11 survivors worldwide**.
5. **Detection, Cause Under Study, and Prevention**
   a. **Improved testing:** Kerala's detection is better because **tests for Acute Encephalitis Syndrome** (AES) (a group of brain fever diseases) now also identify PAM.
   b. **Different amoeba:** Health officials suggest **recent cases may involve another amoeba type**, still under investigation.
   c. **Preventive steps:**
      i. Avoid **warm, poorly chlorinated freshwater**
      ii. Use **nose clips** during water activities
      iii. Use **sterile (boiled & cooled/distilled) water** for **nasal cleansing rituals** (like in religious practices).
   d. **Climate link:** With **rising temperatures and heat waves**, N. fowleri grows better in warm water, raising infection chances.

Implications

1. **Public Health Surveillance (systematic disease tracking)**
   a. **Early detection:** Routine **AES testing** helps doctors diagnose PAM faster.
   b. **Source tracking:** Checking **water bodies visited by patients** helps locate the infection source.
   c. **No contact tracing:** Since PAM is **not person-to-person**, focus is on **water environment testing**.
   d. **Data records: Centralized reporting** improves response.
2. **Water Safety and Urban Services**
   a. **Chlorination:** Regular **pool disinfection** prevents amoeba survival.
   b. **Closures:** Shut down recreational waters during **heat waves or poor chlorine levels**.
   c. **Religious water use:** Provide **treated/sterile water** for rituals involving nasal cleansing.
   d. **Rural safety:** Monitor **ponds and lakes in villages** to prevent exposure.
3. **Clinical Readiness**
   a. **Awareness:** Doctors must recognize **early brain fever signs** that progress quickly.
   b. **Drug supply:** Ensure **essential drugs like amphotericin B and miltefosine** are stocked.
   c. **Referral system:** Clear path for **moving patients to advanced hospitals with ICU (intensive care units)**.
   d. **Pediatric care:** Special focus on **children**, as most cases are in younger age groups.

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4. **Risk Communication (public awareness)**
   a. **Clear messages:** Educate people to **avoid unsafe water during heat waves**.
   b. **Simple steps:** Use **nose clips**, keep **head above water**, and **avoid nasal rinsing with unsafe water**.
   c. **Balanced awareness:** Stress that the disease is **extremely rare** but requires **urgent treatment if suspected**.
   d. **Tourism link:** Provide advisories for **swimming pools, surf parks, and festivals**.
5. **Climate-Health Connection**
   a. **Monitoring water:** Check **temperature and chlorine levels** of public water regularly.
   b. **Pathogen studies:** Research whether **new amoeba species** are emerging in India.
   c. **Drug research:** Develop **better medicines and treatment protocols**.
   d. **Policy action:** Include **PAM risks** in **climate-health policies** and **heatwave preparedness plans**.

Challenges and Way Forward

Challenges	Immediate Actions	Long Term Actions
Under Recognition: Cases often mistaken for viral/bacterial encephalitis	Include **PAM in AES test panels**; issue doctor alerts	Statewide **protocols** for early detection
Weak chlorination: Pools and splash pads often poorly disinfected	Check chlorine levels daily; close unsafe facilities	Introduce **pool safety certification**
High-risk freshwater: Swimming/ diving in ponds/ lakes during summer	Warning boards; distribute nose clips	Seasonal closures during **heat waves**
Unsafe nasal cleansing: Rituals using unboiled tap/ river water	Campaigns on using **boiled/ sterile water**	Provide **cheap sterile water** at temples
Drug shortages: Anti-amoebic drugs not available everywhere	Emergency stockpile in key hospitals	Establish **special treatment centers**
Limited labs: Few labs test for amoeba	Assign **reference labs**	Build **regional labs** for water/ clinical testing
Climate risk: Hotter water favors amoeba	Link warnings to **heatwave alerts**	Include in **climate-health strategies**
Public panic: Fear due to "brain- eating amoeba" tag	Clear, factual advisories	Education campaigns in schools, tourism

5. ISRO's Heaviest Rocket: Lunar Module Launch Vehicle

Why in the News?

1. The **Indian Space Research Organisation (ISRO)** is developing its **heaviest rocket ever**, named **Lunar Module Launch Vehicle (LMLV)**.
2. It will be **as tall as a 40-storey building** and is expected to be **ready by 2035**.
3. The LMLV will play a central role in **India's lunar missions**, including the **first planned human mission to the Moon by 2040**.

Key Highlights

1. **About the LMLV**
   a. New rocket under development by ISRO.
   b. Will dwarf ISRO's current heaviest rocket **LVM-3**.
   c. Capable of carrying **80 tonnes to Low Earth Orbit (LEO)** and **27 tonnes to the Moon**.
   d. Will have a **three-stage design**:
      i. First two stages: **liquid propellant**.
      ii. Third stage: **cryogenic propellant**.
      iii. Strap-on boosters are taller than the entire **LVM-3**.
2. **Comparison with Current Rockets**
   a. **LVM-3 (GSLV Mk-III)**:
      i. Carried **Chandrayaan-3** to the Moon.
      ii. Human-rated for **Gaganyaan mission**.

iii. Max payload to LEO so far: **5.8 tonnes** (can go up to 10 tonnes with upgraded LOX–kerosene engine).

b. NGLV (Next-Generation Launch Vehicle):

i. Initially planned for space station modules.

ii. Design dropped; its role was absorbed by **modified LVM-3** and future **LMLV**.

3. Purpose & Missions

a. To support **future lunar missions** including human landing on the Moon by 2040.

b. To carry **heavy spacecraft**:

i. ISS-class spacecraft = **6–8 tonnes**.

ii. Lunar spacecraft = **18–20 tonnes** (heavier due to life-support systems).

c. Essential for deploying modules of **Bharatiya Antariksh Station (BAS)**, India's planned space station by 2035.

4. Design Features

a. First stage + strap-ons = **27 engines (3 sets of 9 each)**.

b. Improved upon NGLV design.

c. Without strap-ons, LMLV will perform almost like NGLV.

d. The development team prepared the design within a few **months of intense work**.

5. Exhibition & Public Awareness

a. A model of **LMLV** displayed at **Bharat Mandapam** during **National Space Day 2025** celebrations.

b. Demonstrates India's push toward next-generation space capabilities.

Implications

1. For India's Lunar Ambitions

a. Enables **human mission to the Moon by 2040**.

b. Bridges gap between **current capabilities (LVM-3)** and requirements for long-duration human missions.

2. For Space Station (BAS)

a. Supports **deployment of BAS modules** by 2035.

b. Reduces dependence on NGLV by absorbing its function.

3. For Heavy-Lift Capabilities

a. From **5.8 tonnes (LVM-3) → 80 tonnes (LMLV)** in LEO.

b. Positions India among few nations with **super-heavy lift rockets** (like NASA's SLS, SpaceX's Starship, China's Long March 9).

4. For Global Space Competitiveness

a. Strengthens India's role in **international collaborations** (Moon exploration, lunar base missions).

b. Provides indigenous alternatives to foreign launchers.

5. For Technology Development

a. Advances in **cryogenic engines, liquid propellants, and human-rating technology**.

b. Pushes India into a higher class of **space-faring nations**.

Challenges and Way Forward

Challenges	Way Forward
Huge financial costs and long gestation period (till 2035)	Steady budget allocation and private sector partnerships
Complex engineering of 27 engines + cryogenic stage	Step-by-step technology testing (like Gaganyaan pathfinder)
Human-rating safety for long lunar missions	Advanced life-support systems and international collaborations
Risk of delays due to tech hurdles (cryogenic, heavy payload integration)	Parallel development teams, use of simulations, redundancy in systems
Competition with global rockets (SpaceX Starship, NASA SLS)	Focus on cost-effectiveness and reliability to make India a launch hub

6. Satellite-Based Internet Connectivity

Why in the news?

1. In today's digital world, having internet access is a basic need for both civilians and the military.
2. With Elon Musk's Starlink, a satellite internet service, soon starting in India, the way the internet works in the country is likely to change in a big way.

Polity
I.R.
Security
Economy
Science
Geography
Society
History
Ethics
P.i.N.

What does satellite internet mean?

1. Satellite internet is a type of **wireless internet service** that uses **communication satellites** in **Earth's orbit** to provide **internet connectivity** to **remote** and **rural areas**.
2. A user's dish antenna **sends** and **receives data** from a satellite in space, which communicates with a ground station connected to the internet backbone.
3. **Types**:
   a. **GEO (Geostationary Earth Orbit)**: Offers wide coverage but higher latency (~600 ms).
   b. **LEO (Low Earth Orbit)**: Provides lower latency (~20–40 ms) and faster speeds (e.g., Starlink).
4. **Advantages**: Wide coverage, useful where fiber or mobile networks are unavailable.
5. **Limitations**: Higher latency (for GEO), costlier than terrestrial networks, affected by weather.

What are the features of satellite internet?

1. **New Era of Space-Based Internet:**
   a. The rise of satellite mega-constellations like **Starlink** marks a shift in internet technology.
   b. These consist of hundreds or thousands of satellites orbiting a few hundred kilometres above Earth.
   c. Often called "internet in the sky," it enables connectivity across vast and remote areas.
2. **Wide Range of Applications**
   a. **Civil Uses**: Healthcare, agriculture, transportation, disaster response.
   b. **Military Uses**: Tactical communication, surveillance, operational readiness in remote areas.
   c. **Dual-Use Nature**: Serves both civilian and defence needs, creating complex security challenges.
3. **Real World Impact Examples:**
   a. Hurricane Harvey (2017): 70% of cell towers in affected Texas regions were knocked out; **Viasat's satellite internet** enabled coordination of **rescue operations.**
   b. Russia-Ukraine War: **Starlink** supported Ukrainian forces for **troop movements, medical evacuation, and drone operations**; some drones equipped with Starlink bypassed Russian jamming.
   c. **Indian Army at Siachen Glacier:** Ensured **communication and operational readiness** in extreme isolation.
4. **Security Concerns:**
   a. Borderless nature can aid illicit activities.
   b. In India, security forces have seized smuggled Starlink devices from insurgent groups and drug networks.
   c. Control over satellite internet is, therefore, emerging as a **new dimension of national power**.

Why Do We Need Satellite Internet?

1. **Limitations of Ground-Based Networks**
   a. Depend on physical infrastructure like cables and towers.
   b. Economically unviable in sparsely populated or remote regions.
   c. Vulnerable to natural disasters such as floods and earthquakes.
   d. Struggle to meet demand for mobile or temporary connectivity.
2. **Advantages of Satellite Internet**
   a. Provides global coverage, unaffected by terrain or lack of terrestrial infrastructure.
   b. Can be deployed quickly to meet sudden surges in demand.
   c. Enables connectivity for moving platforms (e.g., airplanes) and remote sites (e.g., offshore oil rigs).
   d. Offers a resilient, large-scale solution that complements or replaces traditional networks.
   e. Acts as a transformative technology for the digital economy, civil infrastructure, and military operations.

How does satellite internet work?

1. **Network Structure:** Comprises two main segments:
   a. **Space Segment**: Satellites in orbit carrying communication payloads for data transmission.
   b. **Ground Segment**: Earth-based equipment (antennas, ground stations) that communicate with satellites.

2. **Satellite Characteristics:**
   a. Satellites are the most capital intensive components with a lifespan of around 5-20 years.
   b. Deployment planning is crucial, especially for orbital altitude, which determines coverage and capabilities.
3. **Types of orbits in which satellites can be placed:**
   a. **Geostationary Earth Orbit (GEO)**: High altitude, wide coverage, higher latency.
   b. **Medium Earth Orbit (MEO)**: Mid-range altitude, balanced speed and coverage.
   c. **Low Earth Orbit (LEO)**: Low altitude, fast speeds, low latency (used by Starlink).

What are the differences between satellites deployed in different orbits?

1. **Geostationary Earth Orbit (GEO)**
   a. Altitude: ~35,786 km above the equator.
   b. Matches Earth's rotation → appears stationary relative to one point on Earth.
   c. Coverage: Nearly one-third of Earth (excluding polar regions).
   d. Example: Viasat's Global Xpress (GX).
   e. Features: Large size. They act as "bent-pipe" meaning they just relay signals back to earth without processing them.
   f. **Drawback:** High latency → unsuitable for time-sensitive tasks like video calls or real-time payments.
2. **Medium Earth Orbit (MEO)**
   a. Altitude: Between 2,000 km and 35,786 km.
   b. Balance between GEO's coverage and LEO's low latency.
   c. Requires a constellation for global coverage. (It means that satellite internet systems need **many satellites working together in a network** (called a constellation) to provide continuous, worldwide internet service)
   d. **Drawback:** Latency lower than GEO but still not ideal for high-speed, real-time applications. Large and costly to launch.
3. **Low Earth Orbit (LEO)**
   a. Altitude: Below 2,000 km.
   b. Very low latency due to proximity to Earth.
   c. Smaller size (often table-sized) → cheaper and faster to deploy.
   d. Drawback: They have a smaller coverage area.
   e. Requires mega-constellations for global coverage (e.g., Starlink's 7,000+ satellites in orbit currently, planned expansion to 42,000 satellites).

How Do LEO Mega-Constellations Work?

1. **Small Satellites with On-Board Processing**
   a. LEO satellites in mega-constellations are smaller and equipped with on-board signal processing.
   b. This improves data transmission efficiency, enhances signal quality, and provides more operational flexibility.
   c. On-board intelligence reduces the complexity of ground equipment, making user terminals smaller, cheaper, and easier to install for households.
2. **Optical Inter-Satellite Links**
   a. Satellites communicate directly with each other in space using optical (laser) links.
   b. This creates a global "internet in the sky" that can route data without always relying on ground stations.
   c. Benefits include reduced latency and greater transmission efficiency.
3. **Continuous Global Coverage**
   a. LEO satellites move at about 27,000 km/h, remaining in a user's line of sight for only a few minutes.
   b. To maintain uninterrupted connectivity, the system hands over connections seamlessly from one satellite to the next.
4. **Advanced Antenna Technology**
   a. Steerable antennas on satellites track multiple users and ground stations at once.
   b. They operate like moving spotlights, ensuring stable connections even as satellites pass overhead.

What are the applications of satellite internet?

1. **Ease of Use & Current Cost**
   a. Modern LEO satellite internet offers compact, easy-to-install user terminals without requiring professional help.

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Polity

b. Current costs: terminals ≈ $500; monthly plans ≈ $50; higher than terrestrial broadband but valuable for remote users and industries needing reliable connectivity.

2. Future Developments

I.R.

a. Companies like **AST SpaceMobile** and **Starlink** are testing *direct-to-smartphone* services, potentially removing the need for separate terminals.

Security

b. Future devices such as smartphones and laptops may have built-in satellite internet capability.

3. Key Applications Across Sectors

Economy

a. Communications: Extends network access to remote regions; enables the Internet of Everything (IoE).

b. Transportation: Improves navigation, supports autonomous vehicles, and optimises logistics.

Science

c. Public Administration & Disaster Management: Powers smart cities, provides early warnings, and coordinates rescue operations.

d. Healthcare: Enables telemedicine, remote diagnostics, and patient monitoring.

e. Agriculture: Supports precision farming, crop health monitoring, and yield optimisation.

f. Environment: Facilitates environmental monitoring and climate research.

Geography

g. Energy & Exploration: Supports offshore drilling, mining, and renewable energy operations.

h. Tourism & Defence: Enhances travel connectivity and strengthens military communications.

Society

Way Forward

Satellite internet offers vast opportunities while simultaneously posing significant security and regulatory challenges. It is increasingly being recognised as a new pillar of global power. For India, it is essential to craft comprehensive strategies to integrate this technology into national resilience frameworks.

History

India should:

Ethics

1. Make plans to use satellite internet for **national security and disaster resilience**.
2. Use it to **reduce the digital divide**, so even remote villages get online.

P.i.N.

3. **Boost the economy** by enabling more people and businesses to connect.

India should help set **international rules and governance** for satellite internet, because the countries and companies that lead in this field will shape the **future of global communication** and influence.

7. NASA's CO_2 Monitoring Satellites

Why in the News?

1. The **U.S. government** plans to shut down **NASA's OCO-2** and **OCO-3 satellites**, which **monitor atmospheric CO_2** and **crop health**.
2. The decision is reportedly to **align with the President's agenda** and **budget priorities**, despite **experts** stating the satellites remain **highly valuable**.
3. The move could end **two of the world's most sensitive and accurate CO_2 monitoring missions** prematurely.

Key Highlights

1. About Orbiting Carbon Observatories (OCOs)

a. A series of **dedicated Earth remote sensing satellites** designed to **observe atmospheric CO_2** from space for **climate change studies**.

b. The first mission, **OCO (2009)**, failed due to a **fairing separation issue** during launch.

c. **OCO-2**, launched in **2014**, was built from the original design to **reduce costs** and **delays**.

d. **OCO-3**, launched in **2019** to the **ISS**, was assembled from **spare OCO-2 components**.

2. Unique Observation Capabilities

a. **OCO-2**: **Sun-synchronous polar orbit** that is the same location observed at the **same time daily**.

b. **OCO-3**: Mounted on **ISS** — can observe locations at **different times of day**, offering **varied perspectives**.

c. Both **measure atmospheric CO_2** and **locate its sources and sinks**.

d. They can **track crops** by detecting plant **"glow" from photosynthesis**.

3. Scientific Contributions

a. **Revolutionised understanding** of **CO_2 accumulation rates** globally.

b. Discovered that **boreal forests** play a **bigger role** in **CO_2 absorption** than previously believed.

c. Showed that **natural carbon sinks** can turn into **emitters** due to **drought** or **deforestation**.

4. **Practical Applications**
   a. **High-resolution global maps** of **plant growth** used for **agriculture**, **drought monitoring**, and **forest mapping**.
   b. Data utilised by **USDA** and **private companies** for **crop yield forecasts** and **drought assessment**.
   c. Valuable to **farmers**, **grazing land managers**, and **environmental planners**.
5. **Cost and Decision to Shut Down**
   a. **Development and launch** of **OCO-2** and **OCO-3** cost around **$750 million**.
   b. **Annual operation cost** is about **$15 million**, covering **data download** and **ground calibration networks**.
   c. **Experts argue** shutting down the missions **wastes valuable data** for **minimal savings**.

Remote Sensing Satellites

1. Satellites that **collect information about Earth** without direct contact.
2. Use sensors to detect **reflected sunlight** or **emitted radiation** from the Earth's surface and atmosphere.
3. Can operate in **optical, infrared, microwave**, or other spectral ranges.
4. Applications include **weather forecasting, climate monitoring, agriculture, disaster management, and resource mapping**.
5. **Example:** NASA's OCO-2 and OCO-3 for CO_2 monitoring.

Implications

1. **Loss of Critical Climate Data:** Shutting down would halt **continuous**, **high-precision** global **CO_2 monitoring**. Could affect **climate change modelling** and **trend analysis**.
2. **Impact on Policy and Climate Action: Policymakers** lose a vital tool for **assessing emission reduction progress**. Weakens ability to **track compliance** with **climate goals**.
3. **Agricultural and Economic Consequences:** Loss of **satellite-based crop health** and **drought monitoring**. Affects **farmers**, **agricultural planners**, and **food security** assessments.
4. **Scientific Setback:** Potential **gap** in **CO_2 observation records**, hindering **ongoing research**. Reduces ability to detect **unexpected climate-related changes** in **carbon sinks**.
5. **Economic Waste:** Large **initial investment** would be undermined for a **relatively small operational cost**. Reduced **return** on **scientific and technological investment**.

Challenges and Way Forward

Challenges	Way Forward
Risk of hasty termination and loss of data continuity	Secure short-term funding, pause deorbit; ensure multi-year funding and uninterrupted operations
Legal and procedural ambiguity	Independent review of decisions; define clear agency policies and funding rules
Technical/ logistical difficulty of transferring operations	Invite partner proposals; negotiate joint operation or cost-sharing with agencies/industry
Loss of verification capacity for emissions	Assess impacts; develop successor missions or multi-satellite monitoring networks
Impact on agriculture and applied users	Alert stakeholders, provide backups; fund transition services and accelerate complementary programmes

8. Samudrayaan Project

Why in the News?

1. **Two Indian aquanauts,** Cdr (Retd) Jatinder Pal Singh and R. Ramesh undertook deep dives in the **Atlantic Ocean** aboard the **French vessel Nautile**, reaching depths of **5,002 metres and 4,025 metres**.
2. These dives are **preparatory exercises** for India's **Samudrayaan Project**, under which the country aims to send **three humans to a depth of 6,000 metres by 2027**.
3. The project will make India one of the few nations with **deep-sea exploration capability,** alongside the **US, Russia, China, Japan, and France.**

Key Highlights

Polity

1. **About Samudrayaan Project**
   a. Part of the **Deep Ocean Mission**, approved by the Union Cabinet in 2021 with an outlay of ₹4,077 crores over five years.

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   b. Coordinated by the **National Institute of Ocean Technology (NIOT)**, Chennai.
   c. Aims to explore, conserve, and harness deep-sea resources for India's **Blue Economy policy**.

Security

2. **Objectives of the Mission**
   a. Development of deep-sea mining technologies, underwater vehicles, robotics, and a crewed submersible.

Economy

   b. Creation of an **Ocean Climate Change Advisory Service** for better climate forecasting.
   c. Exploration of polymetallic nodules containing nickel, cobalt, rare earths, iron, and manganese.

Science

   d. Advancements in deriving **energy and freshwater** from the ocean.
   e. Establishment of an **Advanced Marine Station** for ocean biology and engineering research.

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3. **Matsya-6000 Submersible**
   a. A human-rated vehicle designed like a large fish with a **2.1-metre titanium alloy personnel sphere**.

Geography

   b. Capacity: **Three aquanauts**, with endurance of **12 hours (normal)** and **96 hours (emergency)**.
   c. Initial tests used a steel sphere at 500 metres off Chennai; titanium alloy sphere is needed for full 6,000-metre dives due to extreme pressure.

Society

4. **Recent Preparatory Dives**
   a. Singh and Ramesh's dives in Nautile simulate real conditions.

History

   b. Learnings will guide operational readiness, just as astronaut Shubhanshu Shukla's Axiom-4 mission supports Gaganyaan.

Ethics

5. **Technological and Institutional Collaboration**
   a. **ISRO** to carry out precision **electron beam welding** of the titanium sphere.
   b. India has indigenously developed **acoustic telephone systems** for underwater communication.

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   c. Integration of life-support systems (oxygen scrubbers, rebreathers) to sustain human presence in extreme underwater environments.

Implications

1. **Strategic & Geopolitical**
   a. India joins the elite club of nations with deep-sea human exploration capability.
   b. Enhances India's standing in **maritime security** and control over undersea resources, including communication cables.
2. **Economic**
   a. Unlocks access to **polymetallic nodules** critical for electronics, renewable energy, and battery technologies.
   b. Strengthens India's **Blue Economy** by creating opportunities in marine mining, biotechnology, and freshwater generation.
3. **Scientific & Technological**
   a. Advances in materials science (titanium alloy fabrication, precision welding).
   b. Development of autonomous vehicles, robotics, and ocean climate modelling.
   c. Indigenous innovation in acoustic communication systems.
4. **Environmental & Climate**
   a. Ocean climate change advisory service will improve projections of monsoons, cyclones, and sea-level rise.
   b. Capacity to monitor and conserve **deep-sea biodiversity**.
   c. Potential risks of deep-sea mining on fragile ecosystems require balanced policies.
5. **Human Capital & Capacity Building**
   a. Training of aquanauts in extreme environments builds expertise similar to astronauts.
   b. Establishment of marine research stations strengthens R&D and future innovation.
   c. Creates opportunities for interdisciplinary collaboration among oceanography, engineering, and climate science.

Challenges and Way Forward

Challenges	Way Forward
Extreme Pressure: At 6,000 metres, pressure is ~600 times atmospheric pressure; even 0.2 mm deviation in the titanium sphere can cause collapse.	Strict adherence to **precision fabrication** (electron beam welding), global collaborations for material sourcing, and phased testing.
Material Constraints: Titanium alloy of required thickness (80 mm) is rare and strategically controlled by few nations.	Encourage **domestic alloy production**, long-term agreements with friendly nations, and research into alternative composites.
Life-Support Systems: Maintaining oxygen and carbon dioxide levels in a confined sphere is critical.	Redundant **scrubbers and rebreathers**, continuous monitoring sensors, and simulation training for aquanauts.
Communication Limitations: Radio waves don't penetrate seawater; acoustic systems face distortion from temperature/salinity.	Enhance **indigenous acoustic telephone technology**, integrate AI-based adaptive filters for clearer communication.
Aquanaut Safety & Health: Long missions without food/water access and no space for washrooms; psychological stress in confined spheres.	Rigorous **physical and psychological training**, pre-mission dietary protocols, and emergency backup systems.

9. IADT-1: A Key Step in Gaganyaan's Journey

Why in the News?

1. In **August 2025**, the **Indian Space Research Organisation (ISRO)** successfully conducted its first **Integrated Air Drop Test (IADT-1)**.
2. This marks a key step in the preparations for India's maiden human spaceflight mission, **Gaganyaan**.
3. In the test, a **nearly five-tonne dummy crew capsule** was released from a helicopter to **evaluate** whether its **parachute system** could effectively slow down the capsule for a **safe splashdown**.

What is IADT-1?

1. The **Integrated Air Drop Test (IADT-1)** is an experiment designed to replicate the final phase of a spacecraft's return to Earth.
2. In this test, ISRO released a dummy crew module from a helicopter at a height of about **3 km** to examine the **parachute-based deceleration system.**
3. The **objective** was to check if the parachutes opened in the correct sequence and slowed the module down to around **8 m/s** before splashdown.
4. Although this test cannot recreate actual **re-entry conditions**, since helicopters cannot lift spacecraft high enough, it effectively simulates the **last stage of landing**.
5. In a real mission, the crew module will first slow down due to **atmospheric drag** and its **heat shields**, followed by the deployment of **drogue parachutes**, and finally three large **25-metre main parachutes** to ensure safe descent.
6. IADT-1 focused on validating this sequence to guarantee the safety of astronauts during splashdown.
7. This trial builds upon earlier missions such as the **Test Vehicle Abort Mission (TV-D1)** conducted in October 2023, which tested the **crew escape system** in a sub-orbital flight.
8. Together, these experiments form critical steps in preparing for India's first human spaceflight under the **Gaganyaan mission**.

How was the test carried out?

1. For **IADT-1**, an Indian Air Force **Chinook helicopter** lifted a **4.8-tonne dummy crew module** to a designated altitude.
2. At that height, the capsule was **released**, after which **automated systems** initiated the sequential deployment of parachutes.
3. The test confirmed that the **touchdown conditions matched expectations**, proving that the parachute system design worked effectively in real-world conditions.
4. The exercise required **extensive modelling, instrumentation, and coordination** among multiple agencies.

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5. Apart from the Air Force, the **DRDO** provided materials and safety systems, while the **Indian Navy** and **Coast Guard** prepared for **post-splashdown recovery** operations.
6. According to **Vikram Sarabhai Space Centre Director A. Rajarajan**, his centre was responsible for nearly **90% of IADT-1 activities**.
7. ISRO highlighted that in any **crewed mission**, the phases of **ascent, descent, and recovery** are the riskiest.
8. Astronaut survival after orbital stay depends heavily on whether the **parachutes deploy correctly** during re-entry and landing.
9. A failure in parachute deployment would be **catastrophic**, which makes such **ground-based testing indispensable** before attempting human spaceflight.

How did the parachute system work?

1. The crew module carried **four different types of parachutes**, each performing a specific role in slowing the capsule.
2. The sequence began with the deployment of **two 2.5-metre Apex Cover Separation Parachutes**, which removed the **apex cover** protecting the parachute compartment from re-entry heat.
3. Next, **two 5.8-metre drogue parachutes** were deployed to **stabilise the crew module** and bring down its velocity significantly.
4. After the drogue parachutes completed this initial deceleration stage, they detached, allowing the release of **three 3.4-metre pilot parachutes**.
5. Each pilot parachute then independently deployed one of the **three large 25-metre main parachutes**, which further slowed the capsule to a safe speed for splashdown.

Where does IADT lie on the roadmap?

1. The **Gaganyaan mission's ultimate goal** is to send Indian astronauts to **low-Earth orbit** on a **human-rated LVM3 rocket**.
2. Human spaceflight demands **human-rating of every system**, which means building redundancies, life-support, and autonomous fault-detection mechanisms.
3. To achieve this, ISRO is conducting a **series of tests** covering **different mission phases:** launch, abort, descent, landing, and recovery.
4. The **Crew Escape System (CES) tests** demonstrate whether astronauts can be pulled away from the rocket during a launch failure.
   a. **TV-D1** was carried out in October 2023.
   b. **TV-D2** will attempt a more complex abort scenario.
5. After **IADT-1**, the next milestone is the **uncrewed Gaganyaan-1 (G1) mission**, which will carry **Vyommitra**, a humanoid robot designed to replicate astronaut functions.
6. Alongside these, **further drop tests, subsystem trials, and more IADTs** will continue to refine systems before astronauts are cleared to fly.
7. By the time the first human mission (**H1**) takes place, ISRO would have completed **several thousand tests**.
8. Some **critical systems under development** include:
   a. **Environmental Control and Life Support System (ECLSS)**: For oxygen supply, waste management, fire safety, and thermal regulation.
   b. **Integrated Vehicle Health Management System (IVHMS)**: To autonomously detect faults and trigger aborts.
   c. **Upgraded LVM3 rocket**: Modified to meet the reliability standards required for carrying humans.
9. India has also had to **indigenise many advanced technologies**, such as **escape motors, specialised composites, and safety materials**, since they were not available from abroad.

About Gaganyaan Mission

Objectives

1. To demonstrate **India's human spaceflight capability** by sending a crew of **three astronauts** to **Low Earth Orbit (400 km)** for a **3-day mission**.
2. To safely bring them back to **Earth**, with landing in the **Indian sea waters**.

Components of the Gaganyaan Mission

1. **Launch Vehicle: LVM-3**
   a. Formerly known as **GSLV Mk-III**.

b. A **three-stage rocket** designed to carry the 8.2-tonne Orbital Module into space.
   i. **First Stage:** Two **solid-fuel boosters** strapped to the rocket core.
   ii. **Second Stage:** Powered by **two liquid-fuelled clustered Vikas-2 engines**.
   iii. **Third Stage:** Equipped with the **CE-20 indigenous cryogenic engine**, using **liquid hydrogen (fuel)** and **liquid oxygen (oxidiser)**.

2. **Orbital Module (8.2 tonnes):** This is the main payload launched into orbit by LVM-3. It has **two key parts**:
   a. **Crew Module**
      i. Accommodates up to **three astronauts** for about a week.
      ii. Equipped with **parachutes** for controlled descent during re-entry.
      iii. Contains an **Environmental Control and Life Support System (ECLSS)** for maintaining temperature, air quality, waste disposal, and fire management.
      iv. Includes a **Crew Escape System (CES)** to protect astronauts in case of ascent failure.
   b. **Service Module**
      i. Provides **propulsion** to raise the Orbital Module's altitude after separation from the rocket.
      ii. Ensures safe **de-orbiting** by propelling the module back towards Earth.

India's Long-Term Goals in Human Spaceflight

1. **Gaganyaan is only the beginning**, it serves as the foundation of India's broader human spaceflight programme.
2. The Indian government has set **two major milestones:**
   a. Establishing the **Bharatiya Antariksh Station (BAS)** by **2035**.
   b. Achieving an **Indian crewed lunar landing** by **2040**.
3. To realise these **objectives**, ISRO will need to **develop capabilities** for repeated flights, longer orbital stays, and deep-space technologies.
4. While timelines may shift (for instance, **IADT-1 was initially planned for April 2024** but took place in **August 2025**), each milestone strengthens India's technological base for more ambitious missions.
5. The upcoming **TV-D2 mission** will further demonstrate the **Crew Escape System** by simulating an abort scenario, after which the crew module will descend with thrusters and parachutes for recovery.
6. Alongside Gaganyaan, ISRO is advancing supporting technologies such as **in-orbit docking**, demonstrated through the **SpaDeX mission** in May 2025. This capability will be crucial for **BAS, Chandrayaan-4, and future crewed missions**.
7. The **first human mission (H1)** is currently scheduled for **2027**, though it is expected to face delays.

Challenges and Way Forward

Challenges	Way Forward
Human-rating demands **extremely high reliability,** with no room for error.	**Strengthen testing regimes**, conduct multiple uncrewed missions, and adopt redundancy across all critical systems.
Developing and validating life support and **fault detection systems** (ECLSS, IVHMS).	**Accelerate subsystem development** with phased integration and **real-time monitoring** during test flights.
Technology gaps due to restricted international access.	**Expand indigenisation** and nurture **private-sector partnerships** for advanced materials, propulsion, and safety systems.
Long mission sustainability for space station and lunar landing goals.	Built on Gaganyaan experience, **scale up technologies** like in-orbit docking, deep-space propulsion, and radiation protection.
Funding pressures and **frequent delays.**	**Ensure predictable financing**, **realistic timelines**, and **strong political backing** for continuity of the human spaceflight programme.

10. New World Screwworm

Why in the News?

1. The US Department of Health and Human Services reported the **first human case of New World screwworm infestation** in the country, confirmed on August 4, 2024.

2. The patient had recently traveled to **El Salvador**, where outbreaks of the parasite have been reported.
3. The case was investigated by the **Maryland Department of Health** and the **Centers for Disease Control and Prevention (CDC)**.

Key Highlights

1. **What is the New World Screwworm?**
   a. A **type of blue-grey blowfly**, scientifically known as *Cochliomyia hominivorax*, meaning "man-eater".
   b. Found mainly in **South America and the Caribbean**; eradicated earlier from the US in 1966.
   c. Females lay eggs in **open wounds or cavities** of warm-blooded animals and humans.
2. **Life Cycle and Infestation Process**
   a. A single female lays **up to 300 eggs at a time**, and up to **3,000 eggs in her lifespan** of 10–30 days.
   b. Eggs hatch into **larvae (maggots)** which burrow into living tissue using sharp hooks.
   c. After feeding, larvae drop to the ground, pupate in soil, and emerge as adults.
3. **Symptoms in Humans**
   a. Wounds that **do not heal**, **bleeding from sores**, sensation of larvae movement.
   b. Foul-smelling odor from wounds.
   c. Can lead to **sepsis**, spread into vital tissues like the brain, and cause **death if untreated**.
4. **Past Control and Eradication Efforts**
   a. The US eliminated screwworm in 1966 using the **Sterile Insect Technique (SIT)**.
   b. SIT involves mass release of **sterile male flies**, preventing reproduction.
   c. Used successfully in **Mexico (1970s)**, **Central America (2000s)**, and **Florida (2017)** for outbreak control.
5. **Current Reemergence Factors**
   a. New outbreaks reported in **Panama, Costa Rica, Nicaragua, and Honduras**.
   b. Possible causes:
      i. Movement of **infested livestock across regions**.
      ii. Reduced effectiveness of current **sterilized strains** used in SIT.

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Implications

1. **Public Health Risks**
   a. Risk of **serious infections** in humans if untreated.
   b. Low current threat in the US but could increase with global travel.
2. **Economic Impact**
   a. Livestock sector losses due to infestation.
   b. Increased cost of **eradication and surveillance programs**.
3. **Veterinary and Agricultural Challenges**
   a. Cattle and livestock movement control becomes critical.
   b. Risk of **spread to wildlife and pets**, adding complexity.
4. **Policy and Governance**
   a. Need for **cross-border cooperation** in disease control.
   b. Strengthen **quarantine regulations** for travelers and animals.
5. **Scientific and Technological Considerations**
   a. Need to **improve SIT effectiveness**.
   b. Explore **new biotechnological interventions** for sustainable eradication.

Challenges and Way Forward

Challenges	Way Forward
Reemergence in Latin America and Central America	Strengthen **regional coordination and surveillance systems**
Reduced effectiveness of current SIT strains	**Enhance research** on genetic modification and new sterilization techniques
Livestock movement across borders	Implement **strict animal movement protocols** and **pre-export screening**
Public unawareness of symptoms and treatment	**Awareness campaigns** for farmers, travelers, and healthcare providers
Limited rapid-response mechanisms in outbreak zones	Develop **emergency response plans** with quick mobilization of resources

GEOGRAPHY AND ENVIRONMENT

1. Need for Better Green Technologies

Why in the News?

1. As countries face **land constraints, rising CO_2 levels**, and **geopolitical conflicts**, the push for **energy self-sufficiency** and **climate commitments** is intensifying.
2. While **silicon photovoltaics** remain the dominant solar technology, their **efficiency and land use demands** raise concerns in the face of global energy needs.
3. There is increasing global interest in **next-generation green technologies** such as **artificial photosynthesis, RFNBO**, and more **efficient photovoltaic systems** to enable deeper decarbonisation.

Silicon Photovoltaics

1. **Definition**: Silicon photovoltaics are **solar panels made from silicon** that convert **sunlight into electricity** using the **photovoltaic effect**.
2. **Key Features**:
   a. **Silicon-based**: They use **crystalline silicon** (monocrystalline or polycrystalline) as the **semiconductor material**.
   b. **Most widely used** solar technology globally.

RFNBO (Renewable Fuels of Non-Biological Origin)

1. **Definition**: RFNBOs are **synthetic fuels** made using **renewable energy sources** (like solar or wind) and **non-biological raw materials** (like **water** and **CO_2**), **without using biomass**.
2. **Examples**:
   a. **Green hydrogen** produced by electrolysis using renewable electricity.
   b. **Green ammonia (NH_3)** or **green methanol (CH_3OH)** made from hydrogen + nitrogen/CO_2 using renewable energy.

Key Highlights

1. **Dominance and Limitations of Silicon Photovoltaics**
   a. Invented in 1954 at Bell Labs, **silicon solar panels** became the mainstream solar technology.
   b. These panels typically have **efficiencies of 18–21%** (reported) and **15–18% in-field**.
   c. Around **80% of global supply** comes from China; India's production is about **6 GW** and growing.
   d. Despite their widespread use, **newer technologies** now offer **double the efficiency**.
2. **Efficiency vs. Land Use**
   a. Lower-efficiency panels like silicon need **more land area** to produce the same electricity.
   b. With **urbanisation and environmental concerns** rising, **land availability is reducing**.
   c. Doubling the panel's efficiency reduces the land required by half, making **higher-efficiency systems critical**.
3. **Impact on Green Hydrogen and Derivatives**
   a. **Green hydrogen** is produced by using renewable electricity (via electrolysis) to split water molecules.
   b. Silicon PV's lower efficiency impacts the **greenness** and cost of hydrogen.
   c. **Storage and transport of hydrogen** is energy-intensive due to its **low density**.
   d. Green hydrogen is often converted into **green ammonia (NH_3)** and **green methanol (CH_3OH)** for easier handling, but this requires **more energy** and **reduces overall efficiency**.
4. **Emerging Alternatives: Artificial Photosynthesis and RFNBO**
   a. **Artificial Photosynthesis (APS)** mimics natural photosynthesis to produce fuels using **sunlight, CO_2, and water**.
   b. Though in the **early lab stages**, APS could revolutionise energy generation.

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c. **RFNBOs (Renewable Fuels of Non-Biological Origin)** are being developed in Europe using **non-biomass renewable sources**, avoiding the limitations of biofuels.

5. **Energy Security and Policy Direction**
   a. India **imports ~85%** of its energy needs, making **energy independence** crucial.
   b. Investing in **R&D, innovation, and diversified energy tech** is vital to reduce long-term costs.
   c. The government should prioritize **smarter, more efficient, and future-ready technologies** over merely scaling current ones.

Implications

1. **Strategic Importance of Solar Innovation:** Future solar choices will shape not just electricity output, but the **entire clean fuel value chain**. Upgrading from silicon to high-efficiency photovoltaics can **transform land use efficiency**.
2. **Climate Change Mitigation:** The **rising atmospheric CO_2 levels** (from 350 ppm in 1990 to 425 ppm in 2025) suggest current strategies are insufficient. Better green technologies can **accelerate decarbonisation** and help nations meet **net-zero targets**.
3. **Economic Cost and Opportunity:** Investing in better technologies can **save crores** in future environmental damage and economic loss. **High upfront R&D costs** are justified by **long-term sustainability and energy cost reduction**.
4. **Global Energy Equity:** Efficient, low-footprint technologies can help **developing nations adopt renewables** without major land or infrastructure constraints. It could reduce the **technology dependency on a few suppliers**, like China, for silicon PV.
5. **Technological Leadership and Self-Reliance:** Countries investing in **cutting-edge technologies** like APS or RFNBOs will become **leaders in the green economy**. India must seize this opportunity to become **energy self-reliant** and globally competitive in clean tech.

Challenges and Way Forward

Challenges	Way Forward
Low efficiency of silicon photovoltaics	Shift focus to **high-efficiency PV technologies** like **perovskites, GaAs**
Land constraints for solar expansion	Invest in **compact, rooftop, and vertical solar systems**
High cost and energy loss in green hydrogen production	Improve **electrolysis efficiency** and explore **direct fuel synthesis methods**
Storage and transport challenges of hydrogen	Use **green ammonia/ methanol** and develop **better hydrogen carriers**
Lack of investment in futuristic technologies	Boost **public-private R&D partnerships** and offer **financial incentives**

2. Biochar in India

Why in the News?

1. India plans to launch a **national carbon market** in 2026, which will encourage technologies like **biochar** that help remove **CO_2** from the atmosphere.
2. India produces huge amounts of **agricultural residue** and **municipal waste**, which are often burned or dumped, causing pollution but also providing material to make biochar.

Key Highlights

1. **Raw material and production potential**
   a. India produces over **600 million tonnes** of agricultural residue and more than **60 million tonnes** of municipal solid waste annually.
   b. Using **30–50%** of this waste could produce **15–26 million tonnes** of biochar and remove about **0.1 gigatonnes (Gt)** of **CO_2-equivalent** each year.
      i. **CO_2-equivalent:** This means the total greenhouse gas impact converted to the effect of carbon dioxide.
2. **Byproducts and energy potential**
   a. Biochar production also creates **syngas (20–30 million tonnes)** and **bio-oil (24–40 million tonnes)**.
   b. Using syngas could generate around **8–13 terawatt-hours (TWh)** of electricity, which is **0.5–0.7%** of India's annual power generation.

c. This could replace **0.4–0.7 million tonnes** of coal yearly, reducing coal use.
d. Bio-oil could replace **12–19 million tonnes** of diesel or kerosene (about **8%** of their usage), lowering **crude oil imports** and cutting fossil fuel emissions by more than **2%**.

3. **Long-term carbon storage and climate benefits**
   a. Biochar can keep carbon trapped in soil for **100 to 1,000 years** because of its strong and stable nature, making it a good **carbon sink**.
   b. Adding biochar to soil can reduce emissions of **nitrous oxide (N_2O)** by **30–50%**.
      i. **Nitrous oxide** is a potent greenhouse gas with **273 times** the warming effect of CO_2.
4. **Applications in different sectors**
   a. **Agriculture:** Biochar improves water retention, especially in dry or poor soils, and boosts soil organic carbon, helping restore degraded land.
   b. **Construction:** Adding **2–5%** biochar to concrete improves strength, increases heat resistance by **20%**, and stores about **115 kg of CO_2 per cubic metre** in the building material.
   c. **Wastewater treatment:**
      i. India produces more than **70 bn litres** of wastewater daily, of which **72%** remains untreated.
      ii. One kilogram of biochar can treat **200–500 litres** of wastewater, meaning a demand of **2.5–6.3 million tonnes** of biochar for this purpose.
5. **Economic and social benefits**
   a. Setting up biochar production at the village level could create around **520,000 rural jobs**.
   b. Biochar use lowers fertiliser needs by **10–20%** and increases crop yields by **10–25%**, benefiting farmers economically.

Implications for the Economy

1. **Energy and power benefits**
   a. Using syngas to generate electricity could reduce coal use by up to **0.7 million tonnes per year**, improving energy security and reducing pollution.
   b. This distributed energy source supports rural electrification and reduces pressure on central power grids.
2. **Reducing oil imports and improving trade balance**
   a. Bio-oil replacing diesel and kerosene cuts crude oil imports, easing India's **balance of payments** and reducing vulnerability to global oil price changes.
   b. Lower fossil fuel dependence supports cleaner energy goals.
3. **Boosting rural incomes and agriculture**
   a. Yield increases and fertiliser savings improve farmer incomes and reduce farming costs.
   b. Creating jobs through village-level biochar equipment helps rural economic development.
4. **Health and environment cost savings**
   a. Avoiding residue burning reduces air pollution and greenhouse gases, lowering health costs linked to respiratory diseases.
   b. Treating wastewater with biochar reduces pollution of water bodies, saving money on cleanup and improving public health.
5. **Climate finance opportunities**
   a. If biochar is recognised under India's carbon market, farmers and investors can earn **carbon credits** for verified emissions reduction.
   b. This makes biochar projects financially attractive and scalable.

Challenges and Way Forward

Challenge	Why it is a barrier	Possible solutions
No standard feedstock market	Varying waste types/quality make biochar inconsistent, discouraging buyers.	Develop regional feedstock standards and traceability systems.
Inconsistent carbon accounting & weak MRV	Uncertain carbon storage reduces trust in credits.	Create standardised MRV protocols for accurate carbon measurement.

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Limited R&D & technology issues	Pyrolysis variation affects quality and efficiency.	Fund R&D to optimise production and biomass use for local conditions.
No proven business models/ finance	Lack of profit models deters investors.	Support blended finance, outcome-based contracts, govt guarantees.
Policy silos	Agriculture, energy, climate policies uncoordinated.	Integrate biochar into residue management, bioenergy, State Climate Plans.
Low awareness & skills	Farmers/local bodies unaware of benefits/ usage.	Launch extension services, demos, and training programs.
Logistics & decentralisation challenges	Transport and seasonal feedstock raise costs.	Promote village-level units and local aggregation.
No clear carbon credit rules	Carbon markets lack biochar crediting methods.	Recognise biochar in India's carbon market with pilot registries/rules.

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3. India's Battery Waste Crisis

Why in the News?

1. India's demand for lithium batteries is expected to rise from **4 GWh in 2023 to 139 GWh by 2035.**
2. It is mainly due to the rapid adoption of **electric vehicles (EVs)** and **battery energy storage systems (BESS)** for renewable energy.
3. With increasing battery usage, **battery waste is also rising**, contributing to **7,00,000 metric tonnes** of India's **1.6 million metric tonnes of e-waste in 2022**.
4. Improper disposal poses serious **ecological and public health risks**.
5. The government introduced the **Battery Waste Management Rules (BWMR), 2022**, including **Extended Producer Responsibility (EPR)**.
6. But there are critical challenges in its implementation, especially around **EPR floor pricing**.

Key Highlights

1. **Battery Waste Growth and Composition**
   a. The EV boom and BESS adoption have led to a **surge in lithium-ion battery usage**.
   b. These batteries contain **hazardous materials** (e.g., lithium, cobalt, nickel) which can leak into **soil and water** if not disposed of properly.
   c. Lithium batteries alone made up **nearly 44%** of total e-waste in 2022.
2. **Battery Waste Management Rules (BWMR), 2022**
   a. Introduced **Extended Producer Responsibility (EPR)** to shift recycling duties to producers.
   b. Producers must obtain **EPR certificates** from certified recyclers to validate compliance.
   c. The system is designed to **close the battery value chain loop** for a circular economy.
3. **EPR Floor Price Mechanism**
   a. The **EPR floor price** is a **minimum payment** made by producers to recyclers for recycling services.
   b. It helps recyclers cover costs like **infrastructure, technology, labour, and transport**.
   c. However, the **current price is too low**, making **formal recycling economically unsustainable**.
4. **Illegitimate Recycling and Market Distortions**
   a. Informal recyclers often issue **fake EPR certificates** or illegally dump waste.
   b. This practice undermines the system, just as seen earlier in **plastic waste management**.
   c. Non-compliance by **large electronics manufacturers** also worsens the problem, especially in developing countries.
5. **Need for Global Benchmarking and Fair Pricing**
   a. The **UK charges ~₹600/kg** for EV battery recycling, while India considers less than **one-fourth of that**.
   b. Even after accounting for **purchasing power**, this is not viable for building a strong ecosystem.
   c. Experts argue that OEMs (Original Equipment Manufacturers) can absorb these costs **without raising consumer prices**.

Extended Producer Responsibility (EPR)

1. **Definition and Objective:**
   a. It is an environmental policy approach that assigns responsibility to producers for managing the entire lifecycle of their products, including post-consumer waste.
   b. The aim is to **minimise environmental harm** by encouraging the design of products that are **easier to recycle or dispose of sustainably**.
2. **EPR Framework in India:**
   a. India has implemented EPR policies across several waste categories such as **plastic waste, electronic waste (e-waste), batteries, and used tyres**.
   b. These policies are overseen by the **Central Pollution Control Board (CPCB)**, which requires producers to obtain formal **EPR authorisation**.
3. **Strengthening the Circular Economy:**
   a. The **Plastic Waste Management (Amendment) Rules, 2022** have further reinforced India's commitment to a **circular economy**, placing more stringent obligations on producers to manage plastic waste responsibly.
4. **Mandate for Producers and Brand Owners:**
   a. In a major step towards environmental accountability, the government now requires **producers, importers, and brand owners (PIBOs)** to actively manage the waste generated from their products at the end of their useful life.
5. **Broader Goals of EPR Policy:** This policy shift is designed to:
   a. Hold manufacturers **accountable for their ecological impact**,
   b. Promote the adoption of **sustainable product designs**,
   c. Ensure that **environmental costs are internalised** into product pricing, and
   d. Support the development of **efficient waste management systems**.

Implications

1. **Environmental and Public Health Hazards**
   a. Improper disposal can lead to **toxic chemical leakage**, damaging **ecosystems and water sources**.
   b. Fire and explosion risks from **battery mishandling** also pose threats to public safety.
2. **Economic Losses and Import Dependence**
   a. India could face **foreign exchange losses of over $1 billion** by 2030 due to lost materials.
   b. Inefficient recycling increases dependency on **imported rare earth metals** like lithium and cobalt.
3. **Weak Circular Economy Development**
   a. Without effective implementation, India's **circular economy goals** will remain unfulfilled.
   b. Informal practices and fake compliance certificates **disrupt accountability** and sustainability.
4. **Global Reputational Risks**
   a. **Double standards** by multinational corporations between developed and developing countries risk tarnishing **India's green transition image**.
   b. Weak enforcement may signal India as a **soft spot for environmental dumping**.
5. **Potential for Green Industry Growth**
   a. If corrected, the sector could create **green jobs**, spur **clean-tech innovation**, and position India as a **recycling hub for the Global South**.
   b. Transparent pricing and enforcement would ensure **industry-wide trust and investment**.

Challenges and Way Forward

Challenges	Way Forward
Low EPR floor price making formal recycling unsustainable	Recalculate EPR price based on **real recycling costs** and **global benchmarks**
Flourishing informal sector with poor practices and fake certifications	Integrate informal recyclers into the **formal sector** via training and incentives
Weak monitoring and audits under BWMR	Implement **digital tracking of EPR certificates**, conduct regular **third-party audits**

Non-compliance by large producers and manufacturers	Enforce **stringent penalties**, harmonise rules across developed and developing markets
Lack of consumer awareness and OEM transparency	Mandate **corporate disclosure** and run **public awareness campaigns**

4. India's Climate Finance Taxonomy 2025

Why in the News?

1. In **May 2025**, the **Ministry of Finance** released India's draft **Climate Finance Taxonomy** for public consultation.
2. The taxonomy seeks to classify activities and technologies that qualify as **climate-aligned**, thereby helping **channel finance** toward **credible green projects** and **preventing greenwashing**.
3. Its release comes at a **crucial juncture**: India is operationalising the **Carbon Credit Trading Scheme**, green bonds are becoming mainstream, and international pressure is growing to align finance flows with long-term climate goals.

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Climate Finance Taxonomy

1. A **classification system** that defines which economic activities can be considered "climate-friendly" or sustainable.
2. Helps direct public and private investments towards projects that support **mitigation (reducing emissions)** and **adaptation (climate resilience)**.
3. Prevents misuse of funds by setting **clear criteria** for green investments.
4. Example: India's draft Climate Finance Taxonomy (2024) aims to align domestic finance flows with its **Net Zero 2070 goal**.

Carbon Credit Trading Scheme

1. A **market-based mechanism** that allows companies to buy/sell carbon credits to meet emission reduction targets.

1 carbon credit = 1 tonne of CO_2 (or equivalent GHG) avoided/reduced.

2. Encourages firms emitting above their cap to purchase credits from firms that emit less or invest in green projects.
3. Promotes **cost-effective climate action**, while incentivizing renewable energy, afforestation, and energy efficiency.

Green Bonds

1. Debt instruments where proceeds are exclusively used for **environmentally sustainable projects** (renewable energy, pollution control, clean transport).
2. Issued by governments, companies, or financial institutions to raise capital for climate-friendly initiatives.
3. Provides investors with both financial returns and positive environmental impact.

Key Highlights

1. **Purpose and Vision**
   a. The taxonomy is a **foundational framework** to mobilise investments into **mitigation, adaptation, and transition** activities.
   b. It **aims** to improve **investor confidence**, **provide clarity** to financial markets, and act as a **safeguard against** exaggerated or **false** "**green**" **claims**.
   c. Importantly, it positions itself as a **"living document"**, adaptable to India's evolving climate priorities and international commitments.
2. **Review Architecture**
   a. Inspired by innovations under the **Paris Agreement's Article 6.4 mechanism**, the taxonomy proposes a **two-tier review system**:
      i. **Annual Reviews**: To address short-term gaps, stakeholder feedback, or policy changes through a predictable, time-bound, and consultative process.
      ii. **Five-Year Comprehensive Reviews**: To reassess the taxonomy in light of evolving carbon markets, global finance definitions, and **India's updated NDCs**, synchronised with the global stocktake process.

b. This ensures the taxonomy remains **responsive** in the **short term** and **resilient** over the **long term**.

3. **Legal Coherence**
   a. Reviews must examine consistency with **domestic laws and regulatory frameworks** such as the **Energy Conservation Act, SEBI norms, and the Carbon Credit Trading Scheme.**
   b. The taxonomy should **remove redundancies**, **harmonise overlapping terms**, and **clarify enforceability**.
   c. It should also account for **interlinkages** with other instruments like **green bonds**, **blended finance**, and **disclosure requirements** to avoid policy contradictions.
      i. **Blended Finance:** A financing approach that **combines public, philanthropic, and private capital** to fund sustainable development projects.
4. **Editorial and Technical Precision**
   a. For usability, the taxonomy must remain **readable, coherent, and technically precise**.
   b. **Definitions** and **quantitative thresholds** (e.g., GHG reduction levels or efficiency benchmarks) should be continuously **updated** with **empirical evidence** and global best practices.
   c. This clarity will ensure that **investors**, **regulators**, and even **non-experts** can **rely** on the **taxonomy** with confidence.
5. **Inclusivity and Accountability Mechanisms**
   a. Recognising the barriers faced by MSMEs, agriculture, and the informal sector, the taxonomy must build **simplified entry points, staggered compliance timelines, and proportionate requirements**.
   b. To ensure credibility, the **Ministry of Finance** should establish a **standing review unit or expert committee** comprising regulators, scientists, legal experts, and civil society.
   c. Transparent mechanisms such as **public dashboards** and consolidated review summaries will institutionalise accountability and foster trust.

Implications

1. **Strengthening Investor Confidence**
   a. A clear and regularly updated taxonomy **reduces ambiguity**, **curbs greenwashing**, and **lowers transaction risks** for investors.
   b. This will help **mainstream climate-aligned assets** like **green bonds** into financial markets.
2. **Legal and Regulatory Alignment**
   a. By harmonising definitions with existing laws and schemes, the taxonomy provides a **single reference framework** for regulators.
   b. It **enhances enforceability** and **reduces disputes**, making climate finance governance more predictable.
3. **Scaling Climate Finance**
   a. The taxonomy channels both **public and private investment** toward **credible low-carbon projects.**
   b. By aligning with **blended finance** and government programmes, it can **maximise** the **impact** of scarce **public resources**.
4. **Ensuring Inclusive Transition**
   a. With special provisions for MSMEs and vulnerable sectors, the taxonomy prevents **exclusion from green markets**.
   b. It ensures that India's net-zero pathway is **equitable**, not limited to large corporations.
5. **Global Interoperability**
   a. Alignment with global stocktake cycles and international market rules enhances India's **credibility in global finance**.
   b. It ensures that Indian green instruments remain **recognised** and **competitive** internationally.

Challenges and Way Forward

Challenges	Way Forward
Weak institutional capacity for periodic reviews	Establish a **dedicated review unit** within the Ministry of Finance with clear statutory powers.
Lack of robust, updated data for thresholds	Build a **national climate finance database** with sectoral metrics, regularly updated with empirical data.

Legal overlaps with existing frameworks	Create an **inter-ministerial legal group** to harmonise terms and align regulatory mandates.
MSMEs and small actors face **high compliance burden**	Adopt a **tiered compliance system** with phased timelines and proportionate requirements.
Limited transparency and **stakeholder participation**	Launch **public dashboards** and institutionalise mandatory consultation periods for reviews.
International misalignment risks	Benchmark against **global taxonomies and Article 6 developments**, ensuring interoperability.
Risks of **greenwashing** and **weak enforcement**	Integrate taxonomy definitions into **mandatory disclosure norms** with penalties for misreporting.

5. Uttarkashi Flash Floods

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Why in the News?

1. In **August 2025**, **flash floods and mudslides** struck **Dharali village** in **Uttarkashi district**, Uttarakhand, leading to the **death of at least four people** and **over 60 reported missing**.
2. The floods were triggered by **continuous heavy rainfall over the past few days**, even though no official **cloudburst** occurred.
3. The event took place in the **Bhagirathi Eco-Sensitive Zone (BESZ)**, raising serious concerns about **unregulated construction**, **climate change**, and **inadequate disaster preparedness** in the Himalayan region.

Key Highlights

1. **Sequence of the Disaster**
   a. In **August 2025**, **Dharali village**, located just 10 km from the tourist spot **Harsil**, was hit by **flash floods and a debris avalanche**.
   b. Continuous **rainfall over 3 days** saturated the soil in this **fragile Himalayan slope**, triggering **mudslides** and the flow of loose moraine and debris into rivers.
   c. The **forceful flow of debris and water** devastated **buildings, shops, and hotels**, and washed away roads.
   d. Initial suspicion of a **cloudburst** was ruled out by the **India Meteorological Department (IMD)**, whose data showed only **2.7 mm rainfall** in 24 hours, well below the **100 mm/hour threshold** required for a cloudburst classification.
   e. Experts suspect a **Glacial Lake Outburst Flood (GLOF)** or **localised debris/mudslide** may be responsible.
2. **Topography and Vulnerability of Uttarkashi**
   a. **Uttarkashi district** lies at altitudes between **800 and 6,900 metres above mean sea level**, making it extremely vulnerable to **landslides and flash floods**.
   b. The district includes the **source regions of the Ganga (Gangotri) and Yamuna (Yamunotri)** rivers.
   c. It is characterized by **high mountain ridges**, **steep valleys**, **narrow gorges**, and **fragile slopes**.
   d. The **land slopes steeply towards the southwest**, leading to rapid accumulation of momentum in debris and water flow.
   e. Average annual rainfall is **1,289 mm**, with **July** being the wettest month (**~312 mm** average rainfall).
   f. The **south-facing Himalayan slopes** receive **heavy monsoon rain** and are prone to **frequent thunderstorms**.
3. **Rescue Operations and Ground Response**
   a. Immediate response was launched by:
      i. **Indian Army**
      ii. **National Disaster Response Force (NDRF)**
      iii. **State Disaster Response Force (SDRF)**
      iv. **Fire Department**
      v. **Local police**
   b. **More than 250 personnel** were initially deployed, later supported by **200 more** from **Border Roads Organisation (BRO)** and **Indo-Tibetan Border Police (ITBP)**.
   c. **Air Force helicopters** were coordinated for:
      i. Air-dropping **essential supplies and medicines**
      ii. **Evacuation** of stranded villagers

d. **Communication was disrupted** due to power outage; **satellite phones** were sent to restore contact.

e. **Temporary shelters** were opened at various places to support the people.

4. **Legal and Environmental Concerns**

a. Dharali lies within the **Bhagirathi Eco-Sensitive Zone (BESZ)**, a **4,157 sq. km zone notified in 2012** to protect the **Ganga river's ecological origin**.

b. Despite legal protection, unregulated activities were reported:

i. Construction of **multi-storey hotels**

ii. **Helipad development** at Jhala

iii. Proposed **Char Dham bypass road** between Hina and Tekhla, which threatened **6,000 Deodar trees**

c. The **Char Dham All-Weather Road Project**, particularly the **Dharasu–Gangotri stretch**, has faced objections due to:

i. **Absence of proper Environmental Impact Assessment (EIA)**

ii. Road-widening in **unstable geological zones**

iii. Ignoring warnings from **Supreme Court-appointed committees**

5. **Climate Change and Increased Risk**

a. Scientists and disaster experts link the increasing frequency of such events to **climate change**, which causes:

i. **Rising atmospheric moisture** (7% per °C of warming)

ii. **Accelerated glacial melting**

iii. **Unpredictable and erratic monsoon patterns**

b. **Flash floods, cloudbursts, and landslides** are becoming more intense and frequent across the **Hindu Kush Himalayan Region**.

c. Traditional disaster infrastructure (like embankments and dams) is **inadequate** to deal with such extreme events.

Past Flash Floods and Cloudbursts in Uttarakhand

Date	Location	Impact
August 2022	Dehradun–Tehri–Pauri	Cloudburst, bridges washed away, sacred sites flooded
September 2022	Dharchula, Pithoragarh	Cloudburst near Kali river, 1 death
August 2024	Ghansali, Tehri Garhwal and Kedarnath Valley	Cloudburst, severe landslides, pilgrim movement halted, damage to Kedarnath path
June 29, 2025	Yamunotri Highway, Uttarkashi	Cloudburst killed 2, 7 missing, Chardham Yatra suspended

Why Are These Incidents Rising Across India?

The increasing frequency and severity of **flash floods**, **cloudbursts**, and **landslides** across India, particularly in **Himalayan and hilly regions**, is a result of multiple **interlinked natural and human-induced factors**:

1. **Climate Change and Warming Atmosphere**

a. **Global warming** is increasing the **temperature of the troposphere**, leading to **more moisture retention in the air**.

b. Warmer air holds **7% more water vapour per 1°C rise**, intensifying rainfall events.

c. This leads to **short, sudden, and extremely heavy rainfall events** — the ideal trigger for flash floods and cloudbursts.

2. **Erratic Monsoon Patterns**

a. The **Indian monsoon is becoming increasingly unpredictable**: delayed onset, concentrated rainfall, early withdrawal.

b. Instead of **moderate rain over a season**, rainfall now occurs in **short, high-intensity bursts**, overwhelming natural drainage.

3. **Urbanisation and Loss of Natural Buffers**

a. **Rapid urban growth** has led to:

i. Loss of **wetlands**, **lakes**, **floodplains**, and **forests**.

ii. Increase in **concrete surfaces**, reducing **natural infiltration** of water.

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b. Cities like Mumbai, Bengaluru, and Delhi face **urban flooding** during monsoons due to clogged or inadequate drainage.

4. **Development in Fragile Ecosystems**
   a. Infrastructure projects like **dams**, **roads**, **tunnels**, and **hotels** in ecologically sensitive areas (e.g., Uttarakhand, Himachal Pradesh, Sikkim) destabilize slopes.
   b. Hill cutting, deforestation, and blasting alter natural drainage, increasing landslide and flood risks.
   c. Projects like **Char Dham Highway** and **Hydroelectric Plants** have been repeatedly flagged by environmentalists.
5. **Glacial Retreat and Glacial Lakes**
   a. Accelerated melting of Himalayan glaciers is leading to formation of **unstable glacial lakes**.
   b. These can burst (Glacial Lake Outburst Floods or GLOFs), releasing massive volumes of water downstream — as seen in **Chamoli (2021)** and possibly **Uttarkashi (2025)**.
6. **Weak Early Warning Systems**
   a. India has limited **Automatic Weather Stations (AWS)** in high-altitude regions.
   b. Real-time monitoring and **data-based forecasting** are still in development phases.
   c. In many remote areas, **early warning does not reach communities in time**.
7. **Poor Land Use Planning and Violations**
   a. Construction continues even in **landslide-prone zones**, **river floodplains**, and **eco-sensitive areas**.
   b. Environmental Impact Assessments (EIA) are often bypassed or diluted.
   c. Illegal constructions, even in notified zones like **Bhagirathi ESZ**, compromise long-term safety.
8. **Inadequate Community Preparedness**
   a. Locals are often not trained or included in disaster preparedness plans.
   b. Lack of **community-based disaster management** leads to **higher casualties** during sudden disasters.
9. **Institutional Gaps**
   a. Fragmented coordination between **central and state disaster management authorities**.
   b. Policies are often **reactive**, with insufficient focus on **risk mitigation and climate adaptation**.

These factors, especially when combined, are making India more vulnerable to **climate-induced disasters**, with the **Himalayan region** being the most at risk due to its **geological fragility, changing climate, and growing developmental pressure**.

Implications

1. **Humanitarian Consequences**
   a. Loss of lives and injuries to residents and tourists.
   b. Dozens missing, widespread **psychological trauma**.
   c. Displacement of families living near riverbanks.
   d. Disruption of **basic services** like electricity, healthcare, and communication.
2. **Environmental Impact**
   a. Destruction of **natural floodplains**, **forests**, and **wetlands**.
   b. Flow of **debris and construction material** into rivers, disturbing aquatic ecosystems.
   c. Increased **soil erosion**, **deforestation**, and **biodiversity loss**.
3. **Infrastructure and Economic Loss**
   a. Damage to roads, buildings, and essential services.
   b. Hindrance to **tourism** and **religious pilgrimage** (e.g., Char Dham Yatra).
   c. Economic setback for local businesses and transport.
4. **Governance and Policy Failure**
   a. Failure to implement BESZ regulations.
   b. Construction permitted in **landslide-prone and flood-prone zones**.
   c. Weak **monitoring and compliance** by local authorities.
   d. Poor **early warning dissemination** due to limited Automatic Weather Stations (AWS).
5. **Climate Change Amplification**
   a. Increased frequency of **intense weather events** like GLOFs and flash floods.

b. Vulnerability of Himalayan states like Uttarakhand is increasing due to **warming, deforestation, and glacier retreat**.
c. Requires **national and regional climate adaptation frameworks**.

Challenges and Way Forward

Challenges	Way Forward
Fragile Himalayan geology and terrain	**Conduct hazard zonation mapping**; avoid construction in high-risk zones
Weak implementation of BESZ laws	**Strict enforcement** of BESZ rules; **penalize illegal construction**
Outdated infrastructure design	Use **resilient designs** such as **half-tunnels**, **slope stabilization structures**
Lack of real-time data	Install more **Automatic Weather Stations (AWS)** in remote high-altitude zones
Inadequate early warning and evacuation	Deploy **community-based early warning systems** integrated with local knowledge
Climate change ignored in planning	Mainstream **climate adaptation** in urban/rural planning and infrastructure
Deforestation and land use change	Promote **reforestation**, **afforestation**, and **nature-based solutions**

Key Terminologies

1. **Flash Flood**
   a. A **sudden flood of water** typically caused by intense rainfall or dam failure in mountainous or arid regions.
   b. Occurs within **6 hours** of the triggering event.
   c. High velocity, highly destructive.
2. **Cloudburst**
   a. Defined by **India Meteorological Department (IMD)** as **≥100 mm rainfall in 1 hour over ~10 km²**.
   b. Common in the **Himalayan foothills** during monsoons.
   c. Can trigger **flash floods** and **landslides**.
3. **Glacial Lake Outburst Flood (GLOF)**
   a. Sudden release of water from **glacial lakes**, formed by melting glaciers.
   b. Causes **massive downstream flooding**, seen in **Chamoli (2021)** and possibly Dharali (2025).
4. **Bhagirathi Eco-Sensitive Zone (BESZ)**
   a. Declared in **2012** under the **Environment (Protection) Act, 1986**.
   b. Covers **4,157 sq. km** from **Gangotri to Uttarkashi**.
   c. Limits construction, prohibits polluting industries, mandates EIAs for large projects.
5. **Automatic Weather Station (AWS)**
   a. An **automated station** that records **real-time meteorological data** (rainfall, temperature, pressure).
   b. Vital for **early warning systems** in remote and disaster-prone regions.
6. **Char Dham All-Weather Road Project**
   a. Flagship road connectivity project to improve access to **Yamunotri, Gangotri, Kedarnath, and Badrinath**.
   b. Criticized for **ignoring ecological warnings**, cutting trees, and triggering landslides.

6. Protecting Elephants

Why in the News?

1. A first-of-its-kind joint survey by the Union Environment Ministry, Ministry of Railways, and state forest departments has been conducted across **3,452 km of railway tracks** in **14 Indian states** to curb elephant deaths on tracks.
2. The initiative follows a concerning statistic: **186 elephants were killed in train collisions between 2009 and 2024**.
3. The survey proposes scientifically-backed solutions to **mitigate elephant-train collisions**, focusing on areas where wildlife frequently crosses railway lines.

Key Highlights

1. **Scale and Scope of Survey**
   a. Covered 172 railway stretches across 14 states.
   b. Totaling **3,452 km**, with **77 stretches** identified as vulnerable.

c. Based on inspections, wildlife movement and conflict zones were identified.

2. **Findings from the Joint Survey**
   a. Identified **elephant hotspots**: Assam, West Bengal, Jharkhand, Odisha, Kerala, Karnataka, etc.
   b. Detected **railway stretches intersecting animal corridors**, particularly elephant and tiger movement paths.
   c. 20 underpasses and 22 overpasses recommended at critical crossings.
3. **Reasons for Collisions**
   a. Railway tracks cut through forests and migration routes.
   b. Lack of underpasses, drainage systems, and poor visibility.
   c. Nighttime train operations, increased train speed, and lack of monitoring.
4. **Recommendations Proposed**
   a. Building underpasses/overpasses in sensitive areas.
   b. Use of **artificial intelligence** via Intrusion Detection Systems (IDS) for early detection.
   c. Reduction of train speed, better signage, and increased patrolling.
5. **Technology-Driven Solutions**
   a. IDS piloted 141 km of tracks in **Northeast Frontier Railway** using AI to track elephant movement.
   b. Data-driven mapping and predictive alerts to warn train operators.
   c. Use of remote sensing to prepare a **consolidated mitigation framework**.

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Implications

1. **Improved Wildlife Safety**
   a. Reduced elephant fatalities will protect the **endangered Asian elephant species**.
   b. Reduced human-wildlife conflict along forested railway stretches.
2. **Enhanced Policy Coordination**
   a. Strengthens inter-agency coordination between railways, forest departments, and central ministries.
   b. Aids in **data-driven decision-making** and planning.
3. **Technology Adoption**
   a. Encourages AI-based monitoring systems.
   b. Establishes real-time tracking and alerts for train operators.
   c. Helps build India's technological capacity in wildlife conservation.
4. **Infrastructure Modernisation**
   a. New standards for wildlife-sensitive railway construction.
   b. Promotes **eco-friendly infrastructure** development.
5. **Global Recognition and Replicability**
   a. Model for other biodiversity-rich nations facing similar railway-wildlife conflict.
   b. Contributes to India's climate and conservation goals.

Initiatives Taken by Indian Government for Elephant Conservation

1. **Project Elephant (1992)**
   a. Launched by the **Ministry of Environment, Forest and Climate Change (MoEFCC).**
   b. **Objectives**: Protect elephants, their habitat and corridors. Address human-elephant conflict. Ensure welfare of domesticated elephants.
   c. Provides financial and technical support to states.
2. **Elephant Reserves**
   a. India has established **33 Elephant Reserves** across 14 states (as of 2023).
   b. These are **notified areas** aimed at elephant conservation.
   c. Examples: **Singhbhum** (Jharkhand), **Mayurbhanj** (Odisha), **Periyar** (Kerala).
3. **Monitoring of Illegal Killing of Elephants (MIKE) Programme**
   a. An international initiative under **CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora)**.
   b. **India** is a **signatory** and participates to monitor illegal elephant poaching.
   c. **10 MIKE** sites in India (e.g., Kaziranga, Corbett, Wayanad).

4. **Gaj Yatra Campaign**
   a. Launched in **2017** by MoEFCC and Wildlife Trust of India.
   b. A nationwide awareness campaign to **celebrate elephants and conserve corridors**.
   c. Includes youth engagement, art, and local participation.
5. **Elephant Corridors**
   a. 101 elephant corridors identified by Wildlife Trust of India and MoEFCC.
   b. The **'Right of Passage'** report has helped states take action to protect and restore these corridors.
6. **Declaration of Elephant as National Heritage Animal (2010)**
   a. Declared by the Government of India to underline the cultural and ecological significance of elephants.
   b. It led to greater focus on their conservation.

Challenges and Way Forward

Challenges	Way Forward
High cost and **time** involved in constructing underpasses and overpasses	**Prioritise high-risk zones** using phased construction with targeted funding
Limited awareness and training among railway personnel	**Regular workshops** and inclusion of wildlife protection in operational manuals
Inconsistent coordination between forest and railway departments	Establish a permanent **wildlife-railway coordination cell**
Resistance to speed restrictions by railway operators due to schedule impact	Use **AI-based dynamic speed regulation** only in high-risk time windows
Technical limitations of AI systems like IDS in dense forests or night-time	Integrate **thermal imaging**, drones, and GPS-collared elephants for accuracy

7. Saltwater Crocodiles in Sundarbans on Rise

Why in the News?

1. A survey titled "**Population Assessment and Habitat Ecology Study of Saltwater Crocodiles in Sundarbans 2025**" by the **West Bengal Forest Department** reported an increase in the estimated population of saltwater crocodiles in the **Sundarban Biosphere Reserve** (SBR) compared to 2024.
2. The survey observed significant growth in all demographic classes of crocodiles, particularly in hatchlings, which are rare and difficult to spot in the challenging terrain of the Sundarbans.

Key Highlights

1. **Population Growth in 2025**
   a. Estimated population: **220 (minimum) to 242 (maximum)** in 2025.
   b. Previous year (2024): **204–234** estimated crocodiles.
   c. **213 direct sightings** recorded during the survey.
2. **Demographic Distribution**
   a. **Adults:** 125 individuals.
   b. **Juveniles:** 88 individuals.
   c. **Hatchlings:** 23 individuals (up from just 2 in 2024).
   d. Reflects successful breeding and conservation measures.
3. **Ecological Role**
   a. Saltwater crocodile (Crocodylus porosus) is the **largest reptile and apex predator** globally.
   b. Classified as **hypercarnivorous**, maintaining **ecosystem balance** by feeding on carcasses and **cleaning flowing water systems**.
4. **Geographical Spread**
   a. Found in **Odisha, West Bengal (Sundarbans), and Andaman & Nicobar Islands**.
   b. The survey area included swamplands, mangroves, and rivers of the **Sundarban Biosphere Reserve**.
5. **Methodology and Conservation Efforts**
   a. Conducted through **systematic surveys, GPS mapping, and habitat characterization**.

b. The **Bhagabatpur Crocodile Project**, started in 1976 in South 24 Parganas, has been instrumental in breeding and conservation.

c. Encounter rate: **0.18 per km**, i.e., one crocodile every **5.5 km** of surveyed stretch.

Related Constitutional Provisions

1. **Article 48A – DPSP:** The State shall **endeavour to protect and improve the environment** and to safeguard forests and wildlife of the country.
2. **Article 51A(g) – Fundamental Duty:** To **protect and improve the natural environment** including forests, lakes, rivers, and wildlife, and to have compassion for living creatures.
3. **Article 21 – Right to Life**
   a. Interpreted by the Supreme Court to include **"Right to a healthy environment"** as part of the right to life.
4. **Seventh Schedule – Distribution of Powers**
   a. **Entry 17A (Forests)** and **Entry 17B (Protection of wild animals and birds)** are in the **Concurrent List**, enabling both Centre and States to legislate on wildlife conservation.
   b. **Relevance:** Crocodile conservation programs are implemented under state initiatives (e.g., Bhagabatpur Crocodile Project) with central legislation like the **Wildlife Protection Act, 1972**.
5. **Wildlife (Protection) Act, 1972** – It is the **principal legislation in India for the protection of wild animals, birds, and their habitats**. It provides for **regulation, protection, and management of wildlife species and conservation of biodiversity**.
   a. Saltwater crocodile being a **Schedule I species** enjoys the **strictest protection under the Act**.
   b. The Act provides the legal basis for:
      i. **Habitat protection** in Sundarban Biosphere Reserve.
      ii. **Bhagabatpur Crocodile Project** (breeding program).
      iii. **Penal action against poaching or egg theft**.

Implications

1. **Positive Indicator for Biodiversity**
   a. Increase in hatchlings suggests **healthy reproduction and survival rates**.
   b. Signals success of long-term conservation measures in the Sundarbans.
2. **Strengthened Ecosystem Services**
   a. As apex predators, crocodiles regulate prey species and **maintain aquatic ecosystem health**.
   b. Their role in **carcass removal** helps prevent water contamination and disease spread.
3. **Boost to Conservation Programs**
   a. Validates the **Bhagabatpur Crocodile Project's effectiveness** in supporting species recovery.
   b. Provides a model for other coastal and riverine ecosystems.
4. **Tourism and Awareness Opportunities**
   a. Growing crocodile population can boost **ecotourism** in the Sundarbans.
   b. Increased sightings offer scope for **community-based tourism programs** and conservation education.
5. **Policy and Research Leverage**
   a. Data from the study aids in **policy planning for habitat protection**.
   b. Encourages **future studies on climate impact**, prey availability, and human–wildlife dynamics.

Challenges and Way Forward

Challenges	Why It Matters	Way Forward
Human–Crocodile Conflict	Increased population raises chances of attacks on fishermen and villagers.	Create **early warning systems**, community sensitization, and provide **compensation schemes**.
Habitat Degradation	Mangroves and water bodies face pressure from erosion, sea-level rise, and development.	Strengthen **mangrove afforestation**, restrict **industrial activities**, and monitor habitat health.

Climate Change Risks	Rising salinity and flooding patterns in Sundarbans affect crocodile habitats.	Integrate **climate adaptation** strategies and water management into conservation plans.
Illegal Poaching or Egg Theft	Increased demand for crocodile skin and eggs in some markets.	Strict enforcement under **Wildlife Protection Act, 1972**, and **community patrol programs**.
Limited Research on Ecology	Lack of detailed data on feeding patterns, migration, and reproduction.	Promote **long-term ecological monitoring** and **collaborative studies** with research institutions.

8. Karaikal under PMMSY

Why in the News?

1. The Union Government has approved the establishment of a **first-of-its-kind, advanced fisheries processing cluster** in **Karaikal**, a part of the Union Territory of Puducherry, under the **Pradhan Mantri Matsya Sampada Yojana (PMMSY)**.
2. The project, with a total estimated cost of **₹348.89 crore**, including a **Central grant of ₹298.34 crore**, aims to modernize fisheries infrastructure, enhance processing capabilities, and significantly improve the socio-economic conditions of the fisher community in the region.
3. The initiative represents one of the **34 fisheries production and processing clusters** approved across India, reflecting the government's broader strategy to promote organized fisheries development and value addition.

Key Highlights

1. **Project Approval, Cost, and Implementation**
   a. The Union Government has sanctioned the project to develop an advanced fisheries cluster in **Karaikal**.
   b. A **tender will soon be floated** to initiate the construction and operationalization of the cluster.
2. **Integration with Partnering Fishing Harbours**
   a. The **Thengaithittu fishing harbour** in Puducherry has been notified as a **partnering harbour** for the Karaikal cluster.
   b. By integrating **two major harbours**, the initiative aims to enhance the overall capacity of the fisheries sector in **Puducherry** and ensure **complementary development** of the region's marine and inland fisheries economy.
3. **Cluster-Based Approach to Fisheries Development**
   a. The initiative is designed to **transform selected regions into integrated fisheries clusters**, ensuring strong **backward and forward linkages** for production, processing, and marketing.
   b. The cluster approach will lead to the **modernization of fisheries infrastructure**, development of **value-added facilities**, and improved access to **domestic and international markets**.
   c. By enabling **economies of scale**, the initiative is expected to **increase competitiveness** and enhance productivity in the fisheries sector.
4. **Socio-Economic Benefits for the Fisher Community**
   a. Fisherfolk are likely to benefit from **higher income opportunities** due to improved handling, processing, and marketing facilities.
   b. The cluster will develop **integrated value chain infrastructure**, including **cold storage chains, ice plants, processing units, and transport logistics**, reducing post-harvest losses and ensuring quality products reach the market.
   c. The initiative is expected to **generate employment**, promote **skill development**, and encourage **entrepreneurship among coastal youth and women**, thus improving livelihoods and social empowerment.
5. **Convergence with PM-MKSSY and Cooperative Support**
   a. The **Pradhan Mantri Matsya Kisan Samrudhi Sah Yojana (PM-MKSSY)** will complement the cluster by supporting **15 Primary Fisheries Cooperative Societies (PFCS)** in Puducherry.

b. Each PFCS will receive **financial assistance of ₹2 lakh**, mentoring, and guidance for **business planning and capacity-building** from the **Pondicherry State Fishermen Cooperative Federation Limited (PSFCFL)**.

c. The **National Fisheries Development Board (NFDB)** will act as the **nodal agency** for overall coordination and implementation, ensuring convergence and synergy between both initiatives.

Pradhan Mantri Matsya Sampada Yojana (PMMSY)

1. **Launch and Implementing Authority:**
   a. The **Pradhan Mantri Matsya Sampada Yojana (PMMSY)** was launched in **2020** by the **Department of Fisheries** under the **Ministry of Fisheries, Animal Husbandry, and Dairying**.
   b. The scheme aims to promote **ecologically sustainable, economically viable, and socially inclusive development** of India's fisheries sector.
2. **Objectives of PMMSY:** The key objectives of the PMMSY include:
   a. Harnessing the potential of the fisheries sector in a **sustainable, responsible, inclusive, and equitable manner**.
   b. Enhancing **fish production and productivity** through expansion, intensification, diversification, and efficient utilization of land and water resources.
   c. Modernizing and strengthening the **fisheries value chain**, including post-harvest management and quality improvement.
   d. Doubling the **income of fishers and fish farmers** while generating meaningful employment opportunities.
   e. Increasing the contribution of the fisheries sector to **Agriculture GVA** and exports.
   f. Ensuring **social, physical, and economic security** for fishers and fish farmers.
   g. Establishing a robust **fisheries management and regulatory framework**.
3. **Scheme Structure:** PMMSY functions as an **umbrella scheme** with two main components: **Central Sector Scheme (CS) and Centrally Sponsored Scheme (CSS).**
   a. The CSS component is further divided into **beneficiary-oriented** and **non-beneficiary-oriented activities** under the following broad categories:
      i. **Enhancement of Production and Productivity**
      ii. **Infrastructure and Post-Harvest Management**
4. **Need for PMMSY**
   a. **Role of Fisheries and Aquaculture:** Fisheries and aquaculture are crucial for **food security, nutrition, employment, and income generation**. Approximately **16 million people** are directly employed in this sector, with many more involved indirectly along the value chain.
   b. **Economic Contribution:** In 2018-19, the sector contributed **1.24% of India's national GVA** and **7.28% of Agriculture GVA**, making it an important driver of economic growth.
   c. **Resource Potential:** India has **abundant marine fishing resources**, estimated at 4.41 million tons, along its **8,118 km coastline**. Efficient utilization of these resources is essential to boost fish production.
   d. **Blue Revolution:** The government initiated the **Blue Revolution (2015–2020)** to promote comprehensive development in fisheries.
   e. **Exports and Earnings:** India is a **major seafood exporter**, earning substantially from it. Brackish water aquaculture contributed **70–75% of total fishery exports** in FY 2020.
   f. **Economic Growth Opportunity:** Developing the fisheries sector further can **increase fish production, boost exports, generate employment**, and contribute to overall economic growth.

Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PMMKSSY)

1. **Scheme Type and Implementation:** PMMKSSY is implemented as a **Central Sector Sub-scheme** under the **Central Sector Component** of the **Pradhan Mantri Matsya Sampada Yojana (PMMSY)**.
2. **Funding and Outlay:** The scheme has an **estimated outlay of Rs. 6,000 crore**, funded as follows:

a. **50% (Rs. 3,000 crore)** through **public finance**, including external financing from the **World Bank** and the **Agence Française de Développement (AFD)**.
b. **50% (Rs. 3,000 crore)** is anticipated as **beneficiary or private sector investment leverage**.

3. **Implementation Period:** PMMKSSY will be implemented for **four years from FY 2023-24 to FY 2026-27** across all **States and Union Territories**.
4. **Intended Beneficiaries:**
   a. **Individuals directly engaged in fisheries:** Fishers, fish (aquaculture) farmers, fish workers, fish vendors, and others involved in the fisheries value chain.
   b. **Micro and small enterprises:**
      i. Proprietary firms, partnership firms, and companies registered in India.
      ii. Societies, **Limited Liability Partnerships (LLPs)**, cooperatives, federations, and **village-level organizations** such as **Self Help Groups (SHGs)**.
      iii. **Fish Farmers Producer Organizations (FFPOs)** and **startups** engaged in fisheries and aquaculture value chains.
      iv. FFPOs also include **Farmers Producer Organizations (FPOs)**.
   c. **Other beneficiaries:** Any additional beneficiaries identified by the **Department of Fisheries, Government of India**.
5. **Aims and Objectives**
   a. **Formalization of the fisheries sector:** Gradual formalization of the **unorganized fisheries sector** through **self-registration** of fishers, fish farmers, and supporting workers. Creation of **work-based digital identities** on the **National Fisheries Sector Digital Platform** to improve service delivery.
   b. **Access to financing:** Facilitate access to **institutional financing** for micro and small enterprises in the fisheries sector.
   c. **Aquaculture insurance:** Provide **one-time incentives** to beneficiaries for purchasing **aquaculture insurance**.
   d. **Performance-based incentives:**
      i. Grant performance incentives to **microenterprises** for improving **fisheries sector value chain efficiency**, including creation and maintenance of jobs.
      ii. Support **micro and small enterprises** in adopting and expanding **fish and fishery product safety and quality assurance systems**, with performance grants linked to **job creation and sustainability**.

Implications

1. **Economic Growth and Market Expansion**
   a. The establishment of the cluster will boost the **overall fisheries economy of Puducherry** by enabling modern processing and value addition.
   b. Fisher products will have **better access to domestic and international markets**, improving profitability and reducing dependency on middlemen.
2. **Infrastructure Development and Modernization**
   a. The cluster will create a **modern integrated infrastructure** comprising processing units, cold storage facilities, ice plants, and transport logistics, reducing **post-harvest losses** and enhancing product quality.
   b. By modernizing infrastructure, the project will make fisheries operations more **efficient and sustainable**.
3. **Social and Community Empowerment**
   a. Enhanced income opportunities will improve the **living standards of fisher families**, particularly among **coastal youth and women**.
   b. Skill development programs will strengthen **entrepreneurship and capacity building**, ensuring long-term socio-economic benefits for the community.
4. **Sustainable and Organized Fisheries Development**
   a. The cluster-based model promotes **organized fisheries and aquaculture**, reducing fragmentation in production and processing.
   b. Cooperative-led management ensures **community participation, equitable growth, and environmental sustainability** through better resource management.

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5. **Policy Synergy and Strategic Impact**
   a. The convergence of **PMMSY and PM-MKSSY** ensures **effective utilization of resources**, mentorship support, and long-term sustainability.
   b. The initiative could serve as a **replicable model** for cooperative-led fisheries development in other coastal regions of India.

Challenges and Way Forward

Challenges	Way Forward
Delays in project implementation due to tendering and coordination complexities.	Fast-track the tendering process and implement **strict monitoring mechanisms** by NFDB and UT administration.
Maintenance and **operational sustainability** of infrastructure may face **funding gaps**.	Encourage **Public-Private Partnerships (PPPs)** and cooperative-led management for long-term operational efficiency.
Fluctuations in **market demand** and **prices** may affect fisher income.	Develop **robust market linkages, export promotion strategies, and insurance schemes** to protect fisher livelihoods.
Lack of **skills** and **knowledge** among fisherfolk in modern processing techniques.	Conduct **training programs, workshops, and skill development initiatives** focused on value addition and marketing.
Environmental and **sustainability concerns**, such as overfishing and waste management.	Implement **eco-friendly technologies, sustainable fishing practices, and effective waste disposal systems**.

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9. New Rules to Tackle Contaminated Sites in India

Why in the News?

1. The Union Ministry of Environment, Forest and Climate Change has notified the **Environment Protection (Management of Contaminated Sites) Rules, 2025**, creating India's first dedicated legal framework to identify, assess and remediate chemically contaminated sites.
2. The rules convert long-standing guidance and pilots into enforceable procedure: they set out how suspected sites will be reported, assessed, publicly notified, assigned remediation plans, and how costs and liabilities will be recovered.

Key Highlights

1. **Definition, scale and types of contaminated sites**
   a. Contaminated sites are locations where historical dumping, storage or accidental release of hazardous chemicals has likely polluted soil, groundwater, surface water and sediments and poses risks to human health and ecosystems.
   b. The Central Pollution Control Board (CPCB) has identified over **100** such confirmed sites nationally (the CPCB list and state-wise inventories form the operational starting point).
2. **From capacity-building to legal rules (why these rules now)**
   a. In 2010 the Environment Ministry initiated the Capacity Building for Industrial Pollution Management Project to prepare the country for large-scale remediation; that Project produced an inventory and a guidance document but left the legal and financing architecture incomplete.
   b. The 2025 Rules legally codify the national approach recommended earlier and close a policy gap by making procedures mandatory rather than advisory.
3. **How suspected sites will be identified and assessed (procedural steps)**
   a. District administrations or local bodies must list suspected contaminated sites twice a year on a centralised portal.
   b. The State Pollution Control Board (or a designated "reference organisation") must carry out a **preliminary assessment within 90 days** of being informed. If necessary, a **detailed survey** and final confirmation must follow within another three months (the combined assessment pathway thus targets a decision within roughly 180 days).
   c. Assessment uses chemical screening based on the set of **189** listed contaminants and corresponding "response levels" for agricultural, residential, commercial and industrial land-uses.

4. **Remediation planning, liability and funding**
   a. Once a site is confirmed contaminated, a reference organisation prepares a site-specific remediation plan detailing technologies, timelines (where feasible), monitoring and post-remediation verification.
   b. The rules adopt the "polluter-pays" principle: the State board must identify responsible person(s) within 90 days; identified parties are liable to meet remediation costs. If polluters cannot be traced or cannot pay, the Centre and State arrange for cleanup with a pre-determined cost-sharing mechanism. Criminal liability (for proven loss of life or damage) is to be determined under the Bharatiya Nyaya Sanhita, 2023.
5. **Scope limits, exclusions and transparency provisions**
   a. The rules expressly exclude radioactive waste, contamination arising directly from mining operations, marine oil pollution, and authorised solid waste dump sites because separate laws govern those sectors — though the rules can apply if response-level breaches occur due to listed chemical contaminants.
   b. Confirmed contaminated sites and remediation status are to be publicly notified, increasing transparency but also raising questions about compensation, land-use restrictions and livelihood impacts.
6. **What are the new rules about?**

They mandate:

   a. a centralised, district-level reporting of suspected contaminated sites;
   b. a two-stage assessment (preliminary within 90 days, detailed within the next ~90 days);
   c. use of a list of **189** named chemicals and specified "response levels" to determine contamination;
   d. public disclosure and access restrictions for confirmed sites;
   e. assignment of remediation plans to expert "reference organisations";
   f. cost recovery from identified polluters or, failing that, cost-sharing by Centre and State. The rules exclude radioactive waste, mining, marine oil pollution and authorised solid waste dump sites (unless specific contaminant levels require coverage).

7. **What were the tasks under the 2010 Capacity Building Program for Industrial Pollution Management Project?**

The Project aimed to prepare a National Programme for Remediation of Polluted Sites and comprised three broad tasks:

   a. create an **inventory** of probable contaminated sites;
   b. develop a **technical guidance document** for site assessment and remediation;
   c. design a **legal, institutional and financial framework** for remediation. The first two pillars (inventory and technical guidance) were developed earlier; the 2025 Rules complete the legal/ institutional codification.

Implications

1. **Public health and environment**
   a. Early identification and systematic remediation can reduce long-term exposure to carcinogens, heavy metals and persistent organic pollutants and therefore lower risks to drinking water, agriculture and human health.
   b. Remediation also protects sensitive ecosystems (wetlands, riverine systems) from legacy contamination that is otherwise difficult to reverse.
2. **Administrative and technical workload**
   a. Implementing the rules entails a substantial national exercise: district reporting, district-to-state verification, laboratory sampling, long-term monitoring and upkeep of a national inventory.
   b. State Pollution Control Boards will need greater staffing, laboratory capacity and technical contractors (reference organisations) to meet 90/180-day assessment windows.
3. **Financial and legal consequences**
   a. Polluter-pays enforcement should mobilise responsible parties to meet cleanup costs, but when polluters are defunct or insolvent the fiscal burden shifts to public exchequers, requiring budgetary allocation and clear cost-sharing rules.
   b. The potential for criminal liability heightens the legal stakes and will require robust evidentiary standards to link contamination to specific harms.
4. **Industrial and investment signaling**
   a. Clear rules improve environmental governance credibility and signal to industry that legacy

liabilities will be addressed — this can raise compliance costs but may also drive better waste-management practices and investor certainty in the medium term.

b. Conversely, poorly executed rollouts could create legal uncertainty for current landowners, investors and communities dependent on contaminated lands.

5. **Transparency, rights and community concerns**

a. Public disclosure of contaminated sites empowers affected communities but could also stigmatise local economies, affect land values and disrupt livelihoods without parallel social protection measures.

b. Successful remediation therefore requires community consultation, livelihood safeguards, and clear communication on land-use restrictions and rehabilitation timelines.

Challenges and Way Forward

Challenge	Way Forward
Large-scale identification & verification burden	Build centralised portal, mandate local lists, strengthen SPCB capacity
Lab, technical & HR gaps	Invest in regional labs, train/ empanel organisations, standardise protocols
Financing remediation when polluters absent	Create remediation fund, set Centre–State cost-sharing rules, use PPPs
Legal clarity & timebound action	Set statutory deadlines, create fast-track dispute resolution
Social impacts on communities	Provide livelihood support, relocation aid, health screening, community consultation
Preserving institutional memory & trust	Maintain national inventory, publish reports, conduct independent audits

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10. Kaziranga's First Bird Census

Why in the News?

1. Prime Minister Narendra Modi, in his *Mann ki Baat* programme, highlighted the **first-ever** bird census conducted at **Kaziranga National Park**.

2. The bird monitoring was done using innovative **acoustic** (sound) and **visual recording techniques**, representing a shift in biodiversity monitoring.

Key Highlights

1. **The Bird Census Exercise**

a. Conducted by a team of scientists, officials, and birders from Assam and Mizoram.

b. Covered **25 wetland sites** in **Kaziranga National Park**.

c. Organized under the Bioblitz program of the UNESCO World Heritage Biodiversity Programme India.

d. Employed tools like **acoustic recorders** to track bird sounds.

2. **Scope and Diversity**

a. The census recorded **175 bird species**, including **20 that are globally threatened**.

b. Notable sightings included the **Finn's weaver**, **striate babbler**, and **ashy prinia**.

c. Focus on wetland specialists and endangered species found in floodplain ecosystems.

3. **Innovative Methodology**

a. Utilized **passive acoustic monitoring** to capture bird calls and sounds remotely.

b. Audio samples were recorded and later analyzed using specialized software.

c. Helped identify birds even without visual confirmation, making detection more reliable in dense terrain.

4. **Findings and Importance**

a. Helped track **migration patterns**, breeding behavior, and rare bird activity.

b. Recorded bird calls over extended periods (between March and May) for accurate data.

c. Detected a **new colony of Finn's weaver**—a rare, endangered bird, previously unreported in some areas.

5. **Integration with Conservation Policy**

a. Supported biodiversity assessments and wetland ecosystem health.

b. Aligned with **climate change** research as bird populations reflect habitat shifts.

c. Aids in developing early warning systems for environmental changes in the Brahmaputra floodplains.

Implications

Implication	Details
For Conservation Strategy	Informs wetland and habitat conservation efforts in floodplains and grassland ecosystems.
For Scientific Research	Promotes the use of **bioacoustics** and remote sensing for ecological monitoring.
For Policy and Governance	Enhances evidence-based planning for wildlife protection and biodiversity preservation.
For Local Ecosystems	Protects bird habitats under stress from **climate change**, urban expansion, and agriculture.
For Education and Awareness	Encourages **community involvement** and **citizen science** in ecological studies.

Key Government Initiatives and Programs

Initiative/ Program	Description
Wildlife Protection Act, 1972	Provides legal protection to bird species under various Schedules (especially Schedule I).
National Wildlife Action Plan (2017-2031)	Focuses on habitat conservation, including wetlands and grasslands vital for bird populations.
Indian Bird Conservation Network (IBCN)	A collaboration with BNHS and BirdLife International for identifying and protecting Important Bird Areas (IBAs).
Important Bird Areas (IBA) Programme	Identifies key habitats for conservation of threatened bird species based on global criteria.
Wetlands (Conservation and Management) Rules, 2017	Protects key bird habitats like lakes, marshes, and mangroves, especially for migratory birds.
Ramsar Convention Implementation	India has designated 80+ Ramsar sites, many of which are important for waterbirds and migratory species.
National Action Plan for Vulture Conservation	Focuses on saving critically endangered vulture species through breeding, banning harmful drugs (like diclofenac), and awareness.
Bird ringing and migration studies by BNHS	Supports scientific monitoring and tagging of birds to understand migratory patterns.
Eco-sensitive Zones (ESZs)	Buffer zones around protected areas to reduce human pressure on bird habitats.
Project Great Indian Bustard	A species-specific conservation program under CAMPA to protect one of the most critically endangered birds in India.

Challenges and Way Forward

Challenges	Way Forward
Limited knowledge of nesting and breeding behavior	Conduct long-term studies to track breeding and habitat-use patterns
Difficulty in identifying birds visually in dense habitats	Expand the use of **acoustic sensors and AI-based sound analysis** tools
Lack of community engagement in conservation	Involve local communities in monitoring and protecting bird habitats
Threats from climate change, floods, and habitat degradation	Build resilience plans and integrate findings into **disaster preparedness**
Shortage of trained staff and technological expertise	Train more forest personnel and ecologists in **modern biodiversity tools**

11. Invasive Alien Species

Why in the News?

1. A new global assessment published in *Nature Ecology & Evolution* reveals that **invasive alien species have cost the global economy over $2.2 trillion between 1960-2022**.
2. The study uses the *InvaCost* database and highlights that **previous estimates were underestimated by nearly 16 times**, indicating a severe data gap.
3. India recorded the **highest percentage discrepancy (1.16 billion%) in management expenditure reporting**, indicating huge unrecorded or hidden costs.

Key Highlights

1. **Invasive Alien Species**
   a. **Invasive Alien Species** are **plants, animals, fungi,** or **microorganisms** that are **introduced (intentionally or unintentionally) outside their native range** and whose introduction and spread **threaten ecosystems, habitats, native species,** or **cause economic and human health impacts**.
   b. ***Lantana camara*** in India – displaces native flora and reduces grazing land.
   c. ***Water Hyacinth*** *(Eichhornia crassipes)* – clogs water bodies, affecting fisheries and irrigation.
2. **Global Economic Impact of Biological Invasions**
   a. Non-native plants emerged as the **most economically impactful**, costing **$926 billion**, followed by arthropods ($830 billion) and mammals ($263 billion).
3. **Regional Disparities in Cost**
   a. Europe accounts for the highest share: **$1.5 trillion (71.45%)**.
   b. Followed by **North America ($226 billion), Asia ($182 billion), Africa ($127 billion), and Oceania ($27 billion)**.
   c. Higher costs in Europe attributed to high agricultural product value and management cost.
4. **India's Situation**
   a. India showed the **highest discrepancy in management cost reporting (1.16 billion%)**, suggesting poor documentation and underreporting.
   b. Reasons: **lack of centralized data systems, inter-agency gaps, and limited funding for biological invasion management**.
5. **Drivers of Biological Invasions**
   a. Globalisation, trade, and travel are the main contributors to the spread of invasive species.
   b. Examples: **Japanese Knotweed (Reynoutria japonica)** and **Common Lantana (Lantana camara)** are among the costliest to manage.
6. **Control Measures and International Frameworks**
   a. Ballast Water Management Convention – prevents spread of harmful aquatic organisms through ship ballast water.
   b. Convention on Biological Diversity (CBD) – mandates prevention, control, or eradication of alien species threatening ecosystems.
   c. Management strategies: **prevention, eradication, control, and slowing spread of invasions**.

Implications

1. **Economic Consequences**
   a. High financial burden on agriculture, forestry, and fisheries.
   b. Increased costs for eradication and restoration efforts.
2. **Biodiversity and Ecosystem Impact**
   a. Invasive species threaten **native species, ecosystem stability, and food security**.
   b. Disruption of ecological balance leading to loss of ecosystem services.
3. **Policy and Governance Challenges**
   a. Lack of centralized reporting systems in countries like India.
   b. Insufficient coordination among agencies and absence of dedicated funding.
4. **Trade and Globalisation Paradox**
   a. Invasive species spread is a byproduct of trade and tourism.
   b. Balancing economic integration with ecological security is a major challenge.
5. **Need for Data and Research**
   a. Discrepancy in reporting indicates a **severe knowledge gap**.
   b. Stronger databases and regular monitoring are essential for effective management.

Challenges and Way Forward

Challenges	Way Forward
Lack of comprehensive data and reporting	Establish centralized **national and regional invasive species databases**
Underfunding and competing conservation priorities	Allocate **dedicated budget** for invasive species management
Weak coordination among government agencies	Create **inter-agency coordination mechanisms**
Spread through trade and tourism	Implement **stricter quarantine and trade regulations**
Limited public awareness	Conduct **awareness campaigns and community-based monitoring programs**

SOCIETY AND CULTURE

1. India's Stunting Crisis Despite POSHAN Abhiyaan

Why in the News?

1. **POSHAN Abhiyaan**, launched in **2018**, aimed to reduce stunting among children **under five** by **2 percentage points annually**.
2. As per Poshan Tracker data (June 2025), stunting remains at **37%**, barely improving from **38.4% in 2016**, indicating failure to meet the target of **25% by 2022 (Mission 25 by 2022)**.
3. Persistent stunting highlights systemic issues in maternal and child health, nutrition, sanitation, and social practices.

Key Highlights

1. **Poshan Abhiyaan**
   a. **Nature of Initiative:** A **multi-ministerial mission** focused on improving nutrition and health.
   b. Primary Objectives:
      i. Reduce **malnutrition** and **stunting** among children.
      ii. Address **anaemia** in children and women.
      iii. Enhance **overall health outcomes** across the country.
   c. **Implementing Body:** Led by the **Ministry of Women and Child Development**.
   d. **Collaborative Approach:** Works in partnership with various **central ministries**, **state governments** and **local stakeholders** and organizations.
2. **POSHAN Abhiyaan Targets vs. Reality**
   a. **Target:** Reduce stunting by 2% annually and reach **25% by 2022**.
   b. **Reality:** After seven years, only **1% decline** from 2016 levels (38.4% → 37%).
   c. Indicates deep-rooted structural and social barriers beyond program implementation.
3. **Underlying Causes of Stunting**
   a. **Maternal Health & Adolescent Pregnancy**: Nearly half of stunted children are born small. **Teen pregnancies** (7% of women aged 15–19) lead to low birth weight.
   b. **Anaemia**: **57% women (15–49)** and **67% children under five** are anaemic.
   c. **Poor Diet Quality**: Carbohydrate-heavy meals dominate; **very low protein** and micronutrient intake. Only **11% of children under 2 years** get a minimum acceptable diet.
4. **Breastfeeding and Early Child Care**
   a. Exclusive breastfeeding under 6 months: **64% only**.
   b. Caesarean births (22% in 2021, up from 9% in 2005-06) disrupt early breastfeeding.
   c. Social inequalities affect breastfeeding—informal sector mothers return to work early.
5. **Sanitation and Water Access**
   a. **19% households practice open defecation** → contamination of drinking water.
   b. Leads to infections, poor gut health, and malnutrition.
   c. Creates a **vicious cycle**: malnutrition → frequent illness → less food absorption → deeper malnutrition.
6. **Education and Intergenerational Impact**
   a. **Maternal Education**: 46% stunting among children of uneducated mothers vs 26% for educated mothers (12+ years).
   b. Stunting leads to long-term effects: **Poor cognitive skills, low employability, perpetuation of poverty cycle**.

Implications

1. **Health and Nutrition:** Persistent high stunting rates mean widespread **chronic malnutrition**. Increased risk of childhood illness, **impaired physical growth**, and **reduced immunity.**

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2. **Economic Impact:**
   a. Stunting **reduces productivity** and earnings potential, **impacting GDP growth.**
   b. **Intergenerational poverty:** malnourished children grow into less productive adults.
3. **Social Inequality**
   a. Education gap, rural-urban divide, and gender disparities worsen nutritional outcomes.
   b. **Informal sector mothers lack maternity benefits**, impacting infant care.
4. **Public Policy Effectiveness**
   a. Failure to achieve Mission 25 reveals gaps in POSHAN Abhiyaan implementation.
   b. Highlights inadequacy of food-based schemes without addressing sanitation, education, and maternal health.
5. **Global Standing**
   a. Poor progress affects India's ranking on Global Hunger Index and SDG 2 (Zero Hunger) targets.
   b. Reflects systemic challenges in achieving nutrition-related commitments.

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Challenges and Way Forward

Challenges	Way Forward
High prevalence of **anaemia** among women and children	Expand **Iron and Folic Acid supplementation**, strengthen Anemia Mukt Bharat campaign.
Teenage pregnancies and child marriage	Enforce laws on child marriage; promote adolescent health and education programs.
Poor **dietary diversity** and inadequate protein intake	Include **eggs, pulses, and fortified foods** in ICDS and school meals.
Low exclusive breastfeeding rates due to C-sections and work constraints	Improve **maternity benefits**, ensure lactation support in hospitals, and workplace creches.
Open defecation and unsafe water	Strengthen **Swachh Bharat Mission**, ensure piped water and hygiene awareness.

2. Caste Paradox in Progressive States

Why in the News?

1. Increasing incidents of **honour killings** have been reported in socially progressive States like Tamil Nadu, Telangana, Maharashtra, and Kerala, despite higher rates of **inter-caste marriages**.
2. The paradox of **caste-based violence** intensifying in regions where social justice movements have weakened traditional hierarchies has raised concerns about the persistence of caste.
3. Changing family structures and evolving youth attitudes toward relationships indicate a **possible transformation** in the mechanisms that sustain caste.

Key Highlights

1. **Caste as a Social Phenomenon**
   a. Caste in India is not just an individual issue but a **deeply embedded social structure**.
   b. Families, communities, and social norms enforce caste identity, making it **transgenerational**.
2. **Social Justice Movements in South India**
   a. **Shree Narayan Guru Dharma Paripalana (SNDP) Movement**
      i. Shree Narayan Guru Dharma Paripalana (SNDP) Movement was an example of a **regional movement** that arose from **conflict** between the **lower and upper castes**.
      ii. Sree Narayana Guru Swamy founded it among the **Ezhavas of Kerala**, a backward caste of toddy-tappers who were considered **untouchables** and were denied education and entry into temples.
      iii. The backward classes banded together **against the Brahmanas** in particular, believing that they **monopolized** much of the **socio-economic benefits**, leaving the agricultural intermediate castes and communities in the lurch.
   b. **Vokkaligara Sangha**
      i. **Representation and Significance:** The Vokkaliga Sangha is a social organization that primarily represents the **Vokkaliga community**, which is one of the **dominant**

communities in the southern Indian states of **Karnataka, Tamil Nadu,** and **Andhra Pradesh.**

ii. **Agricultural Roots and Political Influence:** The Vokkaligas are primarily an agricultural community, and they have a significant presence in the socio-political landscape of Karnataka.

iii. The Vokkaliga Sangha in Mysore launched an **anti-brahmin movement in 1905**.

c. **Justice Movement**

i. **Origins and Key Figures:** Emerged in early 20th century in the Madras Presidency (now Tamil Nadu)
Led by prominent figures like C.N. Mudaliar, T.M. Nair, and P. Tyagaraja

ii. **Objective:** Tackling Social and Political Inequality,
Aimed to combat the marginalization of non-Brahmin communities.
Focused on securing fair access to education, employment, politics, and public administration.

iii. **Advocacy for Representation:** Called for increased job opportunities and political representation for non-Brahmins.
Highlighted the dominance of Brahmins in administrative and educational institutions

d. **Self-Respect Movement**

i. The Self-Respect Movement, also known as the **Dravidian Movement**, was initiated by **E.V. Ramaswamy Naicker** (popularly known as **Periyar**) in **1925**.

ii. **Advocacy for Non-Brahmin Rights:** The Self-Respect Movement was primarily focused on advocating for the rights and dignity of non-Brahmin communities, especially in the Tamil-speaking regions of South India.

iii. **Challenging Brahminical Supremacy:** The movement sought to challenge and dismantle the perceived superiority of Brahmins in social, cultural, and political spheres.

e. Periyar's ideas continue to influence political and social discourse in the region to this day.

3. **Impact of Social Justice Movements**
   a. Marginalised communities, especially Dalits, have gained access to **education and employment**.
   b. This has enabled **integration into mainstream society** through workplaces, colleges, and urban spaces.
4. **Rise of Inter-Caste Marriages and Honour Killings**
   a. States like Tamil Nadu, Telangana, Maharashtra, and Kerala show **higher inter-caste marriage rates** (IHDS-II: national average ~5%).
   b. Ironically, these States also record **increased incidents of honour killings**, indicating a reaction to perceived threats to caste hierarchy.
5. **Tamil Nadu's Caste Paradox**
   a. The State has a **strong anti-caste political culture** and vibrant civil society, yet caste pride thrives on **social media anonymity**.
   b. Publicly, caste violence is condemned; privately, caste identity still shapes **marriages and alliances**.
6. **Changing Family Structure and Future of Caste**
   a. Caste survives mainly because it is transmitted through **family customs, marriage norms, and social expectations**.
   b. Globally and in urban India, **traditional family units are weakening**, with trends like cohabitation and delayed marriage.
   c. As families lose their dominance in socialising norms, **caste's cultural infrastructure weakens**.

Related Constitutional Provisions

1. **Article 15 – Prohibition of Discrimination:**
   a. Prohibits discrimination on grounds of religion, race, caste, sex, or place of birth.
   b. Article 15(3) & 15(4): Allows special provisions for women, children, and socially and educationally backward classes (including SCs/STs).
2. **Article 17 – Abolition of Untouchability:** Declares untouchability as abolished and its practice in any form is an offence.

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3. **Article 19(1)(d) & 19(1)(e) – Freedom of Movement and Residence**
   a. Every citizen has the right to move freely and reside anywhere in India.
   b. Honour killings for inter-caste marriages violate these freedoms.

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4. **Article 21 – Right to Life and Personal Liberty:** Includes the right to marry a person of one's choice (as held in Lata Singh v. State of UP, 2006 and Shakti Vahini v. Union of India, 2018).

Security

5. **Article 23 – Prohibition of Forced Labour:** Indirectly addresses bonded labour, which often stems from caste hierarchies.

Economy

6. **Article 46:** Obligation of the State to protect the interests of weaker sections, particularly Scheduled Castes and Scheduled Tribes.
7. **Article 243D & 243T – Reservation in Local Bodies**: Provides political representation to SCs and STs in Panchayats and Municipalities.

Science

Implications

1. Social Implications
   a. Increased **social tensions** as empowered Dalits challenge traditional hierarchies.
   b. Honour killings as a **reaction to changing social order**, not persistence of old norms.
2. Cultural Implications
   a. Persistent **internal caste pride** despite progressive politics.
   b. Fear of losing **inherited cultural power** fuels caste glorification on digital platforms.
3. Political Implications
   a. Caste-based mobilisation may adapt to new realities, focusing on **identity politics online**.
   b. Governments face **pressure to curb honour killings** through stronger legal frameworks.
4. Technological and Digital Implications

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a. Social media acts as a **double-edged sword**: enabling anti-caste activism but also giving space for caste pride and hate narratives.
b. Need for **digital counter-narratives** to challenge caste supremacy.

P.i.N.

5. Future Social Trends
   a. Weakening family structures may **reduce caste-based endogamy**, slowly dismantling caste hierarchies.
   b. Urbanisation and individualism could accelerate **social transformation**.

Challenges and Way Forward

Challenges	Way Forward
Honour killings remain **high in progressive States**	Enforce **strict laws like SC/ST (Prevention of Atrocities) Act** effectively
Deep-rooted family influence sustains caste	Promote **awareness programs** targeting family attitudes
Social media **caste glorification** fuels hate	Develop **stronger digital monitoring and counter-campaigns**
Resistance from **conservative communities**	Encourage **inter-caste harmony programs** in schools and colleges
Lack of **holistic policy framework** to address caste	Combine **legal, social, and digital interventions**

3. CBSE to Introduce Open-Book Exams

Why in the News?

1. **CBSE has approved open-book assessments for Class 9 from the 2026-27 academic year.**
2. The Governing Body (the Board's highest decision-making authority) cleared the proposal in June 2025.
3. The **decision follows a pilot run (Nov-Dec 2023)** in select CBSE schools for Classes 9-12 across specific subjects; the pilot reported **strong teacher support** for OBEs.

Key Highlights

1. **What exactly has CBSE approved?**
   a. Integrate **open-book assessments in Class 9** as part of school-level written assessments from **2026–27**.
   b. The move targets a **shift away from rote memorisation** toward application and reasoning.

2. **How will it be conducted (initial framing)?**
   a. Planned **as part of three pen-and-paper assessments per term** in core subjects (languages, mathematics, science, social science).
   b. CBSE will **develop standardised sample papers** to guide question quality and elicit higher-order thinking.
3. **What did the pilot show?**
   a. **Performance ranged between approximately 12% - 47%**, indicating many students struggled to use resources and connect ideas across topics.
   b. **Teachers backed the format**, but highlighted the need for **structured guidance** on how to navigate materials and apply knowledge.
4. **Policy alignment (NEP/NCFSE 2023)**
   a. **NEP 2020 and NCFSE(National Curriculum Framework for School Education) 2023** urge a **competency-based** approach and assessments that reduce fear and test understanding, application, and problem solving.
   b. CBSE cites this policy direction as the rationale for OBE.
5. **Context from India's past efforts**
   a. CBSE's **Open Text-Based Assessment (OTBA)** ran in Class 9 (five subjects) and Class 11 (three subjects) from 2014, then **discontinued in 2017–18** for not building the **"critical abilities"** intended.
   b. OBE has a stronger footprint in **higher education** (AICTE-approved, widely used during COVID-19).

Implications

1. **For students (study methods & well-being)**
   a. Preparation must shift from **memorising to organising**; annotating texts, building indexes, and practising **retrieval + application** under time limits.
   b. Potential for **lower exam anxiety**, but only if students receive **explicit training** on using resources effectively.
2. **For teachers (assessment design & pedagogy)**
   a. Need to craft **case-based, multi-step questions** that require synthesis, not lookup.
   b. Greater emphasis on **formative tasks** (source analysis, open-ended prompts) to cultivate OBE skills through the term.
3. **For schools (capacity & systems)**
   a. Schools must **orient parents and students**, set **materials policies** (what is "open"), and ensure **library/classroom resource access**.
   b. Internal moderation may be needed to maintain **question quality and comparability** across sections.
4. **For coaching & ed-tech**
   a. Likely pivot from "notes to memorise" toward **skill drills** (argument mapping, evidence use, quick referencing).
   b. Tools simulating OBE conditions (timed, resource-allowed practice) may gain prominence.
5. **For policy & the exam ecosystem**
   a. Offers a **pathway to competency-based assessment** in lower secondary, consistent with NEP/NCF.
   b. If quality-assured, OBE could gradually **re-shape board-exam preparation** cultures away from last-minute cramming.

Challenges and Way Forward

Challenges	Way Forward
Weak student performance	Skill-building modules, worked exemplars with annotated answers
Poor question quality & depth	Teacher training in item-writing, multi-step/context-rich items, CBSE rubrics
Inconsistency across schools	Moderation, peer review, question banks, standard-setting
Equity of access to resources	Approved resource lists, library sets, standardised student-made sheets
Time management issues	Timed OBE mocks, reference-first and planning strategies
High teacher workload	Collaborative item-writing, shared banks, analytic rubrics
Misconceptions among parents/ students	Orientation sessions, demos, FAQs
Risk of repeating OTBA pitfalls	Avoid pre-circulated texts, use novel tasks, track learning outcomes

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4. India's Role in Global Fight Against Hunger

Why in the News?

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1. The **United Nations' report "The State of Food Security and Nutrition in the World 2025"** highlights a decline in global undernourishment.
2. India has played a decisive role in this global progress through major policy and technological interventions in food security and nutrition.

Security

Key Highlights

Economy

1. **Global Undernourishment Trends**
   a. Global chronic undernourishment declined from **688 million in 2023 to 673 million in 2024** (8.2% of world population).
   b. Still above pre-pandemic levels of 7.3% (2018), but reversal signals positive momentum.

Science

2. **India's Contribution to Progress**
   a. Prevalence of undernourishment in India fell from **14.3% (2020–22) to 12% (2022–24)**.
   b. This translates into **30 million fewer people living with hunger** despite pandemic disruptions.

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3. **Transformation of Public Distribution System (PDS)**
   a. Revamped through **digitalisation**, **Aadhaar-enabled targeting**, and **biometric authentication**.
   b. One Nation One Ration Card ensured portability of entitlements, benefiting migrants.
   c. Electronic **point-of-sale systems** improved efficiency and reduced leakages.

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4. **Focus Shifting from Calories to Nutrition**
   a. 60% of population still cannot afford a healthy diet due to high cost of nutrient-rich foods and weak cold-chain infrastructure.
   b. Initiatives like **PM Poshan (2021)** and **ICDS** now stress **dietary diversity** and nutrition sensitivity.

History

5. **Structural Issues**
   a. Rising **malnutrition, obesity, and micronutrient deficiencies** despite falling hunger rates.
   b. High cost of healthy diets for 60% of population
   c. Post-harvest food losses (13%)
   d. Overreliance on **calorie-based programs**
   e. Limited role of **small farmers and women entrepreneurs**

Ethics

6. **Next Steps (Way Forward)**
   a. Agri-food system transformation needed:
      i. Boost production of pulses, fruits, vegetables, and animal products.
      ii. Reduce 13% food loss through **post-harvest infrastructure** (cold storage, logistics).
      iii. Promote **FPOs** and **women-led enterprises** for inclusive growth.
      iv. Leverage **digital tools** like AgriStack, e-NAM for planning and delivery.
      v. improve supply chains and strengthen market linkages
      vi. Promote **nutrition-sensitive agriculture** and **food fortification**
      vii. Enhance dietary diversity through programs like PM Poshan and ICDS

P.i.N.

Implications

1. **For Global Hunger Reduction:** India's success provides a **replicable model for the Global South**, showcasing scalability of digital solutions and governance reforms.
2. **For SDG 2 (Zero Hunger):** With only five years left to meet SDG targets, India's momentum is crucial to global progress on hunger elimination.
3. **For Social Protection and Governance:** Innovations in **PDS**, portability, and **digital delivery** strengthened India's social safety net during crises.
4. **For Agriculture and Economy**
   a. Demand for **nutrition-sensitive agriculture** creates opportunities in horticulture, livestock, and agri-tech sectors.
   b. Investment in **cold-chain infrastructure and logistics** can reduce losses and improve affordability.
5. **For Health and Nutrition Policy**
   a. Shift from **quantity to quality** in food programs is essential to tackle malnutrition and **hidden hunger**.

5. India's Ageing Women: The Silent Health Crisis

Why in the News?

1. The **India Ageing Report 2023** by the International Institute for Population Sciences and the UN Population Fund projects that people aged 60+ will comprise **over 20% of India's population by 2050**, indicating rapid ageing.
2. The report highlights a **gendered health gap**, with women living longer than men but spending **25% more time in poor health**, according to the McKinsey Health Institute.

Key Highlights

1. **Demographic Transition and Gender Gap**
   a. India's elderly population (60+) is projected to cross **20% by 2050**.
   b. Women live **2.7 years longer** than men on average, creating a demographic tilt.
   c. However, women experience **higher morbidity and disability** in old age.
2. **Social Determinants and Health-Seeking Behaviour**
   a. Women prioritise **family wellbeing over their own health**, leading to neglect of personal care.
   b. Health-seeking behaviour is shaped by factors like **education, social norms, marital status, financial dependency**, and **digital access**.
   c. Elderly women are highly **dependent on family** for decision-making and mobility; two-thirds are accompanied by family members for care.
3. **Economic and Digital Vulnerability**
   a. Around **60% of older women have no personal income**; less than **20% pay their medical bills** independently.
   b. Very few have health insurance coverage.
   c. A wide **digital gender gap** further restricts access to health services and information.
4. **Gendered Health Risks and Diseases**
   a. **Chronic conditions** like cardiovascular diseases, cancers, and neurodegenerative disorders are prevalent but underdiagnosed.
   b. Post-menopause risks: **osteoporosis, arthritis, fractures, and nutritional deficiencies**.
   c. High burden of **breast, cervical, and ovarian cancers** among older women; screening drops sharply after reproductive age.
   d. Mental health concerns: only **1 in 10 elderly women with depression seek help**.
5. **Positive Trends and Coping Strategies**
   a. Many elderly women engage in **community activities, yoga, hobbies**, which improve mental and physical health.
   b. Educated women have better access to healthcare, showing the **role of schooling in health empowerment**.
   c. Social connections remain strong, acting as a **protective factor against loneliness**.

Major Initiatives & Schemes by the Government of India for Elderly Women

1. **Financial Security and Pension Schemes**
   a. **Indira Gandhi National Old Age Pension Scheme (IGNOAPS)**
      i. Provides a monthly pension to elderly persons (60+ years) belonging to Below Poverty Line (BPL) households.
      ii. Women aged 60–79 get ₹200/month (central share); 80+ get ₹500/month. States often add to this.
   b. **Pradhan Mantri Vaya Vandana Yojana (PMVVY)**
      i. A pension scheme for senior citizens (60+) with an assured return of 8% per annum.
      ii. Special focus on women investors for financial security.
   c. **Atal Pension Yojana (APY)**
      i. Provides defined pension after 60 years. Women subscribers get incentives for enrollment.
2. **Health and Nutrition**
   a. **National Programme for Health Care of the Elderly (NPHCE)**
      i. Comprehensive geriatric health care through primary, secondary, and tertiary health facilities.
      ii. Includes special outreach for elderly women with chronic illnesses and mental health issues.

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b. **Ayushman Bharat – PM-JAY**
   i. Provides cashless secondary and tertiary health care for poor senior citizens, including elderly women.
c. **Integrated Programme for Older Persons (IPOP)**
   i. Grants to NGOs for running old-age homes, day-care centres, and health care facilities for elderly, prioritizing widows and single women.
d. **Poshan Abhiyaan**
   i. Though mainly for children and pregnant women, some states have extended nutritional support to elderly women, especially widows.

3. **Social Security & Welfare**
   a. **Maintenance and Welfare of Parents and Senior Citizens Act, 2007**
      i. Legal right for elderly (including women) to claim maintenance from children or heirs.
      ii. Provisions for old-age homes and protection against neglect.
   b. **Rashtriya Vayoshri Yojana**
      i. Provides physical aids and assistive living devices (hearing aids, walking sticks, wheelchairs) to senior citizens belonging to BPL category, especially women.
   c. **Senior Citizens' Savings Scheme (SCSS)**
      i. A government-backed savings instrument offering higher interest rates for senior citizens, benefiting elderly women who invest.
4. **Safety and Empowerment**
   a. **One Stop Centres (OSCs)** under the **Women and Child Development Ministry**
      i. Provide support to elderly women facing abuse or violence.
   b. **HelpAge India collaboration with Government**
      i. Helplines, counseling, and support for elderly women in distress.
5. **Digital and Legal Support**
   a. **Digital Literacy Campaigns under PMGDISHA**
      i. Aims to reduce the digital divide among elderly women, enabling them to access telemedicine and online pension services.
   b. **Senior Citizen Cell in Police Departments**
      i. Special cells for safety and grievance redressal, benefiting elderly women living alone.

Implications

1. **For Public Health Policy**
   a. Growing elderly population demands **inclusive and gender-sensitive health systems**.
   b. Need for **lifelong preventive healthcare** for women, not just maternal care.
2. **For Social Structure**
   a. **Patriarchal norms** and decision-making patterns restrict women's autonomy in health-seeking.
   b. High dependency on family increases **social vulnerability** for older women.
3. **For Economic Security**
   a. Low personal income and inadequate insurance coverage heighten **financial insecurity**, delaying treatment.
   b. Higher health costs in later years increase **economic burden on households**.
4. **For Healthcare Infrastructure**
   a. Lack of **female health providers**, gender-sensitive facilities, and geriatric specialists limits accessibility.
   b. Inadequate screening for **cancers and osteoporosis** worsens late-stage diagnoses.
5. **For Mental Well-being**
   a. Rising **cognitive decline, dementia, and depression** among elderly women needs focused mental health programs.
   b. Social isolation post widowhood increases **psychological vulnerability**.

Challenges and Way Forward

Challenges	Way Forward
High **financial dependency** and **low insurance coverage**	Expand **universal health coverage** and targeted insurance for elderly women
Gender-insensitive health systems	Integrate **gender-responsive geriatric care** in public health programs

Low screening and **delayed diagnosis** of cancers and osteoporosis	Implement **regular screening programs** for post-menopausal women
Digital divide limiting access to health information	Promote **digital literacy** and provide assisted telemedicine facilities
Social stigma and family control over health decisions	Launch **awareness campaigns** to encourage autonomy and mental health care

6. Dowry Deaths

Why in the News?

1. Despite being **illegal since 1961**, dowry remains prevalent across **religions, castes, classes, and regions**, with increasing reports of brutality.
2. Some high-profile cases like **Nikki Bhati's death** have reignited public discourse on dowry-related violence.

Key Highlights

1. **Magnitude of the Problem**
   a. **National Crime Records Bureau** (NCRB) data for 2022 shows **6,450 dowry deaths**, translating to almost **18 deaths per day in India**.
   b. By mid-2025, an estimated **4,205 women have already been killed for dowry**, and actual figures may be much higher due to underreporting.
2. **Persistence Despite Legal Ban**
   a. The **Dowry Prohibition Act, 1961** made the practice illegal.
   b. However, dowry continues to be normalized as a **custom** for "settling" daughters in their "new homes."
   c. A **World Bank study** found that **90% of Indian marriages between 1960 and 2008 involved dowry**, showing no significant decline.
3. **Violent Reality Beyond Financial Transaction**
   a. Dowry-related violence includes **burning alive, drowning, strangulation** (the action of killing someone by pressing their throat so that they cannot breathe)**, battering with bricks, hot iron torture, and forced suicide**.
   b. It is not just an economic transaction but a **life-threatening practice** that often results in **murder**.
4. **Sociocultural Factors and Normalization**
   a. Dowry is prevalent **across urban and rural India**, cutting across **religion, caste, and class**, as confirmed by activists like Brinda Adige.
   b. Parents often justify giving dowry to **ensure a comfortable marriage** for daughters, reinforcing the patriarchal system.
   c. Society largely views the failure to pay dowry as the **woman's fate**, rather than as a systemic crime.
5. **Systemic Neglect and Lack of Awareness**
   a. Dowry deaths rarely make **front-page headlines** or feature in **prime ministerial speeches**.
   b. The crime remains **absent from national consciousness**, despite its scale and brutality.
   c. Historian and legal experts argue that **textbooks falsely portray dowry as a past evil**, ignoring its modern prevalence.

Implications

1. **Gender Equality and Human Rights Concerns**
   a. Continues to undermine **constitutional guarantees** of equality and dignity for women.
   b. Reinforces **patriarchal norms**, making women feel inferior even when educated or financially independent.
2. **Legal and Governance Gap**
   a. Despite **laws against dowry**, enforcement remains weak due to **social acceptance** and **lack of stringent monitoring**.
   b. Police often fail to act proactively to prevent dowry transactions and violence.
3. **Economic and Social Burden on Families**
   a. Dowry is described as one of the **largest financial transactions in Indian households**, creating debt traps for poor families.
   b. Families of victims suffer **legal, social, and emotional trauma**, worsening gender-based discrimination.
4. **Impact on Marriage and Social Behavior**
   a. Fear of dowry harassment pushes some women to **avoid marriage altogether**, as in the case of **Archana Tiwari**.
   b. Creates a system where **marriage becomes a financial exchange**, devaluing women as individuals.

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5. **Policy and Cultural Blind Spot**
   a. Current **awareness campaigns like Beti Bachao Beti Padhao** do not address dowry-specific violence.
   b. **Media and educational content** fail to present dowry as an ongoing crime, limiting societal outrage and reform.

I.R.

Challenges and Way Forward

Challenges	Way Forward
Widespread **social acceptance** of dowry	Launch **national awareness campaigns** highlighting dowry as a criminal act.
Weak enforcement of **Dowry Prohibition Act**	Conduct **police raids at weddings** and strengthen **monitoring mechanisms**.
Lack of **visibility in public discourse**	Update **school textbooks** and include dowry-related cases in civic education.
Poor support for victims and whistleblowers	Provide **legal aid**, **safe houses**, and **financial assistance** for survivors.
No recognition of activists fighting dowry	**National awards** and **media campaigns** for women resisting dowry practices.

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Geography

7. Counting PVTGs in the Upcoming Census

Why in the News?

1. The Ministry of Tribal Affairs (MoTA) has written to the Registrar General and Census Commissioner of India, requesting the inclusion of **Particularly Vulnerable Tribal Groups (PVTGs)** as a separate category in the upcoming Census.
2. If implemented, this will be the **first separate enumeration of PVTGs** since the category was introduced, aiding in targeted developmental planning.

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1. **MoTA's Proposal to Census Authorities**
   a. MoTA requested the Registrar General and Census Commissioner of India (RGI), that PVTG households and individuals be **counted separately** from the broader Scheduled Tribe category.
   b. The proposal also seeks data on **cultural, demographic, and socio-economic features** of PVTGs.
2. **Current Status of PVTGs**
   a. There are **75 PVTGs spread across 18 states and 1 Union Territory** of **Andaman and Nicobar Islands**.
   b. In the **2011 Census**, 40 PVTGs were counted under the larger ST category, **not separately identified**.
3. **Historical Evolution of the Category**
   a. The category originated after the **Dhebar Commission Report (1961)**, which highlighted inequalities within tribal communities.
   b. In **1973**, the category **Primitive Tribal Groups (PTGs)** was created based on **four criteria**:
      i. Pre-agricultural level of technology
      ii. Low literacy
      iii. Economic backwardness
      iv. Declining/stagnant population
   c. In **2006**, the term changed to **PVTGs**, replacing "primitive" due to its problematic nature.
4. **Socio-Economic and Health Conditions**
   a. PVTGs have the **lowest female literacy rate in India**.
   b. A **2024 study** in *Journal of Health, Population and Nutrition* found uncertain health indicators among 13 PVTGs in Odisha between 2000–2023.
   c. Their health and nutrition outcomes remain **far below national averages**.
5. **Government Initiatives and Future Reforms**
   a. The **Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM JANMAN)** was launched in 2023.
      i. This initiative aims to **provide essential amenities** such as secure housing, clean drinking water, sanitation, improved access to education, health, and nutrition, as well as enhanced road and telecom connectivity, and sustainable livelihood opportunities to PVTGs households and habitats.
   b. Experts suggest **revising PVTG criteria**, as existing definitions are decades old and outdated.

P.i.N.

c. For example, "pre-agricultural technology" is no longer valid because many communities now use modern tools.

Constitutional Safeguards for PVTGs in India

1. Particularly Vulnerable Tribal Groups (PVTGs) fall under the broader category of **Scheduled Tribes (STs)** and therefore enjoy all the **constitutional safeguards** available to STs under the Constitution of India.
2. There are **no separate constitutional provisions exclusively for PVTGs**, but they are covered under ST-related provisions and benefit from special schemes.

Fundamental Rights

1. **Article 15(4)** – State can make special provisions for the advancement of Scheduled Tribes.
2. **Article 16(4)** – Reservation in public employment for STs.
3. **Article 19(5)** – State can impose reasonable restrictions on movement or residence for protecting ST interests.
4. **Article 23 & 24** – Prohibition of bonded labour and child labour, which often affect vulnerable tribal groups.

Directive Principles of State Policy (DPSP)

1. **Article 46** – State shall promote educational and economic interests of STs and protect them from social injustice and exploitation.

Schedules

1. **Fifth Schedule** – Special provisions for administration and control of Scheduled Areas and STs in states other than Assam, Meghalaya, Tripura, and Mizoram.
2. **Sixth Schedule** – Special provisions for administration of tribal areas in Assam, Meghalaya, Tripura, and Mizoram through Autonomous District Councils.

Political Representation

1. **Article 330** – Reservation of seats for STs in the Lok Sabha.
2. **Article 332** – Reservation of seats for STs in State Legislative Assemblies.

Administrative Provisions

1. **Article 338A** – Establishment of the **National Commission for Scheduled Tribes** (NCST) to safeguard ST rights.
2. **Governor's Powers under Fifth Schedule** – Governor can make regulations to prohibit land transfer and regulate money-lending for protection of ST interests.

Implications

1. **Better Policy Targeting**
   a. Separate enumeration will help **identify gaps** in education, health, and infrastructure among PVTGs.
   b. Enables **data-driven welfare schemes** instead of blanket approaches.
2. **Improved Implementation of Schemes**
   a. PM JANMAN and other tribal welfare programs will be **better monitored and evaluated**.
   b. Helps in **tracking progress** at the community level.
3. **Reduction in Regional Disparities**
   a. Accurate data will help **focus resources** on the most marginalised groups in **remote and difficult terrains**.
4. **Sociological and Cultural Insights**
   a. Separate counting will aid in **preserving distinct cultural identities** of PVTGs.
   b. Prevents **forced assimilation**, encouraging social inclusion.
5. **Dynamic Policy Framework**
   a. Updated criteria will ensure that **changing ground realities** (e.g., technology use, literacy improvements) are reflected in official classifications.
   b. Prevents exclusion of deserving groups and **improves equity in resource allocation**.

Challenges and Way Forward

Challenges	Way Forward
Outdated criteria like "pre-agricultural technology"	Revise the definition to reflect **current socio-economic status**

Lack of **detailed data** on PVTGs	Conduct **separate Census enumeration** and **sociological mapping**
Low literacy and health indicators	Targeted schemes for **education, health, and nutrition**
Remote and inaccessible locations	Improve **infrastructure and connectivity** in PVTG regions
Risk of cultural erosion with development	Promote **cultural preservation** alongside economic upliftment

8. Urban Waterlogging in India

Why in the News?

1. Every monsoon, Indian cities face **severe waterlogging**, leading to traffic jams, accidents, and even fatalities.
2. Recent focus has shifted to the lack of scientifically designed drainage systems despite clear guidelines by the **Indian Roads Congress** (IRC) and **Ministry of Road Transport and Highways**(MoRTH).

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Key Highlights

1. **Waterlogging Crisis in Urban India**
   a. Heavy rain exposes poor drainage infrastructure in metropolitan and suburban areas.
   b. Example: **Gurugram**, considered an economic hub, faces massive waterlogging every monsoon.
2. **IRC and MoRTH Guidelines on Urban Drainage**
   a. IRC and **MoRTH** have given some codes to design drainage systems in India.
   b. IRC Codes: IRC:SP:42-2014 (Guidelines on Rural Drainage), IRC:SP:50-2013 (Guidelines on Urban Drainage), IRC:SP-90-2023 (Elevated Structures).
   c. MoRTH Specifications: Clauses 309 and 704 for surface and subsurface drainage.
   d. Emphasizes removing both **surface and subsurface water** to avoid erosion and flooding.
3. **Key Elements of Effective Drainage (As per IRC)**
   a. Road surface drainage and stormwater management.
   b. Stormwater drainage systems and appurtenances (e.g., **inlets**, **outlets**).
   c. Subsurface drainage, drainage of special locations, rainwater harvesting, and pumping in low-lying areas.
4. **Technical Standards and Design Specifications**
   a. Longitudinal Gradient: Minimum 0.50% for pavement drainage; 0.30% for flow inside drains.
   b. Cross Slope (Camber): Ideal 2% for vehicle stability and quick water dispersal.
   c. Shoulders & Footpaths: Shoulders sloped steeper than pavement (by 0.5%); footpaths cross-fall 3-4%.
   d. Hydroplaning Risk: Occurs at speeds of 80-90 kmph with just 2 mm water depth; effective drainage minimizes risk.
5. **Role of Local Authorities and Coordination**
   a. Roads fall under multiple agencies (NHAI, NHIDCL, PWD), but local bodies must link road drains to the city's master drainage.
   b. Lack of **coordination between highway agencies and municipal authorities** often leads to failure in integrating drainage networks.

Implications

1. **Public Safety and Urban Mobility**
   a. Waterlogging causes traffic congestion, vehicle breakdowns, and accidents due to hydroplaning.
   b. Increased risk to pedestrians and commuters during heavy rainfall.
2. **Economic Impact**
   a. Flooded roads disrupt economic activities and increase transportation costs.
   b. Infrastructure damage leads to high repair and maintenance expenditure.
3. **Urban Infrastructure Planning**
   a. Highlights gaps in adherence to IRC and MoRTH guidelines.
   b. Raises questions about accountability in road construction and drainage design.
4. **Environmental and Health Concerns**
   a. Stagnant water fosters vector-borne diseases like dengue and malaria.
   b. Poor stormwater disposal causes erosion and damages ecosystems downstream.

5. **Governance and Policy Gaps**
   a. Heavy reliance on local authorities without proper resources or planning.
   b. Absence of integrated drainage master plans for most cities.

Challenges and Way Forward

Challenges	Way Forward
Poor enforcement of IRC and MoRTH guidelines	Make compliance with standards legally mandatory for all road projects
Lack of coordination between central agencies and municipal bodies	Establish a unified urban drainage authority or coordination cell
Insufficient stormwater management in master plans	Integrate drainage planning in Smart City and AMRUT projects
Financial and technical capacity gaps in local bodies	Provide dedicated funding and technical training for municipal engineers
Climate change leading to intense rainfall events	Adopt climate-resilient drainage design and green infrastructure solutions (rain gardens, permeable pavements)

9. Supreme Court Ruling on Section 498-A

Why in the News?

1. In **Shivangi Bansal vs Sahib Bansal**, delivered in **July 2025**, the **Supreme Court of India** upheld the **Allahabad High Court**'s directions.
2. It was about suspending **arrest** or **coercive action** for **two months** in cases filed under **Section 498-A** of the erstwhile **Indian Penal Code** (now **Section 85** of the **Bharatiya Nyaya Sanhita**).
3. The Court also endorsed the transfer of such cases to **district-level Family Welfare Committees** during this **"cool-off" period**.
4. This effectively provides **temporary blanket protection** to **accused persons**.

Bhartiya Nyaya Sanhita

1. Came into force on **1 July 2024**, replacing the **Indian Penal Code, 1860**.
2. Contains **356 sections** (IPC had 511), with some provisions merged, updated, or removed.
3. Introduces **new offences** like terrorism, organised crime, and mob lynching.
4. Uses **modern and partly gender-neutral language** while retaining most core IPC provisions with new numbering.
5. Aims to be **victim-centric** and remove colonial-era elements from criminal law.

Key Highlights

1. **Purpose and Scope of Section 498-A**
   a. Enacted in **1983** to address **cruelty against women** by their **husband** or **his relatives**.
   b. Punishment includes **imprisonment up to three years** and a **fine**.
   c. **Cruelty** is defined broadly to include **dowry harassment**, **driving a woman to suicide**, or **causing injury** to her **life** or **health**.
   d. Brought in the backdrop of **rising dowry deaths** and intended to work in harmony with other laws like the **Dowry Prohibition Act, 1961**.
   e. Legislative intent was to address **all forms of cruelty in marriage**, recognising that such acts often culminate in **extreme harm** to women.
2. **High Court's Directions**
   a. Ordered that **no arrest or coercive action** should be taken against accused persons for a **period of two months** from the filing of the complaint.
   b. Required the constitution of **Family Welfare Committees** at the **district level** to which such cases would be **referred** during this time.
3. **Supreme Court's Endorsement**
   a. Approved these **directions** in a **single dispute** without a detailed examination of the **broader social** and **political implications**.
   b. Did not fully engage with the **State government's position** before endorsing **suspension of arrest** under a **central criminal provision**.
   c. As a **binding precedent**, it **restricts the police** from making **arrests** even in cases with **strong evidence** during the **two-month period**.

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4. **Consequences for Complainants and Investigations**
   a. The ruling may **endanger complainant safety** during the **delay period**.
   b. Could **discourage women** from **filing police complaints** in cases of **cruelty**.
   c. Risks **legitimising police inaction** in **domestic violence cases** and **slowing down investigations** into **serious allegations**.
5. **The 'Misuse' Debate**
   a. The **narrative of misuse** has been echoed in previous judgments such as **Preeti Gupta vs State of Jharkhand (2010)**, **Sushil Kumar Sharma vs Union of India (2005)**, and **Arnesh Kumar vs State of Bihar (2014)**.
   b. In **Arnesh Kumar**, the Court had already issued **strict guidelines** against **automatic arrests** under **Section 498-A**, requiring police to **assess necessity** before making arrests.
   c. **No empirical evidence** was presented to prove **widespread misuse**; **NCRB data** for **2022** shows a **conviction rate** of around **18%**, which is **higher** than for many other offences.
   d. **Low conviction rates** may be due to **investigative issues**, **systemic bias**, **family pressure** on victims, **difficulty in obtaining evidence** from **intimate spaces**, and the **high burden of proof** in criminal trials.
6. **Statistical and Survey Insights**
   a. **NCRB** recorded **1,34,506 cases** under this law in **2022**.
   b. **National Family Health Survey-5** found **significant under-reporting** of **violence against women** in many states.
   c. **Rising case numbers** may reflect **greater awareness** rather than **increased false reporting**, as noted by reports from **women's organisations**.
   d. The possibility of **misuse** exists in any law, but the **truth of allegations** can only be established after **proper investigation**.

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Implications

1. **Erosion of Immediate Protection**
   a. Prevents **swift police intervention**, even in **serious** and **urgent cases**.
   b. May give **accused persons** time to **intimidate** or **pressure victims**.
2. **Impact on Criminal Justice Process**
   a. Delays **evidence collection** and hampers **timely investigations**.
   b. Normalises **slower police action** in **domestic violence cases**.
3. **Risk to Victim Safety and Access to Justice**
   a. Heightens **physical** and **psychological risk** to victims during the **cooling-off period**.
   b. May **discourage** already **hesitant victims** from coming forward.
4. **Gender Justice Concerns**
   a. Weakens a **law** specifically designed to **protect women** from **cruelty** in marriage.
   b. Reinforces existing **institutional bias** against **women** in the **criminal justice system**.
5. **Judicial Intervention in Legislative Policy**
   a. Alters the **operational framework** of a **central criminal law** without **parliamentary debate**.
   b. Contradicts earlier **judicial acknowledgment** that **misuse** is not grounds for **diluting a law's provisions**.

Challenges and Way Forward

Challenges	Way Forward
Complainant safety gap during cooling-off	Fast-track protective orders, emergency shelters, statutory interim protection, mandatory risk assessment with FIR
independence of Family Welfare Committees	Ensure neutral composition, strict timelines, victim protection; define training, oversight, funding, and accountability by law
Delay and risk of evidence tampering	Time-bound preliminary police inquiry (48–72 hrs), immediate preservation of evidence; standardised CrPC reforms for inquiry timelines and digital evidence rules
Uneven application and precedent risk	Clear police instructions by states, judiciary-issued procedural protocol; Parliamentary review of Sec. 498A with safeguards and inquiry step
Data gaps & anecdote-driven policy	Commission independent studies on misuse/convictions, withdrawals, pendency; mandate periodic reporting and independent statutory review committee

HISTORY

1. Piprahwa Relics Repatriated After 127 Years

Why in the News?

1. A set of 349 gemstones linked to the **Piprahwa Buddhist relics** was returned to India from Hong Kong after 127 years.
2. **Industrialist Pirojsha Godrej** acquired the collection, valued at over $100 million, to prevent its auction at **Sotheby's Hong Kong**, showcasing a rare **public-private partnership**.
3. The Government of India, through coordinated efforts by the **Ministry of Culture**, the **Archaeological Survey of India (ASI)**, and the **Indian Consulate in Hong Kong**, demonstrated its commitment to **cultural diplomacy** and the reaffirmation of India's **civilisational legacy**.

Key Highlights

1. **Historical Background of Piprahwa Relics:**
   a. Excavated in **1898** by British landowner **William Claxton Peppé** in **Piprahwa, Uttar Pradesh**, near the **India–Nepal border**.
   b. The site is believed to house **corporeal remains of the Buddha**, along with **bone fragments, crystal caskets, and gemstones**.
   c. Some relics have been preserved in the **Indian Museum, Kolkata** since colonial times.
2. **Auction Controversy and Government Action:**
   a. In **May 2025**, the gemstones were listed for auction by Peppé's descendants via **Sotheby's Hong Kong**.
   b. The **Ministry of Culture** issued legal notices to halt the auction, citing the **religious and archaeological importance** of the relics.
   c. The **UK government** expressed its inability to intervene, as the relics were privately held.
3. **Private Intervention and Repatriation:**
   a. **Pirojsha Godrej**, from **Godrej Industries Group**, purchased the relics and facilitated their return.
   b. The **transaction bypassed direct government purchase**, avoiding potential ethical or diplomatic complications.
   c. The gems are to be displayed at the **National Museum, Delhi**, for three months and remain on loan for five years.
4. **Public–Private Partnership in Cultural Diplomacy:**
   a. The case is an **"exemplary public-private partnership"**, as termed by **Union Culture Minister Gajendra Singh Shekhawat**.
   b. Showcases creative approaches to **reclaiming cultural heritage** taken away during the colonial period.
5. **India's Cultural Assertion and Soft Power Strategy:**
   a. Reinforces India's position as the **birthplace of Buddhism**, particularly significant in its **geocultural engagement with China**.
   b. The move strengthens India's image as a **protector of world heritage**, aligned with its **soft power diplomacy**.

Implications

1. **Cultural Repatriation and Post-Colonial Justice:**
   a. Addresses long-standing demands for the return of **cultural artefacts looted or taken during colonial rule**.
   b. Sets a precedent for future **negotiated returns** through non-state channels.
2. **Role of Private Sector in Heritage Protection:**
   a. Demonstrates how **corporate social responsibility (CSR)** can be applied to **preserve cultural heritage**.
   b. Encourages more Indian industrialists to engage in **heritage diplomacy**.
3. **Boost to India's Buddhist Diplomacy:**
   a. Reclaiming sacred relics boosts India's **Buddhist outreach**, particularly with countries like **Thailand, Sri Lanka, Japan, and Vietnam**.

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b. Counters China's growing influence over Buddhist sites and networks through initiatives like the **World Buddhist Forum**.

4. **Strengthened Cultural Sovereignty:**
   a. Reclaiming such symbols reinforces India's claim over its **civilisational identity** and **historical narrative**.
   b. Aids the **Make in India and Dekho Apna Desh** campaigns by reviving cultural tourism.
5. **Soft Power and International Image:**
   a. Enhances India's **soft power toolkit** by showing commitment to cultural heritage without aggressive posturing.
   b. May prompt other former colonies to adopt similar strategies to reclaim stolen artefacts.

Challenges and Way Forward

Challenges	Way Forward
Legal hurdles in claiming colonial artefacts	Use of **UNESCO 1970 Convention** and bilateral legal diplomacy.
Limited state resources for heritage buy-backs	Encourage **public-private partnerships** and CSR investment in cultural recovery.
Private ownership laws in Western countries	Work with **auction houses and global museums** to ensure ethical trade of relics.
Lack of public awareness about such relics	Enhance **heritage education** and digital documentation of artefacts.
Geopolitical competition over Buddhist influence	Expand India's **Buddhist Circuit diplomacy** with Southeast and East Asia.

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2. Integration of Indian Art Forms in NCERT Curriculum

Why in the News?

1. NCERT has introduced a new arts education curriculum aligned with the National Education Policy (NEP), focusing on **Indian ethos**.
2. For the first time, school textbooks for **Classes 3 to 8** include **Indian classical music, dance, theatre,** and **visual arts**.

Key Highlights

1. **Alignment with NEP 2020**
   a. The NEP emphasizes education rooted in Indian culture and heritage.
   b. The new textbooks aim to promote Indian Knowledge Systems and artistic traditions.
2. **Introduction of New Textbooks**
   a. Bansuri: For Classes 3 to 5.
   b. Kriti: For Classes 6 to 8, introduced for the 2025-26 academic year.
3. **Features of *Kriti* for Class 8**
   a. Focus on basics of classical music: **swar (notes), laya (rhythm), and shabd (sound)**.
   b. Prescribes **recitation of shlokas in Sanskrit using swar and laya patterns**.
   c. Introduces folk/traditional songs in regional languages and patterns of seven notes in different layas.
   d. Includes **ragas** from both Hindustani and Carnatic music traditions.
4. **Dance and Performing Arts Content**
   a. Covers eight Indian classical dance forms: **Bharatnatyam, Kathak, Kathakali, Kuchipudi, Manipuri, Mohiniyattam, Odissi, and Sattriya**.
   b. Draws references from classical Sanskrit texts like **Natyashastra**, **Abhinaya Darpanam**, and **Brihaddeshi**.
   c. Teaches **basic hasta mudras, leaps, jumps, and formations** for incorporation in creative projects.
5. **Pedagogical Approach and Objectives**
   a. Focus is on **exposure, not expertise**; the aim is appreciation, not mastery.
   b. Encourages **storytelling, abhinaya (acting), and cultural expression** as interactive activities.
   c. Designed after one year of consultations, ensuring **age-appropriate and stage-wise exposure**.

About Indian classical dance forms

1. **Bharatanatyam** (Tamil Nadu)
   a. Originates from Tamil Nadu and is one of the oldest classical dance forms in India, traditionally performed in temples as a form of devotional expression.

b. Known for its fixed upper torso, bent legs, intricate footwork, and expressive gestures (mudras) and facial expressions (abhinaya).
c. Accompanied by Carnatic music and often narrates stories from Hindu epics like the Ramayana, Mahabharata, and Puranas.

2. **Kathak** (North India)
   a. Originated in the courts and temples of North India, evolving under both Hindu and Mughal patronage.
   b. Characterized by fast footwork, intricate spins (chakkars), rhythmic patterns, and storytelling through gestures and expressions.
   c. Uses Hindustani classical music and often includes themes from epics as well as romantic narratives.
3. **Kathakali** (Kerala)
   a. A dramatic dance-theatre form from Kerala known for its elaborate costumes, heavy makeup, and facial expressions.
   b. Traditionally performed by men, it depicts stories from Hindu epics like the Mahabharata and Ramayana.
   c. Music combines percussion instruments like chenda and maddalam with vocal recitation of stories.
4. **Kuchipudi** (Andhra Pradesh)
   a. Originated in Andhra Pradesh as a dance-drama traditionally performed by male Brahmins in temples.
   b. Combines fast rhythmic footwork with graceful movements and expressive storytelling, often featuring mythological themes.
   c. Includes unique elements like dance on the rim of a brass plate or holding a pot on the head.
5. **Manipuri** (Manipur)
   a. A graceful and devotional dance form from Manipur, deeply connected with Vaishnavism and themes of Radha-Krishna love.
   b. Characterized by smooth, flowing movements, rounded gestures, and absence of vigorous foot stamping.
   c. Performed with Manipuri music and instruments like pung (drum) and cymbals.
6. **Mohiniyattam** (Kerala)
   a. A graceful, feminine dance form from Kerala, performed solo by women and linked with the concept of Mohini, the enchantress from Hindu mythology.
   b. Characterized by gentle, swaying movements, soft footwork, and elegant costumes with white and gold attire.
   c. Accompanied by Carnatic music with songs in Malayalam or Sanskrit.
7. **Odissi** (Odisha)
   a. Originated in Odisha as a temple dance dedicated to Lord Jagannath, with roots in devotional rituals.
   b. Known for its tribhangi posture (three bends), sculpturesque poses, and fluid torso movements.
   c. Dance repertoire is based on Odia music and themes from Jayadeva's *Gita Govinda* and other devotional works.
8. **Sattriya** (Assam)
   a. Developed in Assam by the Vaishnavite saint Srimanta Sankardev as a medium of spreading Bhakti movement ideals.
   b. Traditionally performed in monasteries (*sattras*) by male monks, depicting episodes from the Bhagavata Purana and Ramayana.
   c. Characterized by rhythmic footwork, hand gestures, and devotional storytelling, accompanied by instruments like khol and cymbals.

Implications

1. **Strengthening Cultural Roots**
   a. Helps students understand and appreciate Indian art and heritage from an early age.
   b. Promotes **cultural continuity** in a globalized education system.
2. **Democratization of Arts Education**
   a. Previously, access to classical music and dance required private training; now it is **institutionalized within schools**.
   b. Ensures **inclusive exposure** irrespective of socio-economic background.
3. **Cognitive and Creative Development**
   a. Arts education enhances **creativity, expression, and critical thinking**.

b. Exposure to **rhythm, patterns, and storytelling improves cognitive flexibility**.

4. **Linguistic and Regional Integration**
   a. Incorporation of **Sanskrit shlokas and regional folk songs** fosters multilingualism.
   b. Promotes **unity in diversity** by blending different cultural traditions.
5. **Alignment with NEP and National Identity**
   a. Strengthens the NEP objective of **Indian ethos-based education**.
   b. Encourages **value-based learning** and **respect for traditional knowledge systems**.

Challenges and Way Forward

Challenges	Way Forward
Lack of trained teachers for classical art forms	Organize **teacher training programs** and workshops.
Limited infrastructure in schools	Allocate **funds for dedicated art rooms and resources**
Risk of rote learning instead of creative approach	Use **activity-based and experiential learning models**
Time constraints in existing curriculum	Integrate arts in a **cross-disciplinary approach**
Monitoring quality and consistency	Develop **standardized guidelines and periodic reviews**

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3. Arya Samaj Weddings: Legal Loopholes

Why in the News?

1. The **Allahabad High Court** has directed the **Uttar Pradesh government** to investigate the rise of **fake Arya Samaj societies** allegedly conducting illegal marriages.
2. Concerns include violations of the **UP Prohibition of Unlawful Conversion of Religion Act, 2021**, especially in **interfaith marriages involving minors**.
3. This comes in the wake of a case where a **Muslim man allegedly married a minor Hindu girl** in an Arya Samaj ceremony without valid conversion or age verification.
4. The issue reflects a broader judicial trend questioning the **validity and legality of Arya Samaj solemnised marriages**, especially in states with **anti-conversion laws**.

Origin and Background

1. **Arya Samaj**, founded in **1875 by Swami Dayanand Saraswati**, is a **Hindu reformist movement** that promotes **monotheism and Vedic values**.
2. Historically, it facilitated **inter-caste and interfaith marriages**, especially before the **Special Marriage Act (SMA), 1954** came into effect.
3. The **Arya Marriage Validation Act, 1937** legally recognised Arya Samaj marriages, stating such unions remain valid even if parties belong to different castes or religions.
4. Over the decades, Arya Samaj institutions became popular among **eloping couples** seeking quick and low-profile marriages, often bypassing SMA's 30-day notice period.

Key Highlights

1. **Legal Framework of Arya Samaj Marriages**
   a. Validated under **Arya Marriage Validation Act, 1937** and **Hindu Marriage Act, 1955**.
   b. Ritual-based marriage requiring declaration of Arya Samajist belief; does not require SMA procedure unless interfaith conversion is contested.
2. **Popularity Among Eloping Couples**
   a. Offers a **quick marriage process**, often completed in a few hours.
   b. Minimal documentation and **fast-track conversions** (via *shuddhi*) make it attractive for **inter-caste or interfaith couples**.
   c. **Bypasses 30-day notice** under SMA, which can attract unwanted attention or interference.
3. **Judicial Concerns and Orders**
   a. Allahabad HC questioned how these societies are flourishing despite alleged **violations of age and conversion laws**.
   b. Courts have raised alarms over **mass solemnisation without age verification, proper conversion, or legal compliance**.

c. In 2022, the **Supreme Court orally stated** Arya Samaj has "no business" issuing marriage certificates.

4. **Anti-Conversion Law Conflict**
   a. The **UP Prohibition of Unlawful Conversion of Religion Act, 2021** mandates:
      i. 60-day **pre-conversion declaration** and 30-day **post-conversion confirmation**.
      ii. Approval by the **District Magistrate** and proof of voluntary conversion.
   b. Arya Samaj's *shuddhi* often skips this formal process, putting such marriages **at legal risk**.
5. **Growing Role of State and Judiciary**
   a. **MP and UP HCs** have asked police to investigate such organisations for using **forged documents**, marrying **minors**, or facilitating **non-compliant conversions**.
   b. Calls for regulating Arya Samaj marriages through **verified witnesses**, formal **certification mechanisms**, and **digital documentation**.

Special Marriage Act, 1954 (SMA)

1. **Purpose:** A secular law enabling marriage between individuals of different faiths or castes **without conversion**. It allows state-sanctioned **civil marriages**.
2. **Applicability:** Open to **all citizens** of India, irrespective of religion—Hindus, Muslims, Christians, Sikhs, Jains, Buddhists.
3. **Marriage Age:** 21 years for men, 18 for women.
4. **Inheritance Impact:** Under Section 19, a Hindu marrying under SMA is **deemed separated** from the undivided Hindu family, which may affect **inheritance rights**.
5. **Procedure under SMA:**

a. **Notice:** Written notice to Marriage Officer (Sec. 5).
b. **30-day waiting period:** Notice is made public for objections (Sec. 6–7).
c. **Objection inquiry:** Marriage halted if objections are raised; inquiry is mandatory.
d. **Certificate of Marriage:** Issued after solemnization with 3 witnesses.

6. **Criticism:**

a. **Privacy concerns:** Public notice can expose couples to harassment, especially in interfaith marriages.
b. **Safety risks:** Can endanger lives due to family/community backlash.
c. **Judicial Relief:** Allahabad HC (2021) ruled that **publishing the notice is optional**, protecting privacy in consenting marriages.

Hindu Marriage Act, 1955

1. **Scope:** Applies to **Hindus, Buddhists, Jains, and Sikhs**.
2. Not applicable to **Muslims, Christians, Parsis, or Jews**—they are governed by their personal laws.
3. Covers **marriage, divorce, and other related issues** among Hindus.
4. Applies to Hindus by **birth** or **religion**.
5. Marriage is solemnised through **customary Hindu rituals or ceremonies**.

Implications

1. **Legal and Constitutional**
   a. Raises questions of **religious freedom (Article 25)** vs **state's interest in regulating conversions and protecting minors (Article 21 & 15)**.
   b. Challenges the **validity of religiously-conducted marriages** when laws require secular safeguards.
2. **Social and Cultural**
   a. Reflects the **sociocultural tensions** in interfaith and inter-caste marriages.
   b. **Eloping couples** face greater legal scrutiny and societal backlash, even when seeking lawful unions.
3. **Administrative and Governance**
   a. Urges states to improve **oversight of religious organisations** solemnising marriages.
   b. Exposes loopholes in **marriage registration**, **conversion tracking**, and **minor protection systems**.
4. **Interplay with SMA and Personal Laws**
   a. Sparks debate on whether **Arya Samaj weddings must follow SMA** if they involve conversion.
   b. Points to the **ambiguity in overlapping personal and secular marriage laws** in India.

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5. **Reform in Marriage Law Implementation**
   a. Highlights the need to balance **ease of marriage** with safeguards against **forced or fraudulent conversions**.
   b. Encourages a **uniform civil framework** for marriage solemnisation without bias or loopholes.

Challenges and Way Forward

Challenges	Way Forward
Bypass of SMA/ public notice in interfaith marriages	Reform SMA to allow **confidentiality** in sensitive cases.
Non-compliance with anti-conversion laws	Enforce strict **monitoring of religious conversions** before marriage.
Fake Arya Samaj societies	**Audit and register** only credible Arya Samaj units with verified credentials.
Minor marriages and forged documents	Mandate **age verification**, Aadhaar-based checks before solemnization.
Legal ambiguity on jurisdiction	**Clarify through the Supreme Court** ruling whether Arya Samaj can issue certificates.

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4. Bengali Women Revolutionaries in India's Freedom Struggle

Why in the News?

1. On **August 15, 2025**, India celebrated its **79th Independence Day**, prompting reflection on the **nation's freedom struggle** and the contributions of often-overlooked actors.
2. The article emphasizes the role of **Bengali women revolutionaries** in India's **independence movement**, highlighting their dual struggle against **British colonial rule** and **patriarchal societal norms**.
3. It seeks to recognize these women not as peripheral figures but as **foundational architects of freedom**, whose stories inspire and redefine the narrative of India's liberation.

Key Highlights

1. **Dual Battle: Colonialism and Patriarchy**
   a. In **early 20th-century Bengal**, women faced **restrictive social norms**: early marriage, widowhood, discouraged education, and confinement through **purdah**.
   b. Revolutionary groups initially doubted women's **capacity for leadership and sacrifice**.
   c. Despite these challenges, women became pivotal forces in both **armed struggle** and **intellectual resistance**.
2. **Armed Resistance and Direct Action**
   a. **Pritilata Waddedar** led an **armed assault** on the **European Club, Chittagong (1932)**, a symbol of racial segregation, and embraced **martyrdom with cyanide**, urging women to participate actively in the movement.
   b. **Kalpana Datta** took part in the **Chittagong armoury raid**, later chronicling women's roles as **equal tacticians and partners** in revolution.
   c. **Bina Das** attempted to **assassinate Governor Stanley Jackson** during a university convocation **(1932)**, demonstrating **calculated protest** rather than desperation.
   d. These acts showed that **women were not mere auxiliaries** but central to revolutionary strategy.
3. **Literary and Intellectual Resistance**
   a. **Begum Rokeya Sakhawat Hossain** envisioned a society led by women through her novella **Sultana's Dream**, advocating **reason, peace, and emancipation** from patriarchy and colonialism.
   b. She established **schools for Muslim girls in Kolkata** and persuaded families to educate daughters, turning **education into a revolutionary act**.
   c. **Labanya Prabha Ghosh** organized **reading groups**, contributed to nationalist publications like **Mukti**, and hosted **underground meetings**, using literacy as a **weapon of consciousness**.
4. **Covert Resistance and Logistics**
   a. **Kamala Das Gupta** managed a **women's hostel** while serving as a **courier for underground revolutionary groups**, hiding fugitives, and smuggling **arms disguised as domestic items**.
   b. **Nanibala Devi**, a widowed Brahmin woman, adopted multiple disguises to support revolutionary activities, endured **torture**, and maintained **silence under interrogation**, demonstrating **unsung courage**.

c. Women coordinated **secret networks across religious and social lines**, even during divisive events like the **1905 Bengal Partition**.

5. **Popular Mass Resistance**
   a. **Matangini Hazra (Gandhi Buri)** exemplified **grassroots resistance** during the **Quit India Movement (1942)**.
   b. Despite being **illiterate and widowed**, she led a procession, held the **tricolour**, and was shot multiple times while chanting **"Vande Mataram"**, highlighting that **freedom was the collective right of all Indians**, not limited to elites.

Implications

1. **Redefining Freedom Struggle Narratives**
   a. Challenges **male-centric historical accounts** of the independence movement.
   b. Demonstrates that **women were central leaders**, strategists, and martyrs.
2. **Empowerment through Education and Intellectual Engagement**
   a. Literacy and education became forms of **resistance and empowerment**.
   b. Educating girls disrupted **social orthodoxies** and built long-term **capacity for reform**.
3. **Role of Women in Armed Resistance**
   a. Armed action by women challenged the perception that **militancy was male-dominated**.
   b. Martyrdom and courageous acts inspired **generations of freedom fighters**.
4. **Underground Networks and Covert Operations**
   a. Women's involvement in **secret logistical networks** strengthened revolutionary strategies.
   b. Domestic spaces and traditional roles were creatively used to **subvert colonial authority**.
5. **Social and Cultural Impact**
   a. Resistance challenged **patriarchy, caste barriers, and societal norms**.
   b. These stories promote **inclusive nationalism**, emphasizing that freedom and agency should extend to all social strata.

Challenges and Way Forward

Challenges	Way Forward
Historical neglect of **women revolutionaries** in mainstream narratives	Incorporate **comprehensive accounts** in school and university curricula
Patriarchal norms limiting **women's public participation**	Promote **gender-sensitive research** and recognition of local heroes
Lack of **documentation** for covert resistance activities	Encourage **oral history projects** and digitization of personal memoirs and journals
Marginalization of **literary and intellectual contributions**	Support **translations, publications, and media recognition** of feminist revolutionary literature
Societal stereotypes about **women's leadership and activism**	Use **public commemorations, museums, and media campaigns** to highlight contributions

5. Colonial Policies and Tilak Shaped a Public Festival

Why in the News?

1. The **origins of the modern Ganesh Chaturthi festival** are being discussed in light of its historical links with colonial policies, communal tensions, and Bal Gangadhar Tilak's political role.
2. The festival, celebrated on a grand scale across India today, actually took shape in **Poona in 1894** as a **public substitute for Moharram processions**.
3. Its history shows how a cultural practice grew into a **mass festival and tool for social-political mobilisation**, making it relevant for debates on religion, politics, and nationalism in India.

Key Highlights

1. **British colonial order creates unease (May 1894).**
   a. **Governor George Robert Canning Harris,** also a former England cricket captain, issued a directive: Hindus should stop playing music while passing mosques.
   b. **No such rule was applied to Muslims** passing temples.

c. This one-sided order was seen as **unfair and biased**, planting seeds of **communal resentment.**

2. **The Palkhi clash in Poona (July 1894).**
   a. The palkhis (palanquins) of the saint-poets **Dnyanoba and Tukaram** entered Poona.
   b. At **Ganesh Peth**, near a dargah, stones were thrown at a drummer in Tukaram's Palkhi.
   c. A scuffle broke out, and Hindu newspapers like **Kesari** reported that Muslims had attacked the procession.
   d. This event was seen by many Hindus as an **insult to their religion** and further increased tensions.
3. **Moharram, Tabuts, and the cultural gap.**
   a. For years, **Hindus actively took part in Moharram processions** called **Tabuts**.
   b. These processions had drums, music, dancing, and ended with immersion of the Tabuts in rivers or the sea.
   c. After the Palkhi incident, regional newspapers such as **Poona Vaibhav, Mumbai Vaibhav, Indu Prakash, Kalpataru** and others advised Hindus to **boycott Moharram**.
   d. Handbills pasted on temples repeated the same message.
   e. This boycott left a **cultural vacuum**: Hindus missed the festive atmosphere of music, dance, and public gatherings.
4. **Birth of the modern Ganesh festival (July–Sept 1894).**
   a. Newspapers suggested Hindus should start their **own public festival**.
   b. Soon, preparations began for a **grand Ganesh Chaturthi** with big idols, decorative mandaps, and music bands, modelled on Moharram Tabuts.
   c. On **13 September 1894**, Ganesh idols were taken out in processions and immersed publicly.
   d. The **Times of India** reported the next day that large and imposing Ganpati idols were now being displayed, unlike the small private ones of the past.
   e. In short, Ganesh Chaturthi was **not new**, but in 1894 it changed into a **public, community-wide celebration**.
5. **Tilak's role and the political significance.**
   a. Bal Gangadhar Tilak, through his papers **Kesari (Marathi)** and **The Mahratta (English)**, encouraged the new form of Ganesh Chaturthi.
   b. Tilak believed that a **strong nation required:**
      i. A common religion,
      ii. Common laws, and
      iii. A common language.
   c. The British had already given laws and English, but Tilak felt **religion could unite Indians**.
   d. The festival brought together the **"lower classes" and elites**, creating unity beyond caste and class.
   e. Although it wasn't originally an anti-British festival, it became a **platform for mass mobilisation** and sowed the seeds of cultural nationalism.
6. **Legacy and myths.**
   a. Many later believed the festival was started by Tilak as an anti-colonial movement, but that is **not entirely true**.
   b. In reality, it was born as a **Hindu substitute for Moharram**, shaped by newspapers and community choices.
   c. Over time, it grew into a **symbol of Hindu unity and national pride**, spreading across India.
   d. Ironically, the same Governor Harris, whose policy triggered this, is still remembered in Mumbai through the **Harris Shield cricket tournament**.

Implications

1. **Colonial policies led to unexpected outcomes.**
   a. A small rule about playing music created resentment and, indirectly, a **new festival tradition**.
   b. This shows how deeply government orders could affect community life.
2. **Religion became a medium of politics.**
   a. Ganesh Chaturthi united different sections of Hindus, giving leaders like Tilak a ready audience.
   b. It allowed politics to move from the **elite Congress halls** into the **streets and public spaces**.

3. **Newspapers shaped public opinion and action.**
   a. Vernacular papers did more than report events: they told people what to do; boycott Moharram, start Ganesh celebrations.
   b. This shows how **print culture created mass action** in the 19th century.
4. **Festivals created community identity but also boundaries.**
   a. Ganesh Chaturthi gave Hindus a sense of unity and pride.
   b. But it also deepened **Hindu-Muslim separation**, as Moharram participation declined.
5. **Myths influence historical memory.**
   a. The idea that Ganesh Chaturthi was purely anti-colonial is a **simplified myth**.
   b. Understanding the real origins is important to avoid misuse of history for present-day politics.

Challenges and Way Forward

Challenges	Way Forward
Communal tension	Interfaith talks, conflict-resolution teams; build permanent forums, cultural exchanges, shared public spaces
Historical myths	Share accurate articles/talks; include nuanced accounts in schools, museums, cultural centres
Political misuse	Ban campaigning during processions; strengthen laws and norms separating religion and politics
Environmental issues	Promote eco-friendly idols, artificial tanks, awareness drives; train artisans and build sustainable systems
Loss of traditional artisanship	Provide subsidies, stalls, direct market access; year-round support, skill training, and certification

6. Maharaja Prithu of Kamrup

Why in the News?

1. The Assam Cabinet recently decided to name a new flyover in Guwahati after **Maharaja Prithu**, a 13th-century Kamrup ruler.
2. The decision has renewed interest in Prithu, who is believed by some historians to have defeated the Turko-Afghan general **Bakhtiyar Khilji** in 1206 CE.

Key Highlights

1. **Prithu and the Defeat of Bakhtiyar Khilji**
   a. **Bakhtiyar Khilji**, a general under **Muhammad of Ghor**, expanded his campaigns into eastern India.
   b. In **1206 CE**, his forces attempted to **enter Kamrup** (present-day Assam) but were **defeated and forced to retreat**.
   c. The **Kanai Barasi Bowa inscription** mentions the destruction of **Turkish invaders** in 1206 CE, though it does not name the ruler.
   d. The **Persian chronicle *Tabaqat-i-Nasiri*** also records this defeat, referring to the opponent as the **"Rae of Kamrud [Kamrup]".**
2. **Historical References to Prithu**
   a. Early 20th-century historian **Kanak Lal Barua** suggested that Prithu was the king who repulsed both Bakhtiyar Khilji (1206) and Ghiyasuddin Iwaz (1227).
   b. He located Prithu's capital near **North Guwahati**, close to the battlefield sites.
   c. Later **scholarship** notes that the identity of the ruler remains uncertain, due to **limited evidence**.
3. **Sources and Evidence**
   a. Local inscriptions, Persian chronicles, and oral traditions provide **fragmentary references**.
   b. Some gazetteers and surveys mention remains of forts and bridges linked with Prithu's rule.
   c. The evidence is **insufficient for conclusive identification**, but it suggests a strong local resistance in Kamrup during this period.
4. **Historiographical Developments**
   a. Modern researchers, such as **Raktim Patar**, have published studies bringing renewed attention to Prithu's role.
   b. Seminars, academic writings, and popular discussions have contributed to his recognition in recent years.
   c. His story is increasingly compared with other **Assamese figures** like **Lachit Borphukan**, who resisted later invasions.

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5. **Scholarly Perspectives**
   a. Some historians note that **Persian sources** call the ruler "Rae," which may indicate a **chieftain rather than a Maharaja**.
   b. Archaeologists emphasize that the **absence of evidence is not evidence of absence**.
   c. The period **(12th-13th century)** was a **transitional era** in Assam's history, marked by multiple small principalities after the decline of earlier dynasties, which makes identification challenging.

Implications

1. **Regional History and Identity**
   a. Recognition of Prithu highlights Assam's role in resisting external invasions.
   b. It adds to the historical memory of local rulers beyond the well-known Ahom and Koch dynasties.
2. **Historical Research**
   a. Prithu's case shows how much of Assam's **medieval past remains under-researched**.
   b. It underlines the need for interdisciplinary studies combining archaeology, inscriptions, and texts.
3. **Documentation Gaps**
   a. The lack of detailed indigenous records from this period means reliance on **fragmentary and external sources**.
   b. This creates scope for varied interpretations.
4. **Cultural Commemoration**
   a. Naming infrastructure and public recognition can help bring lesser-known figures into wider awareness.
   b. It may also encourage greater public interest in medieval Assamese history.
5. **Academic Discourse**
   a. The debate around Prithu demonstrates how history is often reconstructed from **limited evidence**, requiring careful and cautious interpretation.

Challenges and Way Forward

Challenges	Way Forward
Limited inscriptions and records mentioning Prithu directly.	Undertake **systematic archaeological** and **epigraphic research** in Kamrup and surrounding regions.
Conflicting interpretations of Persian and local sources.	Use **comparative historical analysis** across multiple languages and traditions.
The transitional nature of 12th–13th century Assam makes identification difficult.	**Focused studies** on this under-researched period to map political structures.
Reliance on **oral traditions** without corroboration.	**Collect oral histories systematically** and **cross-check** with material evidence.
Debate over Prithu's title (chieftain vs king).	**Reassess political terminology** in contemporary sources with contextual analysis.

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ETHICS

1. The Inner Path to Unity

Why in the News?

1. The article explores the **spiritual and ethical teachings** of two great Indian minds, **Rabindranath Tagore** and **Adi Shankaracharya**, and how they offer timeless wisdom for modern life.
2. It highlights the **interconnectedness of poetry and philosophy**, emotion and reason, showing that both can lead to the same truth that is **oneness with the universe**.
3. The authors propose that these teachings are not just religious or literary, but **ethical roadmaps** for living with awareness, kindness, and meaning.
4. In an age of division, materialism, and stress, the values of **unity, compassion, and inner awareness** become crucial for individual well-being and collective harmony.

Ethical Issues Involved

1. **Values and Ethics in Personal Life**
   a. **Tagore's poetic vision** encourages awareness of beauty, stillness, and joy in ordinary life.
   b. This aligns with **emotional intelligence**, **empathy**, and the **pursuit of inner harmony**.
   c. Ethics is not just action-oriented but also **rooted in perception** and **presence**.
2. **Spiritual Foundations of Ethics**
   a. **Shankaracharya's Advaita philosophy** teaches that we are not separate individuals, but part of one **infinite consciousness**.
   b. His stress on **self-realisation** through **truth and detachment** forms the foundation of **spiritual ethics**.
   c. Ethics, here, is not enforced through rules but emerges from **self-knowledge**.
3. **Harmony between Emotion and Reason**
   a. Tagore and Shankaracharya represent two approaches, **feeling and thinking**, **bhakti and jnana**, which are often seen as opposite but actually lead to the **same ethical awareness**.
   b. Balancing emotion with reason is central to **ethical decision-making** in both personal and public life.
4. **Compassion in Professional Conduct**
   a. The article links spiritual teachings to the **ethical duties of caregivers**; doctors, teachers, healers.
   b. Ethical conduct in professional roles arises from **seeing the divine or humanity in every person**.
   c. This aligns with **ethics of care**, **duty**, and **human dignity** in public service.
5. **Ethics of Simplicity and Detachment**
   a. Both thinkers encourage detachment not as rejection, but as **freedom from ego and illusion**.
   b. Ethical living, according to them, involves **living with less greed**, more compassion, and **deep presence**.
   c. This reflects **Gandhian ethics of self-restraint** and **service**.

Course of Action

1. **Integrate Inner Awareness into Daily Life**
   a. Ethics begins with **attention to the present moment**, whether watching a sunset or comforting a patient.
   b. Train the mind to see meaning and beauty in small acts.
   c. Develop **gratitude, mindfulness**, and **stillness** as personal ethical practices.
2. **Bridge Poetry and Philosophy in Education**
   a. Ethics education can blend **emotional expression (Tagore)** and **philosophical reasoning (Shankaracharya)**.
   b. Use stories, poems, and meditative thinking to build ethical imagination in schools and colleges.
   c. This encourages **moral reflection** over rote compliance.
3. **Practice Sacredness in Relationships**
   a. Treat others not as means, but as ends, seeing **oneness** in all beings (echoing Kant and Shankaracharya).

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b. Respect, kindness, and empathy must form the foundation of both **personal and professional relationships**.
c. Acts of love, care, and compassion are ethical actions that go beyond rules.

4. **Promote Detachment, not Indifference**
   a. Detachment as taught by Shankaracharya is about **non-attachment to ego**, not disinterest in duty.
   b. Perform your roles (doctor, teacher, citizen) with **selflessness**, without craving recognition or reward.
   c. This reflects **Nishkama Karma** and **deontological ethics**.
5. **Encourage Harmony Between Science and Spirit**
   a. Healthcare professionals and educators can benefit from grounding their roles in **human values**.
   b. Rational thinking should be balanced by **compassion**, and technical skills should be guided by **wisdom**.
   c. Ethical professionalism requires this **synthesis of head and heart**.

Conclusion

In the teachings of Tagore and Shankaracharya, we find two complementary paths to the same ethical truth, **unity, compassion, and inner awareness**. One approaches it through **emotion and poetry**, the other through **logic and detachment**, but both guide us towards a life of meaning and moral clarity. Their combined wisdom reminds us that **ethical living is not just about rules**, but about **connecting deeply with life**, seeing the divine in others, and living with presence, truth, and joy. In rediscovering this inner path, we find our **heart's true home**; not outside, but within.

2. How Reward Expectations Shape Human Attention

Why in the News?

1. Researchers at **IISc** studied how **reward expectation** influences **human attention**, distinguishing between **sensitivity** and **bias** as separate components.
2. The findings clarify how different **brain regions** process **external rewards** and **internal decision-making**, with potential applications in **behavioral economics**, **education**, and **neuromarketing**.

Ethical Dilemmas

1. **Manipulation of Human Behavior**:
   a. Using rewards to modulate attention and behavior raises questions about **autonomy and informed decision-making**, especially in areas like advertising, education, or politics.
   b. Thinker Reference: *Immanuel Kant* emphasized treating individuals as ends in themselves, not merely as means to an end. Conditioning human attention through rewards might violate this principle.
2. **Monetary Incentivization in Cognitive Experiments**:
   a. Offering money as a reward can raise concerns of **coercion or bias in scientific research**, especially if participants are economically vulnerable.
   b. Ethical research norms (such as those recommended by the *Belmont Report*) stress *voluntary participation and minimization of undue influence.*
3. **Data Privacy and Neuromarketing**:
   a. As such studies gain traction, companies may exploit neurocognitive data to steer consumer attention or decision-making, potentially leading to **consent and privacy breaches**.
4. **Bias Reinforcement in Educational and Hiring Practices**:
   a. Applying such findings without ethical safeguards may **amplify pre-existing social or cognitive biases**, favoring individuals more responsive to extrinsic rewards.
   b. Reference: *John Rawls* would argue that any system that perpetuates inequality without benefiting the least advantaged is unjust.

Course of Action

1. **Ethical Research Oversight**:
   a. All cognitive and neurological experiments involving rewards must be **reviewed by independent ethics boards** to ensure participant autonomy and fairness.

2. **Guidelines for Application in Society**:
   a. Implement clear **ethical frameworks for the use of behavioral science** in public policy, education, and marketing to prevent manipulation.
   b. Thinker Link: *John Stuart Mill* supports utility but warns against manipulation that compromises individual liberty.
3. **Transparency in Data Use**:
   a. Ensure that any data collected from such experiments is **used anonymously and with informed consent**, particularly in commercial or technological applications.
4. **Promoting Intrinsic Motivation**:
   a. Policymakers and educators should **balance extrinsic rewards with efforts to cultivate intrinsic motivation**, especially in learning environments.
5. **Public Awareness Campaigns**:
   a. Create **awareness about how attention and behavior can be shaped by rewards**, empowering individuals to make conscious choices and resist manipulation.

Rewarding Work vs Punishment Posting

Aspect	Rewarding Work	Punishment Posting
Definition	Assigning roles or responsibilities as a recognition of merit	Assigning undesirable postings to penalize or demotivate
Purpose	To incentivize performance, dedication, and integrity	To discipline or control behavior through deterrence
Moral Basis	Based on **positive reinforcement** and fairness	Often based on **fear** or administrative high-handedness
Effect on Motivation	Boosts morale and encourages continued excellence	Demoralizes employees and may foster resentment
Impact on Organizational Culture	Promotes a merit-based, transparent, and motivating culture	Leads to a toxic, risk-averse, or sycophantic work environment
Fairness and Justice	Seen as ethical when transparently applied	Often perceived as arbitrary or politically motivated
Public Perception	Enhances trust in institutions and leadership	Reduces public confidence in fairness and integrity
Examples in Practice	Promotions, preferred postings, awards (Mission Karamyogi)	Remote area transfer, sidelining roles (Durga Shakti Nagpal, Ashok Khemka)
Alignment with Thinkers	Aligns with **Maslow's theory of motivation**, **Frederick Herzberg's Motivation-Hygiene theory**	Reflects a **Machiavellian** or authoritarian approach
Long-Term Outcomes	Builds institutional loyalty and accountability	Can lead to inefficiency, attrition, and lack of innovation

Conclusion

The IISc study provides critical insights into how rewards shape our attention and decision-making by altering sensitivity and bias. While this deepens our understanding of human cognition, it also opens up several ethical concerns regarding autonomy, privacy, and manipulation. Thoughtful application guided by ethical principles and philosophical frameworks can ensure that such research benefits society without compromising individual dignity or freedom.

Polity

3. Coal Mining, Displacement and Rehabilitation in Odisha

Why in the News?

I.R.

1. Coal mining expansion in Odisha's Angul district has triggered **large-scale displacement**, scattering communities and raising disputes over **compensation, rehabilitation, and loss of identity**.

Security

2. Recent cases reveal how people, though given new houses or cash, often feel uprooted, socially excluded, and deprived of livelihoods.
3. The situation highlights an ethical crisis between **India's energy needs** and **the dignity of affected communities**.

Economy

Ethical Issues Involved

Displacement here is not merely about physical relocation but about **ethical ruptures** in justice, dignity, and governance.

Science

1. **Justice and Fairness**
   a. Compensation varies drastically between villages and often lags behind current market rates.
   b. This violates **Rawls' principle of fairness**, where social and economic inequalities are justified only if they benefit the least advantaged.
   c. When one village gets **₹70 lakh/acre** and another gets **₹11 lakh**, justice is compromised.
2. **Human Dignity and Rights**
   a. People lose not just land but also **ancestral ties, cremation grounds, and traditional livelihoods**.
   b. This undermines **Article 21 (Right to Life with dignity)**.
   c. Gandhi's principle of **Sarvodaya** reminds us that development should not trample upon the dignity of the weakest.

Geography

3. **Social Cohesion and Identity**
   a. Scattered families lose **community support systems**, face rejection in new villages, and suffer cultural alienation.
   b. Aristotle's view of humans as social beings shows that dislocation from community erodes human flourishing (eudaimonia).

Society

4. **Governance and Accountability**
   a. Lack of uniform policies, absence of a centralized displacement database, and piecemeal handling reveal **weak institutional ethics**.
   b. Civil servants are duty-bound to uphold transparency and fairness, as emphasized by the **Nolan Principles of Public Life** (integrity, accountability, openness).

History

5. **Intergenerational and Environmental Ethics**
   a. Short-term energy gains undermine **ecological sustainability** and the rights of future generations.
   b. Hans Jonas' responsibility principle demands caution, today's choices should not destroy tomorrow's possibilities.

Ethics

Course of Action

Ethically sound rehabilitation must balance **energy security** with **justice for displaced communities**.

P.i.N.

1. **Ensure Equitable Rehabilitation**
   a. Adopt uniform compensation across villages, updated to current market rates.
   b. Offer **land-for-land and employment guarantees**, not just cash.
   c. Example: E. Sreedharan's metro projects showed ethical land acquisition with minimal conflict.
2. **Preserve Community Bonds**
   a. Relocate people in **collective clusters** to retain cultural identity.
   b. Gram Sabhas must be involved in deciding resettlement locations, aligning with **Gandhian Gram Swaraj**.
   c. Provide shared facilities (schools, health centers, cremation grounds).
3. **Strengthen Governance and Transparency**
   a. Maintain a **real-time displacement database**.
   b. Independent monitoring committees with civil society participation.
   c. Example: TN Seshan's uncompromising integrity proves how ethical leadership can enforce fairness.
4. **Promote Sustainable Alternatives**
   a. Gradually **shift to renewables** to reduce displacement.
   b. Provide **skill training for green jobs** to coal-dependent workers.
   c. Utilitarian ethics (maximizing welfare) supports this transition for broader social good.
5. **Safeguard Vulnerable Groups**
   a. Ensure continuation of welfare schemes (ICDS, ASHA, midday meals) post-relocation.
   b. Special focus on women, children, elderly, and tribals who bear the brunt of displacement.
   c. Example: IAS officer Durga Shakti Nagpal is remembered for people-sensitive land decisions.

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Conclusion

The Odisha case reflects a **moral paradox of development**—coal powers India's growth but disempowers those who give up their homes. Ethical governance requires that displacement be handled with **justice, dignity, and compassion**, ensuring that progress does not create invisible victims. As Gandhi warned, "A nation's greatness is measured by how it treats its weakest members."

4. Rethinking Entrance Exams

Why in the News?

1. Rising concerns over the **mental health crisis and suicides among students** due to the highly competitive entrance exam system (JEE, NEET, CUET, CLAT).
2. **Regulatory actions and controversies**: branch closures, financial misconduct, and Enforcement Directorate raids on major coaching centres.
3. Growing debate on **equity, fairness, and reforms in admission processes**, including proposals for alternative models like lotteries and reliance on board exams.

Ethical Issues Involved

1. **Equity and Fairness**
   a. Unequal access to quality education creates **urban-rural and rich-poor divides**.
   b. Coaching-driven success favours students from **affluent families**, violating the principle of **justice as fairness (John Rawls)**.
2. **Exploitation and Commercialization of Education**
   a. Coaching centres operate as profit-driven businesses, charging exorbitant fees (₹6-7 lakh), exploiting **student vulnerability**.
   b. Education becomes a commodity, contradicting **Gandhiji's Nai Talim** and the **Directive Principles of State Policy (Art. 41, 45)**.
3. **Mental Health and Student Well-being**
   a. High stress levels lead to **depression, suicides, and social isolation**, violating **Article 21 – Right to Life with Dignity**.
   b. Ignores **Aristotle's concept of Eudaimonia (holistic flourishing)**, focusing only on marks rather than balanced growth.
4. **Illusion of Meritocracy and Moral Hazard**
   a. Overemphasis on rank and percentiles creates **false meritocracy**, disregarding privilege and luck (Michael Sandel's critique in *The Tyranny of Merit*).
   b. Breeds elitism and **egoistic superiority**, clashing with **Kant's principle of treating individuals as ends, not means**.
5. **Governance and Accountability**
   a. Lack of effective regulation of coaching institutes shows **failure of state responsibility** under **Nolan Committee's principles of accountability and openness**.
   b. Erosion of **public trust** in the education system, which is fundamental to ethical governance.

Course of Action

1. **Reform Admission Criteria for Equity**
   a. Replace **cut-throat exams** with a weighted **lottery system** (Dutch model) ensuring minimum academic threshold.
   b. **Affirmative action** for rural, government school students to bridge structural inequality.
2. **Promote Ethical Education Ecosystem**
   a. Ban or **nationalise coaching centres**, making them **non-profit** and provide **free digital resources** (aligning with Gandhian simplicity).
   b. Encourage **school-based learning and holistic development**, reducing reliance on private tuitions.
3. **Ensure Psychological Well-being**
   a. Mandatory **mental health counselling cells** in schools and higher education institutions.
   b. Stress management modules and **value education** inspired by **Swami Vivekananda's emphasis on character building**.
4. **Strengthen Regulatory Framework**
   a. Establish a **National Coaching Regulation Authority** for transparency in fees, curriculum, and safety norms.
   b. Use **technology-driven monitoring** to prevent exploitative practices and financial fraud.
5. **Foster Ethical Leadership and Responsibility**
   a. Civil servants can champion **inclusive policies** like free online lectures (as done by IAS officer Krishna Teja in Andhra Pradesh with digital classes).
   b. Public campaigns promoting **educational egalitarianism**, echoing **Rawls' Difference Principle** (benefit the least advantaged).

Conclusion

An ethical education system should prioritise **justice, compassion, and holistic growth** over narrow meritocracy. By reducing structural inequalities and promoting fairness through reforms like weighted lotteries, nationalised coaching, and mental health safeguards, India can create an inclusive system where students thrive without undue pressure or privilege-driven advantage.

PLACES IN NEWS

Place	Context	Key Highlights
El Salvador	El Salvador's Assembly approved constitutional reforms allowing **indefinite presidential re-election** and extending the term from **5 to 6 years**.	**Location:** Central America; borders Honduras, Guatemala, and the Pacific Ocean. **Capital:** San Salvador. **Geography:** Volcanic terrain, coastal plains; tropical climate; called "Land of Volcanoes." **Population:** Smallest by area but densely populated; mixed indigenous–mestizo heritage. **Economy:** Services, textiles, remittances; uses **U.S. dollar**. **Unique:** First nation to adopt **Bitcoin** as legal tender (2021); strong U.S. diaspora influence.
Chenab Bridge	The **Chenab Bridge** features on the official 2025 Independence Day invitations, replacing the Central Vista sketch, to showcase India's **engineering excellence** and symbolize **national pride**, along with Operation Sindoor.	**Location:** Reasi district, J&K; spans Chenab River between Bakkal and Kauri. **Record:** World's **highest railway bridge** (359 m)—taller than the Eiffel Tower. Helps in boosting J&K connectivity. **Design:** Steel–concrete; withstands winds up to 160 kmph; lifespan ~120 years. **Strategic Value:** Strengthens transport and logistics in Kashmir. **Inauguration:** Opened by PM Modi in 2024; symbol of "New India's" infrastructure and integration.
Philippines	India–Philippines ties upgraded to **Strategic Partnership** (defence, maritime security, trade, connectivity). **First-ever Indian naval exercise** in the Philippines. Talks on **preferential trade agreement**; direct flights announced. India to grant **free e-tourist visas** for Filipinos (from Aug 2025).	**Location:** Southeast Asia; archipelago in western Pacific. **Capital:** Manila **Largest City:** Quezon City. **Islands:** ~7,640 grouped into **Luzon, Visayas, Mindanao**. **Water Bodies:** Philippine Sea (E), South China Sea (W/N), Celebes & Sulu Seas (S/SW). **Neighbours:** Taiwan (N), Borneo (SW), Sulawesi (SW), Palau (E). **Topography:** • Highest peak: **Mount Apo** • Longest river: **Cagayan River** • Major water bodies: **Laguna de Bay, Manila Bay** **Volcanic zone:** On Pacific Ring of Fire; volcanoes – Mayon, Taal, Pinatubo. **Natural Wonders:** Puerto Princesa Underground River (UNESCO site). **Climate:** Tropical maritime, monsoonal – hot & humid. **Biodiversity & Resources:** Megadiverse; world's **2nd-largest geothermal energy producer** (after USA).

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Hiroshima and Nagasaki	**80 years (Aug 6, 2025)** since atomic bombings that killed **~2,00,000 people**. Current **nuclear threats** (Russia, South Asia) raise fears over weakening non-use norm. Experts warn of risks from **"usable" nuclear weapons** and global complacency.	**About the Cities:** • **Hiroshima:** On Honshu island; major military–industrial hub. • **Nagasaki:** On Kyushu island; key port & shipbuilding/ arms center. **The Bombings (1945):** • **Hiroshima (Aug 6):** Little Boy dropped; ~1,40,000 deaths; blast temp ~4,00,000°C. • **Nagasaki (Aug 9):** Fat Man dropped; ~74,000 deaths; 6.7 sq km destroyed. • Effects: Radioactive black rain, radiation sickness, cancers, chronic illnesses. **Legacy:** • Both cities rebuilt as **symbols of peace & anti-nuclear advocacy**. • Memorials: **Hiroshima Peace Memorial (Genbaku Dome)**, **Nagasaki Peace Park**.
Gulf of Aden	**Aug 3, 2025:** Boat with 154 Ethiopian migrants sank near Yemen's coast → **68 dead, 74 missing**. Route commonly used by East African migrants to Gulf countries; **unsafe, smuggler-controlled**. In 2024: **60,000 migrants** crossed; **500+ deaths** recorded.	**Location:** Part of Indian Ocean; between **Arabian Peninsula (N)** & **Horn of Africa (S)**. **Linkages:** Connects **Red Sea → Bab el-Mandeb Strait → Arabian Sea → Indian Ocean**. **Dimensions:** ~900 km long, 500 km wide; ~4.1 lakh sq km. **Borders:** Yemen (N), Somalia & Socotra Islands (S), Djibouti (W), Arabian Sea (E). **Key Features:** • **Sheba Ridge** (mid-ocean ridge system). • Lower salinity vs. Red Sea. • Narrows into **Gulf of Tadjoura** (Djibouti). **Cities/Ports:** Aden, Mukalla, Berbera, Bosaso, Djibouti City. **Significance:** • Critical to **Suez Canal route** → connects Red Sea & Mediterranean. • Handles **~11% of global seaborne petroleum** trade.
Godavari River	**Kaleshwaram Lift Irrigation Project (KLIP)** on the Godavari under scrutiny for **flawed construction, site changes, and cost overruns**. Judicial commission submitted inquiry report; Telangana legislature debating. Concerns over damaged barrages (**Medigadda, Sundilla, Annaram**) due to faulty foundations and ignored technical advice.	**Length:** ~1,465 km → 2nd longest in India (after Ganga); longest in Peninsular India. **Origin:** Trimbakeshwar (Nashik, Maharashtra) at ~1,067 m elevation. **Basin:** ~3.13 lakh sq km; covers Maharashtra, Telangana, AP, Chhattisgarh, Odisha, parts of MP & Karnataka. **Tributaries:** Pranahita, Indravati, Sabari, Manjira, Purna, Penganga. **Cultural Importance:** Known as Dakshina Ganga; **Pushkaram festival** every 12 years. **Major Projects:** Polavaram, Jayakwadi, Sriram Sagar, Dowleswaram Barrage, KLIP. **Mouth:** Bay of Bengal via fertile delta in Andhra Pradesh. **Ecology:** Rich biodiversity, fertile plains, extensive mangroves near delta.

Aravalli Range	Haryana plans **Asia's largest jungle safari** in Aravallis (Gurgaon & Nuh), spread over **10,000 acres**. Aim: Promote **tourism, jobs, ecosystem conservation** with global-level facilities in 4 phases. Concerns: Possible **groundwater depletion & biodiversity loss** in eco-sensitive zone; financial viability questioned.	**Age:** Among world's **oldest fold mountains** (Precambrian era). **Location:** Runs ~700 km from **Delhi–Haryana (NE) to Gujarat (SW)**; spans Rajasthan, Haryana, Delhi, Gujarat. **Role:** Natural barrier against **Thar Desert spread**; key for **groundwater recharge & climate regulation**. **Biodiversity:** Leopards, hyenas, jackals, nilgai + diverse flora/ fauna. **Threats:** Mining, deforestation, urbanisation, groundwater decline. **Cultural Significance:** Ancient forts & temples (e.g. **Kumbhalgarh Fort**, UNESCO site). **Legal Status:** Declared **eco-sensitive zone**; restrictions on mining & construction.
Shipki-La Pass	China agreed in principle to **resume border trade** through Shipki-La (Kinnaur, Himachal Pradesh), suspended since 2020 (COVID-19). Discussions also on allowing **Kailash Mansarovar Yatra** via Shipki-La (in addition to Lipulekh & Nathu La routes).	**Location:** Mountain pass on **India–China border**, Kinnaur (HP). **Altitude:** ~4,720 m (15,490 ft). **Connectivity:** Links Himachal with Tibet; among 3 approved **Indo-China trade routes**. **Historic Role:** Part of **Indo-Tibetan trade route** (wool, salt, grains). **Trade Points:** Along with **Lipulekh (Uttarakhand)** & **Nathu La (Sikkim)**. **Geography: Sutlej River** enters India near Shipki-La. **Importance:** Strategic for **defense, trade, connectivity**. **Challenges:** High-altitude, snow-bound terrain; poor infrastructure hinders year-round trade.
Democratic Republic of Congo (DRC)	U.S. seeks **strategic minerals** from DRC to counter China's dominance. Agreements signed with **U.S.-backed firms** for **lithium & cobalt**. Challenges: Rising conflict in **eastern DRC**, especially **M23 militia activity**, threatens mining & investments.	**Location:** Central Africa; **2nd largest African country** by area. **Capital:** Kinshasa (among Africa's largest cities). **Borders:** 9 nations including Angola, Zambia, Rwanda, Uganda. **Population:** 100+ million (among Africa's most populous). **Resources:** Extremely mineral-rich → cobalt, copper, lithium, gold, coltan, uranium; holds **~70–75% of global cobalt reserves**. **Economy:** Despite resource wealth → remains among **least developed** (corruption, weak infrastructure).
Mount Etna	**Continuous eruption since Aug 10, 2025** in Sicily, Italy. Highlights **tourism–safety challenges** and high **geological activity**.	**Other Name:** Aetna (Latin). **Location:** Eastern Sicily (Catania district), Italy. **Type:** Active stratovolcano. **Tectonics:** At African–Eurasian plate boundary. **Height/Size:** Tallest active volcano in Europe **Activity:** Among world's most active volcanoes. **Recognition:** Decade Volcano (UN) – due to risk near populated areas. UNESCO World Heritage Site.

Western Ghats	Presence of **rare dragonfly (Crocothemis erythraea)** reconfirmed in **southern Western Ghats** (Munnar, high-altitudes).	**Location:** Runs parallel to western coast; spans Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu. **Extent:** ~1,600 km (Tapti River → Kanyakumari). **Status: UNESCO World Heritage Site**; global biodiversity hotspot. **Geography:** Continuous mountain chain; heavy rainfall, dense forests. **Biodiversity:** 7,400+ flowering plants, 139 mammals, 508 birds, many endemic reptiles & amphibians. **Climate Role:** Crucial for **monsoon rainfall** & peninsular agriculture. **Rivers:** Godavari, Krishna, Kaveri, and others originate here. **Significance:** Supports water security, carbon sequestration, monsoon regulation, ecological balance.
Lipulekh Pass (Uttarakhand)	India & China decided to **resume border trade** via **Lipulekh Pass**. Nepal objected, claiming **Kalapani–Lipulekh–Limpiyadhura** region as its territory. Nepal called the move "unexpected & unacceptable" but kept dialogue with India open.	**Location:** Kumaon, Uttarakhand; near **India–Nepal–China trijunction**; links Uttarakhand with Tibet (China). **Altitude:** ~5,334 m (17,500 ft). **Border Trade:** • 1st Indian post opened for trade with China (1992). • Later → **Shipki La (HP, 1994)** & **Nathu La (Sikkim, 2006)** also opened. **Strategic & Religious Value:** • Ancient **Indo-Tibetan trade route**. • Key route for **Kailash Mansarovar Yatra** (Hindu pilgrimage).
Sahel Region	The U.S. (Trump administration) reset ties with West African military regimes **Mali, Burkina Faso, Niger** on a **"trade, not aid"** model. Offers **counter-jihadist support** in return for **critical minerals** (lithium, gold, uranium).	Strategic resources: • **Mali:** gold & lithium • **Burkina Faso:** gold • **Niger:** uranium **Location:** Semi-arid belt (5,000 km), from **Atlantic Ocean → Red Sea**. **Transition zone:** Between **Sahara Desert (north)** & **Savannas (south)**. **Countries:** Senegal, Mauritania, Mali, Burkina Faso, Niger, Nigeria, Chad, Sudan, Eritrea. **Vegetation:** Dry grassland with acacia & baobab trees. **Challenges:** Weak governance, extremism, climate change, migration route to Europe.

Sundarban Biosphere Reserve (SBR)	Latest 2025 survey shows **rise in saltwater crocodile population** with 213 sightings, including many hatchlings. Indicates **successful conservation & healthy ecosystem**.	**Location:** West Bengal; part of world's largest **Ganga–Brahmaputra–Meghna delta**. **Status:** UNESCO World Heritage Site & Biosphere Reserve. **Mangroves:** World's largest mangrove forest. **Wildlife:** Royal Bengal Tiger, estuarine & saltwater crocodiles, spotted deer, rich birdlife. **Hydrology:** Dense network of rivers, estuaries, tidal waterways. **People:** Livelihoods from fishing, honey collection, eco-tourism. **Threats:** Climate change, sea-level rise, erosion, human-wildlife conflict.
Dibru-Saikhowa National Park (DSNP)	Study "Grasslands in Flux" finds native trees (**Simalu & Ajar**) joining invasive species in altering the park's riverine ecosystem. Grasslands have sharply declined (1999–2024), replaced by shrubland & degraded forest → threat to grassland-dependent wildlife.	**Location:** Eastern Assam, between **Brahmaputra (N)** & **Dibru (S)** rivers. **Ecosystem:** Riverine grasslands, semi-evergreen forests, wetlands. **Unique:** Only habitat of **feral horses** in India (~200, from WWII). **Biodiversity:** Bengal Florican, hog deer, swamp grass babbler. **Status:** National Park (1999) & Biosphere Reserve. **Threats:** Shrinking grasslands, invasive/native tree spread, floods, human pressure. **Recent Findings:** Grassland reduced from 28.78% (2000) to much less now → habitat loss & higher climate vulnerability.