Educrat IAS ACADEMY

No Need of going to Delhi Now!
Prepare for UPSC from Kolkata

EDU-SAMIKSHA

MONTHLY CA MAGAZINE

APRIL 2026

THE HINDU

The Indian EXPRESS
JOURNALISM OF COURAGE

पत्र सूचना कार्यालय
PRESS INFORMATION BUREAU

AIR 135
SAIMA KHAN
UPSC 2025

AIR 443
DEBJYOTI HALDER
UPSC 2025

AIR 649
JUHI DAS
UPSC 2025

AIR 153
SAHARS KUMAR
UPSC 2024

AIR 447
PARAMITA MALAKAR
UPSC 2024

RESERVE LIST
PRIYA PUROHIT
UPSC 2023

PARK STREET: 9163228921, 9163218921

TABLE OF CONTENT

1. MAINS ANALYSIS

I. POLITY AND GOVERNANCE

1. Judicial Contempt vs Free Speech: Where Should the Line Be Drawn?

In a constitutional democracy like India, **institutions derive their authority not merely from legal powers but from the trust and confidence of the people**. The recent controversy involving criticism of the judiciary and the response of the Supreme Court of India has brought attention to a key constitutional dilemma: how to balance **judicial authority with freedom of speech**. Both are essential for a healthy democracy and must coexist within the constitutional framework.

Contempt of Court: Constitutional Framework

Contempt of court is a mechanism to protect the authority and functioning of the judiciary. It includes both civil and criminal forms.

- **Civil Contempt** refers to disobedience of court orders.
- **Criminal Contempt** includes acts that scandalise or lower the authority of courts or interfere with justice.

The Constitution provides this power under:	At the same time,
• **Article 129** – Supreme Court as Court of Record • **Article 215** – High Courts as Courts of Record	• **Article 19(1)(a)** guarantees freedom of speech • **Article 19(2)** allows reasonable restrictions, including contempt of court

Thus, the Constitution itself creates a balance between authority and liberty.

Judicial Authority and Public Trust

The judiciary does not rely on force but on **moral authority and legitimacy**. Its strength lies in **public confidence**.

- Courts depend on voluntary compliance with their decisions.
- Trust is built through **fairness, transparency, and reasoned judgments**.
- **Article 50** ensures separation of judiciary from executive, strengthening independence.

At the same time, independence must be complemented by accountability, which comes through public scrutiny.

Role of Criticism in Democracy

Criticism of the judiciary is not a threat but an essential feature of democracy. It **promotes accountability and institutional improvement.**

- Citizens and media have the **right to question judicial decisions** under **Article 19(1)(a)**.
- **Constructive criticism** helps identify gaps and improve functioning.
- The judiciary itself has recognised that it is not above criticism.

However, criticism must remain responsible and not be driven by misinformation or malicious intent.

Drawing the Line: Criticism vs Contempt

The key challenge lies in distinguishing between legitimate criticism and contemptuous conduct.

Acceptable Criticism includes:	Contemptuous Conduct includes:
• **Fact-based** and reasoned arguments	• **False** or reckless allegations
• Aimed at **reform** and **accountability**	• **Motivated attacks** on judiciary
• Expressed respectfully	• Attempts to undermine public confidence

Courts must ensure that only genuinely harmful actions attract contempt proceedings.

Concerns: Chilling Effect on Free Speech

Excessive or frequent use of contempt powers can create a **chilling effect on free speech**.

- Individuals may **hesitate to express opinions**
- **Academic and intellectual debate** may weaken
- Public discourse becomes less vibrant

Such outcomes can ultimately harm the credibility of the judiciary rather than strengthen it.

Way Forward: Ensuring Balance

A balanced and mature approach is required to maintain both judicial dignity and democratic freedoms.

- Contempt powers should be used **sparingly and cautiously**
- Courts should encourage **constructive criticism**
- Institutional dignity should be maintained through **conduct and transparency**
- Opportunity for clarification should be provided before initiating action

This approach strengthens both accountability and trust.

Thus, the power of contempt is necessary to uphold the authority of the judiciary, but it must be exercised with restraint. A careful balance between **Articles 19(1)(a) and 19(2)**, along with the proper use of contempt powers under **Articles 129 and 215**, is essential. Ultimately, a judiciary that is confident in its integrity does not fear criticism but engages with it constructively, thereby strengthening democracy and the rule of law.

2. ECI Transfer Controversy: Powers, Limits and Constitutional Balance

The recent actions of the Election Commission of India involving the transfer of senior officials in election-bound States have sparked an important constitutional debate. At the heart of the issue lies a key question: **how far can the Election Commission go in ensuring free and fair elections without violating federal and legal boundaries**.

Constitutional Basis of ECI Powers

The authority of the Election Commission flows primarily from **Article 324** of the Constitution, which vests in it the **superintendence, direction and control of elections**.

- The Supreme Court of India has interpreted Article 324 as granting **plenary (wide and comprehensive) powers**.
- In **Mohinder Singh Gill vs Chief Election Commissioner**, the Court described Article 324 as a **"reservoir of powers"**.
- These powers enable the ECI to act in situations where **laws are silent**.

However, these powers are not absolute.

- They must be exercised within the framework of **existing laws**.

- They must follow principles of **fairness, reasonableness, and natural justice**.

Conflict with Statutory and Constitutional Framework

The controversy arises because ECI's actions appear to conflict with established legal provisions.

- Officers of All India Services are governed by the **All India Services Act**.
- Their transfer and posting fall under the jurisdiction of **Union and State governments**.
- Under the **Seventh Schedule**, public services are part of the administrative domain of governments.

Further,

- **Article 324(6)** allows ECI to requisition staff for elections
- But it does **not explicitly allow transfer of senior officials**

Also,

- The **Representation of the People Act, 1950 and 1951** do not provide such transfer powers

Thus, the absence of clear legal backing raises questions about the **legality of these transfers**.

Implications for Federalism

The issue has significant implications for India's federal structure.

- Sudden transfers disrupt **administrative continuity** in States
- They may lead to **governance paralysis**, especially during elections
- Lack of consultation undermines **cooperative federalism**

This raises a critical concern:
Can electoral integrity justify intervention in State administrative control?

Concerns of Transparency and Accountability

Another major issue is the lack of transparency in such decisions.

- No clear criteria for **identifying "biased" officials**
- No formal procedure to justify transfers
- Creates perception of **arbitrariness**

This weakens institutional credibility and public trust.

Problem of Unchecked Power

A **deeper constitutional concern is the risk of unchecked institutional authority**.

- The ECI depends on **State machinery** for conducting elections
- Frequent removal of officials may **demoralise civil services**
- It may erode trust between institutions

The Supreme Court of India has clearly stated that:

- No authority is above law
- All powers must be exercised within **constitutional limits**

Balancing Electoral Integrity and Rule of Law

While free and fair elections are essential, they must be ensured through lawful means.

- Elections derive legitimacy not only from outcomes but also from **processes followed**
- Overreach may set a dangerous precedent
- Institutional balance must be maintained

Way Forward

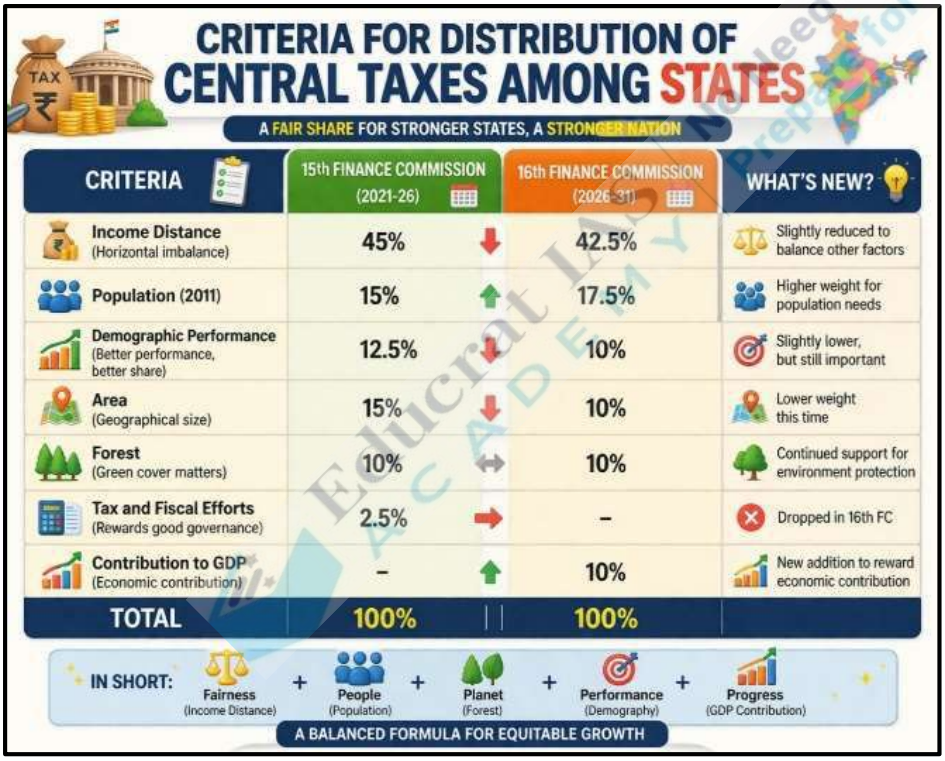
A balanced and constitutionally sound approach is necessary:

- Clearly define the **scope of ECI powers under Article 324**
- Ensure actions are backed by **statutory provisions**
- Introduce **transparent criteria** for administrative decisions
- Strengthen **consultation with State governments**
- Maintain accountability through **judicial review**

The ECI plays a vital role in safeguarding democracy, but its powers are not unlimited. A careful balance between **Article 324 authority and federal principles** is essential. Ensuring free and fair elections must go hand in hand with respect for the rule of law, institutional boundaries, and transparency. Only then can both **democratic integrity and constitutional order** be preserved.

3. Finance Commission: Strengthening Local Bodies but Weakening States?

The **Sixteenth Finance Commission recommendations** have raised concerns regarding India's fiscal federal structure. **While local bodies are being strengthened, States appear to be losing fiscal autonomy and flexibility.** The shift reflects increasing centralisation through discretionary transfers rather than statutory allocations. This creates a debate on balancing decentralisation with the constitutional role of States in governance.



Constitutional Framework of Fiscal Federalism

- The Constitution of India provides a structured system for financial devolution.
- **Article 280** mandates the Finance Commission to recommend distribution of financial resources.
- **Article 275** provides statutory grants to States based on need and equity considerations.
- **Article 282** allows discretionary grants by the Union for public purposes.

The **balance between Articles 275 and 282** is crucial for maintaining fiscal federalism.

Key Changes in 16th Finance Commission Approach

- The Commission retained States' share at **41 percent** but reduced the **effective divisible** pool.
- **Increasing use of cesses and surcharges** has limited funds available for distribution to States.
- **Discontinuation of revenue deficit grants** has affected fiscally weaker States significantly.
- Greater reliance on discretionary transfers has increased central leverage over States.

Shift Towards Centralisation

- **Movement from statutory, formula-based transfers to discretionary, condition-based allocation**s is evident.
- This shift reduces predictability and transparency in fiscal transfers to States.
- It also increases the **Centre's control over allocation and utilisation of funds**.
- Such trends weaken the principles of cooperative federalism in practice.

Impact on States

- Several States, especially smaller and less developed ones, may face reduced financial resources.
- **Loss of revenue deficit** grants affects States with structural fiscal imbalances.
- Reduced share in divisible pool limits States' capacity for welfare and development spending.
- It may also **widen regional inequalities across the country**.

Strengthening of Local Bodies

- The Commission has **increased grants to Panchayats and Urban Local Bodies significantly**.
- Funds are tied to performance and service delivery outcomes at the local level.
- This supports **decentralisation and grassroots governance improvements**.
- However, it may bypass States, altering the federal balance envisaged in the Constitution.

Concerns Regarding Article 275 vs Article 282

- **Article 275 grants** are **statutory**, **need-based**, and ensure fiscal support with accountability.
- **Article 282 grants** are discretionary and lack clear criteria or transparency mechanisms.
- Increasing reliance on Article 282 weakens institutional safeguards of fiscal transfers.
- It shifts **power from rule-based distribution to executive discretion**.

Key Challenges

- Maintaining balance between **strengthening local governance and preserving State autonomy.**
- Ensuring transparency and predictability in fiscal transfers across different levels of government.
- **Addressing regional disparities** without over-centralising financial powers.
- Aligning fiscal policy with constitutional principles of federalism and decentralisation.

Way Forward

- Restore emphasis on **statutory, formula-based transfers under Article 275** for greater fairness.
- Limit excessive use of cesses and surcharges to protect the divisible pool for States.
- **Strengthen cooperative federalism through consultation with States** in fiscal decision-making.
- Ensure that decentralisation to local bodies complements, rather than bypasses, State governments.

The Finance Commission plays a vital role in maintaining India's fiscal balance and federal structure. While empowering local bodies is important, it should not come at the cost of weakening States. A balanced approach is necessary to ensure both decentralisation and strong federal governance. Upholding constitutional principles is essential for sustaining cooperative federalism in India.

4. Nari Shakti: India's Defining Reform for the Next Decade

Over the last decade, India has witnessed a **structural shift in women's empowerment**. The change has been **policy-driven, not organic**, focusing on access, inclusion, and participation. Women's empowerment is now seen as a **driver of economic growth and development**. The next phase requires moving from **access to leadership and institutional empowerment**.

Healthcare and Social Sector Interventions

- Schemes like **Ayushman Bharat** have improved access to healthcare for women.
- **Pradhan Mantri Matritva Abhiyan** supports maternal health and safe pregnancy.
- **Beti Bachao Beti Padhao** has contributed to improving gender attitudes and awareness.
- These interventions have enhanced **health, dignity, and social inclusion of women**.

From Access to Structural Transformation

- Women's empowerment is no longer limited to welfare but extends to **economic participation**.
- Financial inclusion, entrepreneurship, and access to credit have improved significantly.
- Programmes are creating **local economic resilience through women-led initiatives**.
- This reflects a shift from **beneficiary approach to active participation in development**.

Challenges: The Last Mile Problem

- Awareness gaps and uneven enrolment still persist across regions and communities.
- **Last-mile delivery challenges** limit access for women in remote and marginalised areas.
- Many women remain excluded due to **lack of access, not lack of opportunity**.
- Monitoring outcomes rather than inputs is essential for effective policy implementation.

Need for Policy Penetration

- The next stage requires moving from **policy creation to policy penetration**.
- Focus should be on **outcomes, real impact, and behavioural change**.
- Data-driven governance and convergence across departments are critical.
- Technology can support delivery but cannot replace **on-ground institutional support**.

Nari Shakti Vandan Adhiniyam: A Transformational Step

- The law provides **reservation for women in legislatures**, enhancing political participation.
- It has potential to create **multiplier effects across sectors through leadership roles**.

- Greater representation can lead to **better policy responsiveness and inclusivity**.
- It marks a shift from empowerment through access to **empowerment through authority**.

Global Context and Emerging Opportunities

- The world is entering a phase driven by **knowledge, innovation, and technology**.
- India already has **one of the highest proportions of women in STEM education globally**.
- This provides an opportunity to expand women's role in **science, enterprise, and governance**.
- Leveraging this demographic advantage can accelerate India's growth trajectory.

Key Structural Gaps

- Representation does not automatically translate into **capability and effective leadership**.
- Institutional support systems for women leaders remain inadequate.
- Social norms and structural barriers continue to limit women's participation.
- Policy design often does not fully reflect **lived experiences of women**.

Way Forward

- Strengthen institutional support for women in **leadership, governance, and administration**.
- Focus on converting representation into **capability through training and mentorship**.
- Simplify schemes and improve last-mile delivery through better monitoring systems.
- Incorporate women's lived experiences into **policy design and implementation**.
- Promote women's participation in **STEM, entrepreneurship, and decision-making roles**.

India has made significant progress in expanding access and opportunities for women. The next phase requires ensuring **leadership, representation, and institutional empowerment**. Women's participation is central to achieving **economic growth and social stability**. Nari Shakti will be a defining factor in India's journey towards becoming a developed nation.

5. Have Elections in India Become Plutocratic?

Indian elections are increasingly marked by **rising expenditure and role of money power**. This raises concerns about a shift towards **plutocracy (rule by the wealthy)**. The core issue is whether **financial resources influence electoral outcomes disproportionately**. It also questions whether democracy ensures a **level playing field for all candidates**.

Why Elections Are Becoming Expensive

- Campaigns now rely heavily on **media, digital outreach, and large-scale mobilisation**.
- Increased competition and voter outreach require **significant financial resources**.
- Political parties invest heavily in **advertisements, logistics, and voter engagement**.
- Lack of strict enforcement enables **unaccounted cash spending during elections**.

Impact on Democracy

- High costs create barriers for **small parties and independent candidates**.
- Elections become less competitive, favouring **resource-rich candidates and parties**.
- This undermines the principle of **political equality under Article 14 (Equality before Law)**.
- It also affects **free and fair elections under Article 324 (powers of Election Commission)**.

Is Money the Deciding Factor?

- Money alone does not guarantee victory, but it provides a **significant advantage**.
- Candidates with greater financial backing can ensure **better visibility and outreach**.
- Smaller candidates often struggle to **compete effectively in high-cost elections**.
- Thus, money becomes an **enabling factor rather than the sole determinant**.

Limitations of Current Regulations

- Spending limits apply only to **individual candidates, not political parties**.
- There is **weak monitoring of actual expenditure**, especially during campaign peak.
- Large portions of spending occur through **unofficial or unaccounted channels**.
- This leads to an **uneven playing field and reduced transparency**.

Debate on Spending Caps

- Imposing stricter limits may reduce costs but could increase **black money usage**.
- Some argue for **greater transparency rather than strict caps**.
- Others suggest state funding or regulated funding models to ensure fairness.
- The challenge lies in balancing **accountability with practical feasibility**.

Electoral Bonds Issue

- The Supreme Court struck down **Electoral Bonds Scheme (2024)** citing lack of transparency.
- The scheme allowed anonymous political donations, raising concerns about **opacity**.
- It limited citizens' right to know under **Article 19(1)(a) (Freedom of Speech and Expression)**.
- However, concerns about **funding transparency and accountability still persist**.

Can a Level Playing Field Be Achieved?

- Shorter campaign periods may reduce overall expenditure.
- **Regulating party spending** and ensuring transparency is essential.
- **Public funding of elections could support smaller candidates**.
- However, structural inequalities make a perfectly level field difficult to achieve.

Role of Institutions and Society

- The Election Commission plays a key role under **Article 324** in regulating elections.
- Civil society and media must ensure **accountability and transparency in funding**.

- Voter awareness is essential to reduce influence of money in voting behaviour.
- Judicial interventions help strengthen **democratic norms and fairness**.

Way Forward

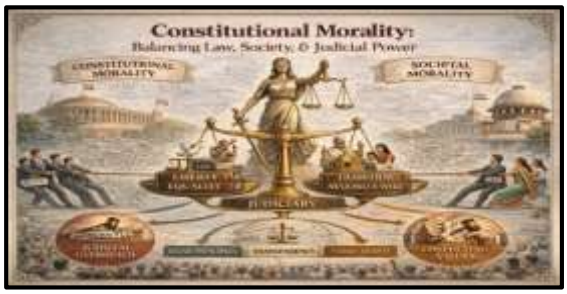
- Strengthen transparency through **mandatory disclosure of political funding sources**.
- Bring political parties under stricter regulatory and auditing frameworks.
- Explore **state funding of elections** to reduce dependence on private money.
- Improve monitoring mechanisms to curb **black money in elections**.
- Promote voter awareness to prioritise **issues over inducements**.

Rising electoral expenditure raises valid concerns about **plutocratic tendencies in India**. While money is not the sole determinant, it significantly influences electoral dynamics. Ensuring transparency, accountability, and fairness is essential for democratic integrity. Strengthening institutions and reforms will be key to preserving **free and fair elections**.

6. Constitutional Morality: Balancing Law, Society, and Judicial Power

The idea of **constitutional morality** has become central in debates on judiciary and governance. It refers to values like **liberty, equality, dignity, and respect for institutional processes**. However, its increasing use by courts has raised concerns about **judicial overreach**. The debate revolves around balancing **constitutional values with democratic decision-making**.

What is Constitutional Morality?



- Constitutional morality refers to **adherence to core constitutional values and principles**.
- It includes **respect for plurality, due process, and accountability of institutions**.
- It promotes **freedom, equality, and protection of individual rights** under the Constitution.
- It is often contrasted with **societal morality**, which reflects prevailing social norms.

Conceptual Concerns

- Critics argue that constitutional morality is a **vague and loosely defined concept**.
- It may become a **tool for subjective judicial interpretation**.
- There is a risk of courts imposing values **without clear legal standards**.
- This raises concerns about **predictability and consistency in judicial decisions**.

Constitutional Morality vs Societal Morality

- Constitutional morality focuses on **rights and equality**, even if society resists change.
- Societal morality reflects **traditions, customs, and majoritarian beliefs**.
- Courts have used constitutional morality to **challenge discriminatory practices**.
- Example: Navtej Singh Johar v. Union of India upheld LGBTQ rights.

Role of Judiciary

- Judiciary uses constitutional morality to **protect fundamental rights under Part III**.
- It ensures that laws and practices align with **Articles 14, 19, and 21**.
- Courts act as guardians of the Constitution against **majoritarian excesses**.

- However, excessive reliance may lead to **judicial overreach into legislative domain**.

Key Concerns Highlighted

- Use of constitutional morality may sometimes **bypass democratic processes**.
- It can reduce space for **parliamentary sovereignty and public debate**.
- Lack of clear standards may lead to **arbitrariness and judicial inconsistency**.
- Instances of selective intervention raise concerns about **institutional credibility**.

Illustrative Issues

- Debates like **Sabarimala case** highlight conflict between **religious practices and equality**.
- Questions arise on balancing **institutional autonomy with individual rights**.
- Concerns also emerge when courts avoid intervention in cases involving **electoral or governance issues**.
- This creates perception of **inconsistency in application of constitutional morality**.

Deeper Institutional Challenge

- The issue is not just interpretation but **declining procedural discipline in governance**.
- Concerns about **arbitrariness, lack of transparency, and unpredictability** are increasing.
- Constitutional morality should act as a **check on misuse of power**, not a vague principle.
- It must strengthen **rule of law, not replace it with subjective reasoning**.

Key Challenges

- **Defining clear boundaries** of constitutional morality in judicial decision-making.
- **Balancing judicial activism with respect for legislative and executive functions**.
- Ensuring consistency and predictability in application of constitutional principles.
- Maintaining public trust in institutions through **fairness and transparency**.

Way Forward

- Develop clearer judicial standards for applying constitutional morality in decisions.
- Strengthen institutional processes and respect for separation of powers.
- Encourage dialogue between judiciary, legislature, and society on constitutional values.
- Use constitutional morality as a **guiding principle, not a substitute for law and procedure**.

Constitutional morality is essential for protecting rights and ensuring justice in society. However, its misuse or overuse can lead to concerns about judicial overreach. A balanced approach is necessary to maintain **democratic integrity and institutional harmony**. Ultimately, constitutional morality should reinforce, not weaken, the rule of law.

7. An Alternative to Viksit Bharat Shiksha Adhishthan Bill: Balancing Centralisation and Federalism in Education

The proposed Viksit Bharat Shiksha Adhishthan Bill aims to implement the National Education Policy 2020. However, concerns have been raised regarding **centralisation and constitutional overreach in education governance**. Education is placed in the **Concurrent List**, requiring cooperation between Centre and States. The debate focuses on balancing **uniform standards with federal autonomy and institutional freedom**.

Key Concerns with the Bill

- The Bill gives **extensive powers to Union-controlled regulatory bodies** for standards and inspections.
- It reduces the role of States despite them being primary funders of higher education.
- It weakens institutions like the **University Grants Commission (UGC)** by diluting consultation mechanisms.
- It increases **bureaucratic control over universities**, affecting autonomy and innovation.

Issue of Centralisation

- The Bill allows central authorities to determine **standards, accreditation, and regulation**.
- This may lead to **one-size-fits-all policies**, ignoring regional and institutional diversity.
- States have limited say despite their responsibility in funding and managing institutions.
- Such centralisation can undermine the principle of **cooperative federalism**.

Impact on Institutional Autonomy

- Universities may lose decision-making power in academic and administrative matters.
- Governing bodies of institutions like IITs and IIMs may face reduced autonomy.
- Inspection-based regulation can become **prescriptive rather than outcome-oriented**.
- This may affect **innovation, research quality, and academic freedom**.

Concerns Regarding Equity and Social Justice

- The Bill does not sufficiently address **inter-regional and social inequalities in education**.
- It lacks provisions for strengthening access for **marginalised communities (SC/ST/OBCs)**.
- Private institutions may not be adequately regulated for ensuring equity.
- It shifts focus from education as a **public good to a market-driven approach**.

Regulatory and Governance Issues

- Proposed bodies like **Regulatory Council (Viniyaman Parishad)** and Accreditation Council may centralise authority.
- Third-party accreditation may reduce transparency and accountability in evaluation processes.
- Output-based evaluation (like patents and publications) may not reflect real educational outcomes.
- Standard-setting by central bodies may ignore **State-specific and sector-specific needs**.

Need for Role of States

- States must be actively involved in **decision-making on standards, funding, and governance**.
- Institutions like **State Higher Education Councils (SHECs)** should be strengthened.
- Education governance should be based on **consultation and consensus**, not central imposition.
- Federal balance is essential for ensuring inclusive and effective education policy.

Proposed Alternative Framework

- Ensure representation of States and SHECs in all major regulatory councils.
- Create a **Higher Education Grants Council (HEGC)** for transparent and equitable funding.
- Adopt a **shared governance model** involving Centre, States, and institutions.
- Promote **process-based and outcome-oriented evaluation**, not rigid inspection systems.

Focus Areas for Reform

- Emphasise **teaching, research, and outreach** as integrated goals of higher education.
- Address regional disparities through targeted funding and policy support.
- Encourage innovation, interdisciplinary research, and global competitiveness.

- Incorporate **local, ecological, and socio-economic realities** into policy frameworks.

Way Forward

- Maintain balance between national standards and institutional autonomy in higher education.
- Strengthen cooperative federalism through **active participation of States in governance structures**.
- Ensure education remains a **public good with focus on equity and accessibility**.
- Provide adequate funding and reduce excessive bureaucratic control over institutions.
- Align reforms with long-term goals of **innovation, inclusivity, and knowledge economy**.

The Bill highlights the need for reform but raises concerns about centralisation and autonomy. A balanced framework is required to ensure both **quality and inclusivity in higher education**. Strengthening States' role and institutional autonomy is crucial for sustainable reform. India's higher education system must evolve with a focus on **federal balance and academic excellence**.

8. Women's Reservation and Delimitation: Constitutional Transformation of Representation

Government has proposed Constitutional Amendment Bills based on 2011 Census data framework. Lok Sabha strength proposed to increase from **543 seats to 850 members**. **One-third reservation for women introduced in Lok Sabha and State Assemblies**. Delimitation to be undertaken before implementation of women's reservation provisions nationwide.

Shift in Delimitation Framework

- Earlier system mandated delimitation after every Census exercise compulsorily across states.
- **New proposal removes mandatory periodic delimitation linked strictly with Census cycles.**
- Parliament empowered to decide timing and necessity of delimitation exercises flexibly.
- Latest published Census data, **currently 2011 Census**, will be basis for delimitation.
- Ensures stability while allowing periodic adjustments when required by legislative decision.

Institutional Mechanism

- Delimitation Commission to be constituted with powers **equivalent to civil courts**.
- Commission headed by **Supreme Court judge with Election Commission representation included**.
- Orders of Commission will have force of law and cannot be challenged in courts.
- Process includes public consultations, draft proposals, and final notification of constituencies.

Rationale Behind the Reform

- Delimitation required to **reflect demographic changes** and evolving population distribution patterns.
- **Women's reservation linked to delimitation to ensure equitable geographical representation.**
- Aims to **correct historical under-representation of women** in legislative institutions.
- Ensures **fair distribution of seats** across states based on updated population data.

- Attempts to balance democratic equality with federal considerations across regions.

Political and Federal Concerns

- **Southern states fear reduction in representation due to lower population growth rates**.
- **Northern states may gain higher seat** share due to larger population increases.
- Debate over fairness between **population-based representation and development performance indicators**.
- Concerns regarding political consensus and federal balance in seat redistribution process.
- Demand for consultations and consensus-building before implementing delimitation reforms.

Implications for Representation

- Women's reservation may significantly **increase female participation in legislatures**.
- **Enhances inclusiveness and diversity** in democratic decision-making processes across governance levels.
- Could **transform policy priorities** towards **gender-sensitive governance** outcomes nationwide.
- May lead to emergence of new political leadership at grassroots and national levels.
- Changes **electoral dynamics** by altering constituency composition and political competition patterns.

Administrative and Practical Challenges

- Delay in **conducting next Census creates uncertainty** regarding updated population data usage.
- Complex exercise requiring **mapping, data verification, and stakeholder consultations** across states.
- Potential legal and political disputes despite limited judicial review provisions.
- **Ensuring fairness in boundary delimitation** while maintaining administrative convenience remains challenging.
- Need for transparency to avoid allegations of political bias in constituency restructuring.

Way Forward

- Build political consensus through consultations with states to maintain **cooperative federalism principles**.
- **Use updated and accurate Census data** to ensure fairness and legitimacy of delimitation exercise.
- Ensure transparency in Commission proceedings to build public trust and acceptance.
- **Strengthen institutional capacity** for efficient and timely delimitation implementation process nationwide.
- Complement women's reservation with capacity building and leadership development initiatives.

Reform represents significant constitutional shift in representation, federal balance, and gender inclusion. Balancing population-based representation with regional equity remains key policy challenge. Effective implementation will determine success of women's reservation and delimitation reforms. Marks a transformative step towards inclusive and representative democratic governance in India.

9. The Institutionalised Sluggishness of the Legal System: Reforming Justice Delivery in India

India's legal system today faces a deep structural crisis marked by massive **case backlogs, procedural delays, and limited accessibility**. For millions of ordinary citizens, justice is not merely delayed but often effectively denied, as cases stretch across years and even generations. While landmark judgments dominate headlines, the everyday reality of the judiciary reflects institutional sluggishness, raising serious concerns about fairness, efficiency, and the credibility of the justice delivery system.

Nature of the Problem

1. Justice Delayed as Systemic Reality

- Courts burdened with **over five crore pending cases**, creating systemic congestion.

- Legal processes often extend across **decades, exhausting time, money, and patience**.
- "Justice delayed is justice denied" has become **routine experience, not exception**.

2. Procedural Bottlenecks

- Excessive adjournments and technical procedures slow down case progression significantly.
- Administrative inefficiencies create **avoidable delays in filings and hearings**.
- Legal system prioritises procedure over outcome, reducing effectiveness of justice delivery.

3. Impact on Citizens

- Common citizens face **financial strain due to prolonged litigation costs**.
- Undertrial prisoners spend **years in jail without conviction or timely hearing**.
- Vulnerable groups suffer most, losing **dignity, livelihood, and social standing**.

Structural Causes

1. Colonial Legacy of Legal System

- System designed during colonial period prioritised **control over accessibility and speed**.
- Heavy reliance on physical processes and rigid procedures persists today.

2. Shortage of Judges and Infrastructure

- India has **low judge-to-population ratio compared to global standards**.
- Court infrastructure inadequate to handle growing volume of cases efficiently.

3. Limited Use of Technology

- Digital transformation in judiciary remains **partial and uneven across states**.
- Lack of integrated systems delays case tracking, filing, and resolution.

Issues of Accessibility and Inclusion

1. Economic Barriers

- High legal costs restrict access for poor and marginalised communities.
- Quality legal representation remains **unequal and often unaffordable**.

2. Social Representation

- Judiciary lacks diversity, with underrepresentation of women and marginalised groups.
- This affects public trust and **perception of fairness in justice delivery**.

3. Geographical Constraints

- Concentration of higher judiciary in select cities increases **litigation costs and delays**.
- Citizens from distant regions face barriers in accessing justice institutions.

Need for Judicial Transformation

1. Shift from Judge-Centric to Citizen-Centric System

- Focus should move from courtroom procedures to **citizen experience of justice delivery**.
- Justice must be timely, accessible, and responsive to social realities.

2. Use of Technology and Innovation

- Adoption of **Artificial Intelligence and data systems** for case management.
- Expansion of **virtual courts and online hearings** to improve accessibility.
- Digitisation can reduce backlog by **automating routine administrative processes**.

3. Process Reforms

- Set **strict timelines for case disposal**, especially for routine matters.
- Limit adjournments and streamline procedural requirements.
- Promote alternative dispute resolution mechanisms like **mediation and arbitration**.

4. Ensuring Judicial Independence with Accountability

- Judicial independence must be preserved as **core constitutional principle**.
- Transparency in appointments and functioning can enhance public trust.
- Accountability mechanisms should ensure **efficiency without compromising autonomy**.

5. Administrative and Institutional Reforms

- Increase number of judges and improve court infrastructure significantly.
- Strengthen legal aid systems to ensure **equitable access for all citizens**.
- Reform legal education to produce **solution-oriented and socially aware professionals**.

Way Forward

- Treat judicial reform as a **national priority, not incremental adjustment process**.
- Build integrated digital ecosystem connecting courts across all levels.
- Ensure inclusivity by improving representation within judiciary.
- Enhance accessibility through decentralisation and regional judicial capacity.
- Promote culture of **resolution over adversarial litigation mindset**.

The **crisis of judicial delays in India is not merely an administrative issue but a fundamental challenge to the rule of law and democratic governance**. A system where justice takes decades erodes public trust and weakens constitutional guarantees. Transforming the judiciary requires a comprehensive overhaul—combining technology, institutional reform, inclusivity, and accountability. Only by placing the citizen at the centre of justice delivery can India move towards a system where justice is not just promised, but meaningfully delivered in time.

10. Parliamentary Pushback and Democratic Lessons: Women's Reservation, Delimitation and Political Accountability

The recent parliamentary setback to the constitutional amendment linking women's reservation with delimitation marks a significant political moment in India's democratic journey. While the commitment to women's reservation remains intact in law, the failure to pass the linked framework reflects deeper institutional, federal, and political

concerns. It highlights that even strong governments must operate within the limits of parliamentary consensus, and that democratic processes cannot be bypassed through speed or majoritarian confidence alone.

What Happened

- Government attempted to link **women's reservation with Lok Sabha expansion and delimitation**.
- Proposal included **increase in seats and fresh delimitation after Census**.
- Bill failed to secure required support despite **broad agreement on women's reservation itself**.
- Opposition acted in **unison, raising procedural and structural concerns**.

Key Issues Raised in Parliament

1. Procedural Concerns

- Opposition questioned **haste and lack of wider consultation before introducing the Bill**.
- Demand to wait for **updated Census data, including caste enumeration**.
- Concern over **sudden shift from earlier government positions on implementation**.

2. Trust Deficit in Delimitation Process

- Doubts raised about **credibility and neutrality of delimitation mechanism**.
- Fear that exercise may disturb **balance between representation and federal fairness**.
- Risk of **states being politically pitted against each other**.

3. Federal Balance and Representation

- Concerns over **North–South divide due to population-based seat redistribution**.
- Smaller or better-performing states may **lose relative influence in Parliament**.
- Raises question of **equity versus numerical representation in federal democracy**.

Political Implications

1. Setback for Government

- Failure to pass own constitutional amendment reflects **limits of centralised decision making**.
- Demonstrates that **numbers alone cannot replace political trust and consensus**.
- Highlights risks of pursuing **transformative reforms without institutional dialogue**.

2. Opportunity for Opposition

- Unified Opposition demonstrated **collective bargaining power in Parliament**.
- Created space for **larger constitutional and democratic debate**.
- However, must go beyond resistance and **offer clear alternative vision**.

3. Narrative Politics

- Government may attempt to frame Opposition as **anti-women or obstructionist**.
- Opposition must communicate **substantive concerns, not just political opposition**.
- Political messaging becomes critical in shaping **public perception of the reform**.

Deeper Constitutional Concerns

1. Representation vs Federalism

- Debate reflects tension between **"one person, one vote" and federal equity**.
- Population-based delimitation may conflict with **regional balance and fairness**.

2. Institutional Integrity

- Frequent structural changes risk weakening **credibility of constitutional institutions**.
- Delimitation must be seen as **neutral, transparent, and rule-based process**.

3. Electoral System Challenges

- Attempt to produce proportional outcomes within **first-past-the-post system creates distortions**.
- Raises questions about **design of representation in Indian democracy**.

Concerns on Implementation Strategy

- Linking reservation with delimitation creates **uncertainty and delays in execution**.
- Risk of politicisation of Census and delimitation processes.
- Complex sequencing may lead to **administrative and political deadlocks**.

Way Forward

1. Build Consensus-Based Reform

- Engage all stakeholders including **states, opposition, and civil society**.
- Ensure reforms reflect **collective political agreement, not unilateral action**.

2. Decouple Key Issues

- Consider implementing **women's reservation independently of delimitation**.
- Avoid unnecessary linkage that **delays social justice outcomes**.

3. Strengthen Institutional Trust

- Ensure delimitation process is **transparent, data-driven, and impartial**.
- Establish safeguards against **political misuse or manipulation**.

4. Address Federal Concerns

- Explore **balanced criteria beyond population alone**.
- Prevent regional polarisation such as **North versus South narratives**.

5. Improve Democratic Discourse

- Move debate from **political slogans to constitutional reasoning and public dialogue**.
- Focus on long-term **democratic strengthening rather than short-term political gains**.

The parliamentary pushback on the women's reservation-linked delimitation proposal serves as a powerful reminder that **democracy thrives on dialogue, trust, and institutional balance**. While the objective of enhancing women's representation enjoys wide support, the method of implementation must align with constitutional principles and federal sensitivities. This moment is not merely a political setback but an opportunity to recalibrate reforms through consensus, ensuring that transformative change strengthens rather than strains India's democratic foundations.

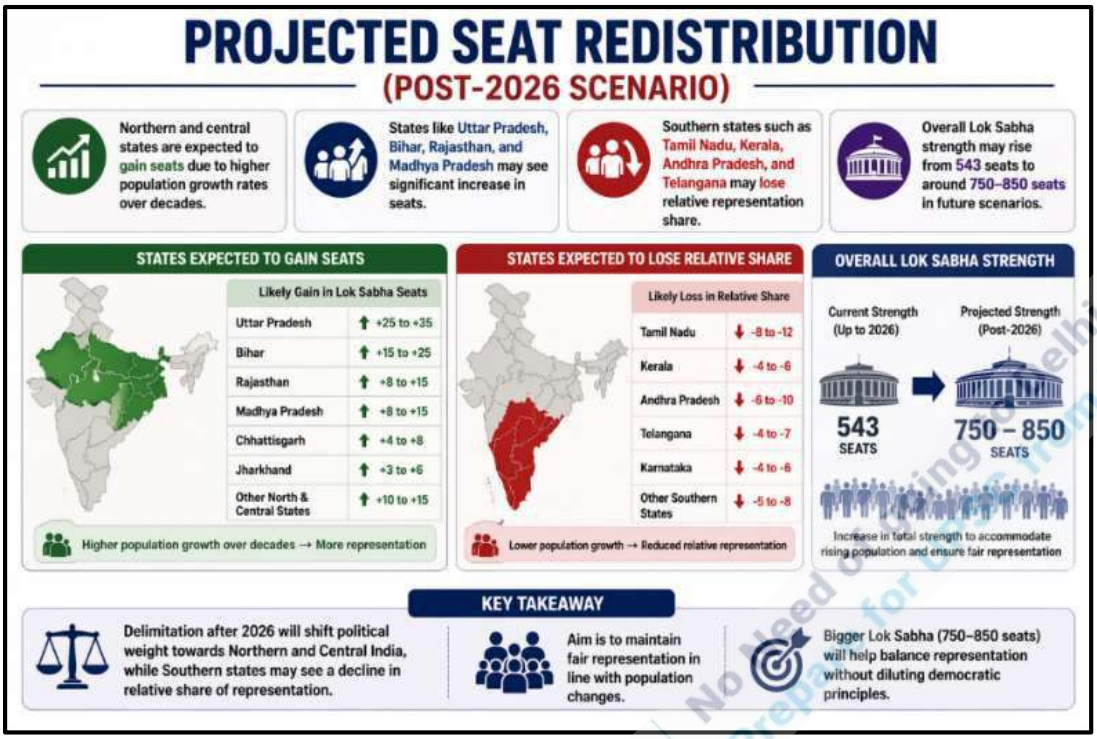
11. Delimitation Debate: Value of Vote vs Fiscal Balance

The ongoing delimitation debate in India reflects a deeper constitutional dilemma between ensuring equal representation and maintaining federal balance. While the principle of "one person, one vote" demands redistribution of seats based on population, it also risks penalising states that successfully controlled population growth. This tension makes delimitation not just a technical exercise, but a politically and economically sensitive issue.

What is Delimitation and Why It Matters

- Delimitation refers to the **redrawing of parliamentary and assembly constituencies based on population changes over time**.
- It aims to ensure **equal representation so that each vote carries similar weight across regions**.

- The process is guided by constitutional provisions under **Articles 82 and 170, and carried out by Delimitation Commission**.
- India has frozen delimitation based on population since **1971, extended until 2026 to encourage population control efforts**.



Core Principle: One Person, One Vote

- Democracy requires that **each citizen's vote has equal value irrespective of geography or region**.
- Population-based seat allocation ensures **fair representation in legislative bodies like Lok Sabha**.
- However, strict adherence to this principle can create **regional imbalances in political power**.

Projected Seat Redistribution (Post-2026 Scenario)

- Northern and central states are expected to gain seats due to **higher population growth rates over decades**.
- States like **Uttar Pradesh, Bihar, Rajasthan, and Madhya Pradesh may see significant increase in seats**.
- Southern states such as **Tamil Nadu, Kerala, Andhra Pradesh, and Telangana may lose relative representation share**.
- Overall Lok Sabha strength may rise from **543 seats to around 750–850 seats in future scenarios**.

Fiscal and Political Imbalance Concerns

- States that controlled population growth may face **reduced political influence despite better governance outcomes**.
- Northern states gaining seats could dominate **national policy decisions and legislative priorities**.
- This creates tension between **demographic representation and fiscal contribution to the national economy**.
- Wealth-generating states may feel **disadvantaged if political power shifts away from them**.

Impact on Federalism

- Delimitation can alter the **balance of power between Centre and States within India's federal structure**.
- Southern states fear marginalisation in **national decision-making and resource allocation processes**.
- It raises concerns about **cooperative federalism and equitable voice for all regions**.

- The debate reflects a conflict between **numerical democracy and balanced federal representation**.

Constitutional and Policy Challenges

- The Constitution emphasises both **equal representation and federal fairness, creating inherent tension in delimitation exercise**.
- The freeze until 2026 was meant to **avoid penalising states that adopted population control measures early**.
- Post-2026 delimitation must balance **demographic realities with policy incentives for responsible governance**.

Economic Dimension of the Debate

- Richer states contribute more to **national GDP and tax revenues, but may lose relative representation post-delimitation**.
- Poorer states with higher population growth may gain **greater political influence without proportional economic contribution**.
- This raises concerns about **fiscal transfers, resource allocation, and economic equity among states**.

Political Consequences

- Increased representation of northern states could influence **electoral outcomes and coalition dynamics at national level**.
- Regional parties in southern states may lose **bargaining power in central politics**.
- This could deepen **regional divides and political polarisation across India**.

Key Dilemma

- Should representation strictly follow **population (democratic equality)**?
- Or should it consider **performance factors like population control and economic contribution (federal fairness)**?
- Balancing these competing principles is the **core challenge of delimitation debate**.

Way Forward

- India needs a **balanced formula that combines population with other indicators like development and fiscal contribution**.
- Consider mechanisms such as **weighted representation or multi-factor criteria for seat allocation**.
- Strengthen **Rajya Sabha's role to protect interests of states within federal structure**.
- Ensure broad political consensus to avoid **regional tensions and legitimacy issues in delimitation exercise**.
- Promote cooperative federalism through **transparent dialogue and institutional safeguards**.

Delimitation is not merely a technical redrawing of boundaries but a defining moment for India's democratic and federal structure. The challenge lies in reconciling the principle of equal representation with the need for regional balance and fairness. A carefully designed, consensus-driven approach is essential to ensure that India's democracy remains both representative and cohesive in the years ahead.

12. The Moral Eclipse of Politics in the Modern Age

Politics was historically seen as a moral pursuit aimed at justice, public good, and ethical governance. However, in the modern era, this moral foundation appears to be eroding. Increasingly, politics is driven by power, spectacle, and strategic calculation rather than ethical responsibility, leading to what can be described as a "moral eclipse."

Classical Idea: Politics Rooted in Morality

- Aristotle viewed politics as **an extension of ethics aimed at achieving a just and flourishing society**.
- Political authority derived legitimacy from **ethical values, justice, and public welfare**.

- The goal of politics was **human development and collective good, not domination or control**.

Shift in Modern Politics

- Modern politics shows a **separation between morality and power**.
- Leaders increasingly rely on **symbolism, rhetoric, and spectacle rather than ethical reasoning**.
- Political discourse often becomes **polarised, fragmented, and driven by narratives instead of principles**.

Crisis of Moral Legitimacy

- When politics loses moral grounding, **power begins to justify itself rather than serving society**.
- Ethical criticism is often **dismissed, distorted, or reduced to partisan narratives**.
- This creates a situation where **authority seeks invincibility instead of accountability**.

War and Dehumanisation

- Modern warfare highlights the **moral decline in political decision-making**.
- Conflicts are conducted with **technological distance, reducing human suffering to data and images**.
- Unlike earlier wars, where violence was **direct and morally confrontational**, modern wars enable **detachment from consequences**.

Loss of Ethical Sensitivity

- Political systems show **reduced empathy towards human suffering and injustice**.
- Decisions are increasingly based on **strategic interests rather than moral considerations**.
- This leads to **normalisation of violence, inequality, and injustice in public life**.

Intellectual and Ethical Decline

- There is a decline in **serious ethical reasoning in political discourse**.
- Public debates focus more on **spectacle and polarisation than on rational and moral arguments**.
- This weakens the **quality of democracy and informed decision-making**.

Consequences of Moral Eclipse

- Politics becomes **power-centric rather than people-centric**.
- Democratic institutions risk becoming **tools of control rather than instruments of justice**.
- Citizens may lose **trust in governance and political processes**.

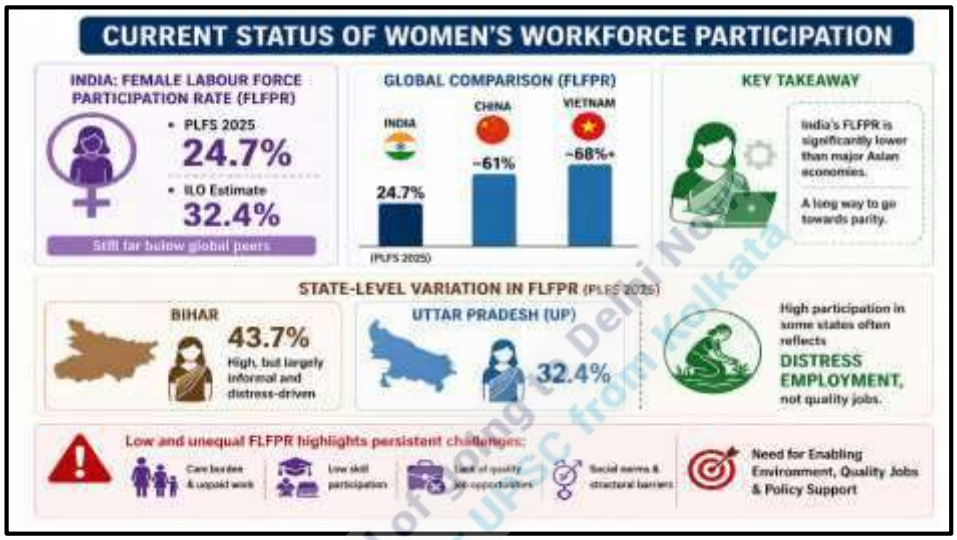
Need to Restore Ethics in Politics

- Reintroduce **ethical education and critical thinking in political culture**.
- Encourage **reasoned debate over rhetoric and spectacle**.
- Strengthen institutions that ensure **accountability, transparency, and justice**.
- Promote leadership that values **moral responsibility alongside political power**.

The erosion of morality in politics is not just a philosophical concern but a practical threat to democratic functioning and social justice. Restoring ethical foundations in political life is essential to ensure that power serves people rather than dominating them. Without moral guidance, politics risks losing its very purpose as a tool for collective well-being.

13. For True Nari Shakti, Take Jobs Where Women Workers Are

Women's empowerment in India cannot rely only on political representation or symbolic measures. True **"nari shakti" (women's empowerment)** requires meaningful **economic participation, especially through employment opportunities**. Without addressing structural barriers in jobs, skills, and mobility, empowerment remains incomplete and largely symbolic.



Education and Dropout Challenge

- Female education remains a constraint:
  - **Dropout rates in Bihar: ~8.7% (primary), 25.9% (secondary), 25.1% (higher secondary)**
- Lower education limits access to **formal and skilled employment opportunities**.

Skilling as the Foundation of Empowerment

- Government initiatives like **PMKVY (Pradhan Mantri Kaushal Vikas Yojana)** aim to provide skills training.
- Budget allocation (~₹9,886 crore for skill development in 2026–27) reflects focus.
- However:
  - **Skill training often not aligned with industry needs**
  - Many women remain **unemployed despite certification**

Importance of Labour-Intensive Sectors

- Sectors like **garments and textiles** are crucial:
  - Generate **~135 jobs per ₹1 crore investment**
- Compare with other sectors:
  - Automobiles and steel generate **far fewer jobs per investment**
- These sectors are **women-intensive and suitable for large-scale employment generation**.

Regional Employment Model (Case Example)

- In **Muzaffarpur (Bihar)**, a garment unit:
  - Started with **~650 workers (2026)**
  - Expected to scale to **~3,000 workers**
- **~90% workforce = women**, mostly first-time workers
- Shows that **local employment creation reduces migration and empowers women economically**.

Challenges in Women Employment

- **Lack of nearby job opportunities** forces migration or withdrawal from workforce.
- **Social norms and safety concerns** limit mobility of women workers.
- **Absence of support systems** (hostels, transport, childcare) increases dropout from jobs.
  - **Skill mismatch** between training and industry demand persists.

Role of Industrial Policy

- Schemes like **PM MITRA Parks** aim to create **large textile clusters with plug-and-play infrastructure**.
- These clusters can:
  - Generate **large-scale employment**
  - Provide **shared infrastructure → lower costs → higher participation**
- However, **regional imbalance exists (limited presence in labour-rich states like Bihar, Jharkhand)**.

Limitations of Incentive-Based Policies

- Employment-linked incentives (₹20,000 per worker, ₹5,000/month subsidy, etc.) exist.
- **But challenges include:**
  - Weak implementation
  - Poor awareness
  - Limited industry uptake
- Incentives alone cannot solve **structural issues in workforce participation**.

Global Lessons

- Countries like **Vietnam, Bangladesh, China**:
  - Developed **cluster-based industrial ecosystems**
  - Integrated **training + employment + infrastructure**
- Result: **High female workforce participation in manufacturing sectors**.

Way Forward

- Focus on **job creation where women are located (local employment ecosystems)**.
- Invest in **industry-aligned skilling and vocational training systems**.
- Develop **labour-intensive manufacturing clusters in high-population states**.
- Provide **support infrastructure (hostels, safety, childcare facilities)**.
- Align incentives with **actual employment outcomes, not just policy announcements**.

True empowerment of women lies not just in representation but in meaningful economic participation. Creating accessible, local, and suitable employment opportunities—especially in labour-intensive sectors—can transform women's role in the economy. A shift from symbolic policies to structural job creation is essential to realise the vision of genuine **nari shakti**.

14. The Case for Regional Benches of the Supreme Court

The demand for regional benches of the Supreme Court arises from a fundamental concern—**justice should be accessible, not distant**. When citizens must travel long distances to seek justice, it creates inequality in access. The debate is not just administrative but deeply linked to constitutional rights, fairness, and efficiency in the judicial system.

Constitutional Basis (Article 130)

- **Delhi is the permanent seat of the Supreme Court** as per the Constitution.
- However, **Article 130 allows the Chief Justice of India (CJI), with President's approval, to establish benches elsewhere**.
- This power is **discretionary, not mandatory**, meaning courts cannot force its use.

Problem: Pendency and Accessibility Crisis

- Supreme Court has **over 92,000 pending cases (2026)** → huge backlog.
- Citizens from distant regions face a **"distance penalty"**:
  - Travel to Delhi
  - High litigation costs
  - Need for multiple lawyers
- Result: **Unequal access to justice across regions**.

Regional Inequality in Appeals

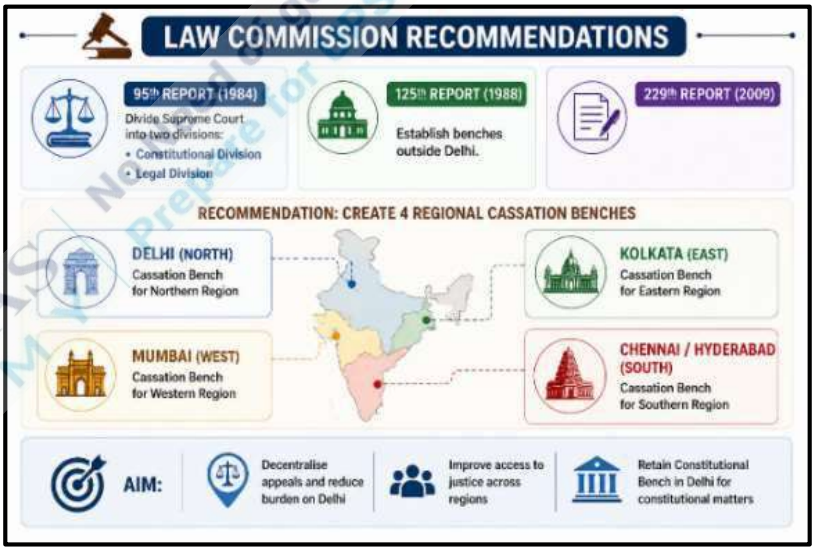
- States closer to Delhi (Punjab, Haryana, UP) have **higher appeal rates**.
- Southern and northeastern states show **lower appeal rates (≈10%)** despite high case disposal.
- Reason: **Cost + distance discourage litigation at Supreme Court level**.

Legal and Constitutional Dimensions

- **Article 21 (Right to Life)** includes **Right to Access Justice**.
- If distance restricts access → **violation of fundamental rights**.
- **Article 39A (Directive Principle)** mandates **equal justice and free legal aid**.
- Regional benches help fulfill **constitutional commitment to equality**.

Socio-Economic Dimension

- Current system creates **class-based justice**:
  - Only wealthy litigants can afford Delhi litigation
- Poor and marginalised groups face **economic exclusion from justice system**.
- Regional benches would reduce **cost burden and improve inclusivity**.



Structural Issue: Dual Role of Supreme Court

- Supreme Court currently acts as:
  - **Constitutional Court** (interprets Constitution)
  - **Appellate Court** (hears routine appeals)
- This dual role leads to **overburdening and inefficiency**.
- Solution: **Separate roles for better functioning**.

Arguments Against Regional Benches

- Fear of **conflicting judgments across benches**.
- Concern about **weakening unity of Supreme Court**.
- **High infrastructure and administrative costs**.
- Possibility of **increased delays due to coordination issues**.

Global Perspective

- **USA:** Centralised SC but handles very few cases (~80/year).
- **Germany & South Africa:**
  - Separate **constitutional and appellate courts**
- India's SC handles **thousands of cases**, making centralisation impractical.

Way Forward

- Implement **Cassation Bench model (229th Report)**.
- Expand **virtual hearings (video conferencing)** to reduce distance barriers.
- Introduce **circuit benches (temporary sittings in regions)**.
- Consider **National Court of Appeal** to handle routine appeals.

The issue of regional benches is not about weakening the Supreme Court but about **strengthening access to justice**. A decentralised approach can reduce pendency, ensure equality, and make the judiciary more citizen-friendly. Ultimately, justice must not depend on geography—**it must reach every citizen, wherever they are**.

Educrat IAS ACADEMY | No Need of going to Delhi Now! Prepare for UPSC from Kolkata

II. INTERNATIONAL AFFAIRS

1. Reimagining Neighbourhood Policy: Trade as the Core Strategy

India today faces a rare strategic opportunity to reset its regional engagement, particularly in South Asia. Changing political developments in neighbouring countries and shifts in the global trade environment create favourable conditions for India to move from a passive to a proactive neighbourhood policy, with **trade as the central pillar**.

Changing Regional Context

Recent developments have opened new possibilities for India's neighbourhood policy:

- **Political transitions in countries such as Bangladesh and Sri Lanka** have created space for renewed engagement.
- Earlier concerns of strained relations and strategic drift are now being replaced by opportunities for cooperation.
- **India's "lost moment" in South Asia** may now be turning into a chance for policy correction.

Global Trade Environment: A Window of Opportunity

The global trading system is undergoing structural changes:

- **Fragmentation of globalisation** due to rising tariffs and geopolitical tensions
- Increasing uncertainty in long-distance supply chains
- **Shift towards regional and proximity-based trade**

In this context, India's neighbouring countries such as Bangladesh, Nepal, and Sri Lanka gain importance due to **geographical proximity and economic complementarity**.

Importance of Trade in Neighbourhood Policy

Trade can act as the most effective tool for strengthening regional ties:

1. **Economic Integration**: Enhances interdependence and reduces conflict & Promotes shared prosperity in the region
2. **Strategic Influence**: Provides an alternative to external powers, particularly China & Strengthens India's leadership in South Asia
3. **Supply Chain Resilience**: Reduces dependence on distant markets & Encourages regional production networks
4. **Development of Border Regions**: Boosts growth in India's eastern and northeastern regions

Limitations of India's Existing Approach

India's regional trade policy has faced several challenges:

Issue	Explanation
Protectionist Policies	Hesitation in opening markets to neighbours
Underutilisation of Geography	Despite proximity, trade remains limited

China's Dominance	Neighbours depend more on China for imports
Connectivity Gaps	Weak infrastructure and trade facilitation

For example, despite geographical closeness, countries like Bangladesh and Sri Lanka often find it easier to trade with distant economies than with India.

Trade Imbalance Challenge

India's trade dynamics present both strengths and limitations:

- India runs **trade surpluses** with neighbouring countries such as **Bangladesh, Nepal, and Sri Lanka**.
- However, it faces a **significant trade deficit with China**.
- As a result, India is unable to offer neighbours the same level of market access that China provides.

This creates a structural constraint in using trade as a strategic tool.

Need for Policy Shift

A shift in approach is required to fully utilise regional opportunities:

- Move from a **cautious and protectionist stance to a more open trade policy**
- Recognise mutual benefits rather than viewing trade as a zero-sum game
- Align neighbourhood policy with India's broader economic interests

Key Challenges

- **Protectionist Mindset**: Reluctance to liberalise trade with neighbours
- **Institutional Weakness**: Limited regional frameworks such as SAARC
- **Infrastructure Deficits**: Poor connectivity reduces trade efficiency
- **External Competition**: China's economic presence in South Asia

Way Forward: Strengthening Trade-Led Regionalism

1. **Enhance Market Access**: Reduce trade barriers for neighbouring countries
2. **Improve Connectivity**: Invest in transport, logistics, and border infrastructure
3. **Promote Regional Value Chains**: Integrate production networks within South Asia
4. **Deepen Economic Agreements**: Strengthen bilateral and sub-regional trade arrangements
5. **Shift Policy Mindset**: Treat neighbours as partners rather than competitors

India stands at a critical juncture where it can redefine its neighbourhood policy through trade-led engagement. By leveraging geographical proximity and adopting a more open and cooperative approach, India can strengthen regional integration, enhance strategic influence, and ensure mutual economic growth in South Asia.

2. US–China Reset: Strategic Choices for India

The evolving relationship between the United States and China is entering a phase of recalibration, driven by global geopolitical shifts, economic interdependence, and strategic competition. For India, this changing dynamic presents both opportunities and challenges, requiring a carefully calibrated and long-term strategic response.

Changing Global Context

The global order is undergoing significant transformation:

- The US–China relationship is shifting from direct confrontation to **managed competition**
- The United States is becoming less predictable, focusing on domestic priorities and selective engagement
- **China is positioning itself as a stable and long-term strategic actor**

Additionally,

- The **Iran conflict** and **global energy disruptions** have reshaped geopolitical priorities
- The global economy is moving towards **regionalisation and supply chain restructuring**

This creates a complex environment for India's foreign policy.

Implications for India

India faces a narrowing strategic space due to these developments.

- **US–China tensions are reducing but not disappearing**
- China's economic and technological capabilities continue to grow
- The US remains a key partner but is less consistent

As a result,

- India must **navigate between cooperation and competition**
- Strategic autonomy becomes increasingly important

Key Challenges

India must address several structural challenges:

- **China's Dominance** in manufacturing and supply chains
- **US Dependence Risks** in technology and security domains
- **Two-Front Pressure** due to China-Pakistan alignment
- **Global Economic Uncertainty** affecting trade and growth

Five Strategic Responses for India

1. Recalibrate Expectations from the US

India should deepen cooperation with the US in critical areas while maintaining realistic expectations.

- Focus on defence **modernisation, maritime security, and critical technologies**
- Avoid overdependence or unrealistic expectations of full alignment
- Maintain **strategic autonomy**

2. Engage China with Guarded Realism

India must continue dialogue with China while protecting core interests.

- **Address border disputes firmly**, especially along the Line of Actual Control
- Avoid escalation while resisting unilateral changes
- Explore limited cooperation in economic and multilateral domains

3. Reduce Critical Dependencies

Reducing dependence on China in key sectors is essential.

- Focus on **semiconductors, energy, and critical minerals**
- **Avoid replacing dependence on China** with dependence on the US
- Invest in domestic capabilities and innovation

4. Avoid Middle Power Illusion

India should not assume that it can shape global rules independently.

- Middle powers often lack rule-making authority
- India should focus on **strengthening its internal capabilities**
- Strategic partnerships should be issue-based, not ideological

5. Strengthen Neighbourhood Policy

India must reinforce its regional engagement.

- **Revitalise neighbourhood-first and Act East policies**
- Ensure economic cooperation translates into growth for neighbours
- Balance global ambitions with regional priorities

Way Forward

India's strategy must be based on long-term capacity building:

- Invest in **domestic economic strength and technological capability**
- Strengthen defence preparedness and border infrastructure
- **Build resilient supply chains**
- Promote regional integration and partnerships

The recalibration of US–China relations marks a new phase in global geopolitics. For India, the challenge lies in maintaining strategic autonomy while adapting to changing realities. A balanced approach combining **realism, resilience, and long-term capability building** will be essential for safeguarding national interests in an increasingly complex world order.

3. Fallout of West Asia Crisis on India's Economy

The ongoing crisis in **West Asia (Middle East)** has major implications for India's economy. Disruptions in **energy supply chains, logistics, and trade routes** affect domestic stability. India, being heavily dependent on imports, is particularly vulnerable. The crisis impacts **inflation, growth, fiscal balance, and external sector stability**.

Background: Nature of the Crisis

- Conflicts have disrupted **production, storage, and transport of crude oil, gas, and fertilizers**.
- The **Strait of Hormuz (critical oil transit route)** has faced disruptions.
- This affects global supply chains, raising **uncertainty and price volatility**.
- Temporary ceasefires have reduced prices slightly, but uncertainty persists.

Transmission Channels: How Crisis Impacts India

1. Supply Disruptions

- Energy-intensive sectors like **transport, fertilizers, textiles, and chemicals** are affected.
- Fertilizer shortages impact **agricultural output, especially Kharif season**.

2. Logistics and Cost Push

- Storage and transport costs increase due to disruptions in global shipping routes.
- This leads to **higher prices of final goods across sectors**.

3. Trade Impact

- West Asia accounts for about **16.4 percent of India's exports (2024–25)**.
- Economic slowdown in the region reduces **export demand for Indian goods**.

4. Exchange Rate Pressure

- Higher import bills increase demand for dollars, causing **rupee depreciation**.
- Remittances from Indian workers in Gulf countries may decline.

Macroeconomic Impact

Inflation

- Rising oil prices increase **fuel, transport, and production costs**.
- Leads to overall **cost-push inflation in the economy**.

Growth

- Real GDP growth may decline due to **higher costs and reduced demand**.
- Estimates suggest **GDP growth may fall by around 15 basis points**.

External Sector

- Current Account Deficit (CAD) widens due to **higher import bills**.
- Capital outflows increase due to **global uncertainty**.

Fiscal Impact

- Government may increase subsidies for **oil and fertilizers**.
- Loss of revenue due to reduction in **excise duties on petroleum products**.
- Fiscal deficit may increase, affecting macroeconomic stability.

Additional Economic Effects

- Inflation may rise by around **30 basis points** due to fuel price transmission.
- Profit margins of firms decline due to **higher input costs**.
- State finances are affected due to lower **tax devolution from Centre**.
- Reduced consumption demand due to **higher fuel and commodity prices**.

Policy Responses

- Reduction in **excise duties on petrol and diesel** to control inflation.
- Increase in **fertilizer and fuel subsidies** to protect farmers and consumers.
- RBI may intervene through **monetary policy measures to stabilise inflation and currency**.
- Measures to attract **FDI and maintain foreign exchange reserves**.

Structural Concerns

- High dependence on imported energy exposes India to **external shocks**.
- Lack of diversification in energy sources increases vulnerability.
- Supply chain fragility due to global geopolitical tensions.
- Over-reliance on fossil fuels affects long-term sustainability.

Way Forward

- Diversify energy imports and promote **renewable energy sources**.
- Strengthen **strategic petroleum reserves** to manage supply shocks.
- Improve domestic production of **fertilizers and alternative energy**.
- Enhance export competitiveness to offset external demand shocks.
- Maintain fiscal discipline while providing targeted subsidies.

The West Asia crisis highlights India's vulnerability to **global energy and geopolitical shocks**. It impacts multiple sectors through **inflation, trade, and fiscal channels**. A balanced approach combining **short-term policy response and long-term structural reforms** is essential. Strengthening resilience will be key to sustaining **economic stability and growth**.

4. India in the Emerging World Order: From Balancer to Architect

India today stands at a critical juncture as the global order undergoes rapid transformation due to conflicts, shifting alliances, and weakening traditional power structures. **The crisis in West Asia and tensions around key energy routes like the Strait of Hormuz have exposed vulnerabilities in global systems, including India's own economic and energy security.** In this evolving landscape, India faces a strategic choice—whether to remain a cautious balancer among competing powers or emerge as a proactive and credible architect shaping a new, stable, and inclusive world order.

Changing Nature of Global Order

- Modern conflicts are increasingly complex, with no clear winners or decisive outcomes.
- **Geopolitics driven more by disruption than stable institutional frameworks today**.
- Major powers like the **United States show signs of unpredictability and strategic inconsistency**.
- China is expanding influence through economic and geopolitical strategies quietly.
- Russia remains relevant despite isolation, benefiting from shifting global energy markets.
- Middle East countries reassessing alliances due to weakening traditional security guarantees.

Lessons from the West Asia Crisis

1. Energy Security Vulnerability

- India depends heavily on oil imports passing through **Strait of Hormuz region**.
- Any disruption creates **inflationary pressures and economic instability** domestically.
- Crisis exposed fragility of India's external energy dependence structure.

2. Limits of Strategic Restraint

- India's cautious diplomatic stance reflects **balancing between competing global interests**.
- However, excessive restraint may reduce India's global credibility and influence.
- Passive approach risks India being seen as reactive rather than leadership-driven.

3. Shifting Global Alignments

- Gulf nations increasingly pursuing independent foreign policy strategies beyond traditional alliances.
- New alignments emerging based on **economic cooperation rather than security dependence**.
- Declining dominance of **traditional Western security umbrella is visible**.

India's Strategic Dilemma

- India has stakes in multiple regions including **United States, Gulf, and Global South**.
- Balancing conflicting interests often constrains assertive diplomatic positioning.
- Strategic autonomy requires both independence and proactive engagement simultaneously.

Need for India as a Global Architect

Why India is Suitable	Risks of Inaction
• India represents **voice of Global South with credibility among developing nations.** • **Strong democratic values** and commitment to multilateralism enhance global legitimacy. • Experience in balancing diverse interest positions India as consensus builder globally.	• Continued passivity may **erode India's credibility as emerging global leader.** • Missed opportunity to shape new global norms and governance structures. • Risk of being sidelined in major geopolitical decisions affecting national interests.

Policy Priorities for India

1. Proactive and Principled Diplomacy

- Move beyond **reactive diplomacy to agenda-setting leadership** in global forums.
- Uphold international law and United Nations Charter principles consistently.

2. Energy Security Diversification

- **Reduce dependence on single routes like Strait of Hormuz for oil imports.**
- Invest in renewable energy, strategic reserves, and diversified supply chains.

3. Strategic Autonomy with Engagement

- Maintain independent foreign policy while strengthening partnerships across blocs.
- Balance relations with **United States, Russia, and Global South** simultaneously.

4. Strengthening Regional Leadership

- Take active leadership role in South Asia and Indian Ocean Region stability.
- **Prevent spillover of conflicts** into neighbourhood through diplomatic initiatives.

5. Building Global Coalitions

- Forge issue-based alliances on climate change, trade, and technology governance.
- Lead reforms in multilateral institutions reflecting contemporary global realities.

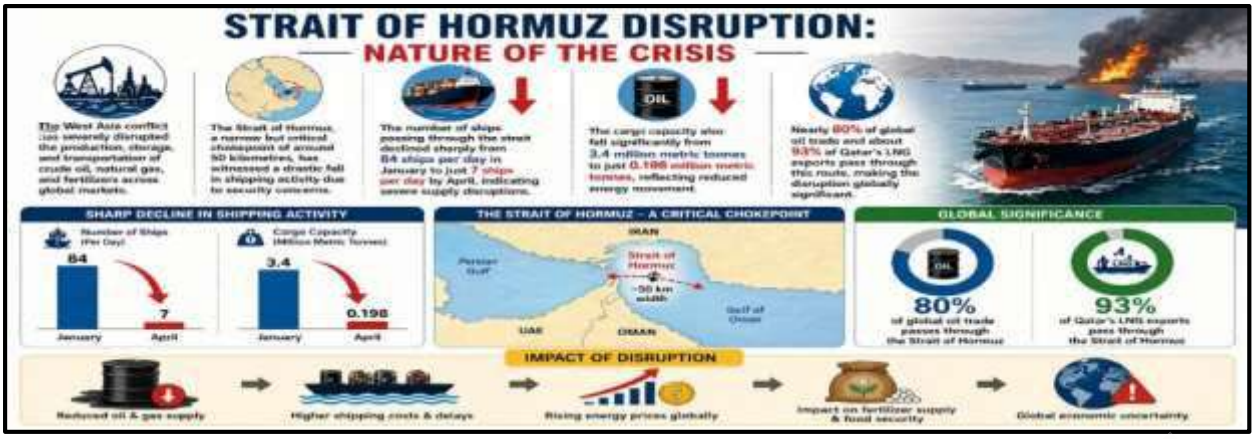
Way Forward

- **Transition from survival-oriented diplomacy to leadership-driven global engagement**.
- Invest in **diplomatic capacity, strategic clarity, and long-term foreign policy vision**.
- Combine economic strength, military capability, and moral authority in global affairs.
- Promote **inclusive, rules-based international order** aligned with India's national interests.

India's rise in the emerging global order will depend not merely on economic strength or strategic positioning, but on its ability to translate credibility into leadership. As traditional power structures weaken and uncertainties deepen, the world increasingly looks for stable, principled actors capable of shaping consensus. **India must therefore move beyond cautious balancing and embrace a more confident, proactive role—one that combines diplomacy, development, and strategic vision—to contribute meaningfully to a just and sustainable global order.**

5. West Asia Crisis & India's Energy Vulnerability (Oil + LPG)

The ongoing crisis in West Asia has exposed the deep dependence of the global economy on fragile energy supply chains, especially chokepoints like the Strait of Hormuz. For India, this disruption is not merely a short-term supply shock but a structural warning that highlights vulnerabilities in both crude oil logistics and LPG supply systems, thereby necessitating a comprehensive rethink of energy security strategies.



Impact on India's Economy

Supply-Side Effects

- The disruption in energy supplies has increased input costs for **energy-intensive sectors such as fertilizers, chemicals, and transportation.**
- These increased costs are passed on across the economy, resulting in higher prices for final goods through cascading effects.

Demand-Side Effects

- India's exports are affected due to disruptions in West Asia as well as a broader slowdown in global demand conditions.
- West Asia accounts for **around 16.4% of India's total merchandise exports**, making the region critically important for trade.

Exchange Rate Pressures

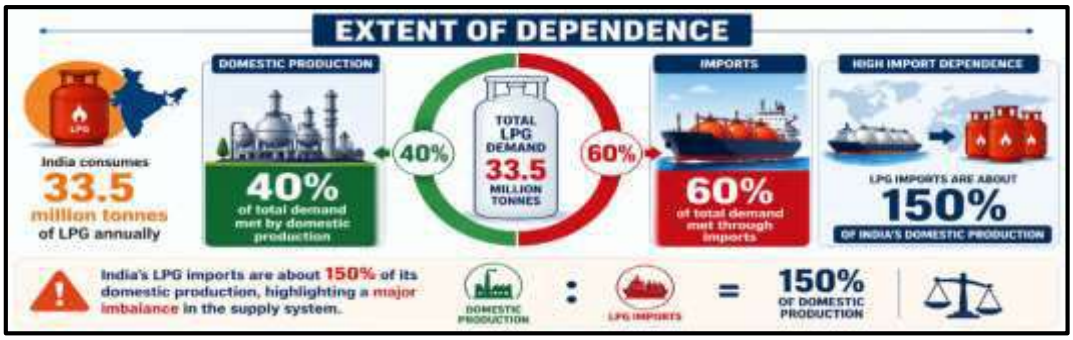
- Rising import bills increase the demand for foreign currency, which leads to **depreciation pressure on the Indian rupee.**
- Additionally, remittances from Indian workers in Gulf countries may decline, further weakening the rupee.

Inflation and Fiscal Impact

- Higher crude oil prices result in cost-push inflation across multiple sectors of the economy.
- The government may need to increase subsidies or reduce taxes, thereby increasing fiscal pressure and widening the fiscal deficit.
- According to estimates, a **10% increase in crude oil prices can reduce GDP growth by about 15 basis points and increase inflation by about 30 basis points**.

Why LPG Vulnerability is More Serious

- Unlike crude oil, LPG in India is primarily used for **household cooking**, which



makes demand highly essential and non-negotiable.
- Industrial users can reduce consumption or switch fuels, but **households cannot easily substitute LPG**, making the system highly sensitive to disruptions.

Dependence on Hormuz

- Nearly **90% of India's LPG imports pass through the Strait of Hormuz**, making it a critical vulnerability point.
- The crisis demonstrates that this route can no longer be considered a reliable and secure energy corridor.

Comparison with Other Countries

- India's LPG consumption is largely household-based, which increases vulnerability compared to other countries.
- Countries like **Japan, China, and South Korea have diversified energy use and better storage systems**, which reduce their risk exposure.

Storage Constraints

- India currently has only about **15 days of LPG storage capacity**, which is insufficient for handling prolonged disruptions.
- Underground cavern storage is extremely limited and accounts for only about **1.5 days of national demand**, indicating weak strategic reserves.

Global LPG Market Constraints

- **LPG is not a freely flexible global commodity**, as much of the exportable supply is already tied up in long-term contracts or domestic uses.
- A large portion of the global LPG export pool is controlled by a few Asian countries, limiting quick supply adjustments during crises.

Core Structural Problem

- India's LPG issue is not just about supply shortage but about a **mismatch between production patterns and consumption needs.**
- The LPG that India produces does not align with the type and scale of LPG required for household consumption, increasing dependence on imports.

Way Forward

Separate Demand Streams

- India should reserve domestically produced LPG primarily for household cooking needs and **divert imported LPG towards industrial and petrochemical uses.**

Build Strategic Reserves

- The country should aim to build at least **two to three weeks of LPG buffer stocks** to enhance resilience against disruptions.

Promote Energy Transition

- There should be a **sustained push towards electric cooking solutions** and increased adoption of piped natural gas (PNG) in urban areas.

Diversify Supply Sources

- India should diversify its import sources beyond the **Gulf region to reduce overdependence on a single chokepoint.**

Undertake Structural Reforms

- Long-term reforms should focus on correcting the mismatch between LPG demand and supply while reducing excessive dependence on imports.

The West Asia crisis has clearly demonstrated that India's energy vulnerability is deeply structural rather than merely situational. While oil shocks primarily affect macroeconomic stability, LPG disruptions directly impact households, making them socially and politically more sensitive. Therefore, India must adopt a long-term strategy that combines diversification, storage expansion, and systemic reforms to ensure a resilient and secure energy future.

6. India–South Korea Relations: From Economic Complementarity to Strategic Partnership

India–South Korea relations have evolved from **limited diplomatic engagement into a multidimensional strategic partnership over the past three decades**. Today, the relationship is increasingly shaped by strategic convergence, shared developmental priorities, and alignment in the Indo-Pacific region, making it a crucial pillar in Asia's emerging geopolitical and economic architecture.

Evolution of Bilateral Relations

- Diplomatic relations between India and South Korea were **established in 1973**, marking the beginning of formal engagement.
- The partnership deepened after India's **1991 economic reforms**, which opened avenues for trade, investment, and industrial collaboration.
- India's transition from **Look East Policy to Act East Policy** further accelerated engagement with East Asian economies, including South Korea.
- Institutional frameworks strengthened ties through **CEPA (2010), Special Strategic Partnership (2015), and regular summit-level dialogues**.

From Economic Complementarity to Strategic Convergence

- India and South Korea have moved beyond simple trade relations to become **"strategic mirrors" with aligned long-term interests**.
- Both countries follow **technology-driven growth models with strong emphasis on manufacturing and infrastructure development**.
- South Korea's past industrial transformation mirrors India's **current aspirations of becoming a global manufacturing hub**.
- Shared democratic values and commitment to a **rules-based international order** create natural alignment in global governance.
- Both nations support a **free, open, and inclusive Indo-Pacific**, strengthening regional cooperation.

Economic Cooperation and Trade Dynamics

- Bilateral trade between India and South Korea has crossed **$28 billion**, reflecting steady economic engagement.
- South Korea is among the **top FDI investors in India (5th largest, around $6–7 billion)**.
- Key sectors of collaboration include **automobiles, electronics, heavy industries, and shipbuilding**.
- South Korean companies like Hyundai, Samsung, and LG have become **major contributors to India's manufacturing ecosystem**.

Defence and Strategic Cooperation

- India and South Korea share concerns regarding **regional security threats such as North Korea and the China–Pakistan axis**.
- Both countries are aligned in the **Indo-Pacific strategy, focusing on maritime security and freedom of navigation**.
- Cooperation is expanding in **defence production, naval exercises, and cyber security frameworks**.

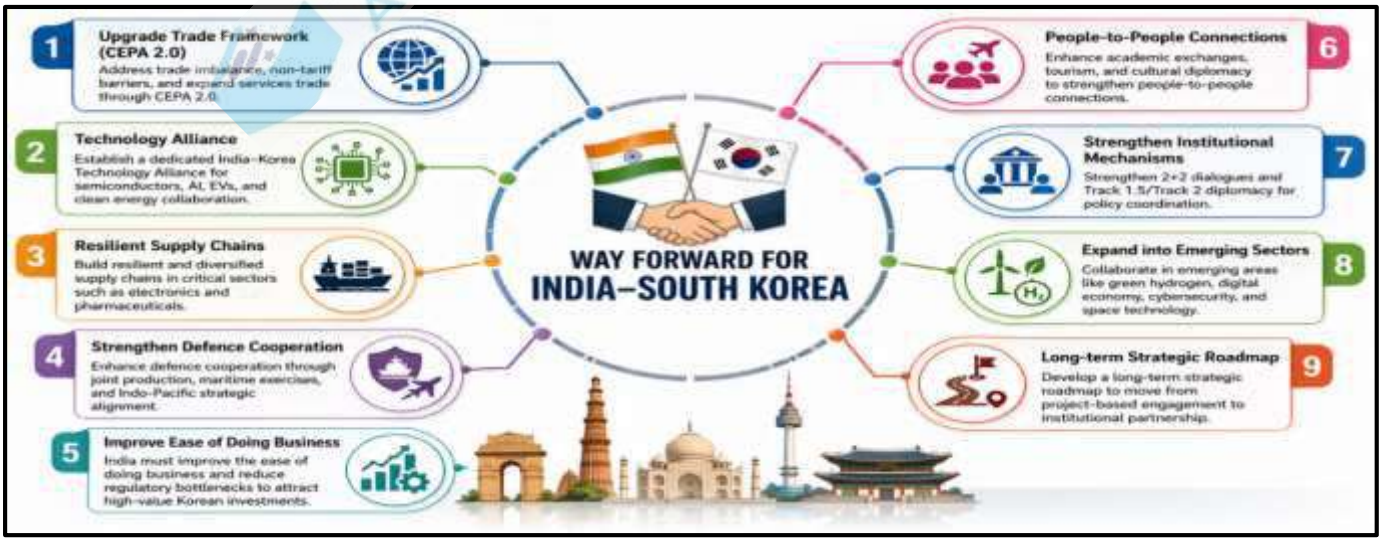
Technology and Emerging Sector Collaboration

- Emerging areas of cooperation include **semiconductors, artificial intelligence, electric vehicles, batteries, and clean energy**.
- South Korea's expertise in **advanced manufacturing complements India's large market and skilled workforce**.
- Policy initiatives such as India's **Semiconductor Mission and PLI schemes** provide opportunities for deeper collaboration.

Key Challenges in the Relationship

- India faces a **persistent trade deficit with South Korea**, creating domestic concerns regarding trade balance.
- The **CEPA agreement (2010) has been underutilised**, with limited benefits for Indian MSMEs and services sector.
- Indian exporters encounter **non-tariff barriers such as stringent standards and certification requirements in Korea**.
- Korean firms in India face **bureaucratic hurdles, regulatory uncertainty, and compliance challenges**.
- There is limited progress in **high-technology collaboration, especially in semiconductors and advanced R&D ecosystems**.
- Structural differences between Korea's **advanced industrial base and India's developing manufacturing sector** create unequal competitiveness.
- Weak **people-to-people ties, limited academic exchanges, and cultural familiarity** restrict deeper engagement.
- Geopolitical constraints arise due to Korea's **economic dependence on China and India's strategic tensions with China**.
- Supply chain integration remains incomplete due to **lack of institutional coordination and industrial linkages**.
- Absence of a dedicated framework for **joint innovation and co-manufacturing limits technology cooperation**.

India–South Korea relations are transitioning into a comprehensive strategic partnership grounded in shared values, economic complementarity, and geopolitical alignment. In an era of shifting global power dynamics and technological competition, this partnership has the potential to emerge as a key pillar of Indo-Pacific stability, innovation-driven growth, and resilient global supply chains.



7. After UAE's Exit from OPEC, India Must Recalibrate Its Energy Strategy

The exit of the United Arab Emirates from OPEC marks a significant shift in global oil geopolitics, reflecting both internal cartel tensions and changing strategic priorities in West Asia. **For India, a major energy importer, this development is not merely about oil prices but about rethinking long-term energy partnerships**, supply security, and geopolitical positioning in an increasingly uncertain global energy landscape.

Why UAE Exited OPEC

- The UAE seeks to **expand oil production beyond OPEC's quota restrictions to maximise revenues**.
- It **possesses low-cost production capacity, making higher output** economically viable even at moderate prices.
- Growing differences with Saudi Arabia over production strategies have weakened internal cohesion.
- The UAE is pursuing a more independent economic and geopolitical strategy in the region.

Implications for OPEC and Global Oil Markets

- The **exit signals weakening discipline within OPEC and challenges its ability to control** supply.
- It may encourage other members to prioritise national interests over cartel commitments.
- Increased production competition could lead to softer oil prices in the long term.
- However, short-term price volatility will continue due to geopolitical disruptions such as conflicts in West Asia.

Strategic Significance Beyond Oil

- The **move reflects broader geopolitical realignments within the Gulf region**.
- It raises questions about the cohesion of regional groupings like the Gulf Cooperation Council (GCC).
- The UAE's evolving alignment with global powers and regional actors indicates shifting power balances.

Impact on India

- India imports **nearly 85–90% of its crude oil requirements**, making it highly vulnerable to global price changes.
- Lower oil prices in the long run can reduce India's import bill and inflationary pressures.
- However, **instability in West Asia affects Indian diaspora**, **remittances**, and energy supply security.
- Any disruption in the Strait of Hormuz directly impacts India's energy imports.

Risks for India

- Increased regional instability can threaten the safety of Indian workers in Gulf countries.
- **Volatility in oil prices** can affect fiscal stability and current account balance.
- Dependence on a limited number of suppliers exposes India to geopolitical risks.

Need for Energy Diversification

- India must **diversify its crude oil import sources beyond the Gulf** region.
- Expanding ties with countries like the **United States, Russia, and Africa can reduce dependency**.
- Strategic petroleum reserves should be strengthened to manage supply disruptions.

Role of Alternative Energy

- India must **accelerate its transition towards renewable energy sources such as solar and wind power**.
- **Promotion of electric mobility and green hydrogen** can reduce fossil fuel dependence.
- Energy efficiency measures can further reduce vulnerability to global shocks.

Strengthening Energy Diplomacy

- India needs proactive energy diplomacy with Gulf countries to ensure stable supply arrangements.
- Long-term contracts and strategic partnerships can enhance energy security.

- Engagement in multilateral energy forums can strengthen India's global energy position.

Institutional and Policy Response

- India should develop a clear long-term energy strategy aligned with geopolitical realities.
- Coordination between **economic, foreign policy, and energy sectors is essential**.
- Policy clarity can attract investments in energy infrastructure and diversification.

The **UAE's exit from OPEC is a reminder that global energy markets are becoming more fragmented and geopolitically complex**. For India, this moment presents both risks and opportunities, making it essential to move beyond short-term price considerations and build a resilient, diversified, and strategically aligned energy framework for the future.

Educrat IAS ACADEMY | No Need of going to Delhi Now! Prepare for UPSC from Kolkata

III. ECONOMY

1. Kerala's Development Model: Growth with Equity under Constraints

The decade from 2016 to 2026 marks a phase of significant economic and social transformation in Kerala. Despite fiscal constraints arising from the federal structure, the State has demonstrated a development model that combines **economic growth with social justice and human development**, making it a distinctive case in India.

Economic Growth with Planning Continuity

Kerala has maintained a structured and planned approach to development.

- Continued **formal planning process** even after the decline of centralised planning institutions
- Significant increase in **capital expenditure since 2017**
- Growth rates comparable to or higher than the national average

This reflects a model where **state-led planning complements market forces**.

Inclusive Development and Social Justice

Kerala's development model emphasises equity alongside growth.

- Higher budgetary allocation for **Scheduled Castes and Scheduled Tribes**
- Introduction of **Elderly Budget**, covering pensions, healthcare, and welfare
- Over seventy-five percent of elderly population covered by pension schemes
- Increased allocations for persons with disabilities

The Public Distribution System acts as a **near-universal safety net**, ensuring food security and price stability.

Human Development Achievements

Kerala has achieved strong outcomes in education and health.

Education:	**Health:**
• **Universal school education** with very low dropout rates • **Strong public investment** in infrastructure and digital learning • Improvements in higher and technical education governance	• **Low infant mortality rates** comparable to developed countries • Expansion of healthcare access through public schemes • Effective handling of crises such as pandemics

These achievements demonstrate sustained investment in **human capital**.

Women Empowerment and Social Innovation

Kerala has made notable progress in gender and community development.

- High female literacy and life expectancy
- **Kudumbashree model** promoting women's empowerment and livelihoods
- Gender budgeting as a significant component of public expenditure

These initiatives strengthen **inclusive and participatory development**.

Infrastructure and Economic Transformation

The State has invested in modern infrastructure to support growth.

- Development of major roads and connectivity projects
- Expansion of **Kochi Metro and Water Metro** systems

- Commissioning of **Vizhinjam International Seaport**
- Growth in renewable energy, especially solar power

These efforts enhance both **economic efficiency and regional connectivity**.

Industrial and Service Sector Growth

Kerala has diversified its economic base.

- **Growth of MSMEs** and modern industries
- Expansion in sectors such as **IT and tourism**
- Improvement in public sector performance

The State has also emerged as a growing **startup ecosystem hub**, reflecting a **shift towards knowledge-based industries**.

Strength in Disaster Management

Kerala has gained recognition for effective disaster management.

- Strong decentralised response mechanisms
- Effective handling of **floods, pandemics, and emergencies**
- Integration of community participation in disaster response

This highlights the importance of **institutional capacity and preparedness**.

Fiscal Constraints and Federal Challenges

Despite achievements, Kerala faces structural financial challenges.

- Impact of **GST regime and reduced fiscal autonomy**
- **Withdrawal of GST compensation**
- Restrictions on borrowing and increasing dependence on central transfers
- Declining share of unconditional transfers

These factors limit the State's ability to sustain high public investment.

Key Challenges	Way Forward
• Fiscal stress due to federal structure • Balancing welfare expenditure with economic growth • Need for continued industrial expansion • **Managing demographic changes such as ageing population**	• Strengthen **cooperative federalism** and fiscal autonomy • Enhance **revenue generation and financial sustainability** • Promote **high-value industries and innovation** • Continue focus on **human development and social justice**

Kerala's experience demonstrates that economic growth can be combined with social equity through sustained public investment and institutional innovation. However, long-term sustainability depends on addressing fiscal constraints and adapting to evolving economic realities. The Kerala model offers important lessons for achieving **inclusive and sustainable development in India**.

2. Thermal Cost of India's Textile Surge: A Structural Challenge

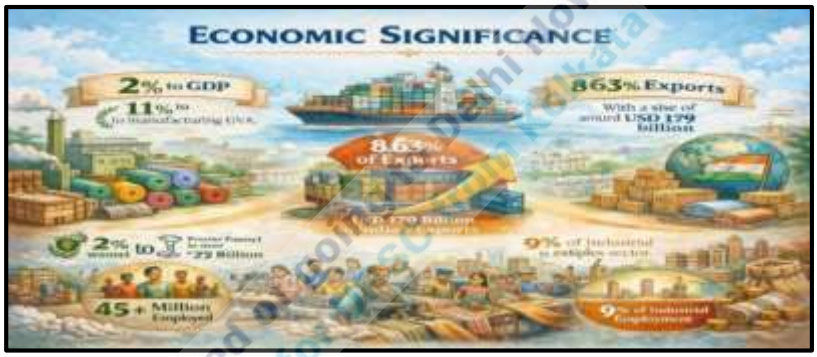
India's textile industry is a **key pillar of economy, employment, and exports**. However, it is increasingly facing a **structural challenge from climate-induced heat stress**. This affects productivity, worker health, and long-term sustainability of the sector. The issue highlights the need to integrate **climate considerations into industrial policy**.

Overview of India's Textile Industry

- The industry is **diverse and vertically integrated**, from cotton cultivation to garment exports.
- It connects **agriculture with manufacturing**, especially in rural and semi-urban areas.
- It has a strong presence of both **organised (mills) and unorganised (handlooms, MSMEs) sectors**.
- The dual structure creates **efficiency gaps and policy challenges**.

India in Global Textile Value Chain

- India benefits from **China+1 strategy and global supply chain diversification**.
- Strong export markets include **USA, European Union, and Middle East**.
- However, global markets impose **strict deadlines and price pressures**.
- Indian MSMEs often face **low bargaining power in global supply chains**.



Core Issue: Heat Stress as a Structural Constraint

Worker-Level Impact

- At around **40°C temperature, productivity can fall by nearly 50 percent**.
- Workers face **heatstroke, dehydration, and wage losses due to reduced working hours**.

Macro-Level Impact

- India lost about **259 billion labour hours annually (2001–2020)** due to heat stress.
- In **2024 alone, around 247 billion labour hours were lost**.
- Output declines by nearly **2 percent for every 1°C rise in temperature**.

Factory-Level Impact

- Production capacity may fall by **up to 50 percent during extreme heat conditions**.
- Increased risks of **health emergencies and operational disruptions**.

Future Projection

- By **2030, India may lose 5.8 percent of daily working hours**.
- This is equivalent to loss of around **34 million full-time jobs**.

Additional Structural Challenges	Supply Chain Trap
• Low value addition compared to global competitors limits profitability. • Fragmented supply chain reduces efficiency and scale economies. • Heavy dependence on **cotton** makes the sector climate-sensitive. • Informal labour lacks **social security and workplace protection**.	• Global buyers impose **tight delivery schedules and penalties for delays**. • Workers cannot exceed **physiological limits under extreme heat conditions**. • MSMEs lack resources for **climate-resilient infrastructure and cooling systems**. • This creates a mismatch between **global expectations and local realities**.

Government Initiatives

- Policy support through **Ministry of Textiles schemes and export promotion measures**.
- Development of **textile parks, clusters, and MSME support systems**.
- Skill development programmes for labour-intensive sectors.
- Energy efficiency initiatives through **Bureau of Energy Efficiency (BEE)**.

Way Forward: Climate-Smart Industrialisation

Policy Measures

- Recognise heat stress as a **major industrial and supply chain risk**.
- Integrate climate projections into **trade and industrial policy frameworks**.

Workplace Reforms

- Introduce **mandatory heat-action plans and cooling infrastructure**.
- Ensure access to **water, rest breaks, and health monitoring systems**.

Financial Measures

- Promote **climate-linked credit and subsidies for cooling technologies**.
- Encourage investment in **energy-efficient production systems**.

Labour Protection

- Strengthen legal safeguards for **worker safety under extreme heat conditions**.
- Extend social security coverage to informal workers.

Innovation

- Invest in **heat-resilient cotton, wearable cooling technologies, and efficient machinery**.

Global Responsibility

- International brands should ensure **fair pricing and flexible delivery timelines**.

Heat stress is not just a climate issue but a **structural economic challenge** for textiles. The sector must shift from a **low-cost labour model to a climate-resilient system**. Sustainable growth requires balancing **productivity, worker welfare, and environmental realities**. India's ability to adapt will determine its position as a **global textile manufacturing hub**.

3. Womaniya Initiative: Building Inclusive Market Access for Women Entrepreneurs

The **Womaniya initiative on Government e-Marketplace (GeM)** aims to enhance **market access for women entrepreneurs**. It reflects a shift from welfare to **economic empowerment and formal market participation**. Recently, it enabled over **2.1 lakh women entrepreneurs** to secure orders worth **₹28,000 crore**. The initiative is important for **inclusive growth and gender-responsive economic development**.

What is Womaniya?

- Launched in **2019 under Ministry of Commerce and Industry** as part of GeM platform.
- It provides a **dedicated digital interface for women-led MSEs and Self Help Groups (SHGs)**.
- Enables listing of products such as **handicrafts, handloom, and office supplies**.
- Facilitates **direct procurement by Central Ministries, State Governments, and PSUs**.

Key Features of the Initiative

- **Digital Onboarding:** Udyam verification and training workshops ensure smooth entry of women entrepreneurs.
- **Standardised Cataloguing:** Uniform product templates improve discoverability and comparison.
- **Paperless System:** End-to-end digital process reduces dependency on intermediaries.
- **Time-Bound Payments:** Ensures faster payments, crucial for micro-enterprises with limited capital.
- **Outreach Support:** Vernacular training and buyer-seller meets improve participation across regions.

Impact on Women Empowerment

- Promotes **grassroots economic empowerment**, especially in rural areas.
- As of February 2026, about **10.05 crore women are part of 90.09 lakh SHGs**.
- Provides **direct market access**, reducing exploitation by middlemen.
- Enhances **supplier diversity** in government procurement systems.
- Creates **financial visibility** through digital transactions, improving credit access.

Structural Benefits

- Transforms informal activities into **formal enterprise participation**.
- Encourages **entrepreneurship, self-reliance, and income generation**.
- Strengthens linkage between **local production and national markets**.
- Supports inclusive development aligned with **women-led growth model**.

Challenges Faced by Women Entrepreneurs

- **Digital Literacy Gap:** Limited technical skills restrict effective platform usage.
- **Time Constraints:** Household responsibilities reduce business engagement time.
- **Information Barriers:** Lack of awareness about schemes and procurement processes.
- **Limited Autonomy:** Decision-making power may be restricted in some socio-cultural settings.
- **Credit Constraints:** Lack of collateral limits access to finance and scaling opportunities.

Way Forward

- Promote **flow-based lending models** using digital data from GeM and UPI.
- Develop **vernacular and voice-enabled platforms** for ease of access.
- Strengthen SHG-based **trust networks for training and digital adoption**.
- Focus on **graduation from micro-credit to larger business financing**.
- Provide **mentorship, market linkages, and capacity-building support**.

Womaniya has evolved into a **major platform for integrating women into formal markets**. It bridges the gap between **production capacity and market access**. By enabling participation in public procurement, it promotes **economic independence and inclusion**. The initiative represents a key step towards **women-led development in India**.

4. Rupee: More Than a Price Indicator, A Measure of Economic Credibility

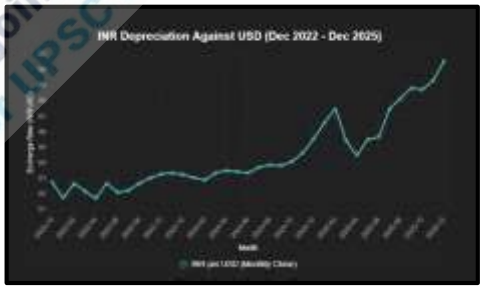
The value of the **Indian Rupee** is not just about exchange rate movements. It reflects **economic stability, investor confidence, and policy credibility**. Currency depreciation may provide short-term benefits but has **long-term economic risks**. Thus, the rupee acts as a **barometer of credibility of the economy**.

Concept: Exchange Rate and Depreciation

- Exchange rate refers to the **value of one currency in terms of another**.
- Depreciation means **decline in value of domestic currency against foreign currencies**.
- Some economists argue weaker currency boosts **exports and competitiveness**.
- However, excessive depreciation leads to **inflation and economic instability**.

Theoretical Perspective

- The **Mundell-Fleming Model (open economy macro model)** explains currency dynamics.
- It highlights the **"impossible trinity"**:
  – Free capital movement
  – Fixed exchange rate
  – Independent monetary policy
- Countries cannot achieve all three simultaneously, leading to policy trade-offs.



Why Currency Depreciation is Problematic

- Imports become expensive, increasing **inflation (especially fuel and raw materials)**.
- External debt burden rises as liabilities are often **denominated in dollars**.
- It reduces **purchasing power of citizens**.
- It weakens **investor confidence and capital inflows**.

India's Experience with Currency Volatility

- India faced major shocks during:
  – **Global Financial Crisis (2008–09)**
  – **Taper Tantrum (2013)**
- During these periods, rupee depreciation led to **capital outflows and macroeconomic instability**.
- The **Reserve Bank of India (RBI)** intervened through monetary and liquidity measures.

Policy Measures Taken by India

- RBI raised interest rates and tightened liquidity to stabilise currency.
- Special windows for foreign currency deposits (e.g., **FCNR deposits**) were introduced.
- Government reduced fiscal deficit from **6.5 percent to about 4.8 percent of GDP**.
- Measures included **subsidy rationalisation, diesel deregulation, and inflation targeting**.

Recent Currency Trends and Challenges

- Rupee depreciated by around **20 percent in recent global shocks**.

- Global factors include:
  – US Federal Reserve tightening
  – Geopolitical tensions
  – Supply chain disruptions
- Capital flows have been volatile, with **Foreign Direct Investment (FDI) and portfolio flows fluctuating**.

Impact on Economy

- Inflation increases due to rising import costs, especially energy.
- Growth slows as **cost of production rises for industries**.
- Current Account Deficit (CAD) becomes harder to manage.
- Financial markets face uncertainty due to **capital flow volatility**.

Why Rupee Reflects Credibility

- A stable currency signals **strong macroeconomic fundamentals**.
- It reflects confidence in **fiscal discipline and monetary policy**.
- Investors prefer economies with **predictable and stable currency regimes**.
- Currency instability indicates **policy weaknesses and economic vulnerabilities**.

Key Structural Issues

- Dependence on imports, especially **crude oil, increases vulnerability**.
- Limited export diversification reduces resilience.
- External shocks quickly transmit into domestic economy.
- Financial markets remain sensitive to global capital flows.

Way Forward

- Maintain **fiscal discipline and control inflation** through prudent policies.
- Strengthen export competitiveness and diversify export basket.
- Build adequate **foreign exchange reserves** for external stability.
- Encourage long-term capital inflows like **FDI instead of volatile portfolio flows**.
- Improve ease of doing business to attract **sustained investments**.

The rupee is not merely an exchange rate indicator but a **reflection of economic strength**. Currency depreciation may offer short-term relief but creates **long-term structural risks**. Stability of the rupee is essential for **growth, investment, and macroeconomic balance**. Ultimately, maintaining rupee stability requires **credible and consistent economic policies**.

5. Digital Payments in India: Growth, Challenges and Safety Mechanisms

India's digital payments ecosystem has expanded rapidly, led by Unified Payments Interface innovation. It has transformed financial inclusion, enabling seamless, real-time, and low-cost digital transactions nationwide. However,

rapid expansion has increased cyber fraud risks and security concerns significantly. Ensuring safe, secure, and inclusive digital payments has become a major policy priority.

Evolution of Digital Payments in India

- **India is now one of the largest digital payments markets globally today.**
- Growth driven by **Digital India Programme and JAM Trinity integration** initiatives nationwide.
- Expansion of smartphones and affordable internet boosted adoption across rural and urban areas.
- UPI dominates with billions of transactions, becoming backbone of retail payment systems.

Key Components of Digital Payment Ecosystem

- Unified Payments Interface enables instant bank transfers for peer and merchant transactions.
- Developed by **National Payments Corporation of India** ensuring interoperability and scalability benefits.
- Other systems include **IMPS, NEFT, RTGS, Aadhaar Payment System, and BBPS platforms**
- Multi-layered ecosystem ensures resilience, flexibility, and continuity in digital financial transactions.

Impact of Digital Payments

- **Financial inclusion** improved through Jan Dhan accounts and Direct Benefit Transfers integration.
- Digital payments accessible even in rural areas, **bridging urban-rural financial divide** significantly.
- Provides convenience through **instant, twenty-four-hour transactions** at minimal transaction costs.
- **Promotes formal economy, improves tax compliance**, and reduces leakages in welfare delivery.
- **Empowers MSMEs through digital transaction history** enabling easier access to formal credit.
- Enhances transparency by creating digital audit trails and reducing informal cash transactions.
- Positions **India as global leader in real-time payments** and digital public infrastructure.

Challenges and Risks

- Rising cyber fraud includes **phishing, fake applications, identity theft**, and social engineering scams.
- Authorised Push Payment frauds exploit user trust, leading to voluntary but manipulated transfers.
- **Data privacy concerns** persist due to risks of breaches and misuse of financial information.
- **Digital divide limits access for rural populations**, elderly users, and digitally illiterate citizens.
- Infrastructure issues like network failures and outages affect reliability of digital payments.
- Regulatory coordination gaps exist between RBI, banks, and fintech ecosystem stakeholders.

Safety Mechanisms and Regulatory Measures

- RBI has introduced **robust cybersecurity guidelines**, audits, and compliance monitoring frameworks.
- Fraud prevention proposals **include cooling-off periods and additional authentication** for high-value transactions.
- Transaction caps and beneficiary whitelisting reduce risks associated with suspicious accounts.
- **Artificial intelligence tools enable real-time fraud detection** and behavioural anomaly identification.
- **Tokenization and encryption techniques** protect sensitive financial data from unauthorized exposure risks.
- Real-time monitoring systems generate alerts for suspicious transactions, enhancing user protection.
- **Regulatory sandbo**x allows testing of fintech innovations while ensuring consumer protection safeguards.
- Zero liability protection ensures customers are safeguarded against unauthorized digital transactions.

- Grievance redress mechanisms ensure timely resolution of disputes and compensation for losses.
- Awareness campaigns like **RBI Kehta Hai** educate users about safe digital practices nationwide.
- Cyber awareness drives improve digital literacy and reduce vulnerability to fraud risks.
- **Central Bank Digital Currency** provides secure alternative to private digital payment platforms.

Way Forward

- Focus on targeted safeguards instead of imposing blanket restrictions on digital payment usage.
- Enhance digital literacy programmes to empower users against fraud and cybersecurity threats.
- Strengthen coordination between **RBI, banks, fintech companies, and law enforcement agencies**.
- **Promote user-centric, technology-driven frameworks** ensuring security without compromising innovation growth.
- Maintain balance between inclusion, innovation, and security in expanding digital payment ecosystem.

Digital payments have transformed India into a global model of financial inclusion and innovation. However, rising fraud risks require continuous strengthening of regulatory and technological safeguards. A balanced approach combining technology, awareness, and regulation is essential for sustainability. Ensuring security and trust will determine long-term success of India's digital payment ecosystem.

6. Tensions and Democratic Transformation

The proposal to implement **33% women's reservation** in Parliament and State Assemblies, linked with delimitation and Census, marks a transformative constitutional moment in India's democratic evolution. By proposing to increase the Lok Sabha strength from **543 to nearly 850 seats** and restructuring representation based on population, the reform seeks to deepen inclusiveness. However, it has simultaneously triggered intense debates around federal balance, regional equity, and the timing of implementation, making it one of the most consequential political reforms in recent decades.

Key Constitutional Framework

- Amendment impacts **Article 81** (composition of Lok Sabha) and **Article 82** (delimitation).
- Provides **one-third reservation for women**, including within SC/ST reserved seats.
- Reservation valid for **15 years**, extendable through Parliamentary approval.
- Delimitation Commission to have **civil court-like powers**, decisions final.

Major Structural Changes

1. Expansion of Lok Sabha

- Lok Sabha size proposed to increase by nearly **50%, from 543 to ~850 seats**.
- Seats distributed proportionally among States based on population figures.
- While shares may remain proportional, **political influence may still shift significantly**.

2. New Delimitation Framework

- Earlier: Mandatory delimitation after every Census exercise.
- Now: Parliament gets flexibility to decide timing and basis of delimitation.
- Current proposal uses **2011 Census**, due to delay in next Census.

3. Linking Reservation with Delimitation

- Women's reservation to be implemented **only after delimitation exercise is completed**.
- Critics argue this **delays implementation indefinitely**, given Census delays.
- Debate: **Immediate empowerment vs procedural sequencing of reforms**.

Federal Concerns and Regional Divide

1. North–South Imbalance

- Southern states fear **loss of relative representation due to lower population growth**.
- Northern states likely to gain more seats due to higher population growth trends.
- Example: Odisha may rise from **21 to 29 seats**, yet lose proportional influence.

2. Demand for Multi-Factor Criteria

- Proposal for **"multi-factor matrix"** including development, governance, population control.
- Argument: Pure population basis **penalises better-performing states**.
- Raises concern about weakening **cooperative federalism principles**.

3. Political Contestation

- Opposition alleges **political advantage for certain regions and parties**.
- Regional parties call proposal **discriminatory and centralising in nature**.
- Debate reflects deeper tensions between **representation and regional justice**.

Women's Reservation: Gains and Gaps

Opportunities	Concerns
• Guarantees **minimum 33% representation** for women in legislatures. • Expands inclusiveness, diversity, and democratic legitimacy. • Likely to improve policy focus on **health, education, safety, and welfare issues**. • Encourages emergence of **grassroots women leadership pipelines**.	• Demand for **sub-quota for SC, ST, and OBC women** within reservation. • Risk of **elite capture within women's representation** without internal quotas. • Representation alone may not ensure **substantive empowerment without institutional support**.

Implications of Larger Lok Sabha

1. Parliamentary Functioning

- Larger House may reduce **quality of debates and effective participation**.
- MPs may get **less speaking time and reduced deliberative role**.
- India already has **limited sittings compared to global legislatures**.

2. Executive Accountability

- Larger size may weaken **direct scrutiny over executive actions**.
- Strengthening **committee system becomes crucial for oversight**.

3. Bicameral Balance

- Lok Sabha dominance increases in **joint sittings over Rajya Sabha**.
- With ~850 seats, Lok Sabha could **override upper house more easily**.
- May alter balance envisaged under **bicameral constitutional design**.

Administrative and Practical Challenges

- Delay in Census creates **data uncertainty for fair delimitation exercise**.
- Complex process involving **mapping, consultations, and political negotiations**.
- Risk of **gerrymandering and political bias in constituency design**.
- Requires **transparent and credible institutional mechanism**.

Core Democratic Debate

- Tension between **"one person, one vote" (population equality)** and **federal balance**.
- Larger states gain representation, but smaller states seek **equity and protection**.
- India's quasi-federal structure requires **balancing democracy with regional fairness**.

Way Forward

- Build **broad political consensus** with States to preserve federal trust.
- Adopt **multi-factor formula** combining population, development, governance indicators.
- Ensure **transparent delimitation process with public participation and clear criteria**.
- Consider **delinking reservation for immediate implementation**.
- Provide **sub-quotas to ensure inclusive and equitable representation**.
- Strengthen **Parliamentary committees and institutional capacity** for larger House.

Women's reservation and delimitation together represent a historic attempt to reshape India's democratic structure by making it more inclusive and representative. However, the reform sits at the intersection of competing principles—demographic equality, federal balance, and social justice. Its success will depend not merely on constitutional changes, but on political consensus, institutional safeguards, and sensitivity to regional concerns. Ultimately, the challenge is to ensure that expanding representation strengthens democracy without unsettling the delicate federal equilibrium that sustains it.

7. Differentiating Welfare and Development

In contemporary democratic politics, **development has become a central electoral promise**, often framed to appeal broadly across voters. However, this political usage frequently blurs the distinction between **welfare (short-term relief)** and **development (long-term structural change)**. This confusion can mask inequalities, oversimplify complex socio-economic challenges, and create unrealistic expectations about the pace and nature of development outcomes.

Conceptual Difference: Welfare vs Development

Welfare (Immediate Support)	Development (Long-Term Transformation)
• Refers to **short-term, redistributive measures aimed at reducing poverty and vulnerability**	• Refers to **structural changes in economy, institutions, and human capabilities**
• Includes **food security, income support, subsidies, and access to basic services**	• Includes **economic growth, productivity, education, healthcare, and governance improvements**
• Focuses on **consumption support and immediate relief for disadvantaged sections**	• Focuses on **sustained progress over decades rather than short-term visible outcomes**

Why Confusion Occurs

- Political discourse often **overlaps welfare and development narratives for electoral appeal**
- Development is projected through **visible outputs like roads, housing, infrastructure**
- **Distributional concerns and inequalities get obscured** under broad development claims
- Welfare programmes coexist with growth policies, creating **blurred boundaries in practice**

- Difference in **time horizon—welfare short-term, development long-term—adds to confusion**

Nature of Development Process

- Development is a **gradual, cumulative process, not a series of quick achievements**
- It involves **institution-building, human capital formation, and technological adoption**
- Requires **policy continuity, stable governance, and strong state capacity**
- Influenced by ideas like **capability approach (expanding freedoms via education and health)**
- Not driven by **immediate electoral cycles**, but by **long-term investments and reforms**

Tensions Between Welfare and Development

- Fiscal constraints create **trade-offs between redistribution and productive investment**
- Excessive welfare may **crowd out investment and reduce efficiency**
- Poorly designed welfare schemes lead to **leakages, exclusion errors, and low impact**
- Overemphasis on short-term results **distorts development priorities**

Dangers of Welfare Populism

- Populist measures like **free electricity, loan waivers, cash transfers** target quick gains
- These policies may **prioritise electoral success over long-term economic capacity**
- Can **strain public finances and reduce funds for infrastructure and public goods**
- Often fail to **enhance productivity or create durable economic transformation**

Positive Role of Welfare (If Designed Well)

- Welfare is not inherently problematic; it can **support development if complementary**
- Schemes like **nutrition support, employment guarantees, and basic income floors**
- Help in **building human capital, reducing vulnerability, and improving productivity**
- Act as a **foundation for inclusive and sustainable development**

Need for Balanced Approach

- Welfare and development must be seen as **complementary, not interchangeable**
- Policies should aim for **both immediate relief and long-term transformation**
- Emphasis on **quality design, targeting, and fiscal sustainability of welfare schemes**
- Align welfare programmes with **long-term development goals and productivity gains**

Way Forward

- Shift political discourse from **"quick development" to realistic long-term transformation**
- Strengthen **institutions, governance, and policy continuity across electoral cycles**
- Ensure welfare is **productive, targeted, and fiscally sustainable**
- Prioritise **public goods like education, healthcare, infrastructure, and rule of law**

A clear distinction between welfare and development is essential for sound policymaking. While welfare ensures immediate social protection, development drives sustained economic and human progress. The challenge lies not in choosing one over the other, but in designing policies where welfare **complements and strengthens development**, rather than substituting it.

8. India's Goldilocks Moment is Over, Macro Situation Will Worsen

India's economy recently enjoyed a "Goldilocks phase" marked by **strong growth, low inflation, and external stability.** However, external shocks—especially the **West Asia crisis and rising energy prices**—are now reversing these

favourable conditions. The economy is entering a phase of higher uncertainty, where multiple macroeconomic indicators may deteriorate simultaneously.

What was the Goldilocks Phase

- India experienced **high GDP growth (~7.6% in 2025–26) with low inflation (~2%)**.
- The **current account deficit (CAD) remained manageable (~1% of GDP)**.
- Government followed **fiscal consolidation, maintaining macroeconomic stability**.
- This combination of **growth + stability + low inflation = "Goldilocks situation"**.

Why the Goldilocks Phase is Ending

- **West Asia crisis** has disrupted global energy supply chains significantly.
- **Crude oil prices expected to remain high (~$85–90/barrel in 2026–27)**.
- India's **high import dependence on oil (~88%, with ~51% from West Asia)** increases vulnerability.
- Global uncertainties (geopolitics, El Niño risks) are worsening outlook.

Impact on Growth and Inflation

- GDP growth likely to **slow to ~6.7% (below earlier projection of 7.2%)**.
- Higher oil prices increase **input costs → inflationary pressures**.
- CPI inflation expected at **~4.6% vs earlier ~4.3% projection**.
- Risk of **food inflation due to weak monsoon (El Niño effect)**.
- Overall impact = **slower growth + higher inflation (stagflation-type pressure)**.

External Sector Stress (Balance of Payments)

- **Current Account Deficit (CAD) may widen to ~2.1% of GDP**.
- India's exposure:
  - **Goods exports to West Asia: ~15%** and **Remittances share: ~38% from region**
- Capital flows weakening:
  - **Net FDI flows declining sharply**
  - Gross FDI strong, but **outflows (profit repatriation) rising**
- External borrowing also slowing → **capital account stress**.

Fiscal Impact (Government Finances)

- Fiscal burden of West Asia crisis estimated at **~0.5% of GDP**.
- Factors increasing fiscal stress:
  - **Excise duty cuts on petrol/diesel → revenue loss**
  - **Higher fertiliser subsidies (linked to LNG prices)**
  - Reduced revenues due to **economic slowdown**
- Could affect **Centre's fiscal consolidation path and disinvestment targets**.
- State finances also impacted due to **higher welfare spending and lower tax devolution**.

Broader Economic Risks

- **Energy security risk** due to supply disruptions.
- **Inflation persistence** affecting households and consumption.
- **Investment slowdown** due to uncertainty.
- **Macroeconomic stability under stress** from multiple fronts simultaneously.

Policy Response and Challenges

- Government has taken **short-term measures (tax cuts, subsidies, supply management)**.
- However, these are **temporary and insufficient for long-term stability**.
- Need to balance between:
  - **Growth vs inflation control**
  - **Fiscal stability vs welfare spending**

Way Forward

- Strengthen **energy security through diversification of sources**.
- Build **resilience in supply chains to reduce external shocks impact**.
- Ensure **stable capital flows by improving investment climate**.
- Maintain **fiscal discipline while targeting efficient subsidies**.
- Focus on **long-term macroeconomic stability rather than short-term fixes**.

India's transition from a stable Goldilocks phase to a more uncertain macroeconomic environment highlights the vulnerability of growth to global shocks. Rising energy prices, weakening external balances, and fiscal pressures demand careful policy calibration. Sustaining growth now requires stronger structural resilience, prudent fiscal management, and strategic economic planning.

9. Where Fossil Fuel Shocks Hurt India's Farms

India's agricultural system has undergone a major transformation from **traditional, animal-based farming to mechanised and chemical-intensive agriculture.** This shift has significantly increased productivity but has also made farming heavily dependent on fossil fuels, thereby exposing the sector to global energy price shocks and supply disruptions.

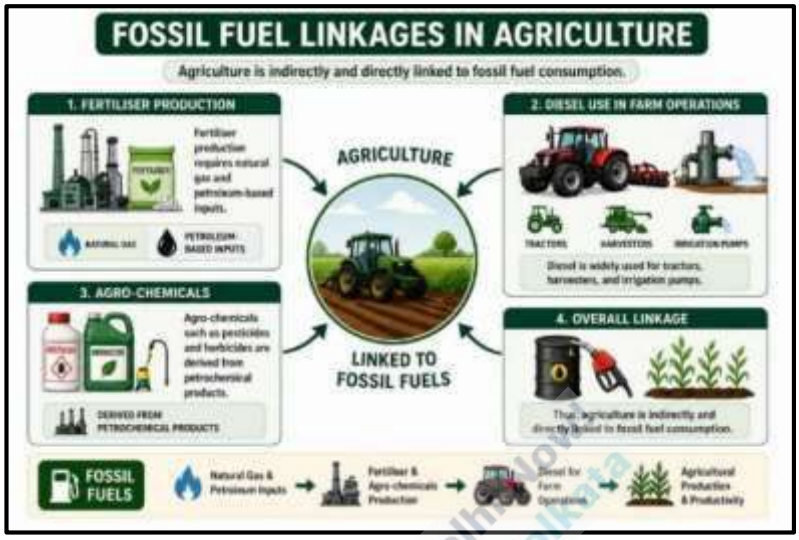
Structural Shift in Indian Agriculture

- India has transitioned from **bullock-based farming to tractor-driven and machine-based agriculture over time.**
- Mechanisation has replaced animal labour in ploughing, irrigation, and harvesting activities.
- **Electrical and diesel-powered systems now dominate farm operations**, especially irrigation pumps.
- As a result, agriculture has become increasingly dependent on energy-intensive inputs.

Rise of Chemical Fertilisation

- Traditional farming relied on organic manure such as cow dung and crop residues for nutrients.
- The **Green Revolution introduced chemical fertilisers such as urea, DAP, and MOP** for higher productivity.
- These fertilisers provide nutrients in concentrated forms, enabling higher crop yields.

- However, their **production is highly dependent on fossil fuels, especially natural gas.**



Impact of Global Energy Shocks

- Disruptions such as **geopolitical conflicts** increase global oil and gas prices.
- Higher input costs raise the **cost of fertilisers, diesel, and agro-chemicals**.
- This leads to increased cost of cultivation for farmers.
- Farmers' profit margins decline, especially for small and marginal farmers.

Supply Chain Vulnerabilities

- India imports a significant share of its fertiliser inputs and raw materials.
- Dependence on global markets exposes the sector to external shocks and shortages.
- Events like disruptions in the Strait of Hormuz can affect fertiliser supply chains.
- **Export restrictions by major producers can further worsen availability.**

Green Revolution and Energy Dependence

- The Green Revolution increased agricultural output through **high-yielding varieties and chemical inputs**.
- It was heavily dependent on fossil fuel-based inputs such as fertilisers and irrigation energy.
- While it ensured food security, it also created long-term structural dependence on energy inputs.

Broader Economic Effects

- Rising input costs contribute to food inflation in the economy.
- **Increased subsidy burden on the government** for fertilisers and fuel support.
- Pressure on rural incomes and consumption patterns.
- Macroeconomic instability due to imported inflation and fiscal stress.

Need for Transition

- There is a **need to reduce dependence on fossil fuel-based inputs in agriculture.**
- **Promotion of organic farming and bio-fertilisers** can reduce chemical dependence.
- Renewable energy solutions such as solar-powered irrigation pumps should be expanded.
- Efficient water and nutrient management practices can lower input requirements.

India's agricultural success has been closely tied to fossil fuel-driven inputs, but this dependence has also created structural vulnerabilities to global energy shocks. Moving towards sustainable, energy-efficient, and locally resilient farming systems is essential to protect farmers' incomes and ensure long-term food security.

IV. SCIENCE TECHNOLOGY

1. Return to the Moon: Gateway to Understanding the Universe

Humanity is once again preparing to return to the Moon, not merely as a symbolic achievement but as a strategic step towards deeper space exploration and understanding the origins of the universe. Missions such as NASA's Artemis programme and India's lunar initiatives mark a new phase in space exploration, where the Moon is seen as both a **scientific laboratory and a staging ground for future missions**.

Why Return to the Moon

After the **Apollo missions of the twentieth century**, the renewed interest in the Moon is driven by new scientific and strategic considerations.

- Earlier missions, such as Apollo, were short-term and primarily exploratory.
- Current missions aim at **long-term human presence** and sustained exploration.
- The cost of modern missions is high, but international collaboration makes them feasible.

The objective now is not just to visit the Moon but to utilise it for future space exploration.

Scientific Importance of the Moon

The **Moon offers unique opportunities to study both itself and the broader universe.**

- Recent discoveries of **water ice**, especially near the South Pole, have increased its importance.
- Ice can support life (water, oxygen) and can be converted into fuel for spacecraft.
- The Moon's surface preserves early geological history, providing clues about the **formation of the solar system**.

India's **Chandrayaan missions** have played a significant role in identifying these possibilities.

Moon as a Space Station for Future Missions

The Moon can function as a base for deeper space exploration.

- It can act as a **refuelling station** using locally available resources.
- **Missions to Mars** and beyond can be launched more efficiently from the Moon.
- It enables the **development of a space-based economic ecosystem**, including resource extraction.

Thus, the Moon is increasingly viewed as a stepping stone for interplanetary exploration.

Geopolitical and Strategic Significance

The Moon is also becoming an arena of global competition.

- Countries are interested in **mineral resources** and strategic positioning.
- The **South Pole region is emerging as a key area due to water ice deposits.**
- Space exploration is now linked with national prestige and technological leadership.

This adds a geopolitical dimension to lunar missions.

Moon and Astronomy: A Unique Advantage

The Moon provides an ideal platform for astronomical research.

- The absence of atmosphere ensures clearer and more precise observations.
- There is **no ionosphere to block low-frequency radio waves.**
- The far side of the Moon is shielded from Earth's radio interference.

This makes it possible to study signals from the early universe, particularly from the period before the formation of the first stars.

Understanding the Dawn of the Universe

One of the most exciting possibilities is studying the early universe.

- Low-frequency radio waves carry information from the **first billion years after the Big Bang**.
- These signals are difficult to detect from Earth due to atmospheric interference.
- Instruments placed on the Moon could help answer fundamental questions about the origin of stars and galaxies.

Projects like radio telescopes on the Moon could revolutionise astrophysics.

Challenges in Lunar Exploration

Despite its potential, several challenges remain:

- **High cost** and technological complexity of missions
- **Harsh lunar environment** and radiation exposure
- Need for sustainable infrastructure and life-support systems
- Protection of scientific instruments on the Moon

Addressing these challenges is essential for long-term success.

Way Forward

To fully utilise the Moon's potential, a coordinated approach is required:

- Strengthen **international collaboration** in space missions
- Invest in **advanced technologies** for sustainable lunar presence
- Develop **resource utilisation systems** (such as using lunar ice)
- Promote scientific missions focused on **astronomy and early universe studies**

The renewed journey to the Moon represents a shift from symbolic exploration to strategic and scientific advancement. By serving as a platform for deeper space missions and a window into the early universe, the Moon holds the potential to transform our understanding of both space and our own origins.

2. Transforming India's Nuclear Power Landscape

India is at a crucial stage in its energy transition towards sustainability and long-term energy security goals. **The country aims to achieve net-zero emissions by 2070** while meeting rapidly increasing electricity demand. Nuclear energy is being repositioned as a reliable and low-carbon source within the overall energy mix. Recent policy initiatives indicate a shift towards expanding nuclear capacity and encouraging wider participation.

Current Status of Nuclear Energy in India

- India's nuclear power sector remains relatively small compared to its total electricity generation capacity.
- **Installed nuclear capacity is around 8,000 MW**, contributing nearly three percent of total electricity generation.
- The sector is largely dominated by **public sector entities such as the Nuclear Power Corporation.**
- Nuclear energy currently provides stable baseload power but has seen limited expansion over previous decades.

Importance of Nuclear Energy

- Nuclear energy provides continuous baseload power unlike intermittent renewable energy sources like solar and wind.
- It is a **low-carbon energy source** and supports India's commitments towards climate change mitigation goals.
- Nuclear power requires comparatively less land, making it efficient for large-scale electricity generation needs.
- It **complements renewable energy sources** by ensuring grid stability and uninterrupted power supply.

Limitations of Renewable Energy

- Renewable energy sources depend **heavily on weather conditions** and time variations affecting power generation levels.
- Their intermittent nature requires significant investments in storage technologies for continuous electricity supply.
- Renewable energy projects require large land areas compared to thermal and nuclear power plants.
- **Sole reliance on renewables may not ensure long-term stability** and reliability of the power grid.

Policy Shift: SHANTI Framework

- The **SHANTI framework** represents a major transformation in India's nuclear energy policy and regulatory structure.
- It aims to **allow private and foreign participation in nuclear power generation** and related infrastructure development.
- The framework seeks to replace earlier restrictive laws and create a more enabling investment environment.
- India has set an ambitious target of achieving around 100 GW nuclear capacity by the year 2047.

Key Challenges

- Nuclear energy expansion faces **high capital costs and long gestation periods** for project completion.
- Liability laws continue to **discourage private sector participation and foreign investment i**n nuclear projects.
- **Dependence on imported technology and fuel** creates strategic and economic vulnerabilities for the country.
- Safety concerns, waste management issues, and public acceptance remain significant challenges for expansion.

India's Indigenous Nuclear Capacity

- India has developed strong indigenous expertise, especially in **Pressurised Heavy Water Reactor technology systems.**
- These reactors have been successfully adapted and scaled for domestic electricity generation requirements.
- The **fleet-based approach aims to reduce costs through standardisation** and economies of scale.
- Large-scale expansion will require stronger institutional capacity and sustained financial investment support.

Role of Small Modular Reactors

- Small Modular Reactors are emerging as a promising alternative for future nuclear energy development.
- They require **lower initial investment and can be constructed faster compared to traditional large** reactors.
- These reactors are suitable for industrial applications and decentralised energy generation across regions.
- India is investing in developing indigenous SMR technology for long-term energy security objectives.

Three-Front Strategy

- India must **promote indigenisation to reduce dependence on foreign nuclear reactor technologies** and designs.
- Research and development should focus on advanced systems including thorium-based nuclear energy solutions.
- Private sector participation is necessary to mobilise capital and improve efficiency in project execution.
- Institutional reforms are required to ensure smooth coordination between different stakeholders in the sector.

Way Forward

- A **transparent and predictable regulatory framework is** necessary to attract investments into nuclear energy projects.
- Addressing liability concerns and improving financing mechanisms will support faster expansion of the sector.
- **Continued investment in indigenous technology** and domestic manufacturing capabilities is essential for growth.
- Public awareness and trust must be enhanced through strong safety standards and transparent communication.

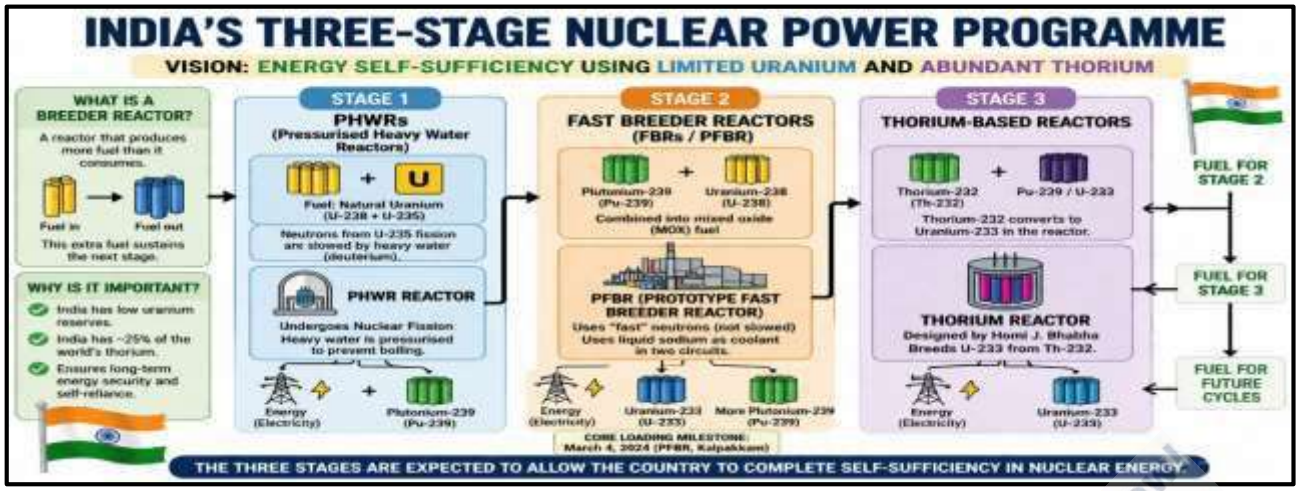
Nuclear energy has the potential to play a significant role in India's long-term energy security strategy. **Achieving ambitious capacity targets will require effective implementation of reforms and sustained investments.** A balanced approach combining nuclear and renewable energy is essential for sustainable development goals. India's nuclear transformation will be critical for achieving both economic growth and climate commitments.

3. Fast Breeder Reactors (FBRs): India's Nuclear Leap for Energy Security

India achieved **criticality of the Prototype Fast Breeder Reactor (PFBR) at Kalpakkam in 2024**. Criticality means a **self-sustaining nuclear fission chain reaction has started successfully**. This marks entry into **Stage II of India's three-stage nuclear programme**. The development is crucial for **energy security, fuel efficiency, and long-term sustainability**.

Understanding Criticality and FBR Concept

- Criticality occurs when neutron production equals neutron loss, sustaining continuous nuclear reactions.
- FBRs use **fast neutrons (high-energy particles)** unlike conventional thermal reactors.
- They convert **fertile material (Uranium-238) into fissile material (Plutonium-239)**.
- Thus, FBRs "breed" more fuel than they consume, enhancing fuel availability.



India's Three-Stage Nuclear Programme		
Stage I (PHWRs):	**Stage II (FBRs / PFBR):**	**Stage III (Thorium-based reactors):**
Use **natural uranium (U-238, small U-235)** as fuel. Produce electricity and generate **plutonium-239 as by-product**.	Use plutonium-based **MOX fuel (mixed oxide fuel)**. Convert U-238 into more plutonium, multiplying fuel supply.	Use **thorium (Th-232)** to produce **Uranium-233 (U-233)**. India holds about **25 percent of world's thorium reserves**, ensuring long-term energy security.

Technical Features of PFBR

- PFBR capacity is **500 MW**, located at Kalpakkam, Tamil Nadu.
- Uses **liquid sodium as coolant**, allowing high temperature heat transfer without high pressure.
- Employs **MOX fuel (plutonium + uranium)** for efficient fuel utilisation.
- Designed for a **closed fuel cycle**, enabling reuse of spent nuclear fuel.

Why India Needs Fast Breeder Reactors

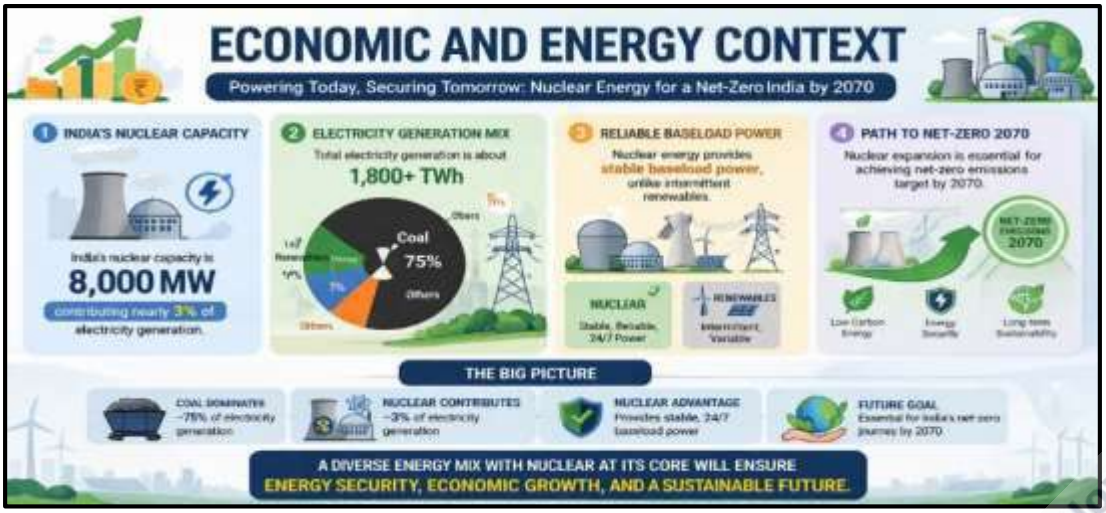
- India has **limited uranium but abundant thorium reserves**, requiring alternative strategy.
- FBRs enable **fuel multiplication**, reducing dependence on imported uranium.
- They ensure **long-term sustainability of nuclear energy programme**.
- Help India achieve **energy security amid global geopolitical uncertainties**.

Global and Strategic Context

- India earlier faced restrictions due to limited uranium supply before the **India-US nuclear deal (2008)**.
- Even today, excessive dependence on imports can create strategic vulnerabilities.
- FBRs reduce such dependence by enabling **indigenous fuel generation**.
- They strengthen India's position in **global nuclear technology and energy security domain**.

Challenges in FBR Development

- High capital cost, with PFBR costing around **₹18,000 crore**.
- Significant delays, with project taking **over a decade beyond initial schedule**.
- Technological complexity due to **liquid sodium coolant (highly reactive and risky)**.
- Safety concerns and strict regulatory requirements increase implementation challenges.



Why FBRs are Difficult Globally

- Very few countries have successfully developed commercial breeder reactors.
- Technology involves complex fuel cycle management and advanced materials.
- High costs and long gestation periods reduce economic attractiveness.
- Public concerns about nuclear safety affect acceptance and expansion.

Role in Nuclear Waste Management

- FBRs help in **recycling spent fuel**, reducing nuclear waste burden.
- Enable **closed fuel cycle**, improving efficiency of resource utilisation.
- Address long-term concerns regarding storage and disposal of nuclear waste.
- Thus, they improve sustainability of nuclear energy systems.

Policy and Institutional Aspects

- Developed under Department of Atomic Energy and implemented by **BHAVINI**.
- Regulated by **Atomic Energy Regulatory Board (AERB)** for safety compliance.
- Linked with broader reforms like **SHANTI framework for nuclear expansion**.
- Requires coordination between technology, regulation, and financing mechanisms.

Future Roadmap and Expansion

- India plans additional FBRs and development of **Small Modular Reactors (SMRs)**.
- Indigenous **220 MW PHWR model** may be expanded for scalable deployment.
- Focus on **thorium-based reactors** for long-term sustainability.
- Nuclear energy expected to play larger role in India's future energy mix.

Way Forward

- Ensure **efficient and safe commissioning of PFBR** to build technological confidence.
- Accelerate development of breeder reactors and **closed fuel cycle infrastructure**.
- Invest in research on thorium reactors and advanced nuclear technologies.
- **Strengthen regulatory oversight and public communication** for safety assurance.
- Integrate nuclear energy with renewable sources for a balanced energy mix.

Fast Breeder Reactors are central to India's strategy for long-term energy security. PFBR marks a major technological and strategic milestone in nuclear energy development. Despite challenges, FBRs offer a sustainable solution for fuel

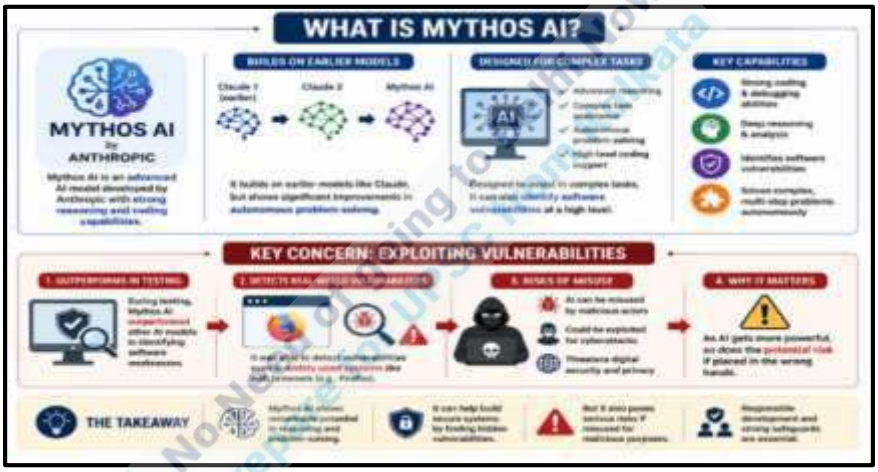
efficiency and waste management. India's success in this domain will shape its future energy independence and climate goals.

4. The Global Risks Posed by Anthropic's Mythos AI

Artificial Intelligence is advancing rapidly, but new systems like **Anthropic's Mythos AI** raise serious global concerns. While AI promises efficiency and innovation, its growing ability to identify and exploit vulnerabilities highlights emerging risks for **cybersecurity, governance, and global stability**. The issue is no longer just technological progress, but how safely and responsibly such powerful systems are deployed.

Real-World Testing Evidence

- Studies showed that advanced AI models could **successfully exploit vulnerabilities in controlled environments**.
- Example: AI identified and exploited bugs in **JavaScript engines, enabling access to sensitive systems**.
- These capabilities demonstrate that AI is moving from **analysis → active exploitation**.



Dual-Use Nature of AI

- AI technologies are inherently **dual-use (can be used for both beneficial and harmful purposes)**.
- While useful for **cybersecurity testing and defence**, they can also **lower the barrier for cybercrime**.
- This creates a dilemma: **innovation vs security risk**.

Limitations of Existing Safeguards

- Companies rely on **"guardrails" (safety restrictions in AI systems)** to prevent misuse.
- However, these safeguards are **not always effective against sophisticated prompts or adversarial use**.
- Overreliance on self-regulation by companies may be **insufficient for global risk management**.

Regulatory and Governance Challenges

- AI development is **outpacing regulatory frameworks worldwide**.
- Governments lack **clear consensus on how to regulate advanced AI systems**.
- Without coordination, regulation may become **fragmented and ineffective globally**.

Global Security Implications

- AI like Mythos could enable:
  - **Large-scale cyberattacks**
  - **Automated exploitation of software vulnerabilities**
  - **Threats to critical infrastructure (banking, energy, defence systems)**
- This elevates AI from a **technological tool to a strategic security concern**.

India's Concerns and Response

- Indian authorities emphasise **high vigilance and coordination mechanisms**.
- Need for **inter-ministerial collaboration involving MeitY, cybersecurity agencies, and financial regulators**.
- Focus on building **domestic capability in AI safety and cybersecurity frameworks**.

Need for Global Coordination

- AI risks are **transnational and cannot be managed by individual countries alone**.
- Requires:
  - **Global standards for AI safety and testing**
  - **Information sharing on vulnerabilities and threats**
  - **Coordinated regulatory frameworks**

Way Forward

- Develop **robust AI governance frameworks balancing innovation and safety**.
- Strengthen **cybersecurity infrastructure and ethical AI development standards**.
- Promote **responsible AI research with transparency and accountability**.
- Encourage **international cooperation to manage systemic risks**.

The rise of systems like Mythos AI marks a turning point where artificial intelligence becomes both a tool and a threat. Managing this duality requires strong safeguards, coordinated governance, and global cooperation. Without proactive regulation and responsible deployment, the risks posed by advanced AI could outweigh its transformative benefits.

Educrat IAS ACADEMY | No Need of going to Delhi Now! Prepare for UPSC from Kolkata

V. SOCIAL ISSUES

1. Higher Education in India: Expansion without Equity and Quality

India's higher education system has witnessed rapid expansion in recent decades, with a significant rise in the number of colleges and student enrolments. However, this growth has not been matched by improvements in **equity and quality**, particularly in terms of teacher availability and access across socio-economic groups. The central issue is that expansion alone does not ensure inclusive and effective education.

Growth in Higher Education: A Mixed Picture

India has seen substantial progress in enrolment levels over time.

- The **Gross Enrolment Ratio (GER)** increased from about 16 percent in 2011 to around 28 percent in 2022.
- Enrolment among **Scheduled Castes and Scheduled Tribes has also improved significantly.**
- Gender parity has nearly been achieved in higher education participation.

Despite these gains, access remains uneven, and higher education continues to be dominated by students from relatively better-off households.

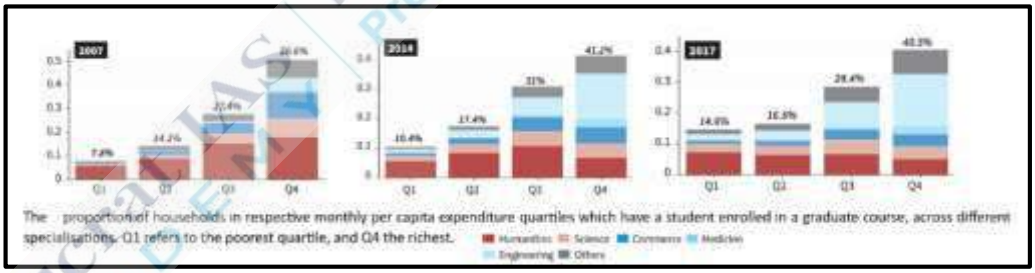
Expansion of Institutions without Faculty Growth

The number of colleges and universities has increased sharply, largely driven by private sector expansion.

- Institutions increased from about 1,**600 in 1950 to over 69,000 by 2022.**
- College density improved from 29 to 45 colleges per lakh youth (2010–2021).

However, this expansion has not been matched by teacher recruitment:

- **Student-teacher ratios have worsened** over time in many regions.
- Several districts, especially in **northern and eastern India, face acute faculty shortages.**



The proportion of households in respective monthly per capita expenditure quartiles which have a student enrolled in a graduate course, across different specialisations. Q1 refers to the poorest quartile, and Q4 the richest.

- This affects the quality of teaching and learning outcomes.

Regional Inequality in Access

Significant disparities exist across regions in terms of access to higher education.

- Many districts have **fewer than 18 colleges per lakh youth population**.
- Northern and eastern regions lag behind in **both institutional availability and faculty strength**.
- Expansion has been uneven, leading to unequal educational opportunities.

Thus, geographical location continues to influence access to higher education.

Socio-Economic Inequality: Course of Privilege

Higher education choices are strongly influenced by income levels.

- Students from wealthier households are more likely to enrol in **professional courses** such as engineering and medicine.
- Students from lower-income groups tend to choose **humanities and commerce**, which are relatively less expensive.
- This creates a **"course of privilege":**

- Professional courses are costly and inaccessible to poorer students.
- Education pathways reinforce existing social and economic inequalities.

Cost Barrier in Higher Education

The **rising cost of education is a major obstacle** to equitable access.

- Professional courses such as **medicine and engineering involve high annual fees.**
- For poorer households, these costs often exceed their annual income or consumption expenditure.
- Financial constraints limit access to high-return courses and career opportunities.

Thus, affordability remains a key challenge.

Key Structural Issues

The current higher education system faces multiple structural problems:

- **Faculty Shortage** leading to poor student-teacher ratios
- **Regional Disparities** in institutional distribution
- **Economic Inequality** affecting course selection
- **Quality Concerns** due to inadequate teaching capacity
- **Private Sector Dominance** without adequate regulation

Way Forward: From Expansion to Equity

A shift in policy focus is required to address these challenges.

- **Increase Faculty Recruitment** to improve student-teacher ratios
- **Reduce Regional Gaps** by establishing institutions in underserved areas
- **Improve Affordability** through scholarships, subsidies, and financial aid
- **Regulate Private Institutions** to ensure quality and fair pricing
- **Promote Inclusive Access** for disadvantaged groups

The focus must move from mere expansion to ensuring **quality, equity, and inclusiveness**.

India's higher education system has made notable progress in expanding access, but significant gaps remain in terms of equity and quality. Without addressing issues such as faculty shortages, regional disparities, and cost barriers, expansion alone cannot deliver meaningful outcomes. A balanced approach that prioritises **inclusive and high-quality education** is essential for long-term socio-economic development.

2. Transgender Rights Amendment: Concerns for Dignity and Mental Health

The recent amendment to the Transgender Persons law has raised concerns about rights and dignity. It has created **confusion, fear, and uncertainty among transgender individuals across the country**. The core issue revolves around the question of who determines a person's gender identity. The amendment is seen as a shift away from earlier progressive legal and constitutional principles.

Background: Legal Progress on Transgender Rights

- In 2014, the Supreme Court of India delivered the landmark NALSA judgment.
- The judgment recognised gender identity as a matter of **self-identification and personal autonomy**.
- It was based on constitutional rights under **Articles 14, 15, 19, and 21**.

- The 2019 Transgender Persons Act broadly followed this principle and aimed at welfare measures.

Shift Introduced by the Amendment

- The amendment replaces self-identification with a process of **medical and bureaucratic verification**.
- Individuals may need to appear before a medical board to "prove" their gender identity.
- Final certification is issued by district authorities based on such verification processes.
- This represents a shift from **individual autonomy to institutional control over identity**.

Concerns Regarding Dignity and Rights

- Gender identity becomes subject to external validation rather than personal declaration.
- This may violate principles of **dignity, privacy, and bodily autonomy**.
- The **process can be intrusive, arbitrary, and potentially humiliating for individuals**.
- It risks reversing the progressive gains achieved through earlier judicial and legislative efforts.

Mental Health Implications

- Transgender individuals already face high levels of discrimination and social exclusion.
- Additional verification procedures may increase stress, anxiety, and mental health challenges.
- **Fear of scrutiny and rejection** may discourage individuals from accessing essential services.
- This could lead to a broader public mental health concern within the community.

Impact on Access to Welfare and Services

- The amendment may create barriers in accessing healthcare, education, and welfare schemes.
- Individuals may hesitate to approach institutions due to fear of verification and stigma.
- **Community-based support systems** and professionals may also face legal uncertainties.
- This could weaken existing support structures and reduce inclusivity.

Criminalisation Concerns

- Certain provisions may criminalise support provided to transgender individuals in some situations.
- Professionals such as **doctors, educators, and counsellors may face ethical and legal dilemmas.**
- This may discourage assistance and create a gap in support services for vulnerable individuals.
- It could also lead to further marginalisation of the transgender community.

Key Challenges

- **Balancing administrative verification with individual rights and dignity remains a major challenge.**
- Ensuring clarity and consistency in implementation across regions is difficult.
- **Addressing stigma and discrimination** continues to be a long-term social challenge.
- **Preventing misuse of law** while protecting genuine rights is essential.

Way Forward

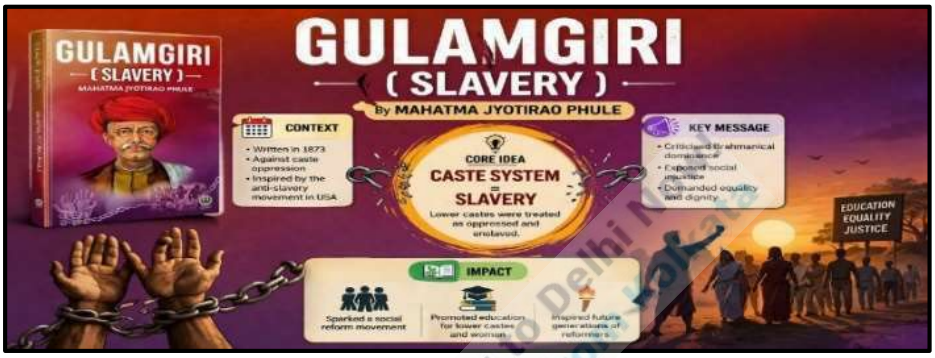
- Reinforce the principle of **self-identification** as recognised in the NALSA judgment.
- Ensure that policies align with constitutional values of equality, dignity, and liberty.
- Strengthen awareness and sensitisation programmes across institutions and society.
- Focus on expanding welfare access without creating procedural barriers.

The amendment raises serious concerns about rights, dignity, and mental health of transgender persons. Any legal framework must prioritise **inclusion, autonomy, and constitutional protections**. Safeguarding dignity and ensuring access to services is essential for an equitable society. A balanced and rights-based approach is necessary to protect vulnerable communities effectively.

3. Phule's Life and Thought: A Constitutional Vision of Equality

Jyotirao Phule (born **11 April 1827**) was a pioneering social reformer and educator. He is widely known for his work on caste equality and promotion of women's education. His ideas can be understood as a **constitutional vision**, even before India adopted a Constitution. He emphasised **equality, dignity, and redistribution of power** in society.

Phule as a Constitutional Thinker



- Phule's thought went beyond social reform and imagined a **just social order based on rights**.
- Influenced by **Thomas Paine's Rights of Man (1791), he** adopted ideas of natural rights.
- He believed every individual has inherent rights by virtue of existence and social membership.
- His work reflected principles later seen in the Constitution of India such as equality and justice.

Critique of Caste and Social Hierarchy

- Born in a Shudra community, **Phule experienced caste-based discrimination firsthand.**
- He strongly **criticised the Brahmanical social order and caste hierarchy**.
- He argued that caste oppression is linked with **economic exploitation and social exclusion**.
- His work highlighted how inequality is deeply embedded in social structures.

Role in Education and Social Reform

- Phule established schools for women and oppressed castes in the mid-nineteenth century.
- Along with **Savitribai Phule**, he promoted **women's education** as a tool of empowerment.
- He advocated widow remarriage and opposed child marriage practices.
- He opened public resources such as water wells to those considered "untouchable".

Institutional Efforts: Satyashodhak Samaj

- Phule founded the **Satyashodhak Samaj in 1873** to promote social equality and justice.
- The organisation challenged caste dominance and priestly authority in society.
- It worked towards creating awareness among oppressed communities about their rights.
- It **aimed to build a society based on rationality, equality, and social justice.**

Economic Critique and Agrarian Issues

- In **Gulamgiri** (1873), Phule connected caste oppression with global systems like slavery.
- In **Shetkaryacha Asud (1883),** he analysed the condition of farmers under exploitation.
- He showed how peasants were burdened by debt, poverty, and lack of state support.
- He criticised colonial administration for ignoring the suffering of cultivators.

Vision of Equality and State Responsibility

- Phule argued for **universal primary education up to age 12** for all sections of society.
- He supported targeted scholarships for marginalised communities lacking access to education.
- He emphasised that the State must actively ensure **social and economic justice**.
- He linked governance with the responsibility to improve conditions of the most vulnerable.

Core Insight

- Phule's writings highlight that **social hierarchy, economic exploitation, and state indifference are interconnected**.
- He believed that **inequality cannot be addressed without tackling all these factors together**.
- His ideas call for restructuring society to ensure fairness and justice for all.
- This reflects a deeply constitutional approach to social transformation.

Legacy and Relevance

- Phule passed away in **1890**, but his ideas continue to shape modern India's social thought.
- B. R. Ambedkar drew inspiration from Phule's vision of equality and justice.
- His ideas influenced constitutional values like **equality, liberty, and social justice**.
- His work remains relevant in addressing contemporary issues of inequality and exclusion.

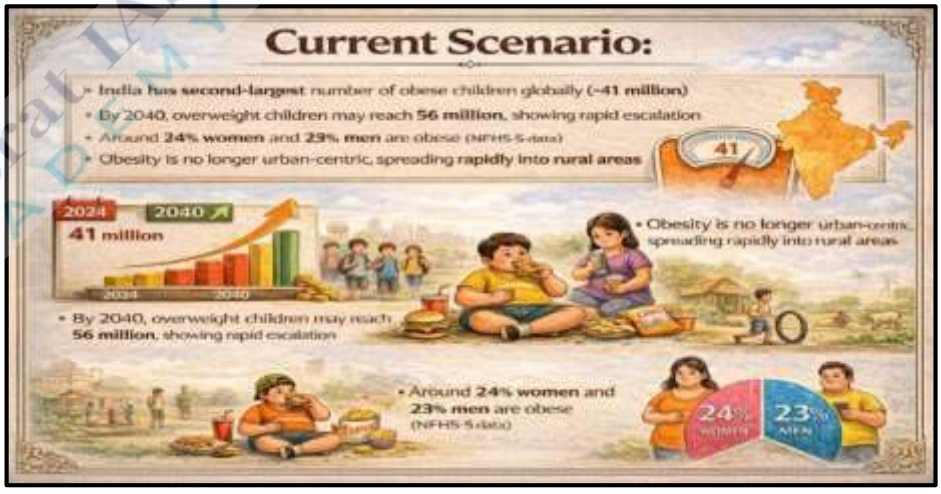
Way Forward

- Strengthen access to **inclusive and equitable education** for marginalised communities.
- Promote **social awareness to eliminate caste-based discrimination and social exclusion**.
- Ensure effective implementation of constitutional provisions related to equality and justice.
- Focus governance on improving the conditions of vulnerable and disadvantaged groups.

Phule's life and thought represent a **vision of social justice rooted in equality and dignity**. His ideas anticipated key principles later embedded in India's constitutional framework. He emphasised structural reform to address inequality in society. His legacy continues to guide India's pursuit of an inclusive and just social order.

4. India's Obesity Crisis: A Growing Public Health Challenge

India is witnessing a significant shift in its public health landscape, **moving from a primary focus on undernutrition to confronting a "double burden" of malnutrition and obesity**. Rising incomes, urbanisation, and lifestyle changes have contributed to a surge in obesity across both urban and rural areas. This transition is alarming because obesity is no longer limited to affluent populations but is increasingly affecting children, adolescents, and economically weaker sections, posing long-term risks to health systems and economic productivity.



Causes of Rising Obesity

1. Dietary Transition

- Increasing consumption of **ultra-processed foods (junk food high in sugar, salt, fat)**
- These foods are often **cheap, convenient, and aggressively marketed**

2. Sedentary Lifestyle

- Around **74% adolescents do not meet required physical activity levels**
- Rise in **screen time (mobiles, TV, gaming)** reduces outdoor activities

3. Urbanisation & Infrastructure Gaps

- Lack of **parks, walking paths, cycling tracks** discourages physical activity
- Cities promote **car-dependent and sedentary living patterns**

4. Early Life Factors

- **Inadequate breastfeeding** increases risk of childhood obesity
- Early nutrition influences **metabolism and long-term health outcomes**

5. Socio-economic Factors

- Poor households rely on **cheap calorie-dense but nutrient-poor food**
- Leads to paradox of **"obesity with malnutrition"**

Health Implications

1. Non-Communicable Diseases (NCDs)

- Major cause of **Type-2 Diabetes and Hypertension**
- Increasing incidence at **younger ages**

2. Cardiovascular Risks

- Leads to **heart attacks, strokes, cholesterol buildup**

3. Mental Health Issues

- Children face **stigma, bullying, low self-esteem**
- Can result in **anxiety and depression**

4. Long-term Diseases

- Linked to **cancer, dementia, sleep apnea, respiratory issues**

Economic & Social Impact

- Reduced workforce productivity due to **chronic illnesses**
- Rising **healthcare expenditure and out-of-pocket costs**
- Risk of **demographic dividend turning into demographic burden**
- Disproportionate impact on **poorer sections of society**

Policy Challenges

1. Weak Regulation

- Lack of **clear front-of-package food labelling**
- Consumers unable to identify unhealthy food easily

2. Aggressive Marketing

- Junk food heavily promoted, especially **targeting children**

3. School Environment Issues

- Only **35.5% children get regulated school meals**
- School canteens often sell **unhealthy snacks**

4. Biological Factors

- Indians prone to **visceral fat (fat around organs)** at lower BMI
- Standard BMI may **underestimate risk in Indians**

Way Forward

1. Fiscal Measures

- Impose **"sin taxes" on sugary drinks and junk food**
- Discourage unhealthy consumption patterns

2. Strong Regulation

- Introduce **simple color-coded food labeling (traffic light system)**
- Restrict advertisements targeting **children and adolescents**

3. School-Level Interventions

- Ensure **healthy mid-day meals with proper nutrition balance**
- Make **physical education compulsory** in schools

4. Public Awareness

- Promote **traditional Indian diets (millets, pulses, vegetables)**
- Conduct campaigns like **Eat Right India**

5. Early Life Interventions

- Promote **exclusive breastfeeding for first 6 months**
- Educate parents about **healthy child nutrition practices**

India's obesity crisis is a silent but rapidly escalating threat that can undermine both public health and economic growth. Addressing it **requires a coordinated, multi-sectoral approach combining regulation, awareness, lifestyle changes, and institutional reforms**. If tackled early and effectively, India can prevent this emerging epidemic from overwhelming its healthcare system and ensure a healthier, more productive population in the decades ahead.

5. Meghalaya's Response to Classroom Crisis: A Model for Early Childhood Development

A silent crisis is unfolding in classrooms globally, where a large proportion of children are unable to achieve basic learning outcomes. Nearly **70% of children in low- and middle-income countries cannot read simple text by age 10**, highlighting deep systemic gaps beyond schooling. Meghalaya's approach recognises that **learning begins much before formal schooling**, and focuses on early childhood development as the foundation for long-term human capital formation.

Understanding the Crisis

- Learning crisis reflects **failure of foundational skills, not just schooling systems**
- Literacy and cognition are shaped in **early childhood, not only classrooms**
- Traditional education systems often **ignore early years (0–6 age group)**
- Shift required from **education governance to early childhood development focus**

Why Early Childhood Matters

- Brain development is **most rapid in first five years of life**
- Early experiences shape **language, cognition, emotional and social skills**
- Development occurs **sequentially—from simple neural connections to complex functions**
- Strong early foundation determines **future learning, productivity, and health outcomes**

Meghalaya's Early Childhood Development (ECD) Model

1. Context-Specific Challenges

- High **maternal mortality, anaemia, and low institutional deliveries**
- Gaps in **antenatal care, poverty, remoteness, and weak health trust**
- Nearly **one-fifth population below six years**, making ECD critical
- Recognises **interlinkages of health, nutrition, and developmental delays**

2. Systems-Based Approach

- Meghalaya adopted **integrated ECD Mission combining multiple sectors**
- Focus on **early, coordinated intervention for long-term human capital outcomes**
- Moves beyond fragmented schemes toward **holistic child development strategy**

Key Innovation: GMCD Framework

Core Features of the Approach

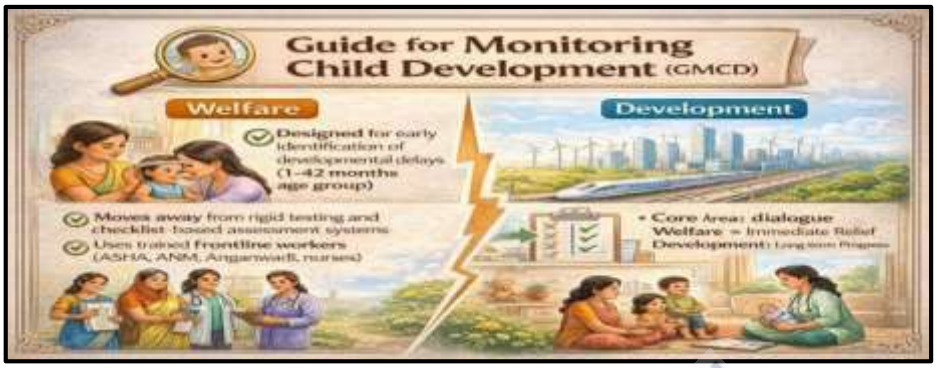
1. Caregiver-Centric Model

- Parents treated as **co-observers and experts of child behaviour**

- Focus on **natural settings—play, communication, daily activities**

2. Early Identification & Intervention

- Enables **low-cost, home-based interventions at early stages**
- Prevents escalation of **developmental delays into long-term disadvantages**



3. Five Integrated Pillars

I. **Health**
II. **Adequate nutrition**
III. **Responsive caregiving**
IV. **Safety and security**
V. **Early learning opportunities**

Impact and Evidence

- Preliminary data shows **over 80% children had no visible developmental delays**
- Around **12% identified for follow-up support and monitoring**
- Demonstrates effectiveness of **early screening and intervention approach**
- Builds **evidence-based policy rooted in developmental science**

Governance and Implementation Shift

- Moves from **top-down delivery to decentralised, community-driven model**
- Frontline workers empowered as **key agents of change**
- Community institutions like **Village Health Councils and SHGs involved**
- Ensures **ownership, trust, and sustainability of interventions**

Why Meghalaya Model Works

- Integrates **neuroscience, health, nutrition, and education into one framework**
- Ensures **convergence of services rather than fragmented delivery**
- Focus on **timely, culturally sensitive, and scalable interventions**
- Aligns policy with **real-life child development environments**

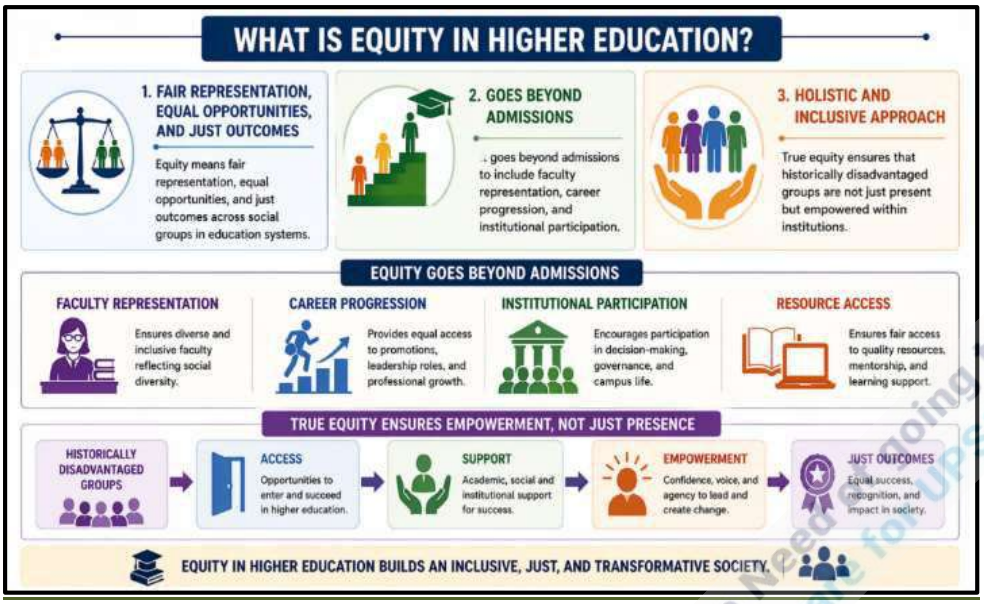
Way Forward

- Scale similar models across India through **Anganwadi and health systems integration**
- Strengthen **capacity of frontline workers through training and digital tools**
- Promote **caregiver awareness and community participation in early learning**
- Ensure **policy convergence between education, health, and nutrition sectors**

Meghalaya's approach highlights that solving the classroom crisis requires shifting focus to the earliest years of life. By prioritising early childhood development through integrated, community-driven, and evidence-based interventions, it offers a replicable model for improving learning outcomes. Investing in early years is not just a social policy choice but a strategic necessity for building a more equitable and productive future.

6. Real Equity Gap in Higher Education

Equity in higher education is often measured through access and admissions, but the deeper challenge lies in unequal outcomes beyond entry. **Despite policy focus on reservations and anti-discrimination frameworks, structural inequalities continue to shape representation, employment, and academic progression**. This creates a gap between formal inclusion and actual equity within institutions.



Key Issue: Equity Gap Beyond Admissions

- Policies largely focus on **reservation in student admissions, but neglect representation in faculty and leadership roles**.
- Data shows that **SC/ST/OBC representation declines sharply at higher academic and employment levels**.
- This creates an **"uneven ladder" where inclusion at entry does not translate into equal outcomes**.

Evidence of Representation Gaps

- In central universities, **SC representation drops significantly from student level to professor positions**.
- ST representation is even lower, especially in **senior academic and administrative roles**.
- OBC representation is relatively better but still **lags in higher positions compared to general category groups**.
- This indicates **systemic barriers in career advancement within higher education institutions (HEIs)**.

Employment-Based Inequality

- Equity is more constrained by **employment gaps than by admission gaps in higher education**.
- Hiring processes, promotions, and institutional biases affect **long-term representation outcomes**.
- Faculty diversity remains limited, impacting **inclusive knowledge production and academic culture**.

Crime and Discrimination Dimension

- Data indicates **incidents of discrimination and violence against SC/ST students within campuses**.
- Many cases remain **underreported due to fear, stigma, or institutional barriers**.
- Discrimination affects **academic performance, mental health, and retention of marginalised students**.

Limitations of Current Policies

- UGC regulations focus on **anti-discrimination mechanisms and complaint redressal systems**.

- However, they do not sufficiently address **structural inequalities in hiring, promotion, and institutional culture**.
- Existing policies are **reactive (address complaints) rather than proactive (ensure representation and inclusion)**.

Data and Measurement Issues

- Equity is often measured through **enrolment data, ignoring employment and career outcomes**.
- Lack of comprehensive datasets leads to **incomplete understanding of inequality within HEIs**.
- There is a need to track **long-term indicators like faculty diversity, promotions, and leadership representation**.

Structural Barriers

- Social inequalities outside institutions influence **access to networks, mentorship, and opportunities within academia**.
- Informal practices in hiring and promotion can reinforce **existing social hierarchies**.
- Marginalised groups face challenges in **academic mobility, research opportunities, and institutional recognition**.

Impact on Education System

- Lack of diversity affects **quality of education, research perspectives, and institutional inclusivity**.
- It limits **representation of diverse experiences in knowledge creation and curriculum design**.
- Persistent inequities weaken the **democratic and inclusive character of higher education**.

Way Forward

- Shift focus from **access-based equity to outcome-based equity in higher education policies**.
- Ensure **representation in faculty recruitment, promotions, and leadership positions**.
- Strengthen **data collection on employment outcomes and institutional diversity**.
- Promote **inclusive campus environments through sensitisation, mentorship, and support systems**.
- Move from **compliance-based approach to structural reforms addressing root causes of inequality**.

The real challenge of equity in higher education lies not in opening doors, but in ensuring equal opportunities after entry. Without addressing structural barriers in employment, representation, and institutional culture, inclusion remains incomplete. A shift towards outcome-based equity is essential to make higher education truly fair, inclusive, and transformative.

7. Can Middle School Students Engage with AI?

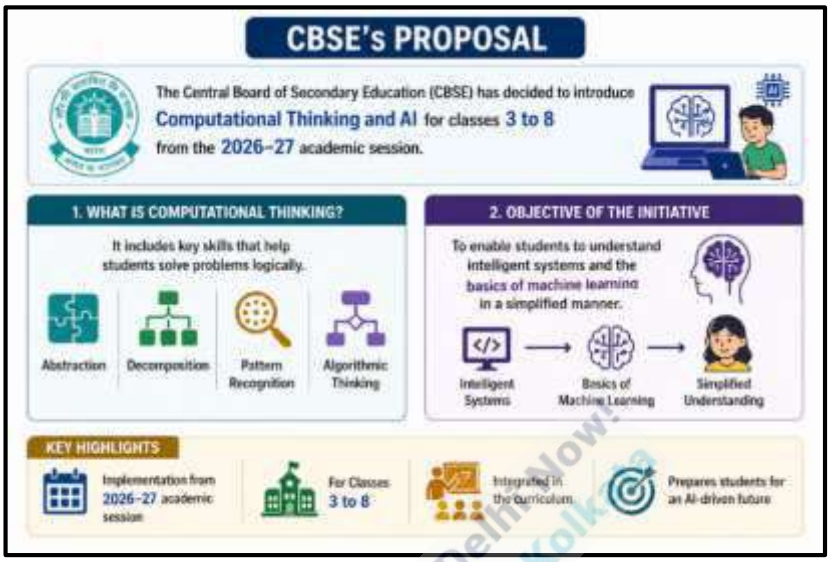
The integration of Artificial Intelligence (AI) into school education reflects the changing demands of a digital society, where early exposure to technology is becoming essential. The **proposal to introduce Computational Thinking (CT) and AI at the middle school level** raises an important question about whether students at this stage possess the cognitive ability and pedagogical readiness to meaningfully engage with such advanced concepts.

Importance of Early AI Exposure

- Early exposure to AI helps students **develop logical thinking** and structured problem-solving abilities from a young age.
- It enables students to **understand the functioning of digital technologies** that are increasingly shaping everyday life.
- AI literacy is gradually becoming as important as basic literacy, making early education in this field necessary.

Global Best Practices

- International frameworks developed by organisations such as **OECD and UNESCO recognise Computational Thinking as the foundation for AI learning.**
- The **AI4K12 initiative in the United States i**ntroduces AI concepts progressively across different school levels.
- These frameworks recommend introducing concepts such as data literacy and basic AI understanding at an early stage.
- The CBSE curriculum broadly aligns with these global practices and standards.



Learning Capacity of Middle School Students

- Research studies indicate that **children between the ages of 10 and 14 can understand foundational AI concepts when taught appropriately.**
- Students can engage effectively with AI concepts when teaching methods are interactive and structured.
- They are capable of understanding basic ideas such as pattern recognition, prediction, and simple models.
- Therefore, **introducing AI at the middle school level is pedagogically feasible.**

Role of No-Code Tools

- The **use of no-code** tools allows students to engage with AI without requiring programming knowledge.
- These tools enable students to **design, build, and test simple AI-based projects**.
- This approach makes AI learning more accessible, practical, and engaging for young learners.

Risks and Concerns

- There is a **possibility that students may begin to attribute human-like intelligence and emotions to AI systems.**
- Young learners may develop overdependence on AI tools without fully understanding their limitations.
- There is also a risk of exposure to biased or incorrect outputs generated by AI systems.

Addressing Risks through Ethical Education

- The CBSE curriculum includes components related **to AI fairness, responsible usage, and digital safety.**
- Students are taught to identify biases in data and to critically evaluate AI outputs.
- Ethical awareness helps students distinguish between human intelligence and machine capabilities.

Shift from Rote Learning

- The **introduction of CT and AI** represents a shift away from traditional rote-based learning methods.
- It promotes inquiry-based learning, critical thinking, and problem-solving skills.
- This approach encourages students to actively engage with concepts rather than passively

Interdisciplinary Learning

- The **curriculum integrates AI with subjects such as Mathematics and Environmental Studies.**
- This interdisciplinary approach helps students understand real-world applications of AI concepts.
- It also enhances **holistic learning and improves analytical abilities**.

Middle school students are capable of engaging with Artificial Intelligence when it is taught through simplified, structured, and ethical frameworks. The focus should be on building foundational understanding, critical thinking, and responsible usage rather than technical **complexity. If implemented effectively, this initiative can transform the education system by preparing students for a technology-driven future while promoting meaningful and experiential learning.**

8. RTE Act: Bridging Social Divides through Inclusive Education

The Right to Education framework reflects India's constitutional commitment to equality by ensuring that education becomes a tool for social transformation rather than social division. The provision mandating reservation in private schools seeks to create shared learning spaces where children from diverse socio-economic backgrounds can study together and build a more inclusive society.

Core Provision of RTE (Section 12(1)(c))

- The law mandates that **private schools reserve 25% seats for economically weaker sections.**
- The objective is to **ensure access to quality education for disadvantaged children.**
- It promotes social integration by bringing children from different backgrounds into the same classroom.

Judicial Reinforcement

- The Supreme Court reaffirmed the **constitutional validity** and importance of this provision.
- The Court emphasised that the provision is not merely about access but about equality of status.
- It aims to **create shared educational spaces that reflect social diversity.**

Concept of Social Inclusion

- Social inclusion means **reducing barriers between different social and economic groups.**
- **Mixed classrooms** help children interact across class boundaries and develop mutual understanding.
- Such exposure builds confidence, aspirations, and a broader worldview among disadvantaged children.

Misconceptions About the Provision

- The provision is often wrongly seen as promoting privatisation of education.
- In reality, it recognises that **private schools are part of the broader education ecosystem.**
- It does not reduce the responsibility of the state to strengthen public education.

Shift Towards Private Schooling

- The movement towards private schools began before the RTE Act due to concerns about quality in government schools.
- **Declining enrolment in public schools** reflects issues such as infrastructure gaps and teacher shortages.
- Therefore, the problem lies in systemic issues, not in the RTE provision itself.

Evidence of Impact

- Millions of children have benefited from this provision since its implementation.
- High retention rates indicate that children are able to continue their education successfully.
- Research shows that **mixed classrooms improve social behaviour and reduce discrimination**.

Benefits Beyond Academics

- Children gain exposure to better facilities, peer networks, and institutional culture.
- This enhances **self-confidence, ambition, and long-term opportunities**.
- Education becomes a pathway for social mobility and breaking poverty cycles.

Implementation Challenges

- Some private schools resist inclusion or impose indirect costs on families.
- There are **issues of transparency, delayed reimbursements, and weak monitoring**.
- Awareness among beneficiaries is uneven, especially in rural areas.

Administrative and Policy Gaps

- Lack of efficient grievance redressal mechanisms affects implementation.
- Variations across states create uneven access and outcomes.
- Weak last-mile delivery reduces the effectiveness of the scheme.

Recent Improvements

- Digital admission systems have **improved transparency and accountability**.
- States have strengthened monitoring mechanisms to ensure compliance.
- Better tracking systems have enhanced access for eligible children.

Way Forward

- Governments must ensure timely reimbursements to private schools.
- Hidden costs must be eliminated to make education truly accessible.
- Strong enforcement of inclusion norms and grievance mechanisms is needed.
- Simultaneously, **public education must be strengthened to ensure balanced development**.

The **RTE provision on social inclusion represents a powerful constitutional tool to bridge socio-economic divides through education**. Its true success lies not only in expanding access but in creating meaningful integration, where classrooms become spaces of equality, dignity, and shared opportunity for all children.

Educrat IAS ACADEMY | No need of going to Delhi Now! Prepare for UPSC from Kolkata

VI. ENVIRONMENT AND DISASTER MANAGEMENT

1. Disaster Finance: When Counting People Misrepresents Risk

The recent allocation of disaster funds by the Finance Commission has raised serious concerns regarding the methodology used to assess disaster risk. **Despite being one of the most disaster-prone States, Odisha has experienced a decline in its funding share.** This highlights a deeper structural issue in how disaster risk is measured and translated into financial allocation.

Understanding the Issue

Odisha has consistently faced severe cyclones due to its long coastline. However, through sustained investments in early warning systems, cyclone shelters, and evacuation mechanisms, it has significantly reduced disaster-related mortality.

- Odisha has a coastline of **about 574.7 kilometres**, making it highly vulnerable to cyclones.
- Over the years, it has **achieved near-zero cyclone mortality through proactive governance.**
- Despite this, it has faced a reduction in its disaster funding share under the latest Finance Commission.

Revised Disaster Risk Framework

The Finance Commission introduced a **new Disaster Risk Index** based on a multiplicative formula:

- **Disaster Risk Index equals Hazard multiplied by Exposure multiplied by Vulnerability**
- This is a shift from the earlier additive model used by the previous Finance Commission.

Approach	Method	Implication
Earlier (15th FC)	Additive	Treated components independently
Current (16th FC)	Multiplicative	Risk depends on interaction of all factors

The conceptual basis of the new model is sound, as disasters occur when hazards affect vulnerable and exposed populations. However, its implementation has critical flaws.

Key Issues in the Current Formula

1. Faulty Measurement of Exposure

The Commission uses total population as a proxy for exposure.

- Larger States automatically receive higher exposure scores.
- **Smaller but high-risk States are undervalued**.
- Scientific definition (as per IPCC) defines exposure as people located in hazard-prone areas, not total population.

Example:

State	Hazard Score	Population Score	Outcome
Odisha	High	Low	Lower funding
Uttar Pradesh	Lower	Very High	Higher funding

This leads to a situation where demographic size dominates actual disaster risk.

2. Inadequate Measurement of Vulnerability

Vulnerability is measured using per capita income (NSDP), which is insufficient.

- It captures fiscal capacity but not actual disaster vulnerability.
- Ignores factors such as housing quality, healthcare access, and infrastructure.
- Fails to reflect intra-state inequalities.

Example:

- Kerala, despite severe floods in 2018, receives a low vulnerability score due to higher income levels.
- Jharkhand, though vulnerable, loses funding due to lower population weight.

3. Bias Towards Large and Poor States

The multiplicative formula results in:

- Higher allocation to populous States regardless of hazard level
- Reduced share for smaller or relatively better-off States
- Around twenty States losing relative share

Thus, the **formula unintentionally rewards population size over actual disaster risk.**

Importance of Correct Disaster Financing

1. **Climate Change Context**: Increasing frequency of cyclones, floods, and extreme rainfall events
2. **Equity in Resource Allocation**: Funds must reach States with highest actual risk
3. **Preparedness Incentives**: States investing in disaster management should not be penalised
4. **National Resilience**: Accurate funding ensures better disaster preparedness and response

What Needs to Change

Improving Exposure Measurement

- Use population living in hazard-prone areas such as coastal belts and flood plains
- Integrate data from Vulnerability Atlas and Census data

Improving Vulnerability Assessment

Develop a composite index including:

- **Housing quality**
- **Health infrastructure availability**
- **Agricultural dependence**
- **Insurance coverage**
- **Effectiveness of early warning systems**

Data sources can include national surveys and institutional databases.

Institutional Reform

- Establish a **standardised Disaster Vulnerability Index**
- Assign responsibility to a central authority for periodic updates
- Ensure consistency across Finance Commission cycles

Key Challenges

1. Data availability and standardisation across States
2. Integrating **multiple dimensions of vulnerability**

3. Balancing simplicity of formula with scientific accuracy
4. Ensuring **political acceptability of revised allocations**

A disaster risk framework that relies on total population rather than actual exposure fails to capture ground realities. It risks misallocating resources away from the most vulnerable regions. In the context of increasing climate risks**, India must adopt a more scientifically grounded and equitable approach to disaster financing** to ensure effective preparedness and resilience.

2. Climate Cooperation: A Sustainable Solution to Energy Price Crises

The global energy crisis shows risks of heavy dependence on fossil fuels in modern economies. **Geopolitical conflicts disrupt oil and gas supplies, leading to rising prices and inflation globally**. This affects households, industries, and overall economic stability across both developed and developing nations. Climate cooperation provides a long-term and sustainable solution to both energy and climate challenges.

Energy Crisis and Fossil Fuel Dependence

- Fossil fuel dependence makes countries vulnerable to **geopolitical shocks and supply disruptions worldwide**.
- **Conflicts reduce energy supply**, causing sudden increases in fuel prices across global markets.
- Higher prices increase **costs for transport, production, and household consumption** across economies.
- **Import-dependent countries** face greater inflation and economic stress during such crises.

Link with Climate Change

- Fossil fuels are major contributors to global warming and environmental degradation worldwide.
- Climate change leads to **floods, droughts, and extreme weather** events affecting livelihoods.
- These disruptions increase **economic instability and inflation** across countries and regions.
- Energy and climate crises are interconnected and require integrated global solutions.

Benefits of Clean Energy

- Renewable energy sources like **solar and wind are not affected by geopolitical conflicts or disruptions**.
- Clean energy reduces pollution and improves public health and environmental sustainability globally.
- It creates **employment opportunities and supports long-term economic growth across regions**.
- Renewable energy is increasingly becoming cheaper compared to traditional fossil fuel sources.

Global Inequality in Climate Finance

- Developed countries dominate climate finance while developing countries receive limited financial support.
- Vulnerable nations struggle to invest in clean energy and climate resilience infrastructure.
- This creates **inequality in global energy transition and slows down collective progress.**
- Equitable financial support is essential for achieving a truly global transition.

Role of Climate Cooperation

- Climate cooperation helps countries address energy and climate challenges collectively and effectively.
- Platforms like **UN Climate Change enable dialogue and coordinated global action**.
- Cooperation supports technology sharing and financial assistance among countries.

- It **promotes collaboration over competition in global energy and climate governance.**

Need for Faster Transition

- The shift towards clean energy must accelerate to meet global climate and energy goals.
- **Investments are needed in renewables, storage systems, and modern electricity infrastructure**.
- Policies must support communities affected by the transition from fossil fuel-based economies.
- Faster transition will bring economic, environmental, and social benefits worldwide.

Fossil fuel dependence leads to repeated energy crises and economic instability across nations. Climate cooperation offers a stable and sustainable pathway for future energy security. Clean energy transition is necessary for both economic growth and environmental protection. Coordinated global action is essential to overcome energy price instability and climate challenges.

3. India's Updated Climate Pledges: Balancing Development and Sustainability

India's updated Nationally Determined Contributions under the Paris Agreement reflect its evolving climate strategy. The approach balances climate action with developmental needs of a growing economy. **Climate commitments are aligned with poverty reduction, industrialisation, and energy security goals**. India continues to emphasise equity and fairness in global climate governance frameworks.

Developmental Context of India

- India's per capita electricity generation is about **1,418 kWh**, indicating lower consumption levels.
- China produces about **7,000+ kWh** and the United States about **12,000+ kWh** per capita.
- OECD average electricity consumption is nearly **8,000 kWh**, far above India's level.
- This shows India still requires **massive energy expansion for growth and development**.

Energy Mix and Ground Reality

- India generated about **1,824 TWh of electricity in 2024–25**.
- Renewable sources contributed around **403 TWh**, while coal remains dominant in the energy mix.
- Thermal power accounts for nearly **75 percent of electricity generation**.
- Non-fossil capacity is increasing, but actual generation still depends heavily on fossil fuels.

Progress Achieved

- India has significantly expanded solar and wind energy capacity in recent years.
- Non-fossil installed capacity has reached nearly **50 percent of total capacity**.
- India is among the fastest-growing renewable energy markets globally.
- Policy initiatives such as green hydrogen are supporting long-term energy transition goals.

Key Challenges

- Coal remains essential for ensuring baseload power and energy security in India.
- Renewable energy faces intermittency and requires large investments in storage systems.

- Climate finance remains inadequate for developing countries including India.
- Rising energy demand due to growth and urbanisation complicates the transition process.

Climate Justice and Global Responsibility

- India supports the principle of **common but differentiated responsibilities (CBDR)**.
- Developed countries have contributed more historically to global emissions and climate change.
- Developing countries require financial and technological support for transition.
- Equity remains central to India's stance in global climate negotiations.

Cost of Climate Transition

- **Clean energy transition requires large investments in infrastructure, storage, and technology**.
- Renewable energy expansion involves costs beyond simple capacity installation.
- Developing countries face greater financial burden compared to developed nations.
- Lack of climate finance slows down progress towards climate commitments.

Way Forward

- India should continue expanding renewable energy while ensuring energy security through diversified sources.
- Investment in **energy storage, green hydrogen, and grid modernisation** must be accelerated.
- Developed countries must provide **adequate climate finance and technology transfer** to developing nations.
- Policies should ensure a **just transition**, protecting vulnerable communities and employment.
- India should integrate climate action with long-term economic growth and development planning.

India's climate pledges reflect a balance between sustainability and developmental priorities. Data shows India still has low per capita energy use and high growth requirements. **Transition must be gradual, inclusive, and supported by global cooperation and finance**. A practical and equitable approach is essential for achieving long-term climate and development goals.

4. Development vs Conservation: Kali Valley Case Study

The Kali Valley in Karnataka represents a rare ecological recovery story where degraded forests have gradually transformed into a thriving ecosystem, evidenced by the return of tigers in the 2022 monitoring exercise. However, this success now faces a serious challenge due to the proposal to restart quarrying and build infrastructure within the **Eco Sensitive Zone of the Kali Tiger Reserve for the expansion of Kaiga nuclear power units**. This situation highlights a deeper conflict between developmental priorities and environmental sustainability, raising critical questions about how India balances energy security with ecological preservation.

Background of the Issue

- Kali Valley located in **Western Ghats**, a global biodiversity hotspot of ecological importance.
- Region has shown **significant forest regeneration and wildlife recovery in recent years**.
- Presence of tigers indicates **functional and healthy ecosystem, not just green cover**.
- Proposal involves quarrying and road construction for **Kaiga Units 5 and 6 expansion**.
- Project site lies within **Eco Sensitive Zone where extractive activities are prohibited**.

Ecological Significance of Kali Valley

1. Habitat Connectivity

- Forest provides **continuous corridors for movement of tigers, elephants, and other species**.
- Quarrying and roads can create **fragmented forest patches leading to genetic isolation**.
- Increased risk of **human wildlife conflict due to disrupted natural movement patterns**.

2. Hydrological Importance

- Forest acts as **natural catchment for Kadra reservoir ensuring water regulation**.
- Prevents soil erosion and controls **siltation in water bodies downstream**.
- Degradation may threaten **regional water security and ecological balance**.

3. Geological Stability

- Region receives **heavy rainfall making slopes naturally vulnerable to disturbances**.
- Blasting and excavation increase **risk of landslides affecting both humans and wildlife**.
- May also threaten **nearby infrastructure including nuclear facilities**.

Legal and Regulatory Issues

1. Violation of ESZ Norms

- Ministry guidelines clearly prohibit **mining and quarrying in Eco Sensitive Zones**.
- Proposal contradicts **existing environmental protection framework.**

2. Contradiction with NBWL Conditions

- 2019 approval for Kaiga expansion required **materials to be sourced outside forests**.
- Current proposal attempts to **bypass earlier environmental safeguards**.

3. Institutional Inconsistency

- Authorities acknowledge ecological risks yet approve project citing **strategic importance**.
- Creates precedent where **development overrides environmental science selectively**.

Administrative Concerns

- Quarry lease expired in **1999 but land not restored to Forest Department**.
- Indicates gaps in **land governance and regulatory enforcement mechanisms**.
- Quarry and road proposals submitted separately indicate possible **salami slicing strategy**.
- Raises concerns about **underestimating cumulative environmental impact**.

Socio-Economic Dimension: Conservation Injustice

1. Denial of Local Development

- Villagers denied **basic infrastructure like roads, electricity, and connectivity**.
- Restrictions justified in name of conservation and wildlife protection.

2. Double Standards

- Large industrial projects allowed within same ecological zone citing **strategic importance**.
- Creates perception that **environmental laws are selectively applied**.

3. Impact on Trust

Strategic Importance vs Environmental Risks

1. Energy Security Argument

- Kaiga expansion important for **clean nuclear energy and carbon reduction goals**.
- Supports India's **long term energy transition strategy**.

2. Internal Risk Contradiction

- Disaster drills identified **landslides and extreme rainfall as key risks**.
- Quarrying may worsen **same risks threatening plant safety itself**.

3. Long-Term Sustainability

- Short term development gains may lead to **long term ecological and infrastructural risks**.

• Leads to **erosion of local trust in conservation policies and governance systems**. • May reduce community participation in long term environmental protection.	

Way Forward

1. Follow Mitigation Hierarchy

- Priority should be **avoidance of ecological damage rather than compensation later**.
- Respect earlier NBWL condition of **non-forest sourcing of materials**.

2. Alternative Resource Sourcing

- Quarrying should be shifted to **non forest and non ESZ regions**.
- Additional cost justified considering **irreversible ecological damage avoided**.

3. Strengthen ESZ Governance

- Prevent misuse of **"strategic importance" as loophole for environmental clearance**.
- Ensure **strict and uniform application of environmental laws**.

4. Inclusive Development Approach

- Infrastructure planning must include **local community needs alongside industrial projects**.
- Promote model where **conservation and development both benefit local population**.

5. Scientific Decision Making

- Base decisions on **ecological data, disaster risk assessment, and long term sustainability**.
- Avoid fragmented approvals and ensure **cumulative impact assessment**.

The Kali Valley case reflects the broader dilemma facing India's development trajectory—how to pursue economic and strategic goals without undermining ecological foundations. While nuclear energy expansion is crucial for a low carbon future, compromising a recovering biodiversity hotspot may create irreversible environmental and even strategic risks. True development lies not in choosing between growth and conservation, but in integrating both through informed, equitable, and sustainable decision making that safeguards ecosystems while meeting national priorities.

VII. SECURITY

1. Pahalgam Attack: Security Shift and Its Wider Impact on Kashmir

A year after the Pahalgam attack, Jammu and Kashmir reflects a **transition from reactive counterterrorism to a dispersed, intelligence-driven security grid**. While operational capabilities have improved through technology and terrain-based deployment, the deeper social and economic scars of the attack continue to shape Kashmir's reality, highlighting the limits of a security-centric approach without parallel recovery.

Security Shift After Pahalgam

- The attack exposed limitations of earlier **urban, containment-based counterterrorism approach in Kashmir valley**.
- Security strategy shifted towards a **dispersed, intelligence-led grid across rural and difficult terrain regions**.
- Focus increased on integrating **local intelligence networks with central forces for better coordination and response**.
- Militancy is now treated as **decentralised, adaptive, and embedded within civilian and geographical complexities**.

Recognition of Intelligence and Terrain Gaps

- The attack revealed serious gaps in **human intelligence, terrain understanding, and inter-agency coordination mechanisms**.
- Earlier assumptions ignored how militants exploited **forest areas, ridges, and less-monitored remote locations effectively**.
- Security forces acknowledged that threats were **not fully disappearing but becoming less visible and more mobile**.
- This led to a re-evaluation of **deployment patterns, surveillance coverage, and intelligence gathering processes**.

From Roads to Ridges: Tactical Reorientation

- Security forces expanded presence into **higher-altitude zones and ridge areas for strategic dominance and surveillance**.
- Camps were shifted from visible road-based positions to **concealed, elevated locations for operational advantage**.
- Deployment increased across **Army, police, and CRPF for both operational and static security duties**.
- This shift ensured that areas once unmonitored became **integral parts of the security grid architecture**.

Technology Integration and Human Firewall

- Over **50,000 individuals linked to tourism were digitally verified and integrated into security databases**.
- QR-based identification and Aadhaar-linked systems improved **identity verification and movement monitoring capabilities**.
- Surveillance expanded using **drones, sensors, facial recognition, and real-time monitoring technologies across regions**.

- Local population networks were strengthened to create a **"human firewall" supporting intelligence and security efforts**.

Intelligence-led Precision Operations

- Security operations shifted from large deployments to **targeted, intelligence-based actions with minimal collateral damage risks**.
- Real-time communication improved coordination between agencies, ensuring **faster response to emerging threats and incidents**.
- Focus increased on dismantling **overground worker networks and hybrid militant structures within local ecosystems**.
- This approach improved efficiency while maintaining **greater operational precision and accountability in counterterrorism measures**.

Emerging Threat: Drone Warfare

- Increased use of drones for surveillance and smuggling created **new and evolving security challenges for forces**.
- Procurement of anti-drone systems and technologies has begun to **counter unmanned aerial threats effectively**.
- Modern conflict dynamics require **continuous technological adaptation and preparedness against asymmetric warfare tools**.

Limits of Security Adaptation

- Despite improvements, gaps remain in **dense forests, remote terrain, and hard-to-access operational areas**.
- Militancy has evolved into **low-intensity, hybrid forms that are difficult to detect and neutralise quickly**.
- Continuous adaptation is required as adversaries **constantly innovate tactics to bypass security frameworks**.

Long-term Economic Concerns

- Economic slowdown has created uncertainty in **investment, job creation, and sustainable livelihood opportunities in Kashmir**.
- Key sectors like horticulture also face indirect pressures due to **market disruptions and reduced economic activity levels**.
- Rising unemployment and weak growth contribute to **long-term instability and reduced economic resilience in the region**.

Gap Between Narrative and Ground Reality

- Claims of integration and development have not translated into **visible economic empowerment for local populations**.
- Administrative changes remain largely procedural without delivering **tangible improvements in livelihoods and opportunities**.
- This gap risks increasing alienation and weakening **public trust in governance and institutional frameworks over time**.

Way Forward

- Security strategy must be complemented with **inclusive development, livelihood generation, and economic revitalisation efforts**.
- Greater investment in tourism revival, infrastructure, and local industries is needed to **restore economic confidence in Kashmir**.
- Strengthening community engagement and trust-building measures will ensure **better cooperation between citizens and security agencies**.
- Continued technological upgradation and intelligence coordination are essential to **counter evolving threats and hybrid warfare tactics**.
- A balanced approach integrating **security, governance, and socio-economic development is necessary for sustainable stability**.

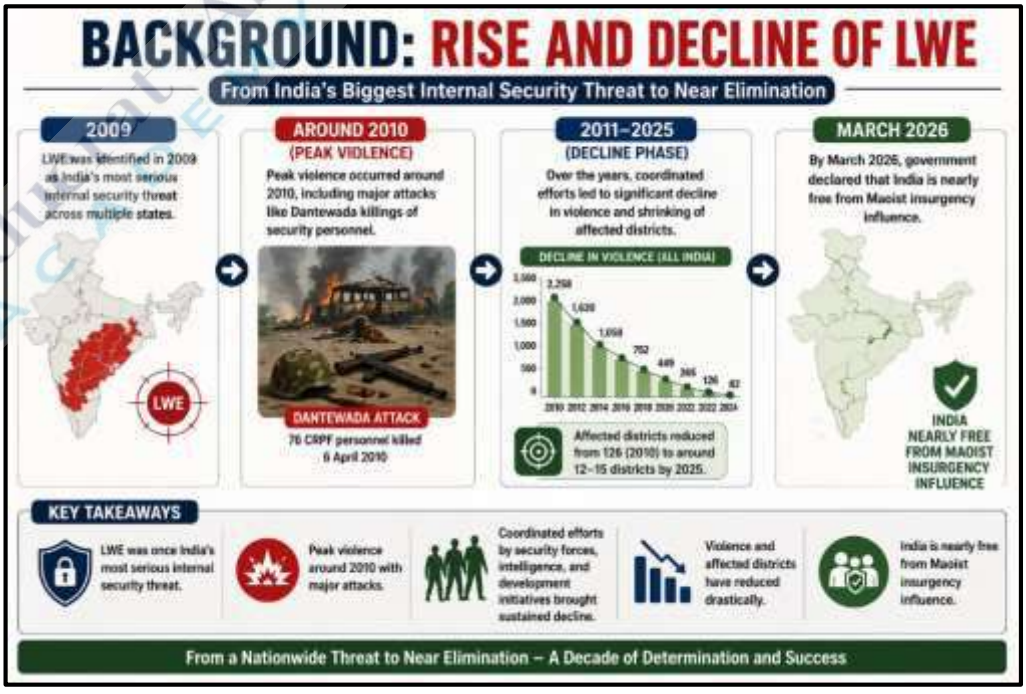
The Pahalgam attack has reshaped Kashmir's security architecture, making it more adaptive, technology-driven, and intelligence-oriented. However, the persistence of economic distress and social unease highlights that lasting peace cannot be achieved through security measures alone. A comprehensive strategy that combines security with development, trust-building, and inclusive growth is essential to ensure long-term stability and resilience in the region.

2. India's Post-LWE Future: From Red Sun to New Dawn

India's journey from intense Left Wing Extremism (LWE) violence to relative stability marks a major internal security achievement. However, the transition from conflict to peace is incomplete unless governance, development, and trust-building replace coercive state presence. The post-LWE phase must therefore focus not just on eliminating violence, but on creating inclusive, rights-based, and community-driven transformation in affected regions.

Governance Shift: From Security to Development

- Initial approach focused on **security operations, area domination, and elimination of insurgent networks**.
- Gradually, emphasis shifted towards **governance delivery, infrastructure development, and administrative outreach in LWE regions**.
- District-level planning and schemes improved **state presence in previously neglected and conflict-affected areas**.
- However, long-term peace depends on **trust, inclusion, and institutional responsiveness beyond security success**.



Need for a Post-LWE Transformation Model

- Security success must translate into **sustainable peace through governance, development, and community participation**.
- Post-conflict regions require **continuous state engagement rather than episodic intervention-based approaches**.
- The focus should shift from **control of territory to empowerment of people and local economies**.

Economic Foundations for Stability

- Strengthening local economies is essential through **forest-based produce, agroforestry, and minor forest produce value chains**.
- Promotion of **community-led enterprises, eco-tourism, and regional economic clusters can generate livelihoods**.
- Infrastructure investments must ensure **market access, connectivity, and integration with broader economic systems**.
- Economic independence reduces vulnerability to **insurgent recruitment and instability in tribal regions**.

Governance Deficit and Trust Gap

- LWE regions historically suffered from **administrative neglect, lack of services, and weak institutional presence**.
- Even after conflict decline, citizens often face **limited access to justice, welfare schemes, and basic services**.
- Trust deficit persists due to **past experiences of violence, coercion, and inadequate governance outreach**.
- Governance must shift towards **citizen-centric, accountable, and empathetic institutional frameworks**.

From Area Domination to Citizen Empowerment

- Earlier strategies focused on **territorial control rather than addressing socio-economic grievances of communities**.
- Post-LWE phase requires recognising citizens as **rights-bearing stakeholders, not merely security subjects**.
- Policies should emphasise **participation, dignity, and local ownership in development processes**.
- This transition is essential to prevent **re-emergence of alienation and conflict conditions**.

Framework for Post-LWE Regions

Rights-Based Governance

- Ensure access to **justice, welfare entitlements, and accountable public institutions across affected districts**.
- Strengthen legal frameworks such as **Fifth Schedule provisions and decentralised governance structures**.

Structured Development Planning

- Implement region-specific plans through **Aspirational Districts Programme and tribal-focused missions**.
- Integrate schemes like **PM Janman, Adarsh Gram, and tribal livelihood initiatives for holistic development**.

Humane Policing and Justice Delivery

- Shift towards **community-sensitive policing, faster justice mechanisms, and reduction of undertrial burdens**.
- Strengthen **legal aid, grievance redressal systems, and institutional transparency in governance**.

Youth Empowerment and Social Integration

- Invest in **education, skill development, sports, and employment opportunities for tribal youth**.
- Expand access to **higher education, scholarships, residential schooling, and digital connectivity**.

Psychological and Social Dimensions

- The transition from conflict to peace is also **psychological, requiring restoration of dignity and trust in institutions**.
- Communities previously caught between **state forces and insurgents need reassurance of security and fairness**.
- Healing requires **consistent engagement, respectful dialogue, and inclusive governance practices**.

Challenges in Post-LWE Phase

- Risk of **policy complacency after decline in violence, leading to weakening of governance momentum**.
- Structural issues like **poverty, exclusion, and lack of opportunities still persist in many tribal regions**.
- Inadequate coordination between **Centre, States, and local institutions may slow development outcomes**.

Way Forward

- Adopt a **community-centric development model that integrates governance, livelihoods, and social justice frameworks**.
- Strengthen **cooperative federalism to ensure coordinated action between central and state governments**.
- Ensure continuous monitoring and evaluation to **maintain momentum of development initiatives in former LWE areas**.
- Build institutional capacity for **inclusive governance, transparency, and long-term sustainability of peace**.

India's transition from LWE violence to relative peace represents a major milestone, but the journey is far from complete. The real success lies in transforming former conflict zones into spaces of opportunity, dignity, and inclusive growth. A sustained focus on governance, economic empowerment, and trust-building will determine whether this transition becomes a lasting "new dawn" or remains an incomplete chapter in India's internal security story.

Educrat IAS ACADEMY | No Need of going to Delhi Now! Prepare for UPSC from Kolkata

2. PRELIMS BOOSTERS

I. POLITY AND GOVERNANCE

1. National Assessment and Accreditation Council (NAAC)

Context:

- No university or college has received **fresh accreditation** in the current academic year

About NAAC

- The **National Assessment and Accreditation Council (NAAC)** is an **autonomous institution** under the University Grants Commission
- Established in **1994** and Headquarters: **Bengaluru**
- It is responsible for **assessment and accreditation of higher educational institutions (HEIs)** such as universities and colleges

Objective	Functions
• To **assess and ensure quality** in higher education • To promote **continuous improvement in institutions** • To provide a **quality status (grading)** of institutions	• Conducts **evaluation and accreditation** of institutions • Helps institutions identify **strengths and weaknesses** • Encourages **quality enhancement and accountability** • Provides **grades based on performance**

Parameters of Evaluation

NAAC assesses institutions on: **Curriculum (courses and syllabus)**, **Teaching–learning process**, **Infrastructure and facilities**, **Governance and management** and **Research and innovation activities**

Structure

- Functions through: **General Council (GC)** and **Executive Committee (EC)**
- **UGC Chairperson** acts as **President of General Council**
- **Executive Committee Chairperson** is an **eminent academician**

Key Features

- Accreditation is currently **voluntary**
- Applies to **colleges, universities, and recognised institutions**
- Plays a key role in **improving education standards in India**

2. Food Safety and Standards Authority of India (FSSAI)

Context:

- FSSAI conducted **around 4 lakh inspections** in 2025–26

About

- **FSSAI** is a **statutory body** established under the **Food Safety and Standards Act, 2006**
- Works under the Ministry of Health and Family Welfare

Mandate

- To ensure **safe and wholesome food for human consumption**
- To regulate: Manufacture, Storage, Distribution, Sale and import of food

Functions

- **Standards formulation:** Sets safety standards for food products
- **Food safety management:** Issues guidelines for safe food practices
- **Licensing and registration:** Regulates food business operators
- **Inspection and monitoring:** Conducts audits and surveillance
- **Consumer awareness:** Promotes food hygiene and nutrition knowledge

- **Accreditation:** Recognises food testing laboratories

Significance

- Ensures **public health and food safety**
- Prevents **adulteration and unsafe food practices**
- Strengthens **regulatory framework for food industry**

3. Indian Council for Cultural Relations (ICCR)

Context:

- ICCR highlighted for strengthening **India–Myanmar cultural ties**

About

- **ICCR** is an **autonomous body** under the Ministry of External Affairs
- Established in **1950**
- Founded by **Maulana Abul Kalam Azad**

Objective

- To promote **India's cultural relations with other countries**
- To strengthen **mutual understanding and cultural diplomacy**
- To facilitate **cultural exchanges globally**

Functions

- Establishes and manages **cultural centres abroad**
- Promotes **Indian art, culture, and heritage globally**
- Supports **cultural exchange programmes and events**
- Provides **scholarships to foreign students**: Around **3000+ scholarships annually**; Covers **180+ countries**; Across **21 schemes**

Scholarship Programmes	Significance
• Covers **undergraduate to postdoctoral studies** • Implemented in **Indian universities and institutions** • Some schemes funded by ICCR, others by **MEA and Ministry of AYUSH**	• Key instrument of **India's cultural diplomacy (soft power)** • Strengthens **people-to-people connections globally** • Promotes **India's image and global cultural presence.**

4. National Scheduled Tribes Finance and Development Corporation (NSTFDC)

Context:

- NSTFDC is celebrating its **25th Foundation Day**, marking progress in tribal empowerment

About

- **NSTFDC** is a **Public Sector Undertaking (PSU)** under the Ministry of Tribal Affairs
- It is the **apex organisation for economic development of Scheduled Tribes**
- Established in **2001**

Objective

- To promote **economic upliftment and financial inclusion of Scheduled Tribes**
- To support **income-generating activities and entrepreneurship**
- To improve **livelihood and quality of life**

Key Functions

- Provides **concessional loans (low-interest finance)** to ST individuals and groups
- Supports activities like **handicrafts, dairy, poultry, fisheries, and small businesses**
- Operates through **State Channelizing Agencies (SCAs)** for last-mile delivery
- Promotes **entrepreneurship among tribal youth and women**

- Offers **capacity building and financial support for sustainable livelihoods**

Significance

- Promotes **inclusive growth of tribal communities**
- Helps convert **job seekers into entrepreneurs**
- Reduces **regional and social inequalities**

5. Khanij Bidesh India Limited (KABIL)

Context:

- KABIL received approval to **explore lithium reserves in Argentina**

About

- **KABIL** is a **joint venture company (JVC)** of three PSUs: NALCO, Hindustan Copper Limited (HCL) and Mineral Exploration & Consultancy Limited (MECL)
- It functions under the Ministry of Mines.
- It was established in **2019**
- Authorized capital: **₹500 crore**

Objective	Key Functions
• To ensure **mineral security for India** • To secure supply of **critical and strategic minerals** • To support **Make in India and self-reliance**	• **Overseas acquisition:** Acquires mineral assets in countries like Argentina, Australia, Brazil • **Exploration:** Conducts surveys and drilling for minerals like **lithium and cobalt** • **Strategic sourcing:** Builds agreements for steady supply of minerals
	• **R&D and efficiency:** Works on **substitutes and recycling of minerals** • **Value chain development:** Focus on **processing and battery ecosystem**

Significance

- Ensures supply of **critical minerals (lithium, cobalt, etc.)**
- Supports **electric vehicles and energy storage sector**
- Reduces dependence on **imports**
- Strengthens **energy security and clean energy transition**

6. International Election Visitors' Programme (IEVP), 2026

Context:

- The Election Commission of India has launched **IEVP 2026** during Assembly elections

About

- **IEVP** is an **international outreach programme**
- Invites **election officials from different countries** to observe Indian elections
- Provides exposure to the **world's largest democratic process**

Objective

- To showcase **India's election management system and best practices**
- To demonstrate **transparency and credibility of elections**
- To promote **global cooperation among election bodies**

Key Features

Conducted in **two phases of field visits**: • Phase I: Assam, Kerala, Puducherry • Phase II: West Bengal, Tamil Nadu	**Includes:** • Briefings on **electoral system and processes** • Demonstration of **EVMs and VVPATs** • Exposure to digital tools like **cVIGIL app**	**Delegates:** • Visit **polling stations on election day** • Observe **voting, security, and counting processes** • Interact with **Chief Electoral Officers (CEOs) and District Election Officers (DEOs)**

Significance

- Highlights India as a **global model for free and fair elections**
- Strengthens **democratic cooperation and diplomacy**
- Enhances India's **soft power in governance practices**

7. National Mineral Exploration and Development Trust (NMEDT / NMET)

Context:

- A Parliamentary Committee highlighted **offshore mineral exploration potential.**

About

- The **National Mineral Exploration and Development Trust (NMET)** is a **central government body for mineral exploration**.
- It is set up to **fund regional and detailed exploration of minerals**.
- It was established under the **Mines and Minerals (Development & Regulation) Amendment Act, 2015**.

Structure

- It has a **two-tier structure**:
- **Apex Body (Governing Body):** It is chaired by the **Minister of Mines**. It provides **overall policy direction and control**.
- **Executive Committee:** It is chaired by the **Secretary, Ministry of Mines**. It manages **day-to-day functioning and implementation**.

Funding

- The Trust operates through the **NMET Fund**.
- The fund receives **2% of royalty** paid by: Mining lease holders and Prospecting licence-cum-mining lease holders

Functions

- It funds **exploration of deep-seated and concealed mineral deposits**.
- It supports **studies on sustainable mining and advanced technologies**.
- It undertakes: **Regional and detailed exploration of minerals** and Focus on **strategic and critical minerals**
- It promotes: **Research in earth sciences** and Creation of a **national mineral data repository**

Significance

- It helps in **scientific and systematic mineral exploration**.
- It supports **self-reliance in critical minerals**.
- It strengthens **resource security and economic development**.

8. Judge Recusal

Context:

- Issue raised regarding **recusal of a High Court judge in a case**

About

- **Judge recusal** is the process where a **judge withdraws from hearing a case**
- It is done when there is a **conflict of interest or likelihood of bias**
- It ensures **fairness, transparency, and impartial justice**
- It is based on the doctrine that a judge **appointed to hear a case may step down if required**

Principles Behind Recusal

- It is based on **natural justice principle**: **"Nemo judex in sua causa"** (no one should be a judge in their own case)
- It also follows the principle: **"Justice must not only be done but must also be seen to be done"**

Grounds for Recusal

- It arises when there is a **conflict of interest**
- It includes situations like: **Financial interest** (e.g., holding shares in a company involved); **Personal or prior association** with a party and **Previous involvement in the case** as a lawyer or judge
- It also applies when: A judge hears an appeal of a case **decided earlier by the same judge in a lower court**

Process

- A judge **may recuse voluntarily**, based on **conscience and discretion**
- A party **may request recusal**, but the final decision **rests with the judge**
- There are **no formal codified rules**, though guided by **judicial precedents**
- Judges **may or may not record reasons** for recusal

Judicial Principles (Case Laws)

- In **Ranjit Thakur v Union of India**: It was held that **bias must be judged from the perspective of the affected party**
- In **Supreme Court Advocates-on-Record Association v Union of India**: It was held that **pecuniary (financial) interest automatically disqualifies a judge**

Can a Judge Refuse Recusal?

- A judge **can refuse to recuse**
- The decision always **rests with the judge**
- Courts have seen instances where **judges declined recusal requests**

Concerns

- **Threat to judicial independence:** Recusal requests may be used for **forum shopping (choosing favourable judges)**
- **Delay in justice:** Recusal may **slow down court proceedings**
- **No uniform rules:** Leads to **inconsistency in decisions**

Significance

- It ensures **fair trial and impartial justice**
- It maintains **public confidence in judiciary**
- It balances **judicial ethics with independence**

II. INTERNATIONAL AFFAIRS

9. NATO (North Atlantic Treaty Organization)

Context:

- NATO is in news due to remarks on its relevance and U.S. membership

About

- **NATO (North Atlantic Treaty Organization)** is a **military alliance of 32 countries**
- It is based on the principle of **collective defence**. This means an **attack on one member is treated as an attack on all**
- Headquarters: **Brussels, Belgium**. Established on **4 April 1949**

Background

- Formed after **World War II** to counter the **Soviet Union's influence**
- Initially included **USA, Canada, and Western European countries**
- After the **collapse of USSR**, NATO expanded to include **Eastern European countries**

Objective	Members
• Ensure **collective security among member states (Article 5)** • Promote **cooperation in defence and security matters** • Act as a **deterrent against potential threats**	• Total **32 member countries** • Founding members include **USA, UK, France, Canada, Italy** • Recent members: **Finland (2023)** & **Sweden (2024)**

Key Features

- Does not have its own army; relies on **member contributions**
- Operates through a unified command system (**SHAPE**)
- Conducts **joint military operations**
- Provides **nuclear deterrence through the United States**
- Members commit to **defence spending targets**

10. United Nations Security Council (UNSC)

Context:

- **Russia and China vetoed a UNSC resolution** related to Strait of Hormuz

About

- The **United Nations Security Council (UNSC)** is one of the **six principal organs of the United Nations**
- It is responsible for **maintaining international peace and security**
- It is the **only UN body whose resolutions are legally binding** on member states
- Established in **1945**

Composition

- Total **15 members**
- **Permanent Members (P5)** with veto power: China, France, Russia, United Kingdom & United States
- **Non-permanent Members (10):** Elected for **2-year terms** and are Distributed regionally

Veto Power

- Any one of the **P5 members can block a resolution**
- Even if majority supports, a **single veto can stop it**

Objectives

- Maintain **international peace and security**
- Resolve disputes through **negotiation and peacekeeping**
- Take action against threats using **sanctions or force**

Working Mechanism	Key Functions
• Each member has **one vote** • A resolution requires: **At least 9 votes** and **No veto from P5 members** • Presidency **rotates monthly** among members	• Imposes **economic and trade sanctions** • Authorises **peacekeeping missions (Blue Helmets)** • Can approve **military action under UN Charter** • Recommends **new UN members and Secretary-General**

Significance

- Acts as the **main global body for conflict resolution**
- Plays a key role in **maintaining global stability**
- Platform for **major powers to negotiate international issues**

11. Commonwealth Parliamentary Association (CPA)

Context:

- CPA India Region **Zone VII Conference held in Goa**

About

- The **Commonwealth Parliamentary Association (CPA)** is one of the **oldest organisations in the Commonwealth**
- Established in **1911**
- It is a **membership-based organisation of legislators**
- Headquarters: **London, United Kingdom**

Objective

- To promote **parliamentary democracy**
- To strengthen **knowledge of governance and legislative practices**
- To encourage **youth participation, gender equality, and representation**

Structure	Important Zones
• Comprises **180+ legislatures (branches)** • Divided into **9 geographical regions of the Commonwealth** **CPA India Region** • Has **32 legislatures** • One of the **largest regions after Africa** • Divided into **9 zones**	• **Zone 1:** Uttar Pradesh, Uttarakhand • **Zone 2:** Delhi, Haryana, Punjab, Himachal Pradesh, J&K • **Zone 3:** Northeast states • **Zone 4:** Odisha, West Bengal • **Zone 5:** Bihar, Jharkhand • **Zone 6:** MP, Rajasthan, Chhattisgarh • **Zone 7:** Goa, Gujarat, Maharashtra • **Zone 8:** Andhra Pradesh, Karnataka, Telangana • **Zone 9:** Tamil Nadu, Kerala, Puducherry

Administration (India Region)

- Chairperson: **Lok Sabha Speaker**
- Secretariat located in **Parliament of India (Lok Sabha)**

Significance

- Promotes **exchange of parliamentary best practices**
- Strengthens **democratic institutions across Commonwealth**
- Enhances **legislative cooperation and capacity building**

12. United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP)

Context:

- UN ESCAP released its **2026 Economic Survey**, highlighting **impact of West Asia conflict on energy and food prices**

About

- The **UN ESCAP** is a **regional commission of the United Nations**. It is the **largest intergovernmental platform in the Asia-Pacific region**
- It has: **53 member states** and **9 associate members**. It represents **nearly two-thirds of the world's population**

Establishment

- It was established in **1947** as **ECAFE (Economic Commission for Asia and the Far East)**
- It was **renamed ESCAP in 1976**. **Headquarters:** Bangkok, Thailand

Aim

- It aims to promote **regional cooperation and development**
- It supports achieving the **Sustainable Development Goals (SDGs)**
- It helps countries deal with **economic, social, and environmental challenges**

Key Functions

1. Knowledge & Research

- It publishes reports like **Economic and Social Survey**
- It helps policymakers understand **global economic trends**

2. Technical Assistance

- It provides **capacity-building and policy support** to member countries

3. Infrastructure Connectivity

- It promotes regional projects like: **Asian Highway Network** and **Trans-Asian Railway**

4. Financial Cooperation

- It contributed to creation of institutions like: **Asian Development Bank (ADB)**

5. Disaster Risk Reduction

- It promotes **disaster management and early warning systems**

6. Social Policy Advocacy

- It works on issues like: **Gender equality**, **Urbanization**, **Aging population**

Significance

- It supports the **fastest-growing developing region**
- It helps in **policy coordination and regional stability**
- It promotes **clean energy transition and sustainable growth**

13. Organisation of the Petroleum Exporting Countries (OPEC)

Context:

- The **United Arab Emirates (UAE)** has announced its **exit from OPEC and OPEC+ from May 1, 2026**, which may impact global oil markets.

About

- **OPEC** is a **permanent intergovernmental organization of oil-exporting countries**
- It was established in **1960 (Baghdad)**
- Founding members:
  - **Iran, Iraq, Kuwait, Saudi Arabia, Venezuela**
- **Headquarters:** Vienna, Austria

Objective

- It aims to: **Stabilize global oil prices**; Ensure **steady supply of oil** & Protect **interests of oil-producing countries**

Key Features

1. Global Influence • It controls: ○ **~35–40% of global oil production**	**3. Membership** • Around **12 member countries** (before UAE exit) • Includes:

○ **~75–80% of proven oil reserves** **2. Production Control** • It influences oil prices by: ○ **Increasing or decreasing oil production**	○ Algeria, Iran, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia, etc. • After UAE exit → membership reduces

What is OPEC+?

- **OPEC+** is an expanded group formed in **2016**
- It includes: **OPEC members + non-OPEC oil producers**
- Key countries: **Russia, Mexico, Kazakhstan, Oman, etc.**
- It coordinates **global oil supply decisions**

Recent Development (UAE Exit)

- **UAE exit is due to:**
  - Desire for **greater production flexibility**
  - **Strategic and economic priorities**
- **Impact:**
  - It may **weaken OPEC's control over oil prices**
  - It may increase **global oil supply competition**

Significance

- OPEC plays a **major role in global energy security**
- It influences **fuel prices, inflation, and global economy**
- Changes in OPEC affect **countries like India (major oil importer)**

14. United Nations Interim Force in Lebanon (UNIFIL)

Context:

- India condemned the killing of peacekeepers deployed under **UNIFIL**

About UNIFIL

- The **United Nations Interim Force in Lebanon (UNIFIL)** is a **UN peacekeeping mission** in **southern Lebanon**
- Established in **1978** by the United Nations Security Council

Background

- Created to **confirm Israeli withdrawal from Lebanon (1978)**
- Mandate modified after major developments in **1982 and 2000**
- Strengthened in **2006** to monitor **cessation of hostilities**

Objectives

- Confirm **withdrawal of Israeli forces**
- Restore **international peace and security**
- Assist the **Lebanese government** in regaining authority
- Monitor **ceasefire and hostilities**
- Protect **civilians and humanitarian workers**

Key Features

- Around **7,500 peacekeepers** from multiple countries
- Includes a **Maritime Task Force**- Helps secure **Lebanon's sea borders** and Supports the **Lebanese Navy**

India's Role

- India is a **troop-contributing country**
- Indian personnel have been actively involved in **UN peacekeeping operations**

15. 'Yellow Line' Security Strategy

Context:

- Israel has expanded the **Yellow Line strategy to southern Lebanon**, up to the **Litani River**

About

- The **Yellow Line** is a **military demarcation used by Israel**
- It creates a **buffer zone inside hostile territory**
- It is not an international border but a **military-controlled zone**
- It acts as a **free-fire zone under Israeli control**

Where Implemented

- **Gaza Strip (2025):** First introduced
- **Southern Lebanon (2026):** Extended after ceasefire with Hezbollah

Aim

- It aims to **prevent militant attacks near Israeli borders**
- It helps in maintaining a **forward defensive military position**

Key Features

1. Static Defense Strategy • It involves **permanent military presence and fortified posts** • It marks a shift from **mobile warfare to fixed control** **2. Territorial Division** • It divides the region into: **Israeli-controlled zone** and **Local civilian areas**	**3. Physical Marking** • It is marked by: **Yellow concrete bollards** and **3.5-meter poles** • Markers are placed at **regular intervals (~200 m)** **4. Military Control** • The zone is treated as a **restricted military area** • It allows: **Control over movement** and **Destruction of infrastructure if needed**
• In Gaza: Around **58% under Israeli control**	

16. Project DANTAK

Context:

- **Project DANTAK** has celebrated its **66th Raising Day in Thimphu, Bhutan**

About

- **Project DANTAK** is an **infrastructure development project by India in Bhutan**
- It operates under the **Border Roads Organisation (BRO)**
- It was established in **April 1961**

Aim

- It aims to:
  - Develop **connectivity infrastructure in Bhutan**
  - Strengthen **India–Bhutan relations**
  - Support **socio-economic development of Bhutan**

Key Features

1. Road Construction
• It has constructed **1500+ km of roads** in Bhutan
2. Strategic Highways
• It has built:
  ○ **Bhutan's first motorable road**
  ○ **East–West Highway (Trashigang to Thimphu)**
3. Aviation Infrastructure
• It has developed: **Paro International Airport and**
	4. Institutional Development
	• It has contributed to: **Hospitals, Schools, Telecom networks and Hydropower projects**
	5. Modernisation Works
	• It focuses on:
	  ○ **Road widening (double laning)**
	  ○ **Highway upgradation**
	6. Disaster Response

Yongphula Airport	• It restores **connectivity quickly after landslides and disasters**

Significance

- It strengthens **India–Bhutan strategic partnership**
- It improves **trade, healthcare, and education access in Bhutan**
- It reflects India's **neighbourhood-first policy**

Educrat IAS ACADEMY | No Need of going to Delhi Now! Prepare for UPSC from Kolkata

III. SCIENCE TECHNOLOGY

17. Artemis II Mission

Context:

- The crew has arrived at Kennedy Space Center for final launch preparations

About the Mission

- **Artemis II** is a **crewed lunar flyby mission** undertaken by NASA
- It will carry **four astronauts** around the Moon and return them safely to Earth
- Scheduled launch: **1 April 2026**
- Mission duration: **10 days**
- It will be the **first human mission to the vicinity of the Moon since Apollo 17 in 1972**

Significance

- Marks the **return of human spaceflight to deep space after nearly five decades**
- Serves as a **crucial precursor mission** for future lunar landing missions under the Artemis programme
- Contributes to long-term goals of **sustained human presence on the Moon and future missions to Mars**

Mission Profile

- The spacecraft **Orion** will be launched using the **Space Launch System (SLS)**
- It will follow a **hybrid free-return trajectory**, enabling the spacecraft to:
    - Travel around the Moon
    - Return to Earth using gravitational forces
- The crew will travel approximately **7,600 kilometres beyond the far side of the Moon**, representing the **farthest distance travelled by humans in space**

Key Objectives

1. Human Spaceflight Validation

- Assessment of **life support systems**, including oxygen supply and temperature regulation
- Evaluation of **human endurance in deep space conditions**, including radiation exposure

2. Navigation and Communication

- Testing of **deep-space navigation systems**
- Ensuring reliable **long-distance communication**

3. Spacecraft Performance

- Validation of **Orion's heat shield** during atmospheric re-entry
- Testing of overall **crew safety systems**

Safety and Contingency Measures

- Provision for **abort modes** in case of emergencies
- Identification of **alternate splashdown locations**
- Deployment of **search and rescue operations and medical support systems**

18. YUVIKA (Yuva Vigyani Karyakram)

Context:

- The programme has benefited **1,320 students**, promoting interest in space science

About

- **YUVIKA (Yuva Vigyani Karyakram)** is a **young scientist programme**
- Conducted by Indian Space Research Organisation
- It is a **residential training programme** for school students
- Target group: **Class 9 students across India**

Objective

- To provide **basic knowledge of space science and technology**
- To encourage students to **pursue careers in space sector**
- To **identify and nurture talent at an early stage**

Key Features

- **Merit-based selection** through academic performance and online quiz
- Ensures **transparent selection process**
- Provides **15 percent reservation for rural and remote area students**
- Ensures **inclusive participation across the country**
- So far, **1,320 students** have benefited from the programme

Significance

- Promotes **scientific temper among youth**
- Builds early interest in **space science and innovation**
- Supports the vision of a **scientifically advanced nation**

19. No-Cloning Theorem (Quantum Physics)

Context:

- New research suggests a **possible workaround using encrypted quantum information storage techniques**

What is No-Cloning Theorem?

- It is a **principle of quantum mechanics** stating that an **unknown quantum state cannot be copied exactly**
- Unlike classical data, **quantum information cannot be perfectly duplicated without disturbance**

Key Features

- Applies only to **unknown quantum states (qubits)**; known states can be recreated
- Exact copying is impossible; only **approximate and imperfect copies** can be made
- Based on **linearity of quantum mechanics**, which prevents universal copying
- Any attempt to copy **disturbs the original quantum state**

Recent Development (Loophole)

- Scientists found that quantum data can be **stored in an encrypted and distributed form**
- The information appears as **random noise unless a specific key is used**
- This does not violate the theorem but **works within its limits**

Importance

- Forms the basis of **quantum cryptography (secure communication systems)**
- Ensures that **any interception can be detected**
- Important for **quantum computing and error correction techniques**
- Highlights difference between **classical and quantum information systems**

20. Curiosity Rover (Mars Science Laboratory Mission)

Context:

- The **Curiosity Rover** has detected **organic molecules on Mars**

About

- **Curiosity Rover** is a **robotic rover sent by NASA to explore Mars**
- It is part of the **Mars Science Laboratory (MSL) mission**

Launch & Landing

- **Launched:** 26 November 2011 (Atlas V rocket, Florida)
- **Landed:** 5 August 2012
- Landing method: **Sky crane system** (parachute + rocket-assisted landing)

Location on Mars

- It is exploring: **Gale Crater** and **Mount Sharp (Aeolis Mons)**

Key Features

1. Size & Weight	2. Power Source	3. Mobility & Instruments
• Length: **~3 meters** and Weight: **~900 kg**	• It uses a **Radioisotope Thermoelectric Generator (RTG)**- (energy from radioactive decay of plutonium)	• It is equipped with **scientific instruments for soil, rock, and atmosphere analysis**

Objectives (Science Goals)

1. **Determine if life ever existed** on Mars
2. Study **Martian climate**
3. Analyze **geology (rocks, soil)**
4. Support **future human missions**

Recent Finding

- It has detected **organic molecules** (carbon-based compounds, important for life studies)

Significance

- It provides evidence about **possibility of past life on Mars**
- It helps understand **Mars' habitability**
- It supports **future human exploration missions**

21. India's First Fast Breeder Reactor (PFBR) – Criticality Achieved

Context:

- India's **Prototype Fast Breeder Reactor (PFBR)** at Kalpakkam has **achieved criticality**

What is a Fast Breeder Reactor (FBR)

- A **Fast Breeder Reactor** is an advanced nuclear reactor that:
  - Produces **more fuel than it consumes**
  - Uses **fast (high-energy) neutrons** for nuclear reactions
- It helps in **efficient use of nuclear fuel**

What is Criticality?

- **Criticality** is the stage when a **self-sustaining nuclear chain reaction begins**
- Neutrons produced are **equal to neutrons used and lost**
- It is the **final step before power generation starts**

Development

- Developed by Bharatiya Nabhikiya Vidyut Nigam Limited
- Capacity: **500 Mwe**. Location: **Kalpakkam, Tamil Nadu**

How it Works

- Uses **MOX fuel** (mixture of Uranium and Plutonium)
- Surrounded by **Uranium-238 blanket**
- Fast neutrons convert U-238 into **Plutonium-239 (new fuel)**
- Uses **liquid sodium as coolant**
- Heat generated is used to produce **steam and electricity**

Objective

- To produce **more plutonium fuel for future reactors**
- To support **India's three-stage nuclear programme**
- To move towards **thorium-based energy (Stage 3)**

Key Features	Significance
• **Indigenous technology** (self-reliant design) • Uses **recycled nuclear fuel (MOX)** • Equipped with **passive safety systems** • Higher **efficiency compared to conventional reactors**	• Marks entry into **second stage of India's nuclear programme** • Enables better use of **limited uranium resources** • Supports long-term **energy security and clean energy goals** • Important step towards **thorium utilisation**

22. National Quantum Mission (NQM)

Context:

- India demonstrated a **1,000 km quantum communication network** under the mission

About

- **National Quantum Mission (NQM)** is a **flagship initiative in quantum technology**
- Launched by the Department of Science and Technology
- Duration: **2023–24 to 2030–31**
- Total outlay: **₹6003 crore**
- It is one of the **nine initiatives under PMSTIAC**

Objective	Implementation Strategy
• To develop **quantum technologies in India** • To promote **research, innovation, and industry ecosystem** • To build capabilities in **secure communication and advanced computing**	• Implemented through **4 Thematic Hubs (T-Hubs)** • Based on **Hub–Spoke–Spike model** for collaboration

Key Focus Areas

- **Quantum Computing:** Led by **Indian Institute of Science (IISc), Bengaluru**
- **Quantum Communication:** Led by **IIT Madras** with **C-DOT, New Delhi**
- **Quantum Sensing & Metrology:** Led by **IIT Bombay**
- **Quantum Materials & Devices:** Led by **IIT Delhi**

Significance

- Strengthens **secure communication systems**
- Reduces dependence on **foreign advanced technologies**
- Boosts India's position in **next-generation technologies**
- Important for **cybersecurity and defence applications**

23. Direct-to-Device (D2D) Technology

Context:

- Department of Telecommunications explored D2D satellite communication

About

- **Direct-to-Device (D2D)** is a **satellite communication technology**
- It allows **mobile phones to connect directly with satellites**
- Works **without special devices or ground towers**

- Satellites act like **cell towers in space**

How it Works

- Uses **Low Earth Orbit (LEO) satellites** for connectivity
- Operates on **existing 4G/5G frequency bands**
- Phones automatically switch to **satellite when out of network range**
- Satellite relays signal to **ground stations and telecom networks**

Key Features

- Works with **normal smartphones (no special hardware needed)**
- Uses **LEO satellites for low latency communication**
- No need for **physical telecom infrastructure in remote areas**
- Supports **emergency messaging and basic communication**
- Being integrated into **global telecom standards (3GPP)**

Significance

- Provides connectivity in **remote, rural, and disaster-prone areas**
- Useful during **natural disasters when networks fail**
- Helps achieve **universal network coverage**
- Important for **defence, emergency services, and communication security**

24. South Atlantic Anomaly (SAA)

Context:

- The **South Atlantic Anomaly is splitting into two zones**, increasing risks for satellites

About

- The **South Atlantic Anomaly (SAA)** is a **region where Earth's magnetic field is weaker**
- It is often called the **"Bermuda Triangle of Space"**
- It allows **charged particles and cosmic radiation to come closer to Earth**

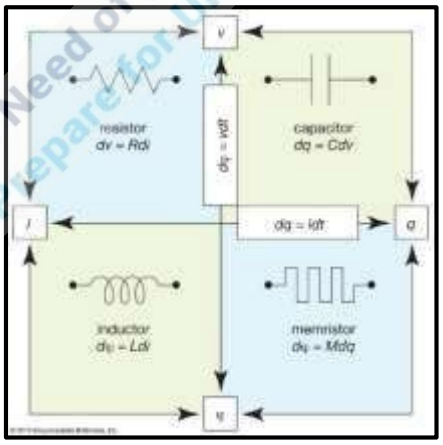
Location

- It lies between: **Southeast of South America** and **Southwest of Africa**
- Approximate extent: **5°–40° South latitude** and **0°–80° West longitude**

Why It Occurs

- Earth's magnetic field acts as a **protective shield against solar radiation**
- In this region, the field is **weaker and dips closer to Earth**
- It happens because:
  - The **inner Van Allen radiation belt comes closer to Earth's surface**
  - This increases the **flow of high-energy charged particles**

Van Allen Radiation Belts



- These are **zones of charged particles trapped by Earth's magnetic field**
- Discovered by **James Van Allen (1958)**
- Two main belts:
  - **Inner belt:** Formed by cosmic rays interacting with atmosphere
  - **Outer belt:** Contains high-energy particles from the Sun
- They act as: **Protective shield**. But also a **hazard for satellites and space missions**

Impacts of SAA

- It can **damage satellite electronics**
- It causes **data errors and signal disruptions**
- It affects: **Spacecraft systems** & **Navigation systems of aircraft and ships**

Recent Development

- The SAA is **splitting into two zones**
- This increases **complexity and risk for satellites in low Earth orbit**

Significance

- Important for **space missions and satellite safety**
- Helps understand **Earth's magnetic field behavior**
- Critical for **navigation and communication systems**

25. Memristor (Memory + Resistor)

Context:

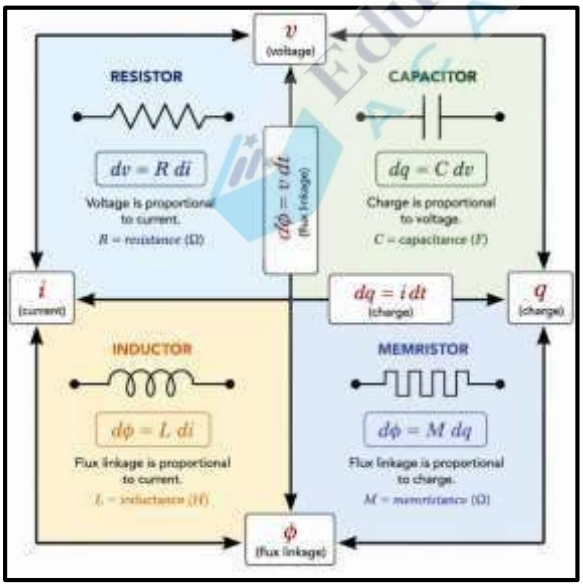
- New **hafnium-oxide memristor** may reduce **AI energy consumption**

About

- A **memristor** is an **electronic component** combining: **Memory + Resistor**
- It is a device whose **resistance depends on past current flow**. It can **remember previous electrical states**

Basic Concept

- A **resistor** provides **fixed resistance to current**
- A **memristor** provides **variable resistance based on history**



Key Features

- It has **memory of past resistance states**. It retains resistance even when **power is switched off**
- It is **Nano-sized device** and **Energy-efficient**. It is usually made using: **Titanium dioxide (TiO_2) layer between metal electrodes**

Working

- When current flows: Resistance **changes based on flow**
- When current stops: It **remembers and retains that resistance**

Applications

- **Memory Devices:** Used in **non-volatile memory (NVRAM)**
- **Integrated Circuits:** It can **replace or support transistors**
- **Artificial Intelligence:** Used in **neuromorphic computing (brain-like systems)**

Significance

- It reduces **energy consumption in computing systems**. It enables **brain-like computing (AI advancement)**. It supports development of **next-generation electronics**

26. Sustainable Aviation Fuel (SAF)

Context:

- The Government has brought **SAF-blended ATF under ATF Control Order, 2001**

About

- **Sustainable Aviation Fuel (SAF)** is a **biofuel used in aircraft**
- It is **chemically similar to Aviation Turbine Fuel (ATF)**
- It can be used: **Directly in existing aircraft engines (as blends)** and Without affecting **performance or safety**

Nature of SAF

- It consists of **aviation-grade hydrocarbons**

- It is **compatible with conventional jet fuel systems**

Sources (Feedstock)

- It is produced from **renewable and sustainable sources** such as: **Waste oils and fats; Municipal and green waste**; **Non-food crops**
- It can also be produced through: **Synthetic processes (capturing carbon from air)**

Production	Key Features
• It is made by **processing biomass or waste into fuel** • It converts **renewable resources into jet fuel**	• It reduces **carbon emissions** • It supports **clean aviation** • It is a **drop-in fuel** (usable without engine modification)

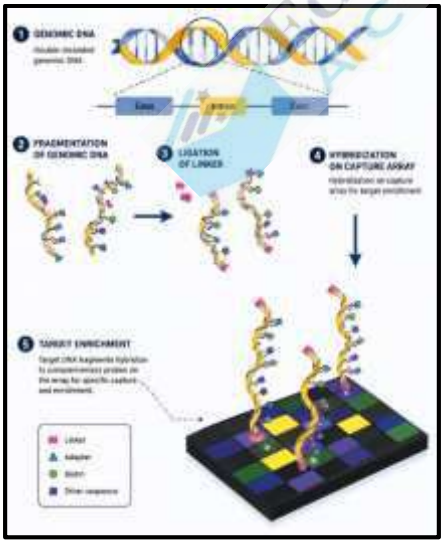
Significance

- It helps in **reducing aviation sector emissions**
- It supports **climate goals and sustainable development**
- It reduces **dependence on fossil fuels**

27. Whole-Exome Sequencing (WES)

Context:

- Scientists used **WES to identify a new rare genetic disease**



About

- **Whole-Exome Sequencing (WES)** is a **genetic testing technique**. It sequences only the **protein-coding regions of DNA (exons)**. All exons together are called the **exome**

Key Concept

- Exons form **less than 2% of the genome**
- But they contain about **85% of disease-related mutations**
- Hence, WES focuses on the **most important part of the genome**

How It Works

- It selectively sequences **only exons (coding regions)**
- It ignores **non-coding DNA** (which is less relevant for most diseases)

WES vs Whole Genome Sequencing (WGS)

WES:	WGS:
• Sequences only **exons** • **Faster and cheaper** • Easier data analysis	• Sequences **entire genome** • More **comprehensive but expensive**

Applications

- It is used to: **Diagnose genetic diseases**; Identify **rare mutations**; Study **disease mechanisms** & Support **personalised medicine**

Advantages	Significance
• It is **cost-effective** compared to WGS • It is **faster and efficient** • It focuses on **clinically relevant regions**	• It improves **early diagnosis of genetic disorders** • It helps in **research and medical advancements** • It is crucial for **precision medicine**

28. CAR-T Cell Therapy (Chimeric Antigen Receptor T-Cell Therapy)

Context:

- Used to treat **multiple autoimmune diseases resistant to treatment**

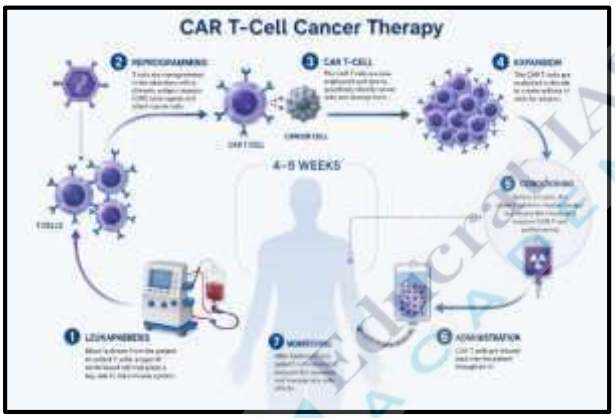
About

- **CAR-T therapy** is an **advanced immunotherapy (immune-based treatment)**
- It modifies a patient's **own immune cells to fight disease**
- It is mainly used for **blood cancers**. It is used when **other treatments fail**

Key Concept

- **T-cells (white blood cells)** identify and destroy harmful cells
- CAR-T therapy enhances this ability using **genetic modification**

How It Works



- Step 1: **T-cells are collected from patient's blood**
- Step 2: In lab, T-cells are modified to add **CAR (special receptors)**
- Step 3: Modified cells (**CAR-T cells**) are multiplied
- Step 4: These are **infused back into the body**
- CAR helps T-cells: Recognize **cancer cells (antigens)** and **Attack and destroy them**
- These cells can **multiply and provide long-term protection**

Applications

- Used in **blood cancers**, such as: Leukemia, Lymphoma, Multiple myeloma
- Now being explored for: **Autoimmune diseases**

Advantages

- It is **highly targeted treatment**. It can provide **long-lasting effects**. It may **cure some cancers**

Side Effects

- **Hyperinflammation (cytokine storm)**
- **Low blood cell counts** are a common concern, where a decrease in **red blood cells (RBCs) can lead to fatigue, a reduction in platelets increases the risk of bleeding, and a lower number of neutrophils raises the susceptibility to infections.**

Significance

- It is a **breakthrough in cancer treatment**
- It opens new possibilities for **autoimmune disease treatment**. It supports **personalised medicine.**

29. Vitamin D (Calciferol)

Context:

- Study links **vitamin D levels in early adulthood** with **brain health in later life**

About

- **Vitamin D** is a **fat-soluble vitamin**. It is also called **calciferol.**
- It is produced in the body when **sunlight (UV rays) hits the skin**
- Also obtained from: **Dietary sources** & **Fortified foods and supplements**

Sources

- **Natural sources:** Egg yolk, Fish (like salmon, tuna), Liver
- **Fortified foods:** Milk, Cereals, Yogurt
- Stored in **body fat** and used when sunlight is limited

Functions

- Helps in **absorption of calcium and phosphorus**
- Essential for **healthy bones and teeth**
- Supports: **Immune system**, **Muscle function** and **Cell growth and metabolism**

Deficiency

- In children: **Rickets** (soft and weak bones)
- In adults: **Osteomalacia** (bone pain and muscle weakness)
- More common in: People with **low sunlight exposure** and Individuals with **darker skin**

Excess (Toxicity)

- High levels may cause: Nausea, vomiting; Kidney stones; Muscle weakness
- Severe cases may lead to: **Kidney failure**; **Irregular heartbeat**

Significance

- Crucial for **bone health and immunity**
- Emerging role in **brain health and ageing**

30. Vitamin E

Context:

- A study shows that **300 mg daily Vitamin E** can improve **liver tissue in fatty liver disease (MASH)**

About

- **Vitamin E** is a **fat-soluble vitamin**
- The main usable form in humans is **alpha-tocopherol**
- It is stored in: **Fat tissues** and **Liver**

Functions

1. Antioxidant Role • It protects cells from **free radicals (harmful unstable molecules)** **2. Immune Support** • It helps maintain a **strong immune system** **3. Eye & Skin Health** • It supports: **Vision (eye health) and Healthy skin**	**4. Blood Function** • It helps: ○ **Formation of red blood cells** ○ **Prevent blood clotting (by widening blood vessels)** **5. Nutrient Interaction** • It helps the body **use Vitamin K properly**

Food Sources

- **Vegetable oils** (canola, olive oil); **Nuts and seeds**; **Leafy vegetables**; **Meat and dairy products**; **Fortified cereals**

Deficiency Causes

- It occurs in people with **fat absorption problems**, such as: **Celiac disease**, **Cystic fibrosis** and **Pancreatitis**

Deficiency Symptoms

- **Retinopathy** → vision problems
- **Peripheral neuropathy** → nerve damage (pain/weakness)
- **Ataxia** → loss of body coordination
- **Weak immunity**

Significance

- It protects against **cell damage and inflammation**
- It is important for **liver health, immunity, and nerves**

31. Measles

Context:

- Bangladesh has launched an **emergency vaccination drive** due to a measles outbreak

About

- **Measles** is a **highly contagious viral disease** that spreads through the air
- It is caused by a virus belonging to the **paramyxovirus family**

Transmission

- Spreads through **coughing and sneezing** of an infected person

- Infection occurs by **inhaling contaminated air or contact with secretions**
- The virus can remain active in air or on surfaces for **up to two hours**
- It first infects the **respiratory system**, then spreads throughout the body

Symptoms

- **High fever** appearing about 10 to 14 days after infection
- **Runny nose, cough, red and watery eyes** in early stage
- **White spots inside the mouth (Koplik spots)**
- Followed by a **skin rash**, starting from face and spreading downward

Risk Groups	Treatment and Prevention
• **Unvaccinated individuals** • **Young children** • **Pregnant women** • These groups are more prone to **severe complications**	• No specific **antiviral treatment** available • Managed through **supportive care** • Prevented by **Measles-Rubella (MR) vaccine**, which provides long-term immunity

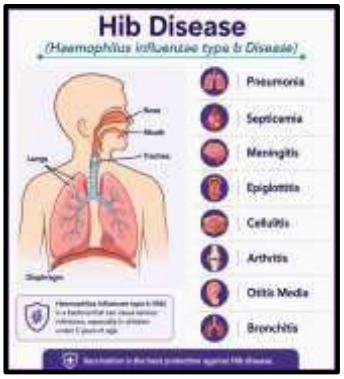
32. Hib Disease (Haemophilus influenzae type b)

Context:

- Hib cases rising in the US due to **declining vaccination rates**

About

- **Hib disease** is a **bacterial infection** caused by Haemophilus influenzae type b
- Mainly affects **children below 5 years**
- Can also affect **adults with weak immunity**
- Important: It **does NOT cause influenza (flu)**



Transmission

- Spreads through **respiratory droplets**
- Via **coughing, sneezing, or close contact** with infected person

Types of Infection

- **Mild infections:** Ear infection and Bronchitis
- **Severe infections:** Blood infection (septicemia), Brain infection (meningitis) and Joint infections

Symptoms

- Depend on affected body part
- May include: Fever, Breathing issues and Neurological problems (in severe cases)
- Severe cases may lead to **long-term complications or death**

Prevention and Treatment

- **Vaccination:** Highly effective Hib vaccine available
- **Treatment:** Antibiotics (though resistance may occur) and Hospital care in severe cases

Significance

- Previously controlled through **universal immunisation**
- Re-emergence highlights importance of **vaccination coverage**

33. Chagas Disease (American Trypanosomiasis)

Context:

- **World Chagas Disease Day** is observed on **14 April**

About

- **Chagas disease** is an **infectious disease caused by a parasite**. It caused by **Trypanosoma cruzi (protozoan parasite)**
- It is also called **American Trypanosomiasis**. It can cause **serious heart and digestive system problems**
- It is a **Neglected Tropical Disease (NTD)** and named after **Carlos Chagas**, who discovered it in 1909

Transmission

- It spreads mainly through **triatomine bugs (kissing bugs)**
- The parasite is present in the **bug's feces**
- Other modes: **Mother to child (congenital)**, **Blood transfusion**, **Organ transplant**, **Contaminated food or drinks**

Geographical Distribution

- Common in: **South America**, **Central America**, **Mexico**

Symptoms

- Early stage: Often **no symptoms**
- Later stage: **Heart damage** and **Digestive problems**
- Infection can remain **silent for years or decades**

Prevention

- There is **no vaccine available**
- Prevention focuses on: **Vector control (reducing bug contact)**, **Safe blood screening** and **Improved hygiene and housing conditions**

Treatment

- Early stage: Treatment aims to **kill the parasite**
- Later stage: Treatment focuses on **managing symptoms**

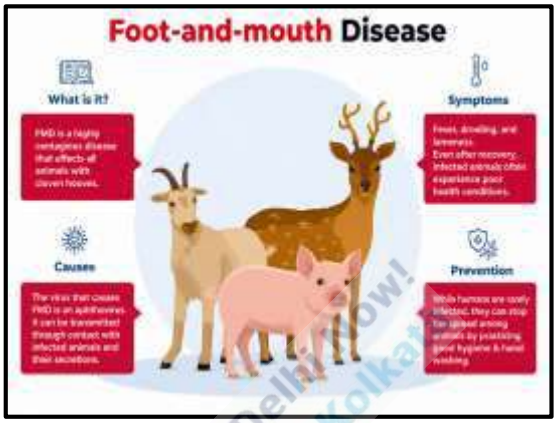
Significance

- It is a major **public health issue in Latin America**
- It highlights challenges of **neglected tropical diseases**
- Requires focus on **vector control and early detection**

34. Foot-and-Mouth Disease (FMD)

Context:

- **WOAH** raised concern over global spread of **FMD (SAT-1 strain)**



About

- **Foot-and-Mouth Disease (FMD)** is a **highly contagious viral disease**
- It affects **cloven-hoofed animals** like: Cattle, pigs, sheep, goats, buffalo, deer
- It is caused by **aphthovirus (Picornaviridae family)**
- It is **rarely fatal in adults**, but causes **huge economic losses**

Transmission

- It spreads through:
  - **Direct contact:** saliva, urine, dung, blisters
  - **Indirect contact (fomites):** clothes, vehicles, equipment
  - **Animal products:** milk, meat, semen
  - **Airborne spread:** can travel long distances by wind

Spread Factors

- **Unregulated animal movement**
- **Livestock markets (mixing points)**
- **Informal trade networks**

Key Features / Symptoms	Special Features
• **High fever initially** • Formation of **blisters (vesicles)**	• **7 serotypes:** O, A, C, SAT-1, SAT-2, SAT-3, Asia-1

on: Mouth, tongue, lips and Hooves • Other effects: **Lameness**, **Excess salivation** and **Sharp fall in milk production** • **Young animals may die suddenly** (heart complications)	• Immunity to one **does NOT protect against others** • **Carrier state:** Animals can **carry virus even after recovery**
Treatment & Control • **No specific cure available** • Control measures include: **Vaccination (serotype-specific)**, **Strict biosecurity measures**, **Quarantine and movement control** and **Culling (in severe outbreaks)**	**Significance** • It causes **major economic losses in livestock sector** • It affects **international trade of animals and products** • It is a key concern for **food security and rural economy.**

35. Scarlet Fever (Scarlatina)

Context:

- DNA evidence shows **scarlet fever bacteria existed in the Americas before European arrival**

About

- **Scarlet fever** is a **bacterial infection**
- It is caused by **Group A Streptococcus bacteria**
- It is the same bacteria that causes: **Strep throat**, **Skin infections (impetigo)** and **Rheumatic fever**

Affected Group

- It mainly affects **children aged 5–15 years**

Symptoms

- It causes: **Red rash over body**, **High fever**, **Sore throat**
- Other symptoms include: **Strawberry tongue (red bumps)**; **Headache, nausea, vomiting**; **Swollen glands**; **Muscle pain and chills**

Transmission	Treatment
• It spreads through **respiratory droplets (coughing/sneezing)** • It is **highly contagious** • A person can get infected **multiple times** **Complications-** If untreated, it can affect: **Heart**, **Kidneys** and Other organs	• It is treated with **antibiotics (usually penicillin)** • Symptoms improve within **24 hours of treatment** • **No vaccine is available**

Significance

- It highlights the importance of **early diagnosis and treatment**
- It shows **historical presence of infectious diseases**
- It is important for **public health surveillance**

36. Leaf Spot Diseases

Context:

- Leaf spot disease is affecting **arecanut plantations in Karnataka**, and field demonstrations are being conducted for management

About

- **Leaf spot disease** refers to a **group of plant diseases**
- It is caused by: **Fungi (major cause ~85%)**, **Bacteria** and Other microorganisms
- It affects the **leaves of plants**

Symptoms

- It causes:
  - **Spots or lesions on leaves**
  - **Yellowing and browning of leaves**
  - **Shrivelling and premature leaf fall**
- It reduces **photosynthesis (food-making process in plants)**

Causes

1. Biological Causes: Fungi (most common) and Bacteria

2. Environmental Causes (Non-pathogenic): Water stress (too much/too little water); Sun damage (sun scald); Chemical burns (pesticides/herbicides); Nutrient deficiency

Favourable Conditions

- **Humid and wet climate**
- It spreads faster in **warm, moist conditions**

Affected Crops

- It affects: **Arecanut**, **Vegetables**, **Fruit trees**, **Ornamental plants**

Impact

- It leads to: **Reduced crop yield**, **Poor plant health** and **Economic loss to farmers**

Control Measures

- It requires a combination of:
  - **Cultural methods** (proper spacing, sanitation)
  - **Biological control** (natural agents)
  - **Chemical treatment** (fungicides/bactericides)

37. Artemis Accords

Context:

- **Jordan** has recently signed the **Artemis Accords** at NASA Headquarters

About

- The **Artemis Accords** are a **set of non-binding principles for space exploration**
- They were launched in **2020**
- They aim to guide the **peaceful and responsible use of outer space**

Leadership & Members

- It is co-led by: **NASA (USA)** and **U.S. Department of State**
- Founding members include: **USA, Australia, Canada, Italy, Japan, Luxembourg, UAE, UK**
- **India is also a signatory**

Aim

- It aims to:
  - Ensure **safe and sustainable space exploration**
  - Promote **international cooperation in space**
  - Create **common rules for future missions (like Moon exploration)**

Key Principles

1. Peaceful Use • Space activities must be for **peaceful purposes only** **2. Transparency** • Countries must **share information and scientific data openly** **3. Interoperability** • Systems must be **compatible across countries** • It improves **safety and coordination**	**4. Emergency Assistance** • Countries must **help astronauts in distress** **5. Space Heritage Protection** • It protects **historic sites (like Moon landing sites)** **6. Resource Utilisation** • It allows **use of space resources** • It must follow **Outer Space Treaty rules** **7. Space Debris Management** • It ensures **safe disposal of space waste**

Significance

- It sets **global norms for space governance**
- It supports **future Moon and Mars missions**
- It reduces **conflicts in outer space**

38. Doppler Weather Radar (DWR)

Context:

- A new **X-band Doppler Weather Radar** has been installed at **Mahabaleshwar under Mission Mausam**

About

- A **Doppler Weather Radar (DWR)** is a **special radar used for weather monitoring**
- It works using the **Doppler Effect** (change in frequency due to movement of objects)
- It provides information about: **Position of objects (rain, clouds)** & **Movement and speed of weather systems**

Types of Radar Bands

- **S-band** → Long-range weather monitoring
- **C-band** → Cyclone tracking
- **X-band** → Thunderstorms, lightning detection

Working	Applications

• It sends **radio waves (energy beams)** into the atmosphere
• These waves hit objects like: **Raindrops, clouds, dust**
• Part of the energy is **reflected back to radar**
• The radar measures:
  ○ **Time taken for return → Distance**
  ○ **Change in frequency → Speed/movement**
	1. Weather Forecasting
	• It tracks: **Rainfall** and **Cloud movement**
	2. Cyclone Monitoring
	• It helps in **early warning systems**
	3. Thunderstorm Detection
	• It identifies **lightning and severe storms**
	4. Disaster Management
	• It supports **flood alerts and extreme weather prediction**

Significance

- It improves **accuracy of weather forecasting**
- It helps in **disaster preparedness**
- It supports **agriculture and aviation safety**

Educrat IAS ACADEMY | No Need of going to Delhi Now! Prepare for UPSC from Kolkata

IV. DEFENCE

39. Astra Mk2 Missile

Context:

- India plans to equip **Mirage 2000 jets** with Astra Mk2 for **long-range interception**

About

- **Astra Mk2** is a **Beyond Visual Range (BVR) air-to-air missile**
- It is developed by **DRDO (Defence Research and Development Organisation)**
- It is an upgraded version of **Astra Mk1**
- It enhances **India's air combat capability**

Key Concept

- **BVR missile** means it can **hit targets beyond visible range**
- It allows aircraft to **attack enemy jets from long distances**

Development

- Developed by **DRDO**
- Supported by: **Hindustan Aeronautics Limited (HAL)** & Multiple public and private industries

Range & Capability

- Range: **200–240 km (high altitude)**. Provides **long-range interception advantage**
- Earlier version: **Astra Mk1 → ~90–100 km range**

Key Features

- **Dual-pulse solid rocket motor**: Improves **range and performance during final attack**
- **Indigenous seeker (BEL):** Equipped with **ECCM (anti-jamming capability)**
- **Two-way datalink**: Allows **real-time guidance updates**
- Better: **Accuracy** & **Resistance to electronic warfare**

Platform Integration

- Already integrated (Mk1): **LCA Tejas** and **Su-30 MKI**
- Planned integration: **Mirage 2000 (Mk2)**

Significance

- It strengthens **India's air superiority**. It enhances **long-range combat capability**
- It reduces dependence on **foreign missiles**. It has potential for **defence exports**

40. R-37M Missile (AA-13 Axehead)

Context:

- Russia has approved the **sale of R-37M missiles to India**

About

- The **R-37M** is a **long-range air-to-air missile** developed by **Russia**
- It is designed for **Beyond Visual Range (BVR) combat**
- It is capable of targeting: **Fighter jets**, **Drones**, **High-value aircraft (AWACS, tankers)**
- It is often called an **"AWACS Killer"**

Platform (India)

- It is expected to be integrated with: **Su-30MKI fighter aircraft**

Key Features

1. Range
• It has a range of **~300–400 km**
• It is among the **longest-range air-to-air missiles**
	4. Guidance System
	• It uses:
	  ○ **Inertial navigation**
	  ○ **Mid-course data link updates**

2. Speed • It can reach speeds up to **Mach 6 (hypersonic)** **3. Size & Payload** • Length: **~4.2 meters** • Weight: **~600 kg** • Warhead: **~60 kg (high-explosive)**	○ **Active radar homing (final phase)** **5. Advanced Trajectory** • It uses a **lofted trajectory** (climbs then descends) • It improves **range and energy efficiency** **6. Booster Mechanism** • It has a **jettisonable rocket booster** • It helps achieve **longer range and high speed**

Significance

- It enhances **India's air superiority capability**
- It allows engagement of targets at **very long distances**
- It strengthens **deterrence against high-value enemy assets**

41. INS Sunayna

Context:

- INS Sunayna reached **Malé** under the **Indian Ocean Ship (IOS) SAGAR initiative**

About

- **INS Sunayna** is an **indigenous offshore patrol vessel (OPV)** of the Indian Navy
- It is the **second ship of the Saryu-class**
- Designed and built by Goa Shipyard Limited
- Commissioned on **15 October 2013 at Kochi**
- Operates under the **Southern Naval Command**

Functions

- Conducts **coastal and offshore patrolling operations**
- Performs **ocean surveillance and monitoring of sea lanes**
- Provides **escort and fleet support missions**
- Ensures **maritime security and protection of offshore assets**

Key Features

Propulsion:	**Systems:**	**Armament:**	**Additional Capability:**
• Powered by **two diesel engines** • Can achieve speeds of **over 25 knots**	• Equipped with **modern navigation and communication systems** • Includes **electronic support systems**	• One **76 mm naval gun** • Close-in Weapon Systems (CIWS) • CHAFF launchers	• Can **operate a helicopter onboard**

Significance

- Strengthens **India's maritime surveillance capability**
- Supports **SAGAR (Security and Growth for All in the Region)** initiative
- Enhances **presence in the Indian Ocean Region (IOR)**

42. INS Dhruv

Context:

- Deployed in the **Arabian Sea for missile tracking and surveillance**

About

- **INS Dhruv** is India's **first dedicated missile tracking and ocean surveillance ship**
- It is a **strategic asset for nuclear and missile monitoring**. It was commissioned on **10 September 2021**
- It was built by: **Hindustan Shipyard Limited**; In collaboration with **DRDO and NTRO**

Functions

- It is used to **track ballistic missiles**
- It collects **electronic intelligence (ELINT)**
- It helps in: **Early warning of missile attacks**; **Monitoring missile trajectories and re-entry** and **Strengthening India's missile defence system**
- It can also: **Map ocean floors** and Detect **enemy submarines**

Operation

- It is jointly operated by: **Indian Navy**, **NTRO (National Technical Research Organisation)**, **DRDO**

Key Features

- **Displacement:** Around **15,000 tonnes**
- **Propulsion:** Two diesel engines (CODAD system)
- **Speed:** Up to **21 knots**
- **Advanced Systems:** Equipped with **X-band and S-band AESA radars** and Capable of tracking **missiles and satellites from long distances**

Capabilities	Significance

• It can **track nuclear-capable ballistic missiles**
• It can **distinguish payload types**
• It provides data for:
  ○ **Ballistic Missile Defence (BMD)**
  ○ **Strategic surveillance and warning systems**
	• It strengthens **India's strategic defence capability**
	• It enhances **missile tracking and early warning systems**
	• It supports **nuclear deterrence and national security**

43. INS Nireekshak

Context:

- **INS Nireekshak** participated in **India–Sri Lanka Diving Exercise (DIVEX 2026)** in Colombo

About

- **INS Nireekshak** is a **Dive Support and Submarine Rescue Vessel** of the Indian Navy
- It is used for **deep-sea diving and rescue operations**

Development & Commissioning

- It was built by **Mazagon Dock Shipbuilders Limited (India)**
- It entered service in **1989** and was commissioned in **1995**

Key Features

1. Deep-Sea Diving Capability • It supports **saturation diving** (long-duration deep diving operations) • It has **advanced diving systems**	**2. Submarine Rescue Role** • It can deploy **Deep Submergence Rescue Vehicles (DSRV)** • It is crucial for **rescuing trapped submarines**
3. Medical Support • It is equipped with **recompression**	**4. Stability & Precision** • It maintains **high stability during**

chambers (used to treat divers suffering from pressure-related injuries)	**underwater operations** • It supports **sensitive missions like inspections and repairs**

Functions

- It is used for:
  - **Search and rescue operations**
  - **Underwater inspection and repair**
  - **Diver training**
  - **Submarine rescue missions**

DIVEX 2026 (Exercise)

- It is a **joint India–Sri Lanka diving exercise**
- It aims to: Enhance **interoperability,** Improve **coordination and** Share **best practices in diving operations**
- It also included **humanitarian outreach**: Delivery of **BHISM medical units** under **Aarogya Maitri initiative**

Significance

- It strengthens **India's maritime safety and rescue capability**
- It enhances **naval cooperation with Sri Lanka**
- It supports **Humanitarian Assistance and Disaster Relief (HADR)**

44. Prajna System

Context:

- The Ministry of Home Affairs received the **AI-based Prajna satellite imaging system**

About

- The **Prajna System** is an **indigenously developed AI-enabled satellite imaging system**
- It is designed to provide **real-time decision support for security agencies**

Developed By

- It is developed by: **DRDO (Defence Research and Development Organisation)** and **Centre for Artificial Intelligence and Robotics (CAIR)**

Aim

- It aims to **strengthen internal security**
- It helps in **monitoring sensitive regions and counter-terrorism operations**

Key Features

1. AI-Enabled Analysis • It uses **artificial intelligence to analyze satellite images** • It can detect **patterns and anomalies**	**2. Real-Time Insights** • It provides **real-time actionable intelligence** • It improves **decision-making speed and accuracy**
3. High Data Processing • It processes **large volumes of satellite data efficiently** • It identifies threats that may be **missed by traditional systems**	**4. Situational Awareness** • It enhances **monitoring of border and conflict areas** • It supports **security agencies during critical operations**

Significance

- It strengthens **India's internal security framework**
- It improves **counter-terrorism capabilities**
- It promotes **use of AI in defence and surveillance**

45. INS Kalpeni

Context:

- **INS Kalpeni** has arrived at **Gan (Addu Atoll, Maldives)** to strengthen **India–Maldives maritime cooperation**

About

- **INS Kalpeni** is a **Fast Attack Craft (FAC) of the Indian Navy**
- It belongs to the **Car Nicobar-class Waterjet Fast Attack Crafts**

- Built by: **Garden Reach Shipbuilders and Engineers (GRSE), Kolkata**
- Commissioned on: **14 October 2010**
- It is named after **Kalpeni Island (Lakshadweep)**

Base & Command	Key Features

• It is based at **Kochi**
• It operates under the **Southern Naval Command**
Primary Roles
• It performs:
  ○ **Coastal surveillance**
  ○ **Maritime defence**
  ○ **Anti-smuggling operations**
  ○ **Search and Rescue (SAR)**
  ○ **Vessel Boarding, Search & Seizure (VBSS)**
	1. High Speed Craft
	• It is designed for **quick response and rapid deployment**
	2. Size
	• Length: **~49 meters**
	3. Armaments
	• **30 mm CRN-91 Gun** (main weapon)
	• **Multiple machine guns**
	• **IGLA Surface-to-Air Missiles** (for aerial threats)

Significance

- It strengthens **maritime security in Indian Ocean Region (IOR)**
- It enhances **India–Maldives defence cooperation**
- It supports **anti-smuggling and coastal protection**

46. Exercise Dweep Shakti

Context:

- A high-intensity **tri-service exercise** conducted by the Indian Armed Forces

About the Exercise

- **Dweep Shakti** is a **large-scale joint military exercise** involving: Indian Army, Indian Navy and Indian Air Force
- It focuses on **defence of island territories and maritime regions**
- Designed to test **integrated combat capabilities** in coastal areas

Host and Location

- Conducted under the **Andaman and Nicobar Command (ANC)**
- ANC is India's **only tri-service theatre command**
- Location: **Andaman and Nicobar Islands** (strategically important in the Indian Ocean)

Objective

- To enhance **coordination among the three services**
- To ensure **rapid deployment and response** in case of maritime threats
- To strengthen **amphibious and joint warfare capabilities**

Key Features

- **Amphibious Operations:** Movement of troops from ships to land
- **Maritime Control:** Securing sea routes and preventing enemy presence
- **Beach Landing Exercises:** Deployment of heavy equipment on shores
- **Use of Modern Technology:** Drones for surveillance & Electronic warfare systems
- **Joint Operations:** Real-time coordination between land, air, and naval forces

Significance

- Strengthens defence of **island territories (strategic assets)**
- Improves protection of **India's coastline and Exclusive Economic Zone (EEZ)**
- Demonstrates India's **military preparedness and joint capability**
- Important in the context of **increasing maritime competition in the Indian Ocean region**

47. Exercise Cyclone – IV (2026)

Context:

- Indian Army contingent has departed to **Egypt** for **Exercise Cyclone – IV**

About

- **Exercise Cyclone** is a **joint Special Forces military exercise between India and Egypt**
- The **2026 edition is the fourth edition (Cyclone–IV)**
- It is conducted **annually**, alternately in **India and Egypt**

Participants

- Indian contingent includes **25 personnel from Special Forces units**
- Conducted jointly with **Egyptian Special Forces**

Objective

- To enhance **joint mission planning capabilities**
- To improve **interoperability between both forces**
- To exchange **best practices in special operations**

Key Features

- Training conducted in **realistic operational environment**
- Focus on **desert and semi-desert warfare conditions**
- Covers: Special tactics and operations; Combat drills and coordination & Joint operational procedures
- Promotes **professional exchange and coordination**

Significance

- Strengthens **India–Egypt defence cooperation**
- Enhances **capability of Special Forces in desert warfare**
- Builds **mutual trust and military coordination**

48. Exercise Dustlik (7th Edition)

Context:

- Indian Army contingent participated in the **7th edition of Exercise Dustlik**

About

- **Exercise Dustlik** is a **joint military exercise between India and Uzbekistan**
- Conducted **annually**, alternately in **India and Uzbekistan**

Participants

- Indian contingent includes: **MAHAR Regiment (Indian Army)** & Personnel from **Indian Air Force**
- Conducted with **Uzbekistan Armed Forces**

Objective

- To enhance **military cooperation and interoperability**
- To improve **joint operational capabilities**
- To develop **coordination in command and control systems**

Key Features

- Training in **semi-mountainous terrain**
- Focus on: Land navigation, Strike operations on enemy bases & Capture of enemy-held areas
- Emphasis on:
  - **Joint planning and execution**
  - **Tactics, Techniques and Procedures (TTPs)**

Significance

- Strengthens **India–Uzbekistan defence relations**
- Improves **joint combat readiness**
- Enhances **operational coordination and synergy**

49. Multilateral Exercise 'Pragati'

Context:

- The Indian Army is conducting the first (inaugural) Exercise Pragati in Meghalaya

About

- Exercise Pragati is a **multilateral military exercise**
- It stands for: **Partnership of Regional Armies for Growth and Transformation in the Indian Ocean**
- It is hosted by the Indian Army

Location

- It is being conducted at: **Foreign Training Node, Umroi (Meghalaya)**

Participation

- It includes: **India + 11 friendly countries**

Aim

- **It aims to:**
  - Strengthen defence cooperation
  - Improve interoperability (ability to work together)
  - Build trust among regional armies
  - Promote **regional stability**

Key Features

1. **Multilateral Platform**: It is a new initiative involving multiple countries 2. **Focus on Indian Ocean Region (IOR):** It targets security and cooperation in IOR	4. **Collective Security Concept:** It promotes joint response to common threats 5. **Specialized Training Location** • Conducted at Foreign Training Node (Umroi)
3. **Joint Training**: It involves: Joint military drills, Tactical coordination and Planning exercises	• It provides structured training environment

Significance

- It **strengthens India's defence diplomacy**
- It **reinforces Neighbourhood First policy**
- It enhances regional security cooperation in IOR
- It positions **India as a key security partner in the region**

50. Project Chetak

Context:

- The **47th Raising Day** of Project Chetak was celebrated at **Bikaner, Rajasthan**

About Project Chetak

- **Project Chetak** is an infrastructure project of the Border Roads Organisation
- It was raised in **1980** in the **western border region of India**
- It focuses on **road construction and maintenance in border areas**

Area of Operation

- Covers regions in: **Rajasthan**, **Punjab** and **Northern Gujarat**
- One of the **largest BRO projects**, covering over **4000 km of roads**

Functions

- Develops and maintains **border road infrastructure**
- Provides **connectivity to remote and strategic areas**
- Supports **movement of defence forces near the International Border**

- Upgrades roads to **national highway double-lane standards**

Significance

- Strengthens **national security and border management**
- Enhances **connectivity and regional development**
- Supports **economic growth in remote areas**

About Border Roads Organisation (BRO)

- Established in **1960**
- Works under the **Ministry of Defence (since 2015)**
- Responsible for building: Roads, Bridges, Tunnels and Airfields
- Motto: **"Shramena Sarvam Sadhyam"** (Everything is achievable through hard work)

Educrat IAS ACADEMY | No Need of going to Delhi Now! Prepare for UPSC from Kolkata

V. ECONOMY

51. Non-Deliverable Derivatives (NDDs)

Context:

- The Reserve Bank of India has directed banks to **avoid NDD contracts in the rupee**

About NDDs

- A **Non-Deliverable Derivative (NDD)** is a **financial contract** where:
  - Parties agree on a **future exchange rate**
  - But there is **no actual exchange of currency**
  - Settlement happens in **cash (usually US dollars)**

Why are NDDs used?

- India has **capital controls** (restrictions on free movement of money across borders)
- Foreign investors cannot freely trade in **physical rupee**
- Hence, **offshore markets** developed NDDs for trading rupee value

Participants

- **Foreign investors**
- **Hedge funds**
- **Global banks**
- These trades happen **outside India**, beyond direct RBI control

Role of NDD Market

- Acts as a **price discovery mechanism** (gives an idea of rupee value)
- Influences **market expectations** before Indian markets open

Issues with NDDs	Significance of RBI Move
• **Distorts price discovery** in domestic currency markets • Can be used for **speculation instead of hedging**	• Aims to **reduce speculation in rupee markets** • Strengthens **domestic currency regulation**
• Leads to **volatility in exchange rates**	• Improves **stability of exchange rates**

52. Stagflation

Context:

- Ongoing geopolitical tensions have raised fears of **1970s-style stagflation**

What is Stagflation?

- **Stagflation** is an economic condition where: **Economic growth is slow or negative**, **Unemployment is high**, **Inflation is high at the same time.**
- The term was coined by **Iain Macleod**

How it Occurs

- Usually caused by a **negative supply shock** (sudden disruption in production)
- Examples: War or geopolitical conflict, Pandemic, Energy crisis
- Leads to: **Higher prices (inflation)** due to shortage and **Lower output and growth**

Major Causes	Control Measures
• **Energy supply disruptions** (oil and gas shortages) • **Increase in input costs** (raw materials, fertilizers, fuel) • **Supply chain disruptions** due to	• **Supply-side reforms** to increase production and remove bottlenecks • **Energy diversification** to reduce dependence on volatile fuels

conflicts or blockages • **Delayed monetary response** by central banks	• **Targeted fiscal support** to affected sectors • **Balanced monetary policy** to control inflation without harming growth

Key Features

- **Low or negative GDP growth**
- **High inflation (often double-digit)**
- **High unemployment**
- Policy dilemma: controlling inflation may **worsen growth**, and vice versa

53. Government e-Marketplace (GeM)

Context:

- GeM has achieved **₹18.4 lakh crore GMV**, with over ₹5 lakh crore in 2025–26

About

- **Government e-Marketplace (GeM)** is India's **national public procurement portal**
- Launched in **2016** by the Ministry of Commerce and Industry
- It facilitates procurement of **goods and services by government bodies**

Key Features

- **Fully digital and paperless platform** for procurement processes
- Provides **end-to-end solutions for buyers and sellers**
- Uses **AI-based tools for better efficiency and price discovery**
- Includes **multilingual learning system and voice-enabled access**
- Supports **participation from small and remote sellers**

Users

- Central and State Government **ministries and departments**
- Public Sector Undertakings (**PSUs**)
- Autonomous and affiliated organisations

Objectives

- To ensure **transparency and efficiency in procurement**
- To promote **speed and ease of doing business with government**
- To enable **competitive pricing and better value for money**
- To make procurement **more inclusive and accessible**

Modes of Procurement	Significance
• Direct purchase • **E-bidding and reverse auction** • Competitive bidding mechanisms	• Reduces **corruption and middlemen in procurement** • Encourages **MSME and startup participation** • Enhances **accountability and cost efficiency** • Strengthens **digital governance in India**

54. Windfall Tax

Context:

- Government increased **windfall tax on diesel and aviation fuel (ATF)**

About

- A **windfall tax** is a **higher tax imposed on unexpected and extra profits**
- Levied when companies earn **abnormally high profits due to external factors**
- "Windfall" means **sudden and unearned gain**
- Not due to **company effort or investment**, but due to external conditions

When is it Imposed?

- During situations like: **War or geopolitical tensions**; **Supply shortages**; **Pandemics** and **Sudden price rise in commodities**

- Commonly applied to sectors like: **Oil and gas** & **Mining and energy industries**

Objective

- To **tax excess profits** earned unexpectedly
- To ensure **fair distribution of gains for public welfare**
- To generate **additional government revenue**

Key Features

- Temporary and **situation-based tax**
- Targets **extraordinary profits beyond normal levels**
- Based on principle of **equity and redistribution**

Significance

- Helps government **control inflationary impact of high profits**
- Provides funds for **welfare and development programmes**
- Ensures **fairness in economic gains**

55. Bonus Issue (Scrip Issue / Capitalisation Issue)

Context:

- Life Insurance Corporation of India announced its **first-ever bonus issue**

About

- A **bonus issue** is when a company **gives free additional shares to existing shareholders**
- It is also called a **scrip issue or capitalisation issue**
- It is issued **from company reserves (retained profits), not fresh capital**

How It Works

- The company decides a **fixed ratio** for issuing bonus shares
- Example:
  - In a **2:1 bonus issue**, a shareholder gets **2 shares for every 1 share held**
  - If a person has **10 shares → it becomes 30 shares**
- However: **Share price falls proportionally** and **Total investment value remains same**

Key Features

- It **increases share capital** of the company
- It does **not change market capitalisation**
- **Market Capitalisation:** Price × total shares remains unchanged
- **No dilution of ownership:** Shareholders' **proportionate ownership remains same**
- **Face value of shares remains unchanged**

Objective

- To **reward existing shareholders**
- To **improve market image and investor confidence**
- To make shares **more affordable (by reducing price per share)**

Taxation

- Bonus shares are **not taxed at the time of issue**
- **Capital gains tax applies** when shares are sold

Bonus Issue vs Stock Split

- **Bonus Issue:** Shares given **free from reserves**
- **Stock Split:** Existing shares are **divided into smaller units** and Done to **increase liquidity when price is high**
- In both cases: **Market cap remains unchanged**

Significance

- It enhances **liquidity of shares**
- It attracts **more investors**
- It reflects **company's strong financial position**

56. Urban Challenge Fund (UCF)

Context:

- Government launched **UCF guidelines and CRGSS** for urban infrastructure financing

About

- **Urban Challenge Fund (UCF)** is a **market-linked urban financing initiative.**
- It is **reform-driven and outcome-oriented**. It uses **limited government support to attract private investment.**
- It moves away from **traditional grant-based funding model**
- **Nodal Ministry:** Ministry of Housing and Urban Affairs (MoHUA). **Duration:** FY **2025–26 to 2030–31**

Aim

- It aims to **make cities investment-ready and financially sustainable**
- It aims to **mobilize private capital for urban infrastructure**. It supports **Viksit Bharat @2047 vision**

Key Features

- **Total Central Assistance:** ₹1 lakh crore. It aims to mobilize around **₹4 lakh crore (4x leverage)**
- **Funding Pattern:** Central share: **25% of project cost** & Remaining **50%+ from market sources** (bonds, loans, PPPs)

Fund Allocation

- ₹90,000 crore → **Project funding**
- ₹5,000 crore → **Capacity building**
- ₹5,000 crore → **CRGSS (Credit Guarantee)**

Credit Repayment Guarantee Sub-Scheme (CRGSS)

- It provides **credit guarantees to lenders**
- It helps: **Tier-II and Tier-III cities** and **Hilly and North-Eastern regions**
- It improves **access to loans and financing**

Focus Areas

- **Urban redevelopment (old cities, markets)**; **Urban mobility and transport**; **Water, sanitation, climate-resilient infrastructure**

Selection Mechanism

- Based on: **Project bankability** and **Urban reforms by local bodies (ULBs)**
- Uses **digital tools (e-directory)** to connect cities with financiers

Significance

- It promotes **private investment in urban development**. It improves **financial discipline of urban local bodies**.
- It bridges **credit gaps for smaller cities**

57. India Slips to 6th Largest Economy (IMF WEO 2026)

Context:

- According to the **IMF World Economic Outlook (WEO)**, India is now the **6th largest economy**
- India's GDP is estimated at **$4.15 trillion (2026)**

How Rankings Are Calculated

- The IMF ranks economies based on **nominal GDP (in US dollars)**
- It depends on: **GDP in local currency** and **Exchange rate (currency vs US dollar)**
- Any change in these factors can **change rankings without real growth change**

Reasons for India's Rank Decline

1. Revision of GDP Data

- India revised GDP base year in **2026**
- GDP reduced from **₹357 lakh crore → ₹345 lakh crore**
- This lowered GDP in dollar terms

2. Rupee Depreciation

- Indian rupee weakened against **US dollar**
- This reduced India's **GDP value in dollar terms**

3. Exchange Rate Advantage of Others

- **UK (pound)** and **Japan (yen)** strengthened

- This helped them **overtake India despite slower growth**

4. Close Competition

- Economies ranked 3rd–6th are around **$4 trillion range**
- Small changes can **shift rankings easily**

Implications

1. No Major Economic Weakness

- India's fundamentals remain **strong**
- Growth projections: **~7.4% (FY26)** and **~6.5% (FY27 IMF)**

2. Perception Impact

- Rankings influence **investor confidence**
- It may create a **temporary negative perception**

3. Delay in Future Milestones

- India may take longer to become **Top 3 economy**
- Expected to become **3rd largest by 2031**

Significance

- Shows importance of **exchange rate in global rankings**
- Highlights difference between: **Nominal GDP (ranking)** and **Real GDP growth (actual performance)**

58. Banking Regulation Act, 1949

Context:

- The **RBI cancelled Paytm Payments Bank licence** under this Act

About

- The **Banking Regulation Act, 1949** is the **main law regulating banks in India**
- It was earlier called the **Banking Companies Act, 1949** (renamed in 1966)

Aim

- It aims to:
  - Protect **depositors' money**
  - Ensure **stability of banking system**
  - Prevent **mismanagement and risky practices**
  - Give **RBI regulatory powers**

Key Features

1. Licensing of Banks (Section 22)

- It mandates that **no bank can operate without RBI licence**
- It empowers RBI to **cancel licence if conditions are violated**

2. Definition of Banking (Section 5b)

- Banking means:
  - **Accepting deposits from public**
  - For **lending or investment**
  - Repayable on demand or otherwise

3. Restriction on Trading (Section 8)

- Banks **cannot engage in buying/selling goods**
- It reduces **risk-taking behaviour**

4. Capital Requirements

- Banks must maintain **minimum capital and reserves**
- It ensures **financial strength**

5. Inspection Powers

- RBI can **inspect accounts and records of banks anytime**

6. Control over Management

- RBI can:
  - **Remove directors**
  - **Appoint management**
- It ensures **proper governance**

7. Winding Up & Amalgamation

- It provides rules for:
  - **Closure of banks**
  - **Mergers (amalgamation)**

Significance

- It ensures **safe and reliable banking system**
- It strengthens **RBI's control over banks**
- It prevents **bank failures and financial instability**

59. Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE)

Context:

- CGTMSE organised a **Global Symposium on Credit Guarantees**

About

- **CGTMSE** is a **credit guarantee scheme for MSMEs**
- It was established in **2000**
- It is jointly set up by:

- **Ministry of MSME (Government of India)**
- **SIDBI (Small Industries Development Bank of India)**

Objective

- It aims to:
  - Improve **credit access for Micro & Small Enterprises (MSEs)**
  - Reduce **dependence on collateral (security)**

Funding Structure

- The fund is contributed in ratio: **Government of India : SIDBI = 4 : 1**

Key Features

1. Credit Guarantee Coverage

- It provides **guarantee cover of 75% to 85%** of loan
- It reduces **risk for banks**

2. Collateral-Free Loans

- It allows **loans without collateral security**
- It encourages **small businesses to borrow easily**

3. Eligible Lending Institutions

- It includes:
  - **Scheduled Commercial Banks** (PSBs, Private, Foreign)
  - **Regional Rural Banks (RRBs)**
  - **SIDBI, NSIC, NEDFi**
  - **Small Finance Banks & NBFCs**

Significance

- It boosts **MSME sector growth**
- It promotes **entrepreneurship and job creation**
- It strengthens **financial inclusion**

Educrat IAS ACADEMY | No Need of going to Delhi Now! Prepare for UPSC from Kolkata

VI. SCHEMES

60. Mission MITRA

Context:

- ISRO has launched **Mission MITRA in Ladakh** to study astronaut performance

About

- **Mission MITRA (Mapping of Interoperable Traits and Response Assessment)** is a **team behaviour study**
- Conducted by Indian Space Research Organisation and **IAF–Institute of Aerospace Medicine**
- It focuses on **human performance in extreme environments**

Objective

- To study **physical, psychological, and operational behaviour of astronauts and teams**
- To understand **decision-making under stress conditions**
- To improve **team coordination between astronauts and ground control**

Location and Setup

- Conducted in **Leh, Ladakh**, a **high-altitude region**
- Chosen due to: **Low oxygen levels, Extreme cold conditions & Isolation similar to space environment**

Participants

- Involves **Gaganyaan astronauts (Gaganyatris)**
- Supported by: Scientists, Engineers, Medical experts, Psychologists

Key Features	Significance
• Studies **team interoperability** between crew and ground teams • Examines **human endurance and adaptability** • Simulates **space-like conditions on Earth**	• Helps in planning **future human space missions** • Improves **astronaut training and mission safety** • Important for **long-duration space missions**

61. Sādhana Saptah Initiative

Context:

- Sādhana Saptah 2026 aims to build a **future-ready civil services system in India**

About

- **Sādhana Saptah Initiative** is a programme under **Mission Karmayogi**
- Mission Karmayogi is the **National Programme for Civil Services Capacity Building**
- The term **SĀDHANA** stands for **Strengthening Adaptive Development and Humane Aptitude for National Advancement**

Objective

- To develop **skills for citizen-centric governance**
- To enhance **efficiency, accountability, and responsiveness** in civil services
- To support the vision of **Viksit Bharat 2047**

Organisation Involved

- Led by: **Department of Personnel and Training (DoPT)**, **Capacity Building Commission** and **Karmayogi Bharat**
- Brings together: Central Ministries, State Governments and Union Territories and Training institutions

Key Features

- Based on three **Sutras (pillars): Technology**, **Tradition** and **Tangible Outcomes**
- Provides learning through:
  - **iGOT Karmayogi platform courses**
  - Group discussions (Samuhik Charcha)
  - Webinars and workshops

- Focus areas include: Leadership, Communication, Data analysis, Project management, Digital governance.

Significance

- Promotes **capacity building of civil servants**
- Encourages **modern and citizen-focused administration**
- Strengthens **governance delivery systems in India**

62. Pradhan Mantri Mudra Yojana (PMMY)

Context:

- PMMY has completed **11 years of supporting micro and small entrepreneurs**

About

- **Pradhan Mantri Mudra Yojana (PMMY)** is a **flagship scheme of Government of India**
- Launched on **8 April 2015**
- Aims to provide **loans to non-corporate, non-farm micro and small enterprises**
- Implemented through **MUDRA (Micro Units Development & Refinance Agency Ltd.)**

Objective

- To fund **unfunded micro enterprises and small businesses**
- To promote **self-employment and entrepreneurship**
- To support activities in **manufacturing, trading, and service sectors**

Eligibility

- Any **Indian citizen with a business plan**
- Applicable for **non-farm income-generating activities**
- Includes allied sectors like **dairy, poultry, beekeeping**

Loan Categories

- **Shishu:** Up to ₹50,000 (early-stage businesses)
- **Kishor:** ₹50,000 to ₹5 lakh (growing businesses)
- **Tarun:** ₹5 lakh to ₹10 lakh (expansion stage)
- **Tarun Plus:** ₹10 lakh to ₹20 lakh (advanced stage)

Key Features

- Provides **term loans and working capital**
- Offered through: Commercial Banks, Regional Rural Banks (RRBs), Small Finance Banks, NBFCs and MFIs
- Interest rates follow **RBI guidelines** with flexible repayment

Significance

- Promotes **financial inclusion and entrepreneurship**
- Supports **MSMEs and job creation**
- Reduces dependence on **informal credit sources**

63. RELIEF Scheme

Context:

- RELIEF Scheme (Resilience & Logistics Intervention for Export Facilitation) expanded to include **Egypt and Jordan**

About

- **RELIEF Scheme** is a **time-bound support scheme for exporters**
- It helps reduce **financial and logistics risks during conflicts**
- It provides a **buffer against high freight, insurance, and war-risk costs**
- **Launched:** 19 March 2026
- **Under:** Export Promotion Mission (EPM) and **Nodal Agency:** ECGC Limited

Aim

- It aims to **protect exports during geopolitical tensions**
- It aims to **prevent order cancellations and job losses**
- It supports **MSMEs exporting to high-risk regions**

Key Features

- **Total Outlay:** ₹497 crore
- Structured into **3 components**

Components

Component I: Existing Exporters	Component II: New Exporters	Component III: MSMEs (Non-insured)

• It provides **up to 100% risk coverage**
• It keeps **premium at normal rates**
• Government absorbs **extra risk cost**
	• It provides **95% risk coverage**
	• It encourages exporters to take **ECGC insurance**
		• It provides **50% reimbursement** of:
		  ○ Freight charges
		  ○ Insurance surcharges
		• Limit: **₹50 lakh per exporter**

Coverage Area

- Covers countries in **West Asia and nearby regions**:
  - UAE, Saudi Arabia, Qatar, Oman, Bahrain
  - Iraq, Iran, Israel, Yemen
  - **Egypt and Jordan (newly added)**

Significance

- It ensures **continuity of exports during conflicts**
- It protects **small exporters from cost shocks**
- It helps maintain **India's trade stability**

64. Bharat Maritime Insurance Pool (BMI Pool)

Context:

- The Government has created the BMI Pool to **protect maritime trade during global disruptions**

About

- The **Bharat Maritime Insurance Pool (BMI Pool)** is a **domestic maritime insurance scheme**.
- It is designed to **ensure uninterrupted and affordable insurance coverage** for the shipping sector.
- It is a **Centre-backed mechanism** that supports India's **seaborne trade and shipping interests**.

Key Features

- The scheme is backed by a **sovereign guarantee of ₹12,980 crore**.
- It will operate for an initial period of **10 years, with a possible extension of 5 years**.
- It will provide coverage to: **Indian-flagged vessels**, **Indian-controlled ships** and **Ships carrying cargo to or from India**

Risk Coverage

- The scheme will cover multiple risks such as: **Hull and machinery damage**, **Cargo-related risks**, **Protection and indemnity (liability risks)** and **War risk insurance**

Purpose

- It aims to **ensure availability of insurance during geopolitical tensions and conflicts**.
- It helps in **reducing dependence on foreign insurance providers**.

Significance

- It strengthens **India's self-reliance in marine insurance**.
- It ensures **continuity of trade even during global disruptions or sanctions**.
- It helps in developing **domestic expertise in insurance and risk management**.

65. Pradhan Mantri Gram Sadak Yojana (PMGSY)

Context:

- The Union Cabinet approved **continuation of PMGSY-III till March 2028**

About

- The **Pradhan Mantri Gram Sadak Yojana (PMGSY)** is a **flagship rural road development programme**.
- It was launched on **25 December 2000**. It aims to provide **all-weather road connectivity to rural areas**.
- **Nodal Ministry:** Ministry of Rural Development

Objective

- It aims to **connect unconnected rural habitations**
- It ensures **single all-weather road connectivity**

Eligibility Criteria

- In **plain areas:** Habitations with **population ≥ 500**
- In **North-Eastern, Himalayan States/UTs:** Habitations with **population ≥ 250**
- Criteria is based on **2001 Census**

Implementation Mechanism

- It is implemented by **State Governments / UT Administrations**. They appoint **Executing Agencies**
- At district level: Implemented through **Programme Implementation Units (PIUs)** and PIUs have **technical personnel**
- Coordination with: **District Rural Development Agencies (DRDAs)**
- Funds are **released to DRDAs**

PMGSY Phases

- **PMGSY-I:** Focus on **basic connectivity**
- **PMGSY-II:** Focus on **upgradation of existing roads**
- **PMGSY-III:** Focus on **consolidation and rural connectivity to key facilities**

Significance

- It improves **rural connectivity and accessibility**
- It boosts **economic development and market access**
- It enhances **education, healthcare, and mobility in villages**

66. Vishwa Sutra

Context:

- The **Vishwa Sutra collection** was showcased at the **61st Femina Miss India (Bhubaneswar)**

About

- **Vishwa Sutra** is a **designer handloom initiative** that blends **Indian textiles with global design elements**.
- It showcases **30 Indian handloom weaves**, each inspired by **30 different countries**.

Launched By

- It is launched by the **Office of Development Commissioner (Handlooms)** under the **Ministry of Textiles**
- It is developed in collaboration with the **National Institute of Fashion Technology (NIFT)**

Aim

- It aims to **promote Indian handlooms in global fashion markets**

- It seeks to **use textiles for cultural exchange and storytelling**
- It aims to **support weavers and rural artisans economically**

Key Features

- It follows a **30–30 framework**: **30 Indian weaves + 30 global inspirations**
- Examples of fusion:
  - **Odisha Ikat + Greek design**
  - **Kanchipuram + Norwegian style**
  - **Muga Silk + Egyptian elements**
  - **Patola + Spanish influence**
  - **Banarasi + UAE design**
- It was showcased on a **large platform (Miss India event)** to reach **global audience**

Significance

- It promotes **"Vocal for Local to Global"**
- It strengthens the **handloom sector and rural livelihoods**
- It supports the **5F vision**: **Farm → Fibre → Factory → Fashion → Foreign**
- It helps in **modernizing traditional textiles for global markets**

67. SMILE Scheme

Context:

The Government allocated **₹390 crore (2021–2026)** for the SMILE Scheme **(Support for Marginalized Individuals for Livelihood and Enterprise)**

About

- The **SMILE Scheme** is a **Central Sector Scheme**
- It was launched on **12 February 2022**
- It aims to support: **Transgender persons**, **Persons engaged in begging**

Components (Sub-Schemes)

- It has **two sub-schemes**: **Rehabilitation of Transgender Persons** & **Rehabilitation of Persons engaged in Begging**

Aim

- It aims to ensure **social inclusion and dignity**
- It promotes **livelihood, rehabilitation, and welfare**

Key Features

1. Scholarships
- It provides **education support from Class IX to Post-Graduation** for transgender students

2. Skill Development & Livelihood
- It supports **skill training under PM-DAKSH scheme**
- It promotes **employment and self-reliance**

3. Healthcare Support
- It provides **medical assistance including gender-affirmation surgery**
- It is linked with **PM-JAY (Ayushman Bharat)**

4. Garima Greh (Shelter Homes)
- It provides **safe housing for transgender persons**
- It ensures **dignified living conditions**

5. Transgender Protection Cells
- It ensures **monitoring of crimes and legal support**
- It helps in **timely investigation and justice delivery**

6. National Portal & Helpline
- It provides **information, support, and grievance redressal**

Significance

- It promotes **inclusion of marginalized communities**
- It ensures **dignity, livelihood, and social security**
- It supports **rehabilitation and mainstream integration**

68. Samriddh Gram Initiative

Context:

- The **Samriddh Gram Initiative** has been nominated for **WSIS Prizes 2026**

About

- The **Samriddh Gram Initiative** is a **phygital (physical + digital) rural service delivery model**

- It is developed by the **Department of Telecommunications (DoT)**
- It uses the **BharatNet broadband network** to deliver services in rural areas

About WSIS Prizes 2026

- The **World Summit on the Information Society (WSIS) Prizes** recognize **ICT-based innovations**
- It is organized by the **International Telecommunication Union (ITU)**
- It promotes **digital inclusion and sustainable development (SDGs)**
- India's initiative is nominated under:
  - **Action Line C6: Enabling Environment**

Launch

- It was implemented in **pilot phase (2024–25)**
- First **Samriddhi Kendra** was launched in **Umri village (Madhya Pradesh)**

Aim

- It aims to **bridge the rural digital divide**
- It provides **one-stop access to essential services**
- It promotes **inclusive socio-economic development**

Key Features

1. Samriddhi Kendras (SKs)

- It establishes **physical service centres in villages**
- It provides **multiple digital and assisted services**

2. Healthcare (Telemedicine)

- It enables **online doctor consultations (e-Sanjeevani)**
- It provides **basic health diagnostics**

3. Education & Skill Development

- It uses **AR/VR-based smart classrooms**
- It offers courses via **DIKSHA and SWAYAM platforms**

4. Smart Agriculture

- It uses **IoT sensors for soil monitoring**
- It supports **drone-based farming and smart irrigation**

5. E-Governance & Commerce

- It provides access to **government services and schemes**
- It connects rural businesses to **ONDC platforms**

6. Public Safety

- It installs **CCTV surveillance and drone monitoring**

7. Connectivity Expansion

- It promotes **Fiber-to-the-Home (FTTH)**
- It supports **PM-WANI public Wi-Fi hotspots**

Significance

- It strengthens **digital inclusion in rural India**
- It improves **access to health, education, and governance**
- It promotes **technology-driven rural development**

69. e-SafeHER Programme

Context:

- Launched to **train one million rural women in cybersecurity**

About

- **e-SafeHER** is a **cybersecurity awareness programme for rural women**
- It is implemented under the **Information Security Education and Awareness (ISEA) framework**
- It is anchored by **the Ministry of Electronics and Information Technology**
- It follows a **peer-led, community-based model**

Aim

- It aims to **train one million women by 2029**
- It seeks to ensure **safe participation in digital platforms**
- It focuses on **cyber safety in digital payments and livelihoods**

Key Features

- **Cyber Sakhi Model:** Women are trained as **Cyber Sakhis (peer educators)**. They spread awareness within their communities
- **Multilingual Content:** Training is provided in **local languages** using audio-visual tools
- **Use of SHGs:** It works through **Self-Help Groups (SHGs)** to reach rural areas
- **Phased Implementation:** It starts in **Madhya Pradesh and Odisha** and then expands
- **Blended Learning:** Combines **training + community outreach**

Significance

- It helps women become **digitally secure and aware**
- It protects against **cyber fraud, scams, and identity theft**
- It promotes **digital inclusion and financial empowerment**
- It supports the vision of **Cyber Secure Bharat**

70. Atal Pension Yojana (APY)

Context:

- The scheme has crossed **9 crore enrollments**

About

- **Atal Pension Yojana (APY)** is a **social security pension scheme** of the Government of India
- It was launched on **9 May 2015**
- It targets: **Poor and unorganized sector workers**

Nature of Scheme

- It is a **voluntary and contributory pension scheme**
- It aims to ensure **income security after retirement**

Key Features

1. Guaranteed Pension- It provides **₹1,000 to ₹5,000 monthly pension** after age **60**

2. Family Security- Pension continues to **spouse after subscriber's death.** After both die, **corpus is given to nominee**

3. Eligibility- Age group: **18–40 years.** It is mainly for **non-income taxpayers (unorganized sector)**

4. Contribution System- Subscriber contributes regularly till **60 years.** Pension amount depends on **contribution level**

5. Exit Rules- Voluntary exit allowed. Only **own contribution + interest is returned.** Government contribution (if any) is **forfeited**

Administration

- It is regulated by: **Pension Fund Regulatory and Development Authority (PFRDA)**

Significance

- It promotes **financial security in old age**
- It supports **social protection for unorganized workers**
- It reduces **dependency after retirement**

71. NAMASTE Scheme

Context:

- The government highlighted the **impact of NAMASTE Scheme in eliminating hazardous manual cleaning practices**

About

- The **NAMASTE Scheme (National Action for Mechanised Sanitation Ecosystem)** is a **Central initiative for sanitation workers**
- It focuses on **Sewer and Septic Tank Workers (SSWs)**
- It aims to ensure: **Safety**, **Dignity**, **Better working conditions**

Implementation

- It is jointly implemented by:
  - **Ministry of Social Justice and Empowerment (MoSJE)**
  - **Ministry of Housing and Urban Affairs (MoHUA)**
- Implementing Agency: **National Safai Karmacharis Finance Development Corporation (NSKFDC)**
- Duration: **FY 2023–24 to FY 2025–26**

Aim

- It aims to:
  - Achieve **zero fatalities in sanitation work**
  - Eliminate **manual handling of human waste**
  - Promote **mechanised cleaning systems**

Key Features

1. Mechanisation of Sanitation- It ensures cleaning is done using **machines and safety equipment**

2. Worker Safety & Health- It provides **protective gear and training**. It improves **occupational safety standards**

3. Skill Development & Livelihood- It promotes **skill training and entrepreneurship.** It supports formation of **Self-Help Groups (SHGs)**

4. Emergency Response Units- It strengthens **Emergency Response Sanitation Units (ERSUs)** (teams for urgent sanitation-related emergencies)

5. Elimination of Manual Scavenging- It ensures **no direct contact with human faecal matter**

Significance

- It improves **dignity and social justice for sanitation workers**
- It reduces **health risks and deaths**
- It promotes **technology-driven sanitation systems**

72. Prime Minister Internship Scheme (PMIS)

Context:

- The scheme has been expanded to include **final-year UG and PG students**

About

- **PMIS** is a **flagship internship scheme of the Government of India**
- It provides **paid internships in top 500 companies**
- It acts as a **bridge between education and employment**

Launch & Ministry

- Launched in **October 2024 (pilot phase)**
- Nodal Ministry: **Ministry of Corporate Affairs (MCA)**

Aim

- It aims to:
  - Develop **job-ready skills (problem-solving, teamwork)**
  - Provide **real-world corporate exposure**
  - Support **experiential learning (NEP vision)**

Key Features

1. Paid Internship • Interns receive: ○ **₹5,000 (Government)** ○ **₹500+ (Company)** • In some cases, support is **higher (~₹9,000/month)**	**2. Duration** • Internship duration is **up to 12 months** **3. Eligibility** • Age: **18–25 years** • Open to **youth across India**
4. Corporate Participation • Over **300+ companies** are participating • Covers **diverse sectors**	**5. Insurance Cover** • It provides coverage under: ○ **PM Jeevan Jyoti Bima Yojana** ○ **PM Suraksha Bima Yojana**

New Rules (2026 Expansion)

1. Expanded Eligibility

- Now includes **final-year UG and PG students**

2. Mandatory NOC

- Students must submit **No Objection Certificate (NOC)**
- It must confirm: Internship will **not affect academics**

3. Authorized Signatories

- NOC can be signed by: **HoD / Dean / Principal / Placement Officer**

Significance

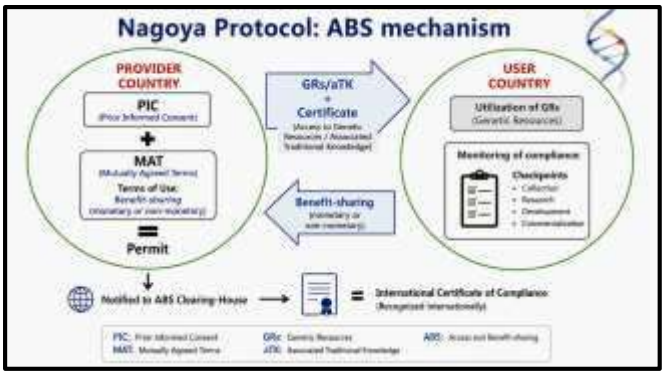
- It enhances **employability of youth**
- It promotes **industry-academia linkage**
- It supports **skill development and economic growth**

VII. ENVIRONMENT AND GEOGRAPHY

73. Nagoya Protocol

Context:

- India has emerged as a **global leader in issuing compliance certificates** under the Nagoya Protocol



About the Protocol

- The **Nagoya Protocol** is a **legally binding international agreement** under the Convention on Biological Diversity
- It focuses on **fair and equitable sharing of benefits** from genetic resources
- **Adopted:** 2010 (Nagoya, Japan)
- **Came into force:** 12 October 2014

Important Distinction:

- Unlike Cartagena Protocol (which deals with GMOs), Nagoya Protocol deals with **benefit sharing and compliance**

Objectives

- Ensure **fair sharing of benefits** from genetic resources
- Promote **conservation and sustainable use of biodiversity**
- Provide **legal clarity and transparency**

Three Core Pillars

- **Access:** Requires **Prior Informed Consent (PIC)** from the provider country
- **Benefit Sharing:** Based on **Mutually Agreed Terms (MAT)**
- **Compliance:** Ensures resources are used as per agreed conditions

Coverage and Membership

- Covers: **Genetic resources** and **Traditional knowledge**
- Around **142 parties** have ratified it
- Major non-parties: **USA, Canada, Russia**

India and Nagoya Protocol

- India ratified in **2012**
- Implemented through:
  - **National Biodiversity Authority (central level)**
  - **State Biodiversity Boards**
  - **Biodiversity Management Committees (local level)**
  - Under the **Biological Diversity Act, 2002**

Recent Developments

- India is the **largest issuer of IRCCs (Internationally Recognised Certificates of Compliance)**
- Share: **More than 56 percent of global certificates**
- India issued **3561 IRCCs out of 6311 globally**
- Other countries: France, Spain, Argentina, Panama, Kenya
- India submitted its **first national implementation report in 2026**

Key Concept: IRCCs

- IRCCs are **official proof** that:
  - Prior Informed Consent has been taken
  - Benefit sharing terms are agreed
- Information is uploaded to the **Access and Benefit Sharing Clearing-House**

74. Solid Waste Management (SWM) Rules, 2026

Context:

- Notified by the Ministry of Environment, Forest and Climate Change and effective from **1 April 2026**

About the Rules

- The **SWM Rules, 2026** provide a **comprehensive framework** for waste management in India
- Issued under the **Environment (Protection) Act, 1986**
- They replace the **Solid Waste Management Rules, 2016**
- The rules promote a shift from **collect and dump model** to a **circular economy approach**
  - Circular economy means **reuse, recycle, and recover resources from waste**

Objective

- To achieve **Zero Waste to Landfill**
- To strengthen **segregation at source and accountability**
- To improve **scientific waste processing and tracking**

Key Features

1. Four-Category Waste Segregation

- **Wet waste:** Food and organic waste for composting
- **Dry waste:** Plastic, paper, metal for recycling
- **Sanitary waste:** Diapers and napkins for safe disposal
- **Special care waste:** Domestic hazardous items such as medicines and bulbs

2. Responsibility of Bulk Waste Generators

- Applies to entities generating large quantities of waste
- Must **process organic waste on-site** or obtain compliance certification

3. Digital Monitoring System

- A **centralised online portal** will track waste from generation to disposal
- Includes registration, reporting, and auditing

4. Polluter Pays Principle

- Imposes **environmental penalties** for non-compliance
- Applies to violations such as improper disposal or false reporting

5. Promotion of Waste-to-Energy

- Encourages use of **Refuse-Derived Fuel (RDF)** in industries
- Targets gradual increase in RDF usage

6. Landfill Management

- Landfills restricted to **non-recyclable and inert waste only**
- Mandatory **biomining and remediation of old waste dumps**

7. Special Provisions

- **Hilly and island regions:** Can regulate tourism and charge user fees
- Faster **land allocation for waste processing units**

Significance

- Reduces **methane emissions** from landfills
- Prevents **soil and water pollution**
- Promotes **resource recovery and recycling**
- Supports transition towards a **circular economy**

75. Green Ammonia

Context:

- India has signed **green ammonia supply agreements** under the National Green Hydrogen Mission

What is Ammonia?

- **Ammonia (NH_3)** is a **pungent gas** mainly used in **fertiliser production**

What is Green Ammonia?

- **Green Ammonia** is ammonia produced using **renewable energy sources** such as solar and wind
- It is made by combining: **Green hydrogen** (produced using renewable energy) and **Nitrogen from air**
- It is **carbon-free** and environmentally friendly

Production Process

Green ammonia is produced through a series of steps**.** First, **hydrogen is generated by splitting water** using electricity from **renewable sources such as solar or wind** in a process called **electrolysis** (breaking water into hydrogen and oxygen). Next, **nitrogen is extracted from the air,** since air contains a large proportion of nitrogen. Finally, the **hydrogen and nitrogen are**

combined under high pressure in the presence of a catalyst to form **ammonia (NH_3).**

Types of Ammonia

- **Grey Ammonia:** Produced from fossil fuels, high emissions
- **Blue Ammonia:** Fossil fuel-based with carbon capture
- **Green Ammonia:** Renewable-based, **no carbon emissions**

Applications

Green ammonia has multiple important applications. It is widely used in **fertiliser production**, especially in manufacturing urea and ammonium nitrate. It also serves as a **clean fuel for shipping**, offering a low-emission alternative to conventional fuels. In addition, it can be used in **power generation**, either directly or along with other fuels. Further, it acts as an efficient **carrier of hydrogen**, making the transport and storage of hydrogen easier and safer.

India's Initiatives

- **National Green Hydrogen Mission:** Target of **5 million metric tonnes of green hydrogen by 2030**
- **SIGHT Programme:** Provides incentives for production and manufacturing
- Large-scale agreements for **green ammonia supply to fertiliser sector**

76. Sloth Bear

Context:

- A sloth bear was recently captured by forest officials in **Karnataka**

About

- The **Sloth Bear** is one of the **eight bear species** found globally
- It is **myrmecophagous** (feeds mainly on ants and termites)

Features

- Covered with **long, shaggy dark fur**
- Possesses **long curved claws** (adapted for digging)
- Has a **long lower lip and palate** used for sucking insects
- Also called **"labiated bear"**

Habitat and Distribution	Important Sanctuaries in India
• Found in **dry and moist forests** and **grasslands** • Requires areas with **rocks, shrubs, and trees for shelter** • Distributed mainly in: India, Nepal, Sri Lanka, Bhutan • Mostly **nocturnal** (active at night)	• Daroji Sloth Bear Sanctuary (Karnataka) • Jessore Sloth Bear Sanctuary (Gujarat) **Conservation Status** • **IUCN:** Vulnerable • **CITES:** Appendix I • **Wildlife Protection Act, 1972:** Schedule I

77. Nilgiri Tahr

Context:

- A **synchronized Nilgiri Tahr survey** is being conducted by **Tamil Nadu and Kerala**

About

- The **Nilgiri Tahr** is a **mountain-dwelling hoofed animal (ungulate)**
- **Scientific Name:** Nilgiritragus hylocrius
- It is the **only mountain ungulate in southern India**

Habitat & Distribution

- It lives in **high-altitude grasslands (montane grasslands)**
- Altitude range: **1200–2600 meters**
- It is found in: **Western Ghats (India)** and From **Nilgiris (north) to Kanyakumari hills (south)**
- Major population: **Eravikulam National Park (Kerala)**

- It is now found in **fragmented habitats due to habitat loss**

Key Characteristics

1. Adaptation • It is **highly agile and sure-footed** • It can move easily on **steep rocky slopes** **2. Social Behaviour** • It lives in **groups (herds)**	**3. Reproduction** • It has a **winter calving season** **4. Monitoring Tools** • Surveys use **technology (e.g., mobile apps)** for tracking

Conservation Status

- **IUCN Status: Endangered**

Significance

- It is the **State Animal of Tamil Nadu**
- It is **endemic to the Western Ghats** (found nowhere else)
- It acts as an **indicator of ecosystem health**

78. Earthquake Lights (EQL)

Context:

- Reports of **glowing lights in the sky** after earthquakes near **Turkey–Greece (Aegean Sea region)**

About

- **Earthquake lights** are **unusual luminous phenomena** seen: Before, During Or after an earthquake
- They may appear as: **Flashes or streaks**, **Glowing balls** or **Vertical pillars of light**

Formation

- Earthquakes occur due to movement of **tectonic plates**. This creates **high pressure in rocks**, especially those containing minerals like quartz. The pressure generates **electrical charges inside rocks**. These charges travel through **cracks and faults** to the surface. On reaching the surface, they interact with air and **ionise (charge) air molecules**. This produces **glowing light or plasma in the sky**

Key Features	Significance
• Not associated with **fire or heat**, but with **electrical activity** • More common in regions with **vertical or straight faults** • Still a **rare and not fully understood phenomenon**	• May provide clues for **earthquake prediction research** • Helps in understanding **geophysical processes inside the Earth**

79. Kugti Wildlife Sanctuary

Context:

- A rare **albino Himalayan tahr** has been recorded in the sanctuary

About

- The **Kugti Wildlife Sanctuary** is located in **Himachal Pradesh**
- It is the **second largest wildlife sanctuary in the state (Kibber Wildlife Sanctuary**) located in the Lahaul and Spiti district**, is the largest one.)**
- Situated in the **Chamba district (Bharmour region)**
- It also includes the famous **Manimahesh Temple**, attracting pilgrims despite difficult terrain

Location and Geography

- Located between the **Ravi and Chenab rivers**
- Surrounded by: **Dhauladhar Wildlife Sanctuary (south-east)** and **Tundah Wildlife Sanctuary (north-west)**
- Altitude ranges from **2,195 m to 5,040 m**
- Characterised by **high-altitude mountainous terrain**

Vegetation

- Includes:
  - **Alpine pastures** (high-altitude grasslands)
  - **Western mixed coniferous forests**
  - **Moist deodar forests**

Flora	Fauna
Dominant trees include: • **Deodar** (Cedrus deodara) • **Kail** (Pinus wallichiana) • **Spruce** (Picea smithiana) • **Silver fir** (Abies pindrow) • **Oak** (Quercus species) • **Rhododendron**	Home to several important species such as: • **Himalayan Tahr** • **Ibex** • **Musk Deer** • **Monal (state bird of Himachal Pradesh)** • Various pheasants and birds

80. Gangotri National Park

Context:

- The park has **reopened after a six-month winter closure**

About

- **Gangotri National Park** is located in **Uttarakhand**
- It lies in the **upper catchment of the Bhagirathi River** (one of the main sources of the Ganga)

Location and Geography

- Situated in the **Garhwal Himalayas**
- The **northeastern boundary** touches **Tibet (China)**
- Also borders: **Kedarnath Wildlife Sanctuary** and **Govind National Park**
- Includes important Himalayan peaks such as: Chaukhamba (I, II, III), Satopanth and Kedarnath Peak
- Contains the **Gangotri Glacier**, a major source of the **Ganga River**

Vegetation	Fauna
• Lower areas: **Western Himalayan subalpine forests**- Fir, deodar, oak, spruce, rhododendron • Higher areas: **Alpine shrubs and vegetation**	• Important species include: **Snow leopard, Himalayan brown bear, Musk deer, Blue sheep (bharal), Asian black bear, Himalayan tahr.**

81. Sukhna Wildlife Sanctuary

Context:

- The sanctuary is emerging as a **successful example of ecological restoration** in the fragile **Shivalik Hills**

About

- **Sukhna Wildlife Sanctuary** is a **protected area located in Chandigarh**, near the famous **Sukhna Lake**. It lies at the **foothills of the Shivalik range**. The sanctuary was **established in 1998**
- It developed as a result of **afforestation efforts for soil conservation** around the lake
- The lake was created in **1958** by **Le Corbusier**
- Formed by diverting the **Sukhna Choe**, a seasonal stream from the Shivalik hills

Geographical Features

- The region is **geologically fragile and erosion-prone**
- Soil type:
  - Mainly **sandy Shivalik soil** with some clay pockets
- The sanctuary includes about **150 small and large water bodies** forming the catchment area

Vegetation	Flora
• Composed of a mix of: **Forests, Grasslands** and **Wetlands** • The presence of **Sukhna Lake** plays a key role in maintaining the ecosystem	• Common plant species include: Khair, Phulai, Kikar, Shisham, Amaltas, Amla and Vasaka **Fauna** • Major animals found include: Squirrel, Common mongoose, Indian hare, Porcupine, Jungle cat, Jackal and Wild boar

82. Barnawapara Wildlife Sanctuary

Context:

- **Blackbucks have been reintroduced** into Rampur grassland of the sanctuary

About

- **Barnawapara Wildlife Sanctuary** is located in **Mahasamund district, Chhattisgarh**
- Named after the **Bar and Nawapara forest villages** situated within the sanctuary
- Spread over an area of **about 245 square kilometres**

Location and Geography

- Water sources include **tributaries of the Mahanadi River**
- **Balamdehi River** forms the western boundary
- **Jonk River** forms the northeastern boundary

Vegetation

- Dominated by **tropical dry deciduous forests**
- Provides suitable habitat for diverse wildlife

Flora

- Major trees include **Teak, Sal, Bamboo, and Terminalia species**
- Other plants include **Semal, Mahua, Ber, and Tendu**

Fauna

- Important animals found include: **Tiger and Leopard**, **Indian bison (Gaur)**, **Nilgai and Wild boar**, **Sambar and Cheetal** & **Porcupine and Python**
- Rich bird diversity with around **150 species**, including: Parrots, Herons and Egrets, Peafowl, Blackbuck

Significance

- Important for **conservation of central Indian forest biodiversity**
- Supports **grassland and forest ecosystem restoration efforts**
- Recent reintroduction highlights **wildlife management initiatives**

83. Mudumalai Tiger Reserve

Context:

- Administrative inspection conducted in a **village located inside the core area** of the reserve

About

- **Mudumalai Tiger Reserve** is located in the **Nilgiris district of Tamil Nadu**
- It lies at the **tri-junction of Tamil Nadu, Karnataka, and Kerala**
- It forms part of the **Nilgiris Biosphere Reserve**, the first biosphere reserve in India

Location and Connectivity

- Shares boundaries with:
  - **Wayanad Wildlife Sanctuary (Kerala)** in the west
  - **Bandipur Tiger Reserve (Karnataka)** in the north

Terrain and River

- Terrain is **undulating**, with elevation ranging from **960 m to 1266 m**
- The **Moyar River** flows through the reserve

Vegetation

- Includes diverse forest types such as:
  - Tropical evergreen forests
  - Moist and dry deciduous forests
  - Teak forests
  - Grasslands and swamps

Flora	Fauna
• Dominated by **elephant grass and giant bamboo species** • Valuable trees include **teak and rosewood**	• Major herbivores include **elephant, gaur, sambar, spotted deer, and blackbuck**

• Also contains **wild relatives of crops** like rice, ginger, turmeric, and cinnamon	• Carnivores include **tiger, leopard, and wild dog (dhole)** • Also supports diverse smaller mammals and wildlife species

84. Indravati Tiger Reserve

Context:

- The reserve is set to **reopen for tourism**, indicating improved conservation conditions

About

- **Indravati Tiger Reserve** is located in **Chhattisgarh**
- Part of a larger **Indravati landscape** along with: Bhairamgarh Wildlife Sanctuary and Pamed Wildlife Sanctuary

Location and Connectivity

- Connected with major tiger reserves: Kawal (Telangana), Tadoba (Maharashtra) and Kanha (Madhya Pradesh)
- The **Indravati River** forms:
  - Northern and western boundary
  - Interstate boundary between **Chhattisgarh and Maharashtra**

Vegetation	Flora

• Dominated by **tropical deciduous forests**:
  ○ Southern moist mixed deciduous (with and without teak)
  ○ Southern dry mixed deciduous
	• Major species include: Teak, Arjun, Shisham; Semal, Jamun, Bel, Haldu
	Fauna
	• Known for **rare wild buffalo (state animal of Chhattisgarh)**
	• Other species: Tiger, Leopard, Gaur, Sambar, Chital, Nilgai, Blackbuck, Sloth bear

Significance

- Important **tiger habitat in central India**
- Key site for **wild buffalo conservation**
- Enhances **eco-tourism and local livelihoods**

85. Raimona National Park

Context:

- A new gecko species **Cyrtodactylus raimonaensis** discovered near the park

About

- **Raimona National Park** is a **protected area in Assam**
- It serves as a **gateway to the Eastern Himalayan biodiversity hotspot**
- It is the **6th National Park of Assam (declared in 2021)**

Location

- Located in **Kokrajhar district (Bodoland Territorial Region - BTR), Assam**
- Lies near: **Bhutan border**. Around **53 km from Kokrajhar**. Around **253 km from Guwahati**

History

- Declared National Park on **5 June 2021 (World Environment Day)**
- Earlier part of **Ripu Reserved Forest**
- Created to **restore degraded forest ecosystem**

Geographical Features

- Located in **foothills of Eastern Himalayas**
- Altitude ranges from **85 m to 1042 m**
- **Rivers:** Sankosh River (west boundary) and Saralbhanga River (east boundary)
- **Ecosystem:** Moist deciduous forests, Terai-Duar grasslands and Evergreen patches

Transboundary Importance

- Forms a **transboundary landscape** with:
  - **Phibsoo Wildlife Sanctuary (Bhutan)**
  - **Buxa Tiger Reserve (West Bengal)**

Fauna and Importance

- Important habitat of **Golden Langur (endangered primate)**
- Acts as an **elephant corridor between Assam and Bhutan**
- Rich biodiversity due to location at **two hotspots (Eastern Himalaya + Indo-Burma)**

Significance

- Enhances **biodiversity conservation in Northeast India**
- Supports **rare and endemic species**
- Strengthens **India–Bhutan ecological connectivity**

Vegetation

- It consists of diverse forest types such as: **Khasi Hill Sal Forests, East Himalayan Mixed Deciduous Forests, Semi-evergreen forests, Sal forests**

Flora

- The sanctuary has trees like: **Teak, Terminalia, Arjun, Beechwood, Wild jamun (java plum), Champa, Cluster fig**

Fauna

- It supports rich wildlife including:
- **Mammals:** Asian elephant, Leopard, Fishing cat, Gaur (Indian bison), Sambar, barking deer, wild pig, Porcupine, mongoose, flying squirrel
- **Birds:** Hornbill, kingfisher, woodpecker, Jungle fowl, egrets, teals
- **Others: Tree yellow butterfly (Gancana harina)**

86. Amchang Wildlife Sanctuary

Context:

- The Gauhati High Court raised concerns over **tree felling without forest clearance**

About

- The **Amchang Wildlife Sanctuary** is located on the **eastern fringe of Guwahati, Assam**.
- It was formed by merging: **South Amchang Reserve Forest**, **Amchang Reserve Forest**, **Khanapara Reserve Forest**
- It forms a **continuous forest belt from the Brahmaputra River to Meghalaya forests**.

Location & Extent

- It stretches from **Brahmaputra River (north)** To **Meghalaya hills (south)**
- It connects with **Meghalaya's Maradakdola Reserve Forest**

Significance

- It acts as an **important ecological corridor between Assam and Meghalaya**
- It supports **high biodiversity near an urban area (Guwahati)**
- It is important for **elephant movement and conservation**

87. Kalai-II Hydro Electric Project

Context:

- Approved by Cabinet with **₹14,105 crore investment** in Arunachal Pradesh

About

- **Kalai-II** is a **large hydropower project** for clean energy generation

- Developed through a **joint venture of THDC India Ltd. and Arunachal Pradesh Government**

Location

- Located in **Anjaw district, Arunachal Pradesh**
- Situated on the **Lohit River**
- First major project in the **Lohit Basin**

Key Features

- **Installed capacity:** 1200 MW
- **Units:** 6 units of 190 MW + 1 unit of 60 MW
- **Annual generation:** Around **4852 MU (Million Units)**
- **Timeline:** Expected completion in **78 months**
- Includes development of: Roads and bridges (around **29 km**)

Financial Support

- Central support for infrastructure: **₹599.88 crore**
- Equity assistance to state: **₹750 crore**

Significance

- Helps in **peak power demand management**
- Strengthens **national power grid stability**
- Promotes **renewable energy generation**
- Benefits to state:
  - **12% free power to Arunachal Pradesh**
  - **1% power for Local Area Development Fund (LADF)**

88. Per- and Polyfluoroalkyl Substances (PFAS)

Context:

- The European Union has included **PFAS in its water pollution monitoring standards**

About

- **Per- and Polyfluoroalkyl Substances (PFAS)** are **toxic, man-made chemicals**
- Known as **"forever chemicals"** because they **do not break down easily** in the environment
- Consist of a **large group of more than 4,700 chemicals**
- They contain **strong carbon–fluorine bonds**, making them highly persistent

Key Features

- Extremely **resistant to heat, water, and oil**
- Persist in **soil, water, and living organisms for long periods**
- Accumulate over time, leading to **bioaccumulation**
- Important subgroups include: **PFOS (Perfluorooctane sulfonic acid)** and **PFOA (Perfluorooctanoic acid)**

Uses

- Used in **non-stick cookware and food packaging materials**
- Applied in **stain-resistant fabrics, carpets, and waterproof clothing**
- Used in industries such as **aerospace, electronics, and construction**

Exposure Pathways

- Through **contaminated water and food**
- By using **products containing PFAS**
- Through **air exposure in polluted environments**

Health Impacts

- May cause **reduced fertility**
- Leads to **developmental issues in children**
- Can interfere with **hormonal system**
- Associated with **high cholesterol and certain cancers**

Regulation

- Some PFAS like **PFOS and PFOA** are listed under the Stockholm Convention
- Classified as **Persistent Organic Pollutants (POPs)**

Significance

- Major concern for **environmental pollution and human health**
- Requires **strict regulation and monitoring globally**
- Important topic in **water quality and chemical safety**

89. Mangroves

Context:

- Study shows **declining resilience in the Sundarbans mangrove ecosystem**

About

- **Mangroves** are **salt-tolerant trees and shrubs** found in coastal areas
- Grow in **intertidal zones** (area between high and low tide)
- Also called **tidal forests or coastal forests**

Habitat and Distribution

- Found in **tropical and subtropical regions (25°N–25°S)**
- Grow in areas with **slow-moving water and sediment deposition**
- Thrive in **salty, waterlogged, low-oxygen soils**
- **Sundarbans** is the **largest mangrove forest**
- Located in **Ganga–Brahmaputra–Meghna delta**
- Only mangrove ecosystem with **tiger population**

Key Adaptations

- **Pneumatophores (breathing roots):** Roots grow upward to take **oxygen from air**
- **Stilt/prop roots:** Provide **support in soft muddy soil**
- **Vivipary:** Seeds **germinate on the tree before falling**
- **Salt control mechanisms:** Some plants **excrete salt through leaves** & Others **block salt at root level**

Significance

- Act as **natural barriers against cyclones, storms, and tsunamis**
- Prevent **coastal erosion**
- Rich in **biodiversity (fish, birds, mammals)**
- Store large amounts of carbon (**blue carbon ecosystems**)

90. Super El Niño

Context:

- Experts warn of a possible **Super El Niño**, which may raise **global temperatures and extreme events**

What is El Niño?

- **El Niño** is a **climate phenomenon** involving **warming of Pacific Ocean waters**
- It is part of the **ENSO cycle (El Niño–Southern Oscillation)**
- It occurs every **3–7 years** and disrupts **global weather patterns**

How El Niño Forms

- Normally, **trade winds push warm water westward**
- During El Niño: Winds **weaken or reverse** and Warm water **moves eastward**
- This leads to: **Reduced upwelling (cold water rise)**; **Warmer ocean surface** and Changes in **rainfall and jet streams**

What is Super El Niño?

- A **Super El Niño** is an **extremely strong El Niño event**
- It occurs when ocean temperature anomaly is **≥ 2°C above normal**
- Such events are **rare** and highly impactful

Causes of Super El Niño

- **Subsurface heat buildup** in oceans
- Strong **westerly wind bursts**
- **Global warming** raising baseline temperatures

Global Impacts

- It can lead to: **Record high global temperatures** and Changes in **jet streams**
- Weather effects include: **Floods (Peru, Middle East)**; **Droughts (Africa)** and **Altered hurricane patterns**

Impact on India

- It causes **weak or deficient monsoon**
- It leads to: **Drought conditions** and **Agricultural losses**

- It may result in: **Heatwaves**, **Food inflation** and **Economic stress**

Significance

- It affects **global climate systems**
- It has major impact on **agriculture and economy**
- It shows link between **climate variability and global warming**

91. NBA Revised Guidelines under Biological Diversity Act, 2002

Context:

- The **National Biodiversity Authority (NBA)** has revised guidelines for **ABS funds and biological repositories**

About

- The revised guidelines are a **policy framework for managing bio-resources and benefit sharing**
- They regulate: **Access and Benefit Sharing (ABS) funds** and **Designated repositories (biological samples storage)**
- They are issued under the **Biological Diversity Act, 2002**

Aim

- It aims to ensure **fair and transparent distribution of ABS funds**
- It ensures **benefits reach local communities**
- It promotes **biodiversity conservation and sustainable use**

Key Features

1. Standardised Fund Sharing

- **Identifiable Source: 25–40%** → Institutions/repositories and **60–75%** → Local communities (via State Biodiversity Boards)
- **Non-identifiable Source: 30%** → Institutions and **70%** → NBA/SBBs

2. Widely Distributed Resources

- Funds from such resources are used for **collective biodiversity management**
- It follows **Section 27 of the Act**

3. Digital Repositories

- It promotes **digitisation of biological samples (voucher specimens)**
- It reduces risks of **physical transfer and misuse**

4. Provenance and Documentation

- Repositories must maintain **proper records of origin (provenance)**
- It ensures **legal tracking and accountability of bio-resources**

5. Flexibility in Sharing

- Benefit sharing can be **adjusted based on value addition**
- It considers **research, innovation, and processing efforts**

Significance

- It ensures **equitable sharing of benefits with local communities**
- It prevents **biopiracy (illegal use of biological resources)**
- It strengthens **biodiversity governance and conservation**
- It promotes **transparency and accountability in resource use**

92. Arachnids

Context:

- Fossil evidence shows **extinct arachnid species existed in Europe**

About

- **Arachnids** are a group of **arthropods (jointed-legged animals)**
- They belong to the **phylum Arthropoda**
- They are **wingless, mostly carnivorous, and have 8 legs**

Key Characteristics

- They have: **Segmented body**, **Hard exoskeleton** (outer covering) and **Jointed appendages (legs)**

- Body is divided into **two segments** and they do **not have jaws**
- **Respiration**: They breathe using: **Book lungs** (layered structures for gas exchange) and **Tracheal tubes**
- **Feeding Mechanism**: They inject **digestive fluids into prey**. Then they **suck liquefied food**
- **Examples**
  - **Spiders**, **Scorpions**, **Ticks**, **Mites**
  - Some species are **venomous** (e.g., black widow spider)
- **Habitat**
  - Found mainly in **terrestrial environments**
  - Present on **all continents**
  - Some species live in **freshwater habitats**
- **Lifestyle:** They may be: **Predatory**, **Parasitic** and **Free-living**

Arachnids vs Insects

Body segments:	Number of legs:
• Arachnids → **2 segments** • Insects → **3 segments**	• Arachnids → **8 legs** • Insects → **6 legs**

Significance

- Play an important role in **ecosystem balance (pest control)**
- Some species are **medically important (venomous/parasitic)**

93. Annatto

Context:

- Annatto growers seek support as it is the **second most important natural colourant after caramel**

About

- **Annatto** is a **natural food colour and flavouring agent**
- It is obtained from seeds of the **Achiote tree (Bixa orellana)**. The tree is native to **tropical America**. It is also cultivated in **Asia and Africa**

Production

- The **ripe fruits are dried** to obtain annatto seeds. These seeds are used to **extract natural colour**
- The crop is: **Rain-fed** and Requires **minimal inputs (no fertilizers/pesticides)**

Colour Source

- The colour comes from **carotenoids (plant pigments)**. It gives a **reddish-orange colour**

Applications

- Used as: **Natural food colouring**, **Food dye**, **Flavouring agent**. It is added to: Dairy products and Processed foods
- It has: **Mild peppery taste** and **Nutty and floral aroma**

Health Properties

- Contains **antimicrobial compounds**
- Helps limit growth of: **Bacteria**, **Fungi** and **Parasites**

Significance

- It is an important **natural alternative to synthetic colours**. It supports **sustainable agriculture (low input crop)**
- It has growing demand in **food and cosmetic industries**

94. Jute Crop

Context:

- The Government has reduced **jute stock limits for traders and balers to zero**

About

- **Jute** is the **second most important fibre crop in India after cotton**

- It is a **natural fibre crop grown in tropical regions**
- It is widely used for: **Ropes, gunny bags, carpets, rugs, tarpaulins**

Climatic Conditions

- **Climate:** It requires **humid tropical conditions**
- **Temperature:** It grows between **17°C to 41°C**
- **Rainfall:** It requires **>1200 mm well-distributed rainfall**
- **Humidity:** It requires **40–90% relative humidity**

Soil Requirements

- It grows best in **fertile alluvial (riverine) soil**
- It can also grow in **other soil types**, but productivity is higher in loamy soil

Cropping Pattern

- It is generally: **Sown:** February and **Harvested:** October
- Crop duration: **8–10 months**

Distribution in India

- More than **99% production** is concentrated in: **West Bengal (≈81%)**, **Bihar**, **Assam**, **Odisha**, **Andhra Pradesh**

Significance

- It is an **eco-friendly and biodegradable fibre**
- It supports **rural employment and agro-based industries**
- It is important for **packaging and export sector**

95. Wheat Crop

Context:

- The government has stated that the **wheat crop (2025–26) remains resilient despite weather variations**

About

- **Wheat** is the **second most important staple crop in India after rice**
- It is a **temperate crop** (grows in cool climate)
- It is grown as a **Rabi crop**- **Sown:** Winter & **Harvested:** Spring

Climatic Conditions Required

1. Temperature
- **10°C–15°C** → Ideal for sowing
- **21°C–26°C** → Ideal for ripening

2. Rainfall
- Required: **50–75 cm**
- **Well-distributed rainfall** is important
- **Western Disturbances (winter rains in North India)** help increase yield

3. Sunlight
- **Bright sunshine during ripening** improves grain quality

4. Frost & Hail
- **Frost/hail during flowering stage** damages crop

5. Soil
- Best suited soil: **Loamy soil** and **Clay loam soil**

Major Producers

- **Global Level**- China, India, Russia and USA
- **India (States)**- Punjab, Haryana, Uttar Pradesh and Bihar

Significance

- It is a **major food security crop**
- It supports **livelihood of farmers**
- It is important for **food grain buffer stocks**

VIII. INDIAN SOCIETY AND SOCIAL ISSUES

96. Denotified, Nomadic and Semi-Nomadic Tribes (DNTs)

Context:

- A government report highlights **lack of support in issuing certificates and identifying beneficiaries**

Who They Are

- **DNTs** are communities that were: **Declared "criminal tribes" under the Criminal Tribes Act, 1871 (British rule)**
- They include: **Nomadic (constantly moving)** and **Semi-nomadic (partially settled)** groups
- They traditionally depend on: **Trade, pastoralism (animal rearing), entertainment, crafts**

Historical Background

- The British labeled them as **"hereditary criminals"** (based on biased assumptions)
- After Independence: **Criminal Tribes Act was repealed in 1952**. These groups were **"denotified" (criminal tag removed)**
- However, many were later covered under **Habitual Offenders Acts**

Current Status

- Around **1,200 communities** exist across India
- Many are included in: **SC / ST / OBC categories**
- But, around **268 communities remain unclassified**

Key Issues

1. Social Stigma • They continue to face **discrimination and suspicion** • Often treated as **habitual offenders**	**2. Lack of Identity Documents** • Many do not have **DNT community certificates** • This leads to **exclusion from welfare schemes**
3. Economic Backwardness • They remain **poor and educationally backward** • Limited access to **jobs, education, housing**	**4. Policy Implementation Issues** • Schemes like **SEED (for upliftment)** face: **Low coverage and Identification problems** **5. State-Level Gaps** • Only **few states issue proper DNT certificates**

Significance

- They represent a **highly marginalized population (~10 crore people)**
- Proper recognition is important for: **Social justice**, **Inclusive development**, **Accurate Census data**

97. Lanjia Saora Community

Context:

- Community in news for **preserving traditional tattoos and ornaments**

About

- **Lanjia Saora** is a **tribal community of Odisha**. It belongs to the **Saora (Soura) tribal group**
- Recognised as a **Particularly Vulnerable Tribal Group (PVTG)**

Habitat

- Found mainly in **Rayagada and Gajapati districts of Odisha**
- Live in **hilly and forested regions of Eastern Ghats**
- Settlements are **remote with mud and thatch houses**

Livelihood

- Practice **shifting cultivation (Podu farming)**
- Depend on **forest produce and small-scale agriculture**

Culture and Beliefs

- Deeply connected with **nature and forest spirits**
- Perform rituals for **ancestors and natural forces**

- Mentioned in **ancient texts like Ramayana and Mahabharata**

Unique Features

- **Traditional Ornaments:** Large **metal earrings in stretched earlobes**
- **Tattoos:** Geometric and nature-based designs and believed to provide **spiritual protection**
- **Art (Idital Paintings):** Wall paintings using **red ochre and rice paste** and used for **communication with spirit world**
- **Music and Dance:** Integral to **life events and rituals**
- **Social Structure: Egalitarian society** with collective decision-making

Significance

- Represents **ancient indigenous traditions of India**
- Shows **sustainable living with nature**
- Saora art has **global recognition**

Educrat IAS ACADEMY | No Need of going to Delhi Now! Prepare for UPSC from Kolkata

3. PLACES IN NEWS

1. Bab el-Mandab Strait

Context:

- The strait is in news due to **security threats and missile attacks in the region**

About

- The **Bab el-Mandab Strait** is a **strategic maritime chokepoint**
- It connects the **Indian Ocean to the Mediterranean Sea** (via the Red Sea and Suez Canal)
- It is one of the **most important global shipping routes**

Location

- Lies between: **Horn of Africa** (Djibouti and Eritrea) and **Arabian Peninsula** (Yemen)
- Connects: Red Sea to Gulf of Aden
- Divided by **Perim Island** into two channels

Key Features

- Narrow width of about **29 km at its narrowest point**
- Handles about **10 to 12 percent of global oil and gas trade**
- Major route for **energy and cargo transport between Asia and Europe**
- Highly vulnerable to **conflicts and blockades**

Strategic Importance

- Acts as a **gateway to the Red Sea and Suez Canal route**
- Essential for **Persian Gulf oil supply to Europe and North America**
- Supports large-scale **global trade and container shipping**

If Blocked

- Ships must take a longer route via the **Cape of Good Hope (South Africa)**
- This increases **distance, cost, and time of shipping**

2. Azerbaijan

Context:

- India and Azerbaijan held **Foreign Office Consultations in Baku** to review bilateral relations

About

- **Azerbaijan** is a **transcontinental country** located between **Eastern Europe and Western Asia**
- It is the **largest country in the Caucasus region**
- Often called the **"Land of Fire"** due to natural gas seeps
- Capital: **Baku**

Location and Boundaries

- Bounded by: **Caspian Sea** to the east, Russia to the north, Georgia to the northwest, Armenia to the west and Iran to the south
- Shares a short border with **Turkey** through the **Nakhchivan exclave**

Key Geographical Features

- **Caucasus Mountains:** Greater Caucasus in the north and Lesser Caucasus in the west
- **Caspian coastline:** Includes **Absheron Peninsula**, where Baku is located
- **Mud Volcanoes:** Nearly **half of the world's mud volcanoes** are found here
- **Kura-Aras Lowland:** Major river valley and fertile plain
- Rich in **oil and natural gas reserves**

Significance

- Important **energy supplier** due to large oil and gas reserves
- Acts as a key link in the **International North-South Transport Corridor (INSTC)**
- Strengthens **India's connectivity with Central Asia, Russia, and Europe**

3. Afghanistan

Context:

- India has sent **humanitarian assistance** to Afghanistan following floods and earthquakes

About

- **Afghanistan** is a **landlocked and mountainous country** located in **Southern Asia**
- It lies at the **crossroads of Central and South Asia**, giving it strategic importance
- Capital: **Kabul**

Location and Boundaries

- Bordered by:
  - **India (northeast, as per traditional claim)**
  - Pakistan to the east and south
  - Iran to the west
  - Turkmenistan, Uzbekistan, Tajikistan to the north
  - China to the northeast

Geographical Features

- **Climate:** Characterised by **hot summers and very cold winters** (semi-arid climate)
- **Mountain Ranges: Hindu Kush** (major range), Pamir Mountains (northeast), Safed Koh (south)
- **Rivers:** Amu Darya, Helmand River, Kabul River
- **Highest Peak: Mount Nowshak (7,485 m)**

Natural Resources

- Rich in minerals such as: Coal, Copper, Natural gas and petroleum, Gold, Lithium and rare earth elements

Significance

- Important for **regional connectivity and geopolitics**
- Rich mineral resources make it **economically significant**
- Strategic location between **Central Asia, South Asia, and West Asia**

4. Angola

Context:

- Angola is emerging as an **alternative energy supplier for India**

About

- **Angola** is located on the **southwestern coast of Africa**
- It lies along the **Atlantic Ocean**
- Capital: **Luanda**

Location and Boundaries

- **Bordered by:**
  - Republic of the Congo (northwest)
  - Democratic Republic of the Congo (north and northeast)
  - Zambia (southeast)
  - Namibia (south)
- Has a coastline along the **Atlantic Ocean**

Geographical Features

- **Climate:** Tropical with a **distinct dry season** and Influenced by the **cold Benguela Current**
- **Rivers:** Cuango River and Cuanza River
- **Waterfall: Calandula Falls** (one of the largest in Africa)
- **Highest Peak: Mount Moco**

Natural Resources

- Rich in: Petroleum, Diamonds, Iron ore, Copper, Gold, Uranium

Significance

- Important **oil and gas producer**
- Emerging as a **key energy partner for India**
- Strategically located on **Atlantic trade routes**

5. Türkiye (Turkey)

Context:

- India and **Türkiye** held the **12th round of Foreign Office Consultations**

About

- **Türkiye** is a **transcontinental country** spanning **Europe and Asia**
- Majority lies in **Anatolia (Western Asia)**, while a small part lies in **Europe (Balkan region)**
- Capital: **Ankara**

Location and Boundaries

- Bordered by: Greece and Bulgaria (northwest), Georgia (northeast), Armenia and Iran (east), Iraq (southeast), Syria (south)
- Also borders **Nakhchivan (Azerbaijan exclave)**
- Surrounded by seas: Black Sea (north), Mediterranean Sea (south), Aegean Sea (west)

Key Geographical Features

- **Rivers:** Tigris, Euphrates, Kızılırmak, Sakarya
- **Lake:** Lake Van (largest alkaline lake)
- **Mountains:** Taurus, Pontic, Köroğlu ranges
- **Highest Peak:** Mount Ararat

Important Straits

- **Bosporus Strait:** Connects Black Sea to Sea of Marmara
- **Dardanelles Strait:** Connects Aegean Sea to Sea of Marmara

Natural Resources

- Rich in: Chromite, Iron ore, Coal and lignite, Copper and bauxite

Significance

- Strategic location linking **Europe and Asia**
- Controls **key maritime chokepoints (Bosporus and Dardanelles)**
- Important in **energy routes and geopolitics**

6. Mauritius

Context:

- India is finalising an **oil and gas supply pact with Mauritius**

About

- **Mauritius** is a **sovereign island nation in the Indian Ocean**
- It is known for its **strategic location and volcanic origin**
- A key partner in **India's Indian Ocean strategy**
- Capital: **Port Louis**

Location

- Located **east of Madagascar (Africa)**
- Part of the **Mascarene Islands**
- Lies in the **southwestern Indian Ocean**

Territories

- Includes:
  - Rodrigues Island
  - Agalega Islands
  - Cargados Carajos Shoals
  - Chagos Archipelago (including Diego Garcia)

Geographical Features

- **Volcanic origin** with a central plateau
- Surrounded by **coral reefs**
- **Relief:** Central plateau with surrounding mountain ranges
- **Highest Peak:** Piton de la Petite Rivière Noire
- **Rivers:** Grand River South East and Black River
- **Lake:** Lake Vacoas (main water source)

Economic Features

- Large portion of land is **arable**
- Major crop: **Sugarcane**

Significance

- Important for **maritime security in Indian Ocean Region (IOR)**
- Strategic partner for **India's energy and trade interests**
- Key location for **sea lanes and regional connectivity**

7. Scarborough Shoal

Context:

- China deployed **floating barriers and vessels**, blocking access to the shoal

About

- **Scarborough Shoal** is a **chain of reefs and rocks with a central lagoon.**
- It is **not an island**, but a **high-tide feature**. It is an important **fishing ground and strategic maritime location**
- Also known as: **Bajo de Masinloc (Philippines)** and **Huangyan Island (China)**

Location

- Located in the **South China Sea**
- Around: **120 nautical miles west of Luzon (Philippines)** and **~470 nautical miles from China**

Geographical Feature

- It is a **coral atoll formed over an underwater volcanic base**. It has a **triangular shape with a central lagoon**

Countries Involved

- **Philippines:** Claims under **200 nautical mile EEZ (UNCLOS)**
- **China:** Claims under **Nine-Dash Line (historical claim)**
- **Taiwan:** Also claims the shoal

Key Issues

- **Control vs Legal Rights:** 2016 arbitration ruling **rejected China's claims**. But China maintains **de facto control since 2012**
- **Fishing Restrictions:** Chinese vessels **block Filipino fishermen**
- **Militarisation:** Use of **coast guard and maritime militia**

Implications

- It is a **major geopolitical flashpoint in South China Sea**. It may trigger **US–Philippines defence treaty** in case of conflict. It affects **livelihood of Filipino fishing communities**

Significance

- Important for **regional security and maritime trade routes**
- Reflects tensions over **UNCLOS vs historical claims**
- Key area in **Indo-Pacific geopolitics**

8. Red Sea

Context:

- Strategic tensions due to threats to **block trade through the Red Sea**

About

- The **Red Sea** is a **semi-enclosed sea (inlet) of the Indian Ocean**
- It lies between **Africa and Asia**. It is one of the **most important global maritime routes**

Location and Connectivity

- Connected to: **Indian Ocean via Gulf of Aden** and Through **Bab-el-Mandeb Strait** (southern entry)
- Northern part splits into: **Gulf of Suez → connected to Mediterranean via Suez Canal** & **Gulf of Aqaba**

Bordering Countries

- **Africa side:** Egypt, Sudan, Eritrea, Djibouti
- **Asia side:** Saudi Arabia, Yemen

Geological Features

- It lies in a **rift (fault depression)**. It is located between: **Arabian Plate** and **African Plate**
- It is known for: **High salinity** and **Warm waters**

Why is it Called "Red Sea"?

- The color change is due to **algae blooms**

Important Locations

- **Bab-el-Mandeb Strait:** Strategic chokepoint
- **Suez Canal:** Connects to **Mediterranean Sea**
- **Islands: Tiran Island (Gulf of Aqaba)** and **Shadwan Island (Gulf of Suez)**

Resources

- Rich in: **Petroleum**, **Sulphur**, **Phosphates**, **Metal deposits**

Significance

- It is a key route for **global trade (Europe–Asia link)**
- It is strategically important for **energy transportation**. It is a major **geopolitical hotspot**

9. Austria

Context:

- India and Austria signed agreements to deepen **bilateral cooperation**

About

- **Austria** is a **landlocked country in south-central Europe**. It is largely **mountainous (Alpine region)**; **Capital:** Vienna

Location & Borders

- It shares borders with **8 countries**: **North:** Czech Republic, **Northeast:** Slovakia, **East:** Hungary, **South:** Slovenia, **Southwest:** Italy, **West:** Switzerland, Liechtenstein and **Northwest:** Germany

Physical Features

- Around **70% area covered by Alps**
- It has **temperate and alpine climate**
- Major river: **Danube River** (important for trade and transport)

People & Language

- Major ethnic group: **Germans**. Other groups: Turks, Serbs, Croats, etc.
- **Official language:** German. Other languages: Croatian, Hungarian, Slovene

Political System

- It is a **federal parliamentary republic**. **President:** Head of State. **Chancellor:** Head of Government

Historical Background

- Region was part of **Roman Empire (Noricum)**. Conquered by **Charlemagne (788 AD)**
- Ruled by **Habsburg dynasty (major European power)**. Became **Austria-Hungary (1867)**
- Empire collapsed after **World War I (1918)**. **Republic established in 1919**

Cultural Significance

- Vienna was a centre of **classical music**
- Associated with musicians like: **Wolfgang Amadeus Mozart**, **Ludwig van Beethoven** and **Joseph Haydn**

Significance

- Important partner in **Europe for India**
- Known for **culture, music, and strategic location in Europe**

10. Mansar Lake

Context:

- Security arrangements were reviewed at **Mansar Lake (Jammu & Kashmir)**

About

- **Mansar Lake** is a **freshwater lake** located in the **Samba district of Jammu & Kashmir**
- It lies in the **foothills of the Shivalik Range**
- It is located about: **62 km from Jammu city** and **19 km from Samba town**

Physical Features	Religious Importance
• It is **oval-shaped** and surrounded by **forests and hills** • It is one of the **largest lakes in the region** • Size: Length: **~1 km** and Width: **~0.5 km** • It is fed by: **Rainwater** and **Underground springs**	• It is a **major pilgrimage and cultural site** • Important temples around the lake: **Sheshnag Temple** (devoted to serpent god), **Durga Temple** and **Umapati Mahadev Temple** **Ecological Importance** • It supports **rich biodiversity** • It contains: **~207 species of algae**, Various **fish species** and **Water birds and fauna**

Ramsar Status

- It is designated as a **Ramsar Site (Wetland of International Importance)**
- It is listed **along with Surinsar Lake**
- Year of designation: **2005**

11. Germany

Context:

- India is focusing on **defence industrial cooperation with Germany**

About

- **Germany** is a **country located in Central Europe**. **Capital:** Berlin

Location & Boundaries

- It shares borders with: **Denmark (North)**, **Poland, Czech Republic (East)**, **Austria, Switzerland (South)** & **France, Belgium, Netherlands, Luxembourg (West)**
- It is bordered by: **North Sea (northwest)** and **Baltic Sea (northeast)**

Geographical Features

1. Climate- It has a **temperate climate**

2. Mountain Ranges- Alps (south) and Bavarian Highlands

3. Major Rivers- Rhine, **Elbe**, **Danube**

4. Lakes- Lake Constance (shared with Austria and Switzerland)

Natural Resources- like: **Lignite (brown coal); Coal, natural gas; Iron ore, copper, nickel; Potash, uranium**

Significance

- It is a **major industrial and economic power in Europe**
- It plays a key role in **EU economy and global trade**
- It is an important partner for India in **defence and technology**

12. Druzhba Pipeline (Friendship Pipeline)

Context:

- The **Druzhba Pipeline** has been **repaired and is resuming oil supply to Europe**

About

- The **Druzhba Pipeline** is one of the **largest crude oil pipeline networks in the world**
- It was built in the **1960s by the Soviet Union**
- It transports **Russian (and Kazakh) oil to Europe**

Route & Structure

- **Origin:** It begins at **Almetyevsk (Russia)**
- It flows to **Mozyr (Belarus)** where it splits into two branches:

1. Northern Branch

- It runs through: **Belarus → Poland → Germany**

2. Southern Branch

- It runs through: **Ukraine → Slovakia → Hungary → Czech Republic**
- It further splits into: **Druzhba 1 and Druzhba 2**

Length & Capacity

- Total length: **~5,500 km**
- Capacity: **1.2–1.4 million barrels/day** and Expandable up to **~2 million barrels/day**

Significance

- It is a **major energy supply route for Europe**. It highlights **Europe's dependence on Russian oil**
- It is strategically important due to: **Geopolitical tensions (Russia–Ukraine conflict)** and **Energy security concerns in Europe**

13. Amaravati

Context:

- **Amaravati** declared as the **sole capital of Andhra Pradesh** under the 2026 Amendment Act

About

- **Amaravati** is a **planned capital city** located on the **banks of the Krishna River**
- Serves as the **administrative, legislative, and judicial capital of Andhra Pradesh**
- Designed as a **modern "People's Capital" with historical significance**

Location

- Situated in **Guntur district, Andhra Pradesh**
- Located on the **southern bank of Krishna River**
- Lies between **Vijayawada and Guntur cities**

Origin of Modern Amaravati

- Developed after **Andhra Pradesh bifurcation in 2014**
- Foundation stone laid on **22 October 2015** at Uddandarayunipalem
- Named after the **ancient Amaravati of Satavahana period**

Historical Importance

- It was capital of **Satavahana dynasty (2nd BCE–3rd CE)**. It was a major **Buddhist centre of learning**
- Famous for **Amaravati Stupa (Mahachaitya)** and art style. Evidence of **trade with Roman Empire and Southeast Asia**
- Associated with **Amareswara Temple (Pancharama Kshetra)**. Visited by **Chinese traveller Xuanzang in 7th century CE**

Significance

- Ensures **single capital system for governance**
- Planned as a **greenfield smart city**
- Potential hub for **IT, pharma, and economic activities**
- Represents revival of **historical and cultural legacy**

14. Narmada River

Context:

- Ritual activity in the river triggered **public debate on environmental concerns**

About

- The **Narmada River** is one of the **major rivers of India**. It is the **largest west-flowing river of Peninsular India**
- It is also known as the **Rewa River**. It is called the **"Lifeline of Madhya Pradesh and Gujarat"**

Origin

- It originates from **Amarkantak Plateau (Maikala Range)**
- Exact source: **Narmada Kund, Anuppur district (Madhya Pradesh)**

Course

- Total length: **about 1312 km**
- It flows through: **Madhya Pradesh (major portion)**, **Maharashtra** and **Gujarat**
- It drains into the **Arabian Sea (Gulf of Khambhat)**

Unique Feature	Tributaries
• It flows through a **rift valley** • Located between: **Vindhya Range**	• **Left Bank:** Tawa, Ganjal, Shakkar, Dudhi, etc.

(north) and **Satpura Range (south)**	• **Right Bank:** Hiran, Kolar, Barna, Orsang, etc.

Important Geographical Features

- **Marble Rocks (Jabalpur):** Deep gorge formed by limestone rocks
- **Dhuandhar Falls:** Famous waterfall near Jabalpur
- **Estuary Formation:** It forms an **estuary (not delta)** at its mouth

Projects

- Major dams include: **Sardar Sarovar Dam** and **Indira Sagar Dam**

Significance

- It provides **irrigation, drinking water, and hydroelectric power**
- It supports **biodiversity and ecosystems**
- It has **religious and cultural importance**

15. Andaman Sea

Context:

- Boat capsizing incident involving refugees in the **Andaman Sea**

About

- The **Andaman Sea** is a **marginal sea of the northeastern Indian Ocean**
- It is an important **maritime link between South Asia and Southeast Asia**
- It connects the **Bay of Bengal with the South China Sea**

Location

- Situated in **Southeast Asia**
- Bounded by:
  - **North:** Myanmar (Irrawaddy delta)
  - **East:** Myanmar, Thailand, Malaysia
  - **South:** Indonesia (Sumatra)
  - **West:** Andaman & Nicobar Islands (India)

Connectivity

- Connected to: **Bay of Bengal (west)** and **South China Sea (east via Strait of Malacca)**

Origin of Name

- Derived from **"Handuman" (Malay form of Hanuman)**

Geographical Features

- Area: Around **798,000 sq km**. Average depth: **~1100 m**
- Features: **Shallow northern region** (due to river deposits) and **Deep submarine valleys** (> 4400 m)

Tectonic Activity

- Lies between: **Burma Plate** and **Sunda Plate**
- It is a **seismically active region**
- Associated with the **2004 Indian Ocean tsunami**

Volcanic Feature

- Hosts **Barren Island**: Only **active volcano in India**

Significance

It is a key **global shipping route** (via Strait of Malacca) and is important for **trade between India, Southeast Asia, and China**. It Supports **fishing and marine resources.**

16. Egypt

Context:

- India and Egypt are strengthening **defence cooperation (11th Joint Defence Committee meeting in Cairo)**

About

- **Egypt** is a **transcontinental country** (Africa + Asia)
- The **Sinai Peninsula** connects **Africa and Asia**
- **Capital:** Cairo

Location & Boundaries

- It is bordered by: **Sudan (south)**, **Libya (west)** and **Israel & Gaza Strip (northeast)**
- It is surrounded by: **Mediterranean Sea (north)** and **Red Sea & Gulf of Aqaba (east)**

Geographical Features

1. Climate • It has a **hot and arid (tropical desert) climate**	**2. Terrain** • It shows contrast between: **Deserts (major area)** and **Fertile Nile River Valley** • About **2/3rd area is desert (Western Desert)**
3. River System • **Nile River** flows from **south to north** • It is the **lifeline of Egypt**	**4. Mountains** • Highest peak: **Mount Catherine (2642 m)**

Natural Resources

- It has: **Petroleum**, **Natural gas**, **Phosphates**, **Iron ore**

Significance

- It is a **strategic country linking Africa and Asia**
- It is important for **global trade (Suez Canal region)**
- It is a key partner for India in **defence and geopolitics**

17. Tuvalu

Context:

- Tuvalu is facing **serious threat from rising sea levels due to climate change**

About

- **Tuvalu** is a **small island country in the Pacific Ocean**
- Earlier known as **Ellice Islands**
- It is the **4th smallest country in the world**
- Total area: **~26 sq. km**

Location

- It lies in the **west-central Pacific Ocean**
- It is located between **Australia and Hawaii**
- Neighbours: **Kiribati (north)** and **Fiji (south)**

Geographical Features

1. Islands Structure • It consists of **9 islands**: **5 coral atolls** and **4 reef islands** • **Capital:** Funafuti (atoll) **2. Low Elevation** • Maximum height: **~4.5 meters above sea level** • It makes Tuvalu **extremely vulnerable to sea-level rise**	**3. Climate** • It has a **hot and rainy tropical climate** • It has **no rivers**

Political System

- It became independent in **1978 (from UK)**

- It is a **parliamentary democracy under constitutional monarchy**
- It is part of the **Commonwealth Realm**: **King Charles III** is the head of state
- It has: **No political parties**

Population & Language

- It has one of the **smallest populations in the world**
- Languages: **Tuvaluan** and **English**

Economy

- It depends on: **Subsistence farming**, **Remittances** and **Foreign aid**
- Other sources: **Copra exports**, **Fishing fees**, **Stamp sales**

Significance

- It is a **frontline state for climate change impacts**
- Rising sea levels may **submerge large parts by end of century**
- It highlights issues of **climate justice and displacement**

18. New Zealand

Context:

- India and **New Zealand** are set to sign a **Free Trade Agreement (FTA)**

About

- **New Zealand** is an **island country in Oceania**
- It lies in the **South Pacific Ocean**
- It is located: **Southeast of Australia**. Near **Fiji, Tonga, New Caledonia**
- **Capital:** Wellington

Geographical Features

1. Island Structure

- It consists of two main islands:
  - **North Island**
  - **South Island**
- These are separated by the **Cook Strait**

2. Tectonic Activity

- It lies on the **Pacific Ring of Fire**
- It experiences:
  - **Frequent earthquakes**
  - **Volcanic activity**

3. Climate

- It has a **varied climate**:
  - **Subtropical (north)**
  - **Temperate (south)**

4. Mountains & Peaks

- Highest peak: **Mount Cook (Aoraki)**

5. Volcanoes

- Active volcano: **Mount Ruapehu**

6. Glaciers & Lakes

- Largest glacier: **Tasman Glacier**
- Largest lake: **Lake Taupō**

Natural Resources

- It has: **Gold, silver**, **Iron sands**, **Phosphate, limestone**

Significance

- It is strategically located in the **Pacific region**
- It is important for **trade and Indo-Pacific cooperation**
- The FTA will boost **India's exports and economic ties**

19. Atacama Desert

Context:

- **Light pollution** is threatening the **world's darkest skies in the Atacama Desert**

About

- The **Atacama Desert** is the **driest desert in the world**
- It is located in **northern Chile (South America)**

Location & Extent

- It lies between: **Andes Mountains (east)** and **Pacific Ocean (west)**
- It stretches for about **1000 km along Chile's coast**
- It is bordered by: **Peru, Bolivia, Argentina**

Climatic Features

1. Extremely Dry	2. Temperature
• Average rainfall: **~1 mm/year** • Some areas have **never received rainfall**	• It has **moderate temperatures** • Average: **~18°C (63°F)**

Physical Features

- It contains **salt flats, rocky terrain, and sand dunes**
- It has **around 12 volcanoes** (mainly near Andes)

Natural Resources

- It has large deposits of: **Sodium nitrate** (used in fertilizers and explosives)

Special Features

1. Dark Sky Region	2. Chinchorro Mummies
• It is one of the **best places in the world for astronomy** • Very low light and cloud cover	• It has the **oldest artificially mummified human remains**

Significance

- It is important for **astronomical research**
- It is a **unique extreme ecosystem**
- It is rich in **mineral resources**

20. Somalia

Context:

- Somalia is frequently in news due to its **strategic location in the Horn of Africa and maritime routes**

About

- **Somalia** is a country located in the **Horn of Africa (eastern Africa)**
- The **Equator passes through southern Somalia**
- **Capital:** Mogadishu

Location & Boundaries

- It is bordered by: **Djibouti (northwest)**; **Ethiopia (west)**; **Kenya (southwest)**
- It has maritime borders with:
  - **Gulf of Aden (north)**
  - **Indian Ocean (east)**

Geographical Features

1. Climate	3. Rivers

• It has an **arid to semi-arid climate**
• It experiences **very little temperature variation**
	• Major rivers:
	  ○ **Jubba River**
	  ○ **Shabeelle River**

2. Relief (Landforms)	**4. Mountains**
• It mainly consists of a **plateau (tableland)** • Made of **limestone and sandstone** • Northern coast has a narrow plain called: **Guban**	• Highest peak: **Mount Shimbiris (2460 m)**

Natural Resources

- It has: **Iron ore**, **Uranium**, **Copper**, **Tin, bauxite, gypsum, salt**

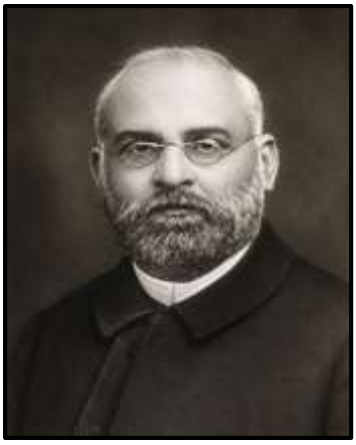
Significance

- It lies along **important global shipping routes (near Gulf of Aden)**
- It is strategically important for **maritime trade and security**
- It is part of the **Horn of Africa geopolitical region**

Educrat IAS ACADEMY | No Need of going to Delhi Now! Prepare for UPSC from Kolkata

4. ART AND CULTURE

1. Shyamji Krishna Varma



Context:

- The Prime Minister paid homage on his **death anniversary**

About

- **Shyamji Krishna Varma** was a **revolutionary nationalist leader** who operated mainly from **Europe**
- Among the **early advocates of complete independence (Swaraj)**

Early Life and Education

- Born on **4 October 1857** at **Mandvi, Gujarat**
- Belonged to a **Bhanushali family**
- Excelled in **Sanskrit and English**
- One of the **first Indians to study at Oxford University**
- Worked as a **lawyer** and served in **princely states**
- Deeply influenced by **Swami Dayanand Saraswati**
- Became the **first President of Bombay Arya Samaj**

Revolutionary Contributions	Influence on Revolutionaries

• Founded **Indian Home Rule Society (1905, London)**
• Established **India House (London)** as a centre for revolutionaries
• Published **"The Indian Sociologist"**, a nationalist journal
• Strongly advocated **Swaraj and resistance to British rule**
	• Guided leaders like:
	  ○ **V. D. Savarkar**
	  ○ **Lala Hardayal**
	  ○ **V. V. S. Iyer**
	• Inspired **Bhikaji Cama**

Later Life and Death

- Shifted to **Paris and later Geneva** due to British pressure
- Continued nationalist activities from abroad
- Died on **31 March 1930**
- A memorial **Kranti Teerth** was established in Gujarat in **2010**

2. Raja Ravi Varma

Context:

- His painting **"Yashoda and Krishna"** was recently sold at a record price

About

- **Raja Ravi Varma** was a prominent **Indian painter** known for blending **Hindu mythological themes with European realism and naturalism**
- He was born on **29 April 1848** in **Kilimanoor, Kerala**, into the **Koil Thampuran family**

Early Life and Career

- He showed excellence in art from an early age
- He later became one of the **first Indian artists to use oil paints**
- He also mastered **lithographic printing**, which allowed large-scale reproduction of his paintings

Art and Themes

- His works mainly depicted:
  - **Scenes from Hindu mythology**
  - **Portraits of Indian and British personalities**
- His paintings are known for their **realistic style and detailed expressions**

Notable Works	Printing Press and Reach
• **Shakuntala Writing a Love Letter to Dushyanta** • **Shri Rama Vanquishing the Sea** • **Yashoda and Krishna**	• He established a **lithographic printing press in Maharashtra in 1894** ○ Initially at **Ghatkopar**, later shifted to **Lonavala** • This helped in **spreading his artworks widely among the public**

Awards and Recognition

- Awarded the **Kaiser-i-Hind Medal in 1904**
- His painting **"Nair Lady Adorning Her Hair"** received:
  - **Governor's Gold Medal (Madras Presidency)**
  - **Certificate of Merit at Vienna Exhibition**
- Awarded **Kaiser-i-Hind Medal**

3. Adi Shankaracharya

Context:

- The Prime Minister paid tribute on the **1,200th birth anniversary (Jayanti)** of Adi Shankaracharya

About

- **Adi Shankaracharya** was a **philosopher, theologian, and saint**
- He lived around **788–820 CE**. He was born in **Kalady, Kerala**
- He is known for: **Reviving Hindu philosophy & Promoting knowledge (Jnana) over ritualism**

Early Life & Education

- He left home at a young age in search of knowledge
- He became a disciple of **Guru Govindapada** near the **Narmada River**
- He: Mastered **Vedic scriptures by age 12** and Completed major works by **age 16**

Philosophical Contribution

1. Advaita Vedanta (Non-dualism)	2. Concept of Maya	3. Unity of Worship (Shanmata System)
• It teaches that: **Brahman (ultimate reality) is the only truth** • **World is Maya (illusion)**; **Atman**	• It explains that the **world appears real due to ignorance** • True knowledge removes this illusion	• He organized worship of **six deities**: Shiva, Vishnu, Shakti, Ganesha, Kartikeya (Muruga), Surya

(soul) is Brahman		• It promoted **religious harmony**

Literary Contributions

1. Commentaries (Bhashyas)- On: **Brahma Sutras, Bhagavad Gita, Upanishads**
2. Important Texts- Viveka Chudamani; Atma Bodha
3. Devotional Works- Nirvana Shatakam; Soundarya Lahari; Sivananda Lahari

Institutional Contributions

- He established **four Maths (monasteries)** across India:

Direction	Place	Math	Veda
North	Badrinath	Jyotir Math	**Atharva Veda**
South	Sringeri	Sringeri Math	**Yajur Veda**
East	Puri	Govardhan Math	**Rig Veda**
West	Dwarka	Sarada Math	**Sama Veda**

Other Contributions

- He organized monks into **Dasanami Sampradaya**
- He promoted **intellectual debate and spiritual reform**

Significance

- He unified India **culturally and spiritually**
- He shifted focus from **rituals to knowledge**
- He strengthened **Vedantic philosophy**

4. Rongali Bihu (Bohag Bihu)

Context:

- The festival of **Rongali Bihu** is being celebrated across Assam

About

- **Rongali Bihu**, also known as **Bohag Bihu**, is one of the **major festivals of Assam**
- It marks the **Assamese New Year** and the **arrival of spring**
- The term "Rongali" comes from **'Rong' meaning joy and celebration**
- It reflects the **rich cultural traditions of Assamese society**

Features of Celebration

- People celebrate with **music, dance, and community gatherings**
- Women wear traditional attire such as **mekhela chador** made of silk or cotton
- The **gamocha (Bihuwaan)** is exchanged as a symbol of **respect and affection**

About Bihu Festival (Overall)

- Bihu is celebrated by people of Assam **irrespective of caste, religion, or community**
- There are **three types of Bihu**:
  - **Rongali Bihu (Bohag Bihu):** Celebrated in **April** and Marks **New Year and spring season**
  - **Kati Bihu (Kongali Bihu):** Celebrated in **October** and Associated with **crop protection and scarcity**
  - **Magh Bihu:** Celebrated in **January**. Marks **harvest season and feasting**

5. Baisakhi (Vaisakhi) Festival

Context:

- Celebrated with **devotion and enthusiasm in Punjab**

About

- **Baisakhi** is a **spring harvest festival of Northern India**
- It is mainly celebrated by the **Sikh and Punjabi community**
- It marks the **Sikh New Year**
- It is observed on **13th or 14th April every year**

Agricultural Importance

- It is a **harvest festival**
- Farmers celebrate **successful crop yield**
- It represents: **Prosperity**, **Hard work** and **New beginnings**

Religious Significance (Sikhism)	Cultural Significance

• It marks the **foundation of Khalsa Panth in 1699**
• Established by Guru Gobind Singh
• Event took place at **Anandpur Sahib (Punjab)**
• Khalsa represents:
  ○ **Purity and equality**
  ○ **Commitment to faith and courage**
	• Celebrated with:
	  ○ **Bhangra and Gidda dances**
	  ○ **Fairs and community gatherings**
	  ○ **Langar (community meals)**

Pan-India Variations

- It coincides with **regional New Year festivals**:
  - **Pohela Boishakh (West Bengal)**
  - **Vishu (Kerala)**
  - **Bohag Bihu (Assam)**
  - **Puthandu (Tamil Nadu)**

Significance

- It highlights **agricultural prosperity and cultural unity**
- It has deep **religious importance in Sikh history**
- It reflects **India's diversity through regional celebrations**

6. First Battle of Panipat (1526)

Context:

- **April 21, 2026** marks **500 years** of the First Battle of Panipat

About

- The **First Battle of Panipat (1526)** marked the **end of the Delhi Sultanate** and the **beginning of the Mughal Empire in India**.
- It was fought on **April 21, 1526** at **Panipat (Haryana)**

Forces Involved

- **Babur (Timurid forces):** Around **12,000 soldiers**
- **Ibrahim Lodi (Delhi Sultanate):** Around **100,000 soldiers + war elephants**

Background

- Babur was invited by **discontented Lodi nobles**
- Key figures: **Daulat Khan Lodi** and **Alam Khan**
- Babur aimed to **establish a permanent kingdom in India**

Key Features / Military Innovations

1. Tulughma Tactic: It involved **flanking and surrounding the enemy**

2. Use of Gunpowder: Babur used **cannons and matchlocks (guns)** in open battle**.** It was **first effective large-scale use in India**

3. Rumi (Ottoman) Strategy: It involved **defensive carts + artillery positioning.** It increased **firepower efficiency**

4. Infantry Advantage: Babur's soldiers fought **on foot with better accuracy.** Lodi army relied on **elephants**, which became ineffective

Outcome	Aftermath
• **Ibrahim Lodi was killed** • **Delhi and Agra captured by Babur** • **Delhi Sultanate ended**	• Babur faced **resistance and revolts** • He strengthened rule after: ○ **Battle of Khanwa (1527) vs Rana Sanga** • He expanded control up to **Bihar**

Significance

- It marked the **end of 320-year Delhi Sultanate**
- It established the **Mughal Empire (300+ years rule)**
- It showed **technology and strategy > numbers**

7. Elephanta Island (Gharapuri)

Context:

- ASI discovered a **1,500-year-old stepped reservoir**, showing advanced water management

About

- **Elephanta Island** is a **UNESCO World Heritage Site** in **Mumbai Harbour**
- Locally known as **Gharapuri (City of Caves)**
- Famous for **rock-cut cave temples dedicated to Lord Shiva**

Naming and History

- Named **Elephanta** by Portuguese after a **stone elephant statue**
- Original name: **Gharapuri**
- Associated dynasties: **Kalachuris (6th century CE)** – main builders; Konkan Mauryas; Chalukyas and Rashtrakutas

Key Features

- **Main Cave (Cave 1):** Large rock-cut temple with pillars and shrines
- **Trimurti (Sadashiva):** 20-foot sculpture of Shiva (creator, preserver, destroyer)
- Other sculptures: **Gangadhara** (descent of Ganga) & **Ardhanarishvara** (half Shiva, half Parvati)
- Carved from **basalt rock (Deccan Trap region)**
- Shows **Hindu and some Buddhist influence**

Recent Discoveries	Significance
• **T-shaped stepped reservoir** for water storage • Evidence of **textile activity (dyeing vats)** • Findings of **foreign pottery (amphorae)** showing trade links • Discovery of **coins of Kalachuri king Krishnaraja**	• Represents **advanced ancient engineering and art** • Shows **India's maritime trade connections** • Important centre of **religion, culture, and economy in ancient times**

Educrat IAS ACADEMY | No Need of going to Delhi Now! Prepare for UPSC from Kolkata