DECEMBER – EDITORIALS 2025

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- **AI, Space Militarisation, and Modern Global Warfare**

India's Rare Earths Awakening: From Strategic Lag to Global Leverage

- The **recent agreement between Donald Trump and Xi Jinping** underscores the **strategic competition** over **rare earths**, crucial for **electric vehicles (EVs)**, **renewable energy**, and **defence technologies**. Despite **India's rich reserves** and ongoing **policy initiatives**, persistent **technological** and **infrastructural challenges** hinder rapid **self-reliance**. Grasping these **geoeconomic dynamics** is essential for **India's ambition** to **challenge China's dominance** and emerge as a **global leader** in the era of **clean energy**, **advanced electronics**, and **strategic autonomy**.

Rare Earth Elements (REEs)

- The term **Rare Earth Elements (REEs)** refers to a set of **17 metallic elements**: the **15 lanthanides** plus **Scandium (Sc)** and **Yttrium (Y)**, which share very similar **chemical properties**.
- The **lanthanides** include: **La (Lanthanum)**, **Ce (Cerium)**, **Pr (Praseodymium)**, **Nd (Neodymium)**, **Pm (Promethium)**, **Sm (Samarium)**, **Eu (Europium)**, **Gd (Gadolinium)**, **Tb (Terbium)**, **Dy (Dysprosium)**, **Ho (Holmium)**, **Er (Erbium)**, **Tm (Thulium)**, **Yb (Ytterbium)**, **Lu (Lutetium)**.
- The phrase **"rare earth"** is somewhat misleading because these elements are **relatively abundant** in the **Earth's crust**, but they are rarely found in **economically viable concentrations** or **easy-to-extract deposits**.

Unique Features:

- For example, **alloys of Nd (neodymium)** and **Sm (samarium)** form **powerful permanent magnets**, able to operate at **high temperatures**.
- States like **Kerala**, **Tamil Nadu**, **Odisha**, **Andhra Pradesh**, and **Gujarat** have significant potential for **mining and processing**.
- Many REEs have **strong magnetic, luminescent, or electrochemical properties**.
- Because of these characteristics, REEs are **vital in modern technologies**, including **electronics**, **defence**, **medical devices**, and **clean energy systems**.

Global Distribution:

- According to data, countries such as **China**, **Vietnam**, and **Brazil** have very large **REE reserves**.
- According to the **US Geological Survey (USGS)**, **China** possesses around **44 million metric tons** of **rare earth oxide (REO) equivalent**, accounting for approximately **48% of the world's total reserves**.
- **India** has about **6% of the world's rare earth reserves** but produces only around **1% of global output**.

Strategic Significance of Rare Earth Metals for India

- **Crucial for India's Clean Energy Transition and Climate Goals:** Rare earth elements (REEs) are indispensable for **clean energy technologies**, including **permanent magnets** used in **wind turbines**, **catalysts in solar cells**, and **batteries in electric vehicles (EVs)**.
- India has emerged as a **global clean energy leader**, ranking **4th globally** in **Renewable Energy (RE) Installed Capacity**, **3rd in solar**, **4th in wind**, and boasting the **world's fastest-growing renewable energy program**.
- The demand for **rare earth magnets** in sectors like **wind energy** and **EVs** is expected to nearly **double by 2030**, aligning with India's **net-zero emission target (2070)**.
- **Essential for National Defence and Strategic Autonomy: Rare earth metals** are critical for **advanced defence technologies** such as **missile guidance systems**, **communication devices**, **radar**, and **electronic warfare equipment**.
- India currently **relies heavily on imports**, primarily from **China**, creating **vulnerabilities**.
- **Geopolitical tensions, trade restrictions, and global competition**, especially from **China**, which controls **60% of global REE production and 85% of processing capacity**, highlight the urgent need to develop a **self-reliant supply chain** to secure India's **clean energy goals, industrial growth, and national security**.
- By developing **indigenous REE mining and processing capacity**, India can **enhance defence preparedness** and **reduce risks** associated with **supply disruptions**, thus strengthening its **strategic autonomy** amidst **geopolitical uncertainties**.
- **Boosting Economic Growth and Job Creation:** India possesses the **third-largest rare earth reserves globally** (about **6.9 million tonnes**), primarily in **coastal regions** (**Kerala**, **Tamil Nadu**, **Odisha**).
- With the **Indian rare earth market** valued at over **USD 9 billion (2024)** and expected to grow significantly, expanding **rare earth mining and processing** can unlock **economic benefits**.
- Government initiatives such as the **Production-Linked Incentive (PLI) schemes** for **rare earth magnet manufacturing** are expected to **create significant employment opportunities**, **boost industrial growth**, and **reduce India's dependence on imported rare earth-based products**.
- The **National Critical Mineral Mission** and related policies aim to **expedite exploration** and **processing** while **balancing ecological norms**, highlighting India's need to **overcome technical and regulatory hurdles** to **unlock resource potential**.
- **Supporting the 'Make in India' Vision Through Value Chain Development:** India's current **rare earth ecosystem** is mainly **upstream mining and extraction** with limited **downstream processing** and **magnet production**.
- Major **investments** are underway to build **full value chains**, including **magnet manufacturing plants** in **Visakhapatnam** and **integrated refining facilities** in **Kerala** and **Odisha**.
- These efforts align with **"Make in India"** to promote **domestic manufacturing** of **high-value rare earth products**, **reduce import dependency**, and position India as a **global supplier**.

- **Strategic Reserves and International Collaboration to Secure Supply:** India is actively developing **strategic stockpiles** of **critical rare earth minerals** to **mitigate supply shocks**.
- It is also pursuing **partnerships** with **resource-rich countries** and forming **alliances like the Quad** to **diversify sources**.
- Such **geopolitical and trade strategies** enhance India's **bargaining power**, **ensure material security**, and **hedge against supply disruptions** caused by **political instability** or **trade wars** involving China.

Primary Challenges

- **Limited Domestic Production and Outdated Infrastructure:** Although **India holds the world's third-largest rare earth oxide reserves** (about **6.9 million tonnes**) and nearly **35% of global beach sand mineral deposits**, its **actual production remains modest**, with **mine output at only around 2,900 metric tons per year — less than 1% of global supply**.
- This disparity highlights the country's **outdated infrastructure and limited processing capacity**, which hinder efficient extraction and value addition.
- **Bridging the gap between reserves and production** will require **modernising facilities, upgrading technology**, and **expanding capacity** to realise India's full potential in the rare earth sector.
- **Geopolitical and Supply Chain Vulnerabilities:** India's **dependence on imports** from **geopolitically sensitive regions**, particularly **China**, exposes its **critical technology sectors** to **supply disruptions**.
- The ongoing **global competition** for **critical minerals** exacerbates **price volatility** and **availability risks**.
- Recent **Chinese export restrictions** underscore this **vulnerability** and highlight India's urgent need to develop **indigenous refining**, **alloy manufacturing**, and **magnet production capabilities**.
- **High Capital Costs and Long Lead Times:** Establishing **integrated mining and processing infrastructure** demands **substantial investment**.
- **India's rare earth ambitions** are likely to face a **gestation period of at least 15 years** before achieving **substantial self-reliance** in exploration, processing, and manufacturing.
- India's plans to **triple rare earth magnet manufacturing capacity by 2032** require **hundreds of millions of dollars** in capital and **dedicated policy incentives**.
- Such projects typically have **long gestation periods**, delaying **immediate benefits** and testing **investor patience**.
- **Lack of Downstream Processing and Value Addition:** India's **rare earth sector** primarily focuses on **mining and initial processing** (like **separation and oxide production**).
- However, it has **limited capabilities** in producing **intermediate products** like **alloys**, **permanent magnets**, and **finished components** essential for **advanced technology applications**.

- This **incompleteness** weakens India's **position in the global value chain** and necessitates **large-scale capacity building**.
- **Environmental and Social Risks: Rare earth mining** involves extracting **minerals associated with radioactive elements** like **thorium**, posing **environmental and health hazards** requiring stringent **regulatory oversight**.
- Extracting **rare earth minerals**, especially from **coastal monazite sands**, risks **ecological damage** such as **soil degradation** and **water contamination**, potentially impacting **local communities**.
- The **radioactive nature** of some deposits requires **safe waste disposal**.
- **Environmental clearances**, **Coastal Regulation Zone (CRZ) norms**, and the need to conduct **detailed impact assessments** slow project approvals.
- **Balancing ecological concerns** with the **economic imperative** of rare earth mining remains **challenging**.

Government Initiatives-

- **National Critical Mineral Mission (NCMM),2025:** Launched in **January 2025** with a **budget of ₹16,300 crore**, the **NCMM** aims to ensure India's **long-term critical mineral security**, including **rare earth elements (REEs)**.
- **Production Linked Incentive (PLI) Scheme for Rare Earth Magnets:** Announced in **2025**, this scheme allocates **₹7,350 crore** to **incentivise domestic manufacturing** of **rare earth permanent magnets**, vital for **electric vehicles (EVs)** and **renewable energy technologies**.
- The goal is to **triple India's magnet production capacity by 2030**, **reduce imports**, and **foster an integrated domestic supply chain**.
- **Strategic Stockpiling of Rare Earths and Critical Minerals:** The government plans to create **strategic mineral stockpiles** to **buffer supply shocks**, especially given the **concentration of rare earth supply** in **geopolitically sensitive countries** like **China**.
- **Centres of Excellence (CoEs) and Research Ecosystem:** Multiple **Centres of Excellence** have been established under **NCMM** in premier institutions like **IISc Bengaluru** and **C-MET Hyderabad** to drive **R&D**, **innovation**, **patent development**, and build **local technological capabilities** aligned with the **global critical minerals challenge**.
- **Policy Reforms for Mining and Exploration:** The government has **simplified licensing**, **auctioned mining blocks** (around **20 blocks**), and introduced **regulatory reforms** to promote **private sector participation** in **rare earths mining** and **downstream processing**.
- Inclusion of **critical minerals under Part D of the first schedule of the MMDR Act,1957** gives the **Central Government control** over leases, facilitating **coordinated development**.
- **Recycling and Circular Economy Initiatives:** In addition to mining, the government supports **enhancing recycling** of **rare earths from electronic waste (e-waste)** by approving **incentive schemes** and **research programs** focused on **sustainable recovery**,

thereby **reducing dependence on virgin mining** and promoting a **circular economy**.

Measures to Effectively Strengthen Its Rare Earth Materials Ecosystem

- **Fully Implement and Scale up the National Critical Mineral Mission (NCMM):** India should **expedite** the ambitious **NCMM initiative** to enhance **mineral mapping**, **exploration of 1,200 critical mineral projects by 2030**, and development of **domestic processing capabilities**.
- **Rigorous implementation** with **strong policy coordination** among ministries will help India extract value from its **6.9 million tonnes of rare earth reserves** and improve its **strategic autonomy**.
- India may learn from **global best practices** like the **US Department of Defence's public-private partnership with MP Materials** to build **vertically integrated rare earth supply chains**, backed by **long-term procurement guarantees**.
- **Develop Strategic Integrated Rare Earth Manufacturing Clusters:** Taking a cue from **Australia's cluster model**, where **mining and refining hubs** exist with access to **infrastructure** and **skilled labour**, India should prioritise **integrated hubs** in **Odisha (LREEs)**, **Andhra Pradesh (HREEs)**, and **Tamil Nadu (magnet manufacturing)**.
- This will reduce **logistics costs,** improve **efficiency**, and attract investment by creating economies of scale and specialised talent pools.
- **Establish Strategic Stockpiles and Market Stabilization Mechanisms:** Creating **government-backed strategic reserves** of **rare earth minerals** and instituting price floors or minimum procurement guarantees can stabilize supply and shield critical industries against price volatility.
- India may learn from the **US Pentagon's price floor and guaranteed offtake model** in its rare earth **magnet manufacturing program, enhancing market certainty and investor confidence.**
- **Substantially Expand Production Linked Incentive (PLI) Schemes for Rare Earth Magnets:** India must increase PLI funding to nurture innovation hubs and scale magnet production to meet at least 15% of global demand by 2030, supporting electric vehicle (EV) and renewable energy sectors.
- India may learn from **Australia''s government-backed investments,** including a **$1.25 billion loan to Iluka Resources for building rare earth** refineries, enhancing downstream production and exports.
- **Invest Heavily in Research, Development, and Circular Economy Models:** India must establish **Centres of Excellence (CoEs)** to develop **green mining and eco-friendly extraction technologies. Recycling rare earths from e-waste**, an emerging global best practice in Japan and South Korea, should be aggressively promoted to reduce virgin mining dependence.
- Encouraging **startups, industry–academia collaboration, and innovation** ecosystems can accelerate technology development and ensure a sustainable mineral economy.
- **Harmonise Regulatory Framework and Enforce Environmental Safeguards:** India should simplify mining and environmental clearances without compromising sustainability,

especially in radiation-sensitive monazite extraction areas.

- Adopting **rigorous environmental management, rehabilitation standards,** and community engagement can prevent social conflicts and ensure **responsible mining.**
- Such **balanced regulation** can help India match the sustainability benchmarks seen in **Scandinavian mining sectors.**
- **Forge Robust International Alliances and Technology Partnerships:** India should deepen ties within frameworks like the Minerals Strategic Partnership (MSP) and the Quad to access advanced technology, co-invest in overseas deposits, and build diversified strategic supply chains.
- Following the **US-Australia cooperative model,** India can pursue **bilateral MoUs** to expand **processing capabilities** and reduce China-centric supply risks.
- Nobel laureate **Joseph Stiglitz** rightly observes that the key question for developing economies is not merely *"What can an economy produce today?"* but rather *"What can it learn to produce?"*—a principle that should guide **India's strategic advancement in rare earths**. To realise this vision, India must adopt a **comprehensive rare earth strategy** by swiftly operationalising the **National Centre for Mineral Materials (NCMM)**, **expanding PLI incentives**, **developing integrated industrial clusters**, and **streamlining regulations** with robust **environmental safeguards.**

Stampede Disasters in India: Trends, Challenges, and Solutions

- A **stampede** is a **sudden, uncontrolled rush** of people or animals, usually triggered by **panic, fear,** or **excitement**, occurring in crowded areas and often causing chaos and casualties.
- **Stampede Incidence:** The NCRB report ***'Accidental Deaths and Suicides in India'*** states that from **2000 to 2022**, **3,074 lives** were lost in stampedes, with nearly **4,000 stampede incidents** recorded over the past three decades.
- **Cause of Death:** A major cause of stampede deaths is the **"black hole effect."** In dense crowds, **physical forces create unpredictable "force chains" between bodies**, so if one person falls, it creates a void, causing others to lose balance and fall.
    - This domino effect leads to a pile-up, where people suffer compressive asphyxia under the weight of others.
    - During a stampede, **crushing pressure on the chest** prevents proper lung movement, causing **hypoxia** (low oxygen) and **hypercapnia** (high carbon dioxide), both life-threatening.

Causes & Impact of Stampedes in India

Causes	Impacts
Immediate Triggers (**rumors, sudden obstructions**)	Stampedes result in **sudden fatalities, severe injuries, and psychological trauma**, while also generating grief

	and anger.
Systemic Failures (underestimating crowd size, **poor crowd control**, lack of preparedness)	These failures **erode public trust** in authorities, invite **repeated scrutiny of safety protocols**, and make it harder to implement **sustainable reforms**.
Behavioral Factors (**panic spread**, disregard for norms, star power, political influence)	Behavioral triggers cause uncontrolled crowd movement leading to trampling deaths, **spark social unrest, and stigmatize mass gatherings or festivals.**
Poor Infrastructure (**narrow paths, blocked exits, slippery floors**)	Increases the risk of **falls and chain-reaction stampedes**, causes critical injuries, and leads to **economic losses** as public participation in events declines.

Fatal Stampede Incidence in India

- **Bengaluru (2025):** During the **victory celebrations of Royal Challengers Bengaluru's**, a massive crowd near **M. Chinnaswamy Stadium** in Bengaluru triggered a **stampede**, resulting in multiple deaths and injuries.
- **Prayagraj (2025):** A deadly stampede broke out during the **Mahakumbh Mela 2025**, leaving several dead and injured as millions of devotees thronged for the ritual bath.
- **Tirupati (2025):** A tragic stampede occurred at the **token issuing counter** in **Tirupati, Andhra Pradesh**, resulting in the multiple deaths and injuries.
- **Hathras (2024):** At least **121 people**, mostly women and children, died in a stampede during a religious event in **Uttar Pradesh**.
- **Mumbai Pedestrian Bridge (2017): 22 people** were killed in a stampede during rush hour.

Recommendations of NDMA for Crowd Management

- **Pre-Event Planning: Crowd estimation and capacity planning**, safe **site selection and layout design**, and clear **route planning** with unobstructed entry, exit, and movement paths are essential to prevent stampedes.
- **Structural Safety:** Install **barriers and railings** in **zig-zag queues**, provide for **virtual queue** and **approximate waiting time**, ensure **safe entry and exit points** with outward-opening wide exits, and maintain effective **communication systems** and mobile connectivity to manage crowds.
- **On-Ground Management:** Implement **crowd control and segregation** with barricades, manage **traffic and parking** safely, use **real-time crowd monitoring** with CCTV and analytics.
- **Building Awareness:** Promote **public awareness** of risks and safe behavior, conduct **training and drills** for all agencies, and provide clear **detailed Standard Operating Procedures**

(SOPs) for event management stakeholders.

- **Emergency Response:** Provide **on-site medical aid**, deploy **Quick Reaction Teams (QRTs)** for emergencies, and establish a clear **Incident Command System** for swift decision-making.

Global Best Practices in Crowd Management

- **Saudi Arabia**: After Hajj stampede, authorities used **crowd simulations, restricted entry timings,** and improved route planning.
- **United Kingdom**: In the UK, **Wembley Stadium, London** has been designed with **multiple exits and advanced evacuation systems** to handle 90,000 people safely.
- **South Korea:** In response to the **Halloween stampede 2022**, **South Korea** has deployed an advanced **CCTV-based AI system** to monitor **crowd density** in real time and provide timely warnings.
- **Japan: Japan** has implemented **timed tickets** and **staggered entry** measures to prevent sudden crowding.

Preventing Stampedes in India

- **ICT Based Management:** Use **AI-powered density analytics** with CCTV, **drone-based aerial surveillance**, and **mobile network & Wi-Fi heat mapping** to monitor crowd size, flow, and bottlenecks in real-time for pre-emptive intervention.
- **Managing Human Behavior:** Use **visual and sound cues** to calm crowds, train staff in **crowd whispering** to reduce tension, and provide **safe spaces** and **pressure-release paths** for emergencies.
- **Build a Culture of Safety:** Launch public **safe crowding campaigns** with influential figures, enforce **mandatory organizer certification** on crowd management, and use **crowd-sourced monitoring** via hashtags or apps to report overcrowding.
- **Strengthen Accountability Framework:** Enact a **Crowd Safety Act** defining organizer liability, require **independent safety auditors** for large events, and implement a **national stampede database** to learn from past incidents.

Stampedes in India are caused by a mix of **triggers, systemic failures, behavioral factors, and poor infrastructure**, resulting in high human, social, and economic costs. Effective prevention requires **NDMA-compliant planning, crowd management, technology use, public awareness, and accountability frameworks** to safeguard lives and ensure safer mass gatherings.

Revamping the UN: Challenges to a More Inclusive Global Order

The United Nations celebrated its 80th anniversary this week. Reforming the United Nations (UN) is one of the most critical and complex challenges in global governance today. While the UN remains indispensable,

its structure, particularly its most powerful bodies, often fails to reflect the realities of the 21st century.

- **UN reforms** refer to proposed and ongoing changes meant to make the United Nations more effective, representative, transparent, and responsive to current global realities.
- The calls for reform span core UN organs, especially the Security Council, as well as the organization's operational and financial structures.

Issues

- **Outdated Power Structure:** The UN Security Council (UNSC) is dominated by five permanent members (P5: US, UK, France, Russia, China) with veto powers—a structure set in 1945 that now fails to reflect shifts in global power, the rise of developing nations, and the interests of the Global South.
- **Veto Deadlock:** The ability of one P5 member to block action causes paralysis in response to major conflicts (Syria, Ukraine), humanitarian crises, and genocide, undermining the Council's credibility and effectiveness.
- **Under-representation:** Countries like India, Brazil, Germany, and Japan, and regions such as Africa and Latin America, have long called for permanent representation to reflect modern realities and give a greater voice to developing nations.
- **Bureaucratic Inefficiency:** The sprawling UN bureaucracy often slows emergency response and suffers from corruption, misuse of funds, or poor accountability.
- **Financial Dependence:** Reliance on a few donors, especially the US, leads to budgetary crises, delays in humanitarian aid, and concerns about undue influence in UN affairs.
- **Erosion of Legitimacy and Emergence of Competitors:** Failures to act on major crises push member states toward regional or ad hoc coalitions (G20, BRICS, African Union), bypassing the UN and weakening its global leadership.
- **Defining the Role in Emerging Challenges:** The UN needs a clearer mandate and framework to govern 21st-century threats like climate change & global warming, global health security, artificial intelligence etc.

Reform Proposals & Ongoing Initiatives

1. **UNSC Expansion and Veto Reform:**
    - **New Permanent Members (P6-P11):** The current permanent five (P5: China, France, Russia, UK, US) do not include major modern economic, demographic, or political powers. Leading candidates for new permanent seats include:
        - **India:** The world's most populous country and a major global economy.
        - **Brazil:** The leading voice in Latin America.
        - **Germany** and **Japan:** Major financial contributors to the UN and global powers.
        - **An African Seat:** A consensus candidate or rotation among key African nations (e.g., Nigeria, South Africa) to represent the entire continent.

- **Limit or Reform Veto:** Restrict veto use (especially in cases of genocide, war crimes, crimes against humanity) with proposals for supermajority or General Assembly referral for overrides.
- **Increase Non-Permanent Seats:** More seats for underrepresented regions to distribute influence and reflect global demographics.

2. **Streamlining Bureaucracy & Decision Making:**
   - **Cut Costs and Jobs:** Secretary-General's UN80 initiative includes a 15% budget cut for 2026, reducing staff by over 2,600 posts and streamlining mandates, meetings, and reporting requirements.
   - **Increase Transparency and Accountability:** Stricter auditing, performance reviews, and publication of program assessments; better mechanisms to address fraud, misconduct, and resource misuse.

3. **Financial Reform:**
   - **Equitable Assessment & Burden Sharing:** Update member contribution formulas based on GDP, population, and development indicators; build in accountability for arrears and fiscal discipline.
   - **Link Membership to Contributions:** Greater privileges or representation for consistent contributors to peacekeeping, aid, or development.

4. **Inclusive Voice and Representation:**
   - **Institutionalize Global South Forums:** Permanent coalitions (e.g., G4, African Union blocks) within UN organs to negotiate as regional blocs and ensure developing country priorities are addressed.
   - **Text-Based Negotiations:** Adopt clear deadlines and rounds for reform discussions, preventing procedural delays.

5. **Periodic Review Mechanisms:** Institutionalize a process for periodic assessment and adjustment of governance structures and policies (such as a standing UN Reform Commission).

Challenges to UN Reforms

- **Veto Power and Security Council Dynamics:** The **UN Security Council's five permanent members (P5) hold veto power**, which allows any one of them to block substantive reforms, including changes to the Council itself—even reforms that enjoy broad international support.
- **Geopolitical Rivalries and National Interests:** Competing national interests and regional rivalries between major powers and emerging economies complicate negotiations on reforms. Countries like India, Brazil, Germany, Japan, and African nations demand permanent Security Council seats, but this is contested by others with divergent interests.

- **Constitutional and Legal Barriers:** UN Charter amendments require approval by two-thirds of the General Assembly members and all P5 countries. This high threshold makes reform legally and procedurally difficult. Existing procedures are cumbersome, and there is no standing mechanism to expedite or enforce reforms.
- **Institutional Inertia and Bureaucratic Resistance:** UN's bureaucratic structure is large and complex, with entrenched interests and resistance to change. Budgetary, administrative, and mandate reforms are often resisted by internal UN agencies and member states benefitting from the status quo.
- **Fragmentation and Lack of Political Will:** Divisions among member states, shifting alliances, and the rise of alternative multilateral platforms (G20, BRICS, regional organizations) lead to fragmented global governance, diverting momentum away from comprehensive UN reform. The absence of unified leadership and hesitation from powerful states creates a political vacuum, limiting sustained reform efforts.
- **Funding and Financial Dependence:** UN's operational effectiveness depends on contributions from a few major donors, primarily Western countries like the U.S. Member states reluctant to increase funding or subject their contributions to reform conditions create financial constraints that undermine reform implementation.
- **Representation and Inclusivity Conflicts:** Diverse views on how to democratize or broaden representation create further disagreements, especially between developed and developing countries. Differing visions on representation of the Global South, small states, and non-state actors complicate the design of an inclusive governance model.

UN reform faces formidable roadblocks from entrenched power structures, competing national interests, high legal thresholds, organizational inertia, and lack of unified political will. Overcoming these challenges requires sustained global diplomacy, balancing realism and idealism to adapt the UN for contemporary global governance.

Towards Inclusive and Sustainable Forest Governance

Euthanasia—commonly known as "mercy killing"—refers to intentionally ending a person''s life to relieve suffering. The practice is deeply debated, involving legal, ethical, medical, and social considerations globally and within India.

India's forest restoration strategy must evolve from mere afforestation to inclusive, ecologically sound, and financially sustainable models to meet climate goals.

- **Forests are central to India's climate strategy**, especially under the revised *Green India Mission (GIM)*, which aims to restore *25 million hectares* of degraded land by 2030.
- This aligns with India's climate pledge to create an *additional carbon sink of 3.39 billion tonnes of*

CO_2 equivalent.

Key Challenges in Afforestation

1. **Declining Forest Efficiency**:
    - A 2025 IIT study shows a *12% drop in photosynthetic efficiency* due to *rising temperatures and soil dryness*, questioning the assumption that more trees always mean more carbon absorption.
2. **Three Persistent Gaps**:

- **Community Participation**: Despite the *Forest Rights Act (2006)*, many plantation drives ignore tribal and local communities.
- **Ecological Design**: Over-reliance on monocultures (e.g., eucalyptus) harms biodiversity and groundwater.
- **Financing**: Underutilization of funds like *CAMPA*, which holds ₹95,000 crore, limits impact.

Promising Interventions

- **Ecological Restoration**:
    - Shift toward *native, site-specific species*.
    - Focus on biodiversity-rich zones: *Aravalli Hills, Western Ghats, mangroves, Himalayan catchments*.
- **Community-Led Models**:
    - *Odisha*: Joint Forest Management Committees involved in planning and revenue sharing.
    - *Chhattisgarh*: Mahua plantations revive tribal livelihoods.
- **Innovative Financing**:
    - *Himachal Pradesh*: Biochar for carbon credits and fire risk reduction.
    - *Uttar Pradesh*: 39 crore saplings planted; exploring carbon market linkages.

Institutional and Policy Support

- Integration with:
    1. *National Agroforestry Policy*
    2. *Watershed programmes*
    3. *CAMPA*
- Training institutes in *Uttarakhand, Coimbatore, Byrnihat* can build ecological capacity.

Way Forward

- **Empower communities** as custodians of forests.
- **Enhance transparency** via public dashboards tracking survival rates, species mix, fund use.
- **Broaden CAMPA's scope** to include participatory planning and adaptive management.
- **Leverage civil society and research institutions** for technical and monitoring support.

Criminalisation vs Constitution: Rethinking Political Accountability in India

- The **130th Constitution Amendment Bill,**2025**,** aims to **remove the Prime Minister, Chief Ministers, or ministers automatically** if **detained for 30 consecutive days** on **serious criminal charges** punishable by **five or more years**. It **amends Articles 75, 164, and 239AA** to enhance **accountability** and **restore public trust**. While addressing the **criminalisation of politics** it raises concerns over **violating the presumption of innocence**, potential **misuse of power**, and the challenge of **balancing governance with constitutional rights**.

Features of the Constitution (One Hundred and Thirtieth Amendment) Bill, 2025

- **Amendment of Constitutional Provisions:** The Bill proposes amendments to **Articles 75, 164, and 239AA** of the Constitution, which deal with the **Union Council of Ministers**, **Council of Ministers in the states**, and **Ministers in Union Territories,** respectively.
- It seeks to provide for the **removal of the Prime Minister, a Chief Minister of a state, or any other Minister in the central or a state government**, if he is **arrested and detained in custody on account of serious criminal offences**.
- It also applies these provisions to the **Union Territory (UT) of Delhi**.
- Two other Bills have also been introduced to apply these provisions to the **UTs of Puducherry and Jammu and Kashmir**.
- **Grounds for Removal:** A Minister will be removed from office if:
- He is accused of an offence punishable with imprisonment for a term which may extend to five years or more, and
- He has been arrested and detained in custody for 30 consecutive days.

Procedure for Removal:

At the Union Level:

- A Union Minister (other than the Prime Minister) will be removed by the **President** on the **advice of the Prime Minister**.
- The Prime Minister must provide this advice by the **31st consecutive day** of the Minister's custody.
- If no advice is given by then, the Minister will **automatically cease to hold office** from the following day.

At the State Level:

- The **Governor** will remove a Minister on the **advice of the Chief Minister** under similar conditions.
- If the **Chief Minister** is in custody, he/she must **resign by the 31st consecutive day**; failure to do so results in **automatic cessation of office** thereafter.

In the Union Territory of Delhi:

- The **President**, acting on the **advice of the Chief Minister**, will remove Ministers following the same 30-day rule.
- If the **Chief Minister of Delhi** is detained, he/she must resign by the **31st day**, or will automatically **cease to hold office** thereafter.

In the case of the Prime Minister:

- The **Prime Minister must resign** by the **31st consecutive day** of being in custody on serious criminal charges.
- Failure to resign by this time will result in the **automatic cessation of the Prime Minister's office** from the day thereafter.

Reappointment Possibility:

- Allows **ministers to be reappointed** once **released from custody** or **granted bail**.

Rationale in Favour

- **Addressing the Widespread Criminalisation of Politics:** The alarming statistic that nearly **47% of ministers across India face criminal charges** underscores a **deep-rooted issue** in governance.
- Data from ADR (Association for Democratic Reforms) indicates that 174 ministers face serious charges like murder and sexual assault, which undermines public confidence and erodes the integrity of democratic institutions.
- The Bill aims to institutionalise a mechanism for the proactive removal of such ministers, promoting cleaner and more ethical governance.
- **Filling Legal Gaps in Disqualification Procedures:** Currently, Indian law disqualifies legislators only after conviction, often delayed for years due to judicial backlog.
- This enables accused ministers to retain power despite grave allegations.
- The Bill introduces a preemptive removal process based on 30 days of detention for offences punishable by five or more years, closing a legal loophole and ensuring swift accountability.
- **Mitigating the 'Governing from Jail' Phenomenon:** Public disillusionment grows when leaders accused of serious crimes remain in office, eroding faith in the rule of law.
- By enforcing swift removal upon detention, the Bill reaffirms the government's commitment to ethical governance and aims to restore citizens' trust in democratic institutions and constitutional morality.
- The Bill's design reduces scope for political manipulation by setting objective and transparent criteria-detention beyond 30 days on serious charges, for removal.
- This ensures procedural fairness, minimizes arbitrary dismissals, and upholds transparency and impartiality in governance.

- **Ensuring Uniform Application Across Regions:** By extending its provisions to Union Territories such as Delhi, Puducherry, and Jammu & Kashmir, the Bill promotes uniformity in accountability standards.
- This prevents jurisdictional inconsistencies and reinforces a pan-Indian framework for ethical conduct in public office.
- **Balancing Accountability with Fairness:** The Bill allows reappointment of ministers once released or acquitted, thereby avoiding unjust or premature penalties.
- This provision respects the presumption of innocence, a core constitutional safeguard, while ensuring temporary accountability during judicial proceedings.
- **Symbolic of Ethical Governance and Constitutional Morality:** The Bill embodies a commitment to constitutional morality, a principle emphasised by B.R. Ambedkar was upheld by the Supreme Court in the Kesavananda Bharati case(1973).
- It integrates ethical principles into political accountability, aligning governance with the values of justice, equality, integrity, and public responsibility enshrined in the Constitution of India.

Judicial Pronouncements Regarding Ministerial Accountability

- **Manoj Narula v. Union of India (2014):** The **Supreme Court** ruled there is **no legal bar** on appointing **Ministers with criminal antecedents** but advised the **Prime Minister** to avoid selecting those **charged with serious or heinous offences**.
- **Public Interest Foundation PIL (2018):** The **Supreme Court** held that it cannot **legislate** or add new grounds for **disqualification** beyond **Parliament's provisions**. **Parliament alone** has the power to make laws on disqualification.
- The **SC recommended** a strong law requiring **political parties** to **revoke membership** and **deny tickets** to those **charged with heinous offences**.
- **Arvind Kejriwal Case (2024):** The **SC granted Arvind Kejriwal bail** in the **liquor policy money laundering case**, **barred him from official duties**, could not **compel resignation**, but he later **voluntarily resigned from office**.
- **V. Senthil Balaji Case (2025):** The **Supreme Court** directed **Tamil Nadu Minister V. Senthil Balaji** to **choose between freedom or office** after noting it had been **misled by his reappointment post-bail**, which was granted in the alleged **cash-for-jobs scam**.
- He subsequently **stepped down from office**, and his **bail continued**.

Criticisms Against the Bill

- **Violation of the Presumption of Innocence and Fundamental Rights:** One of the gravest constitutional objections to the Bill lies in its violation of the **presumption of innocence**, **a foundational legal principle recognised under Article 21 (Right to Life and Personal Liberty).**
- The Supreme Court in *Maneka Gandhi v. Union of India (1978)* emphasised that any restriction on personal liberty must be "just, fair, and reasonable."

- However, the Bill mandates the removal of ministers upon **detention for 30 consecutive days**, without any **judicial conviction**.
- Detention, which may result from procedural delays, denial of bail, or politically motivated arrests, cannot be equated with guilt.
- This provision, therefore, may contradict the **natural justice doctrine of *audi alteram partem* (right to be heard).**
- Thus, automatic disqualification on mere detention, without due process, represents a **constitutional regression** rather than moral advancement.
- **Potential for Political Weaponisation of Investigative Agencies:** Critics argue the Bill's provisions can transform India's investigative agencies into instruments of political coercion.
- In India's competitive federal democracy, institutions like the **CBI, ED, and Income Tax Department** have frequently been accused of selective targeting of opposition leaders.
- Empirical evidence supports this concern as a 2023 *Indian Express* report found that **over 90% of political figures investigated by the ED since 2014 belonged to opposition parties**.
- The Bill, though justified in the name of "ethical governance," risks providing the executive with a **legally sanctioned political weapon**, bypassing democratic procedures like **no-confidence motions** or judicial trials.
- This contradicts the Supreme Court's emphasis in ***Vineet Narain v. Union of India (1998)*** on insulating investigative agencies from political interference.
- **Conflict with Established Legal and Judicial Precedents:** India's democratic framework already provides mechanisms for disqualification through the **Representation of the People Act, 1951 (RPA)**.
- Under Section 8, disqualification occurs only upon conviction, not mere detention or framing of charges.
- In ***Lily Thomas v. Union of India (2013)***, the Supreme Court struck down Section 8(4) of the RPA, which earlier allowed convicted legislators to continue in office pending appeal. The Court held that **disqualification must follow only after conviction**, ensuring balance between political accountability and individual rights.
- The Bill, however, introduces a **dual standard** — creating a lower threshold (detention) for ministers while maintaining conviction for legislators. This inconsistency breaches the equality clause of **Article 14** and could invite constitutional litigation.
- **Arbitrariness of the 30-Day Detention Period: Critics argue that** the Bill's threshold of "**30 consecutive days**" is **arbitrary and unreasoned**. It neither aligns with established administrative standards nor derives from any judicial logic.
- Detention for 30 days may occur due to investigation backlogs, denial of bail, or preventive custody under special laws such as the **UAPA** or **NSA**, where trials often extend for years without conviction.
- The **Supreme Court in *EP Royappa v. State of Tamil Nadu (1974)*** held that arbitrariness is the antithesis of equality.

- Without any rational nexus between detention duration and moral unfitness, the provision violates the constitutional guarantee of **non-arbitrariness under Article 14**.
- **Undermining Parliamentary Democracy and Federalism:** Parliamentary democracy is built on **collective ministerial responsibility** and legislative oversight.
- The Bill allows the removal of ministers without parliamentary debate, vote, or confidence motion, effectively transferring accountability from the legislature to the bureaucracy and investigative agencies.
- This dilutes the essence of **Article 75(3)** and **Article 164(2)**, which bind ministers' tenure to legislative confidence, not executive or administrative decisions.
- The **S.R. Bommai v. Union of India (1994)** judgment reiterated that majority and accountability must be tested on the floor of the House, not through executive notifications.
- Moreover, since detention may be ordered under central laws or by central agencies, the provision **distorts federalism** by enabling the Union government to influence state leadership indirectly.
- It may erode the spirit of **cooperative federalism** envisioned in the Constitution and emphasised in the ***7th Schedule*** **division of powers.**
- **Selective and Unequal Targeting of Ministers:** The Bill singles out the executive (Prime Minister, Chief Ministers, Ministers) while leaving legislators untouched, despite both performing public functions. Such selective accountability violates the principle of **equality before law (Article 14)**.
- Ministers are already accountable through **parliamentary conventions**, **cabinet responsibility**, and **ethics codes**.
- By introducing asymmetric disqualification standards, the Bill risks creating an **unequal political hierarchy**, where similar offences attract different consequences depending on office.
- **Committee Recommendations Against Criminalisation of Politics**
- In **1983, the Vohra Committee on Criminalisation of Politics** was constituted with an objective to identify the extent of the political-criminal nexus and to recommend ways in which the criminalisation of politics can be effectively dealt with.
- The **Law Commission** submitted its 244th report in 2014 which dealt with the need to curb the trend of criminal politicians in the legislature posing serious consequences to democracy and secularism.
- The Law Commission recommended disqualification of people against whom charges have been framed at least one year before the date of scrutiny of nominations for an offence punishable with a sentence of five years or more.
- In 2017, the Union government started a scheme to establish **12 special courts for a year** to **fast-track the trial of criminal cases against MPs and MLAs**.

SC Judgements Regarding Criminalization of Politics

1. ***Association for Democratic Reforms v. Union of India (2002)*:**

- In 2002, the SC ruled that every candidate contesting an election has to declare his criminal and financial records along with educational qualifications.

***2. PUCL v Union of India (2004)*:**

- The SC ruled that a law nullifying the requirement for election candidates to disclose their criminal records was unconstitutional. The Court said voters have a right to know about candidates'' backgrounds for fair elections.

***3. Ramesh Dalal vs. Union of India (2005)*:**

- In 2005, the SC had ruled that a sitting MP or MLA will be disqualified from contesting the election if convicted and sentenced for imprisonment for two years or more by a court of law.

***4. Lily Thomas v. Union of India (2013)*:**

- The SC has declared that any member of parliament or state legislative assembly who is convicted of a crime and sentenced to a prison term of two years or more would be disqualified from holding office.

Reinforcing Political Accountability Without Compromising Constitutional Rights

- **Judicially Anchored Removal Criteria:** Removing ministers based on **arrest without a judicial finding of guilt** violates **constitutional safeguards**.
- Implementing **independent tribunals** to evaluate cases before removal can prevent **executive misuse**.
- This **judicial anchoring** is essential given that as of **2025**, **45% of India's MLAs** face **criminal cases**, but only **6% convictions** have occurred due to **systemic delays**.
- **Interim Suspension to Preserve Governance Integrity:** Globally, many **democracies** suspend officials accused of **serious crimes** during trial, as seen in the **UK** and **Canada**.
- This balances the need to maintain governance standards and uphold the presumption of innocence.
- With over 27% of ministers facing serious offences like murder or kidnapping (ADR 2025 report), suspension during trial curtails the influence of indicted ministers without premature removal.
- **Limiting Disqualification to Serious Crimes:** The Law Commission's 1999 report advises restricting disqualification to offences involving moral turpitude or corruption to avoid penalising politicians for minor or politically motivated charges.
- Data shows that states like Andhra Pradesh (56%) and Telangana (50%) of MLAs have serious charges.
- Narrowing scope targets genuine threats to governance quality while respecting political pluralism.
- **Robust Disclosure and Voter Awareness:** The Election Commission and NGOs like ADR have

pushed for mandatory disclosure of criminal backgrounds prior to elections.

- Though 45% of MLAs declared cases, voter awareness campaigns can empower voters to reject candidates with criminal backgrounds.
- Research shows educated electorates and urban voters increasingly vote against tainted candidates, signalling the efficacy of transparency measures.
- **Electoral Finance Reforms to Weaken Criminal Nexus:** Criminal elements often fund elections through illegal means, entrenching their influence.
- The **Second Administrative Reforms Commission (ARC)** recommended state funding of elections alongside strict transparency and auditing of political donations.
- Countries like Germany combine state funding with donor disclosure to minimise corruption, providing a model India can consider.
- **Internal Party Democracy for Clean Candidate Selection:** Nominations largely controlled by party elites enable dynastic or criminal candidates to dominate.
- Enforcing internal party democracy through mandated primary elections or transparency in selections, as suggested by the Election Commission and Law Commission, will help reduce the entry of criminal elements into politics.
- **Judicial Oversight on Arrest and Detention:** To prevent misuse of investigative agencies, judicial oversight in arrest and detention decisions affecting ministers' removal is crucial.
- Supreme Court rulings affirm agencies must act within legal bounds, with courts safeguarding against arbitrary detention.
- Strengthening agency independence while ensuring accountability through judicial review can reduce political vendettas masked as legal actions.

Conclusion

- According to **Alexis de Tocqueville's concept of "soft despotism,"** democratic decline often unfolds not through overt authoritarianism but through **legal mechanisms masked as moral reform.** In this context, the **Constitution (One Hundred and Thirtieth Amendment) Bill, 2025,** marks a crucial initiative to **enhance political accountability** by mandating the **removal of ministers detained on serious criminal charges**, thereby seeking to **restore public trust** in governance. However, such reform must be **anchored in constitutional safeguards** like the **presumption of innocence** and **due process of law.**

Ethical Governance and Intergenerational Equity in Poverty Reduction

- **Kerala's Extreme Poverty Eradication Programme (EPEP) offers a replicable, participatory model for multidimensional poverty reduction, aligning with SDGs and decentralised governance.**
- Kerala's *Extreme Poverty Eradication Programme (EPEP)* redefines poverty alleviation by

integrating *multidimensional indicators*, *community participation*, and *customised interventions*.

- It aligns with *SDG 1 (No Poverty)* and *SDG 2 (Zero Hunger)*, offering a scalable model for other states and developing nations.

Features of EPEP

Participatory Identification:

- Surveys led by *Kudumbashree*, local governments, and residents.
- Final list of *64,006 extremely poor households* selected through *Grama Sabha scrutiny*.

Multidimensional Poverty Framework:

- Factors include *health, disability, old age, lack of entitlements, shelter, employment*, and *Severe Acute Malnutrition (SAM)*.
- Special focus on *SC/ST, fishermen, HIV-affected, urban poor, orphans, LGBTQIA+*.

Customised Micro-Plans:

- **Immediate Care Plan**: Food, medical aid, entitlement documents.
- **Intermediate Plan**: Transitional support like temporary housing.
- **Long-Term Plan**: Livelihood generation, permanent shelter.

Tech-Enabled Monitoring:

- Use of *mobile applications* and *Management Information Systems (MIS)* for accountability and timely delivery.

Impact and Achievements

- Kerala's poverty rate dropped from *59.74% (1973–74)* to *11.3% (2011–12)*.
- *Multidimensional Poverty Index (MPI)* fell to *0.55% in 2019–21*, making Kerala the *least impoverished state* in India.

Governance and Institutional Strength

- Built on Kerala's legacy of:
- *Land reforms*
- *Universal education*
- *Public distribution system*
- *Democratic decentralisation*
- *Kudumbashree* SHG network plays a pivotal role in women's empowerment and poverty reduction.

Way Forward

- Institutionalise interdepartmental coordination for *early warning signals*.

- Establish *dedicated mechanisms* to prevent relapse into poverty.
- Promote Kerala's model as a *global best practice* in participatory poverty eradication.

Universal Basic Income: The Cornerstone of a Modern Welfare State

- UBI is a regular, unconditional cash transfer paid universally to all citizens or residents, regardless of employment or income status, delivered as cash on a periodic basis.

Arguments in Favour of UBI in India

1. **Superior to Fragmented Welfare Schemes:**
   UBI offers a simple, transparent direct cash transfer that eliminates exclusion errors and corruption prevalent in over 950 existing schemes. It reduces leakage and administrative costs compared to in-kind transfers like the **Public Distribution System (PDS).** The 2016-17 Economic Survey estimated food and fuel subsidies cost about 3% of GDP. Leveraging the JAM (Jan Dhan-Aadhaar-Mobile) trinity, UBI provides a digitally verifiable, efficient social dividend.
2. **Insurance Against Economic Shocks:**
   UBI acts as an automatic stabilizer during crises like the COVID-19 pandemic or climate disasters, avoiding administrative delays and political bias in ad hoc relief. NITI Aayog highlighted **informal sector workers (90% of workforce)** were worst hit during COVID-19, underlining UBI's role in economic security.
3. **Enhanced Gender Equity:**
   Direct cash transfers to individuals, especially women, boost their financial autonomy and household bargaining power. It recognizes unpaid care work, which women disproportionately perform (299 min/day vs 97 min for men, NSS data). The SEWA-UNICEF pilot showed cash empowers women to invest in enterprises and economic decisions.
4. **Stimulus for Entrepreneurship:**
   UBI provides a stable income floor that encourages risk-taking, asset investment, skill development, and innovation by freeing people from subsistence struggles.
5. **Investment in Human Capital:**
   Cash enables families to invest in health, nutrition, and education. The Madhya Pradesh pilot showed increased family spending on these and improved child nutrition (weight-for-age rose from 39% to 59%).
6. **Mitigating Job Loss from Automation:**
   UBI can compensate for job displacement in sectors vulnerable to automation and expanding gig economy workers (projected 23.5 million by 2029-30). It delinks income from employment, managing "jobless growth."

Arguments Against UBI in India

- **Fiscal Unsustainability:**
  A poverty-line UBI would cost around 4.9% of GDP (2016 prices), a huge fiscal burden given India's combined debt over 81% of GDP. It could crowd out essential public investments in health, education, and infrastructure.

- **Disincentive to Work:**
  UBI might reduce labor participation, especially in informal sectors that employ over 90% of workers, leading to labor shortages and wage distortions. Evidence from US Negative Income Tax experiments showed reduced work hours, particularly among secondary earners.

- **Risk of Inflation:**
  Injecting large cash amounts without matching supply increase risks demand-pull inflation, hitting prices of essentials like food and housing and lowering UBI's real value. CPI was already elevated at 5.49% in Sept 2024.

- **Equity Concerns:**
  Universal payments to all, including wealthy groups holding 77% of national wealth, result in inefficient use of scarce resources. Equal transfers to the rich and poor are regressive in an unequal country.

- **Undermining Targeted Welfare:**
  UBI replacing schemes like PDS or MGNREGA risks harming vulnerable groups dependent on food security and statutory employment rights. These schemes stabilize wages and are vital safety nets.

- **Implementation and Exclusion Challenges:**
  Despite JAM infrastructure, digital illiteracy, banking gaps, and authentication failures (up to 51%) pose significant last-mile delivery challenges and could exclude needy populations.

- **Concerns on Spending:**
  Critics worry unconditional cash might be spent on harmful "temptation goods" like alcohol or tobacco, especially if not provided to women directly, which could worsen public health and economic costs.

Steps to Make UBI Viable in India

- **Incremental Welfare Floor (MPBI):**
  Start with a Modified and Phased Basic Income at 1-1.5% of GDP, providing a universal minimum safety net without displacing key schemes like PDS and MGNREGA initially. This controls fiscal

impact while minimizing exclusion.

- **Quasi-Universal Targeting:**
  Prioritize vulnerable demographics such as women, elderly (60+), and persons with disabilities — a "universal within a category" approach to maximize social benefits and limit costs.
- **Transparent Subsidy Rationalization Fund:**
  Create a legally ring-fenced UBI fund financed by phasing out inefficient subsidies (e.g., high-income fuel, certain tax exemptions), ensuring dedicated budget support protected from diversion.
- **Conditional, Gradual Replacement of Schemes:**
  Replace only those welfare programs with documented inefficiencies via rigorous social audits, preserving impactful ones like PDS and MGNREGA until UBI reaches viability at poverty-level amounts.
- **Strengthen JAM+ Infrastructure:**
  Expand digital literacy and banking services, introduce robust grievance redressal for biometric failures, and provide fallback mechanisms like OTP/manual withdrawals to ensure inclusivity.
- **Fiscal Federalism Cooperation:**
  Establish a Joint UBI Commission for cost-sharing between Centre and States (e.g., 60:40), integrating state schemes without harming state finances or creating political conflict.
- **Legal Entitlement for UBI:**
  Embed UBI in law as a social right through a Social Security Act, guaranteeing permanence, political commitment, and enforceability by citizens to ensure adequacy and regularity.

- **Universal Basic Income (UBI) carries the transformative promise of reshaping India's social contract—anchoring it in dignity, security, and opportunity for all.** Its success, however, hinges on thoughtful fiscal architecture, seamless digital delivery, and a phased, inclusive rollout. Rather than replacing existing welfare guarantees, a well-designed UBI can strengthen and complement them, creating a more cohesive safety net. If implemented with vision and care, UBI could become a defining step toward a more just, resilient, and equitable India. As the nation navigates the twin challenges of rapid growth and deepening inequality, UBI reminds us that true progress lies not in the accumulation of wealth, but in the universal assurance of dignity.

The Uneasy Alliance: Agriculture, Environment, and India's Policy Paradox

Winter Smog: A Symptom of Deeper Crisis

Each winter, northern India is shrouded in a thick blanket of smog, driven by low temperatures, stagnant winds, and widespread stubble burning in Punjab, Haryana, and Uttar Pradesh. This seasonal phenomenon results in hazardous Air Quality Index (AQI) levels, impairing public health, visibility, and regional economic activity. However, stubble burning is merely a symptom of a deeper ecological and policy crisis—one that links soil degradation, groundwater depletion, and chemical contamination, all rooted in unsustainable agricultural practices.

At the core of this crisis lies a structural disconnect between India's agricultural and environmental law–policy frameworks, which have evolved in isolation from one another.

Historical Roots: The Productivity Paradigm

1. *Food Security as the Foundational Goal*

- Post-Independence India grappled with famine and chronic food shortages.
- The Green Revolution (1960s–70s) prioritized productivity through:
  - High-Yield Variety (HYV) seeds
  - Intensive irrigation
  - Chemical fertilizers and pesticides
  - Double cropping and mechanisation

2. *Achievements of the Green Revolution*

- Shifted India from a food-deficit to a food-surplus nation.
- Established food self-sufficiency and reduced reliance on imports.
- Boosted rural incomes, especially in Punjab, Haryana, and Western Uttar Pradesh.

3. *The Productivity Hangover*

- Even post-liberalisation (1990s), agricultural policies remained focused on yield maximisation over sustainability.
- Example: NITI Aayog's report on pulses emphasizes productivity with limited attention to ecological concerns.
- Subsidies for fertilizers, power, and irrigation continue to incentivize resource-intensive cultivation, ignoring environmental costs.

Interdependence Between Agriculture and Environment

Mutual Dependence

- Agriculture relies on soil fertility, water availability, biodiversity, and climate stability.
- Unsustainable practices degrade these systems, creating a vicious feedback loop.

Global and Indian Context

- IPCC (2019) reports agriculture contributes:
  - 13% of global CO_2 emissions
  - 44% of CH_4 emissions
  - 81% of N_2O emissions
- Agriculture consumes ~70% of global freshwater; in India, it accounts for 91%.
- Over-reliance on water-intensive crops like paddy and sugarcane is depleting aquifers in the Indo-Gangetic Plain and Deccan Plateau.

Environmental Impacts

- **Soil degradation**: Monocropping, excessive fertilizer use, and residue burning reduce organic matter.
- **Water contamination**: Pesticide and nitrate runoff pollutes surface and groundwater.
- **Air pollution**: Stubble burning contributes 30–40% of winter PM2.5 levels in North India.
- **Loss of biodiversity**: HYV seeds have displaced traditional, climate-resilient varieties.

Legal Disconnect: Agriculture vs Environment

1. Industrial Bias in Environmental Laws

- Key laws — Water Act (1974), Air Act (1981), Environment Protection Act (1986) — were designed to regulate industrial pollution, not agriculture.

2. Gaps in Legal Definitions

- EPA broadly defines "environment" and "pollution" but omits agricultural pollutants like fertilizer runoff or livestock methane.
- The EIA Notification (2006) excludes agricultural activities from mandatory assessments.

3. Policy Incoherence

- Environmental laws focus on pollution control; agricultural policies prioritize production.
- This disconnect leaves agricultural pollution largely unregulated.

4. Need for Integration

- Agriculture must be treated as a regulated sector under environmental governance.
- Cross-cutting frameworks should link soil, water, air, and biodiversity conservation with farming policies.

Government Initiatives for Sustainable Agriculture

1. National Mission for Sustainable Agriculture (NMSA)
   - Part of the National Action Plan on Climate Change (NAPCC).
   - Focus areas: agroforestry, rainfed development, soil and water health, climate adaptation.
   - Budget allocation remains minimal—just 0.8% of the Agriculture Ministry's total.

2. Pradhan Mantri Krishi Sinchai Yojana (PMKSY)
   - Promotes "Per Drop More Crop" via micro-irrigation and water-use efficiency.

3. Integrated Watershed Management Programme (IWMP)
   - Encourages rainwater harvesting and community-level watershed conservation.

4. Paramparagat Krishi Vikas Yojana (PKVY)
   - Supports organic farming clusters and certification.

5. Soil Health Card Scheme
    - Aims to monitor and improve soil nutrient balance.

Implementation Challenges

1. Inadequate funding
2. Limited farmer awareness and technical capacity
3. No safety net for yield loss
4. Underdeveloped markets for sustainable produce

Barriers to Sustainable Transition

- **Psychological and Economic Fears**: Farmers fear reduced yields; policymakers fear food shortages.
- **Knowledge Gaps**: Weak extension services; limited awareness of sustainable practices like zero-tillage and crop diversification.
- **Lack of Incentives**: No compensation for ecosystem services; poor access to technology, credit, and markets.
- **Governance Fragmentation**: Agriculture, water, and environment ministries operate in silos.

Way Forward

Policy Integration

- Align agricultural goals with environmental objectives.
- Introduce EIAs for large-scale farming and link to state climate action plans.

Economic Incentives

- Redirect subsidies to climate-smart technologies.
- Reward farmers via Payments for Ecosystem Services (PES).

Institutional Coordination

- Create an Inter-Ministerial Task Force on Sustainable Agriculture.

Technological Innovation

- Promote bio-fertilizers, precision farming, and digital soil-health tools.
- Encourage crop diversification toward millets, pulses, and oilseeds.

Farmer Education and Social Change

- Embed sustainability in KVKs and agricultural universities.
- Launch public campaigns on eco-friendly farming benefits.

Regional Cooperation

- Joint state action plans for stubble burning.
- Promote Happy Seeders, bio-decomposers, and shared equipment banks.

Strengthening Local Governance

- Empower PRIs and FPOs to manage soil and water resources sustainably.

Monitoring and Evaluation

- Use satellite and AI tools to track pollution, cropping patterns, and groundwater.
- Develop public dashboards linking farm performance to environmental outcomes.

Conclusion

India's agricultural future must be rooted in sustainability, not just productivity. Integrating environmental and agricultural frameworks, empowering farmers with technology and incentives, and enacting a unified "Sustainable Agriculture Mission" are essential to achieving food security and ecological balance. This transition is not just necessary—it is urgent, inevitable, and foundational to India's long-term climate and development goals.

Ensuring Democratic Integrity: Reforming the Nomination Process under the Representation of the People Act, 1951

The **Representation of the People Act, 1951 (RP Act)** governs the conduct of elections in India, including the nomination process for candidates. While the Act lays down a legal framework to ensure free and fair elections, several **issues persist in the nomination process**, undermining transparency, inclusivity, and democratic integrity.

Issues with the Nomination Process under RP Act, 1951

- **Concentrated Discretion with Returning Officer (RO):**
  Sections 33–36 of the RP Act grant the RO wide-ranging powers to scrutinize and reject nomination papers, leading to subjective decisions.
- **Undefined "Defect of Substantial Character":**
  No clear guidelines exist on what constitutes a substantial defect, allowing ROs to interpret it arbitrarily.
- **No Judicial Review During Elections:**
  Article 329(b) bars courts from intervening during ongoing elections, preventing rejected candidates from seeking relief until after polls conclude.

Criminalization of Politics

- **Problem**: The Act does not bar individuals with serious criminal charges from contesting elections unless convicted.
- **Impact**: Candidates with pending criminal cases, including heinous offenses, can still file nominations, eroding public trust.
- **Data Point**: As per ADR reports, a significant percentage of MPs and MLAs have declared criminal cases.

Lack of Scrutiny in Affidavit Verification

- **Problem**: Candidates must submit affidavits (Form 26) disclosing assets, liabilities, education, and criminal records.
- **Issue**: There is no robust mechanism to verify the accuracy of these disclosures.
- **Consequence**: False or incomplete information often goes unchecked, misleading voters.

High Security Deposit Requirement

- **Problem**: The security deposit (₹25,000 for Lok Sabha; ₹10,000 for Assembly) can be a barrier for economically weaker candidates.
- **Impact**: It discourages participation from marginalized groups and independent candidates.

Ambiguity in Disqualification Grounds

- **Problem**: Disqualification provisions (Sections 8–10A) are complex and sometimes inconsistently applied.
- **Example**: Disqualification for corrupt practices or government contract violations lacks uniform enforcement.

Limited Time for Nomination and Objections

- **Problem**: The time window between notification and scrutiny is short (typically 7 days).
- **Impact**: It limits the ability of voters, media, and civil society to scrutinize candidates' backgrounds.

Proxy and Dummy Candidates

- **Problem**: Political parties often field multiple candidates to confuse voters or split opposition votes.
- **Impact**: This undermines the spirit of fair competition and burdens the electoral system.

Gender and Social Representation Gaps

- **Problem**: The nomination process does not ensure adequate representation of women, SC/ST, or minorities.
- **Impact**: Structural barriers and lack of reservation at the parliamentary level perpetuate underrepresentation.

No Cap on Number of Constituencies

- **Problem**: A candidate can contest from two constituencies (Section 33(7)).
- **Impact**: If elected from both, one seat is vacated, leading to unnecessary by-elections and public expenditure.

Lack of Digital Integration

- **Problem**: Despite some digitization, the nomination process remains largely manual and opaque in many states.
- **Impact**: It hampers accessibility, especially for remote or first-time candidates

Four Key Procedural Traps Causing Exclusions

- **The Oath Trap:**
  Candidates must take an oath within a designated timeframe before authorized officers. Mistimed or unauthorized oaths invalidate nominations.
- **The Treasury Trap:**
  Even with correct security deposit amounts, payments made by incorrect methods (cash vs. challan) lead to rejection.
- **The Notarisation Trap:**
  Failure to notarize Form 26 affidavits with the specified authority renders nominations liable for rejection.
- **The Certificate Trap:**
  Delays in issuing no-dues or clearance certificates cause nominations to be rejected.
  The *Resurgence India (2013)* ruling allows rejection for incomplete affidavits but prosecutes false affidavits, encouraging inaccurate filings.
- The filing checklist lacks legal binding, enabling ROs to reject nominations during scrutiny on technicalities.

Consequences of the Flawed Process

- **Legal but Undemocratic Elimination:**
  Candidates face disqualification over trivial procedural errors, despite meeting substantive eligibility.
- **Arbitrariness and RO Dependence:**
  Identical defects can yield differing outcomes based on RO's subjective judgment.
- **Violation of Voter's Right to Choose:**
  Arbitrary rejections diminish voter choice and reduce elections to formalities.
- **Lack of Transparency:**
  No consolidated public data exists on nomination rejections or their reasons, masking procedural bias.

Best Practices from Other Democracies

- **United Kingdom:**
  ROs assist candidates in correcting errors before deadlines rather than rejecting nominations outright.
- **Canada:**
  Provides candidates a mandatory 48-hour window to correct defects.

- **Germany:**
  Written notices specifying defects with time to rectify and multiple appeal levels.
- **Australia:**
  Encourages early nominations to allow adequate time for error correction.

Way Forward for India

- **Shift RO Role from Discretion to Duty:**
  ROs should issue written defect notices detailing legal requirements and corrective steps.
- **Categorise Defects:**
  Distinguish between technical/clerical errors (which should not cause rejection), authenticity/verification issues (requiring examination), and clear statutory disqualifications (warranting immediate rejection).
- **Digital-by-Default Nomination System:**
  Implement an integrated online portal linked with electoral rolls for automatic voter credential validation. Enable digital submission of oaths, affidavits, and deposits with a public dashboard displaying real-time form status and rejection reasons.

The nomination process must transform from a candidate-filtering mechanism into a facilitator of democratic participation, ensuring procedural hurdles do not override the fundamental voter right to freely choose their representatives.

From Haze to Clarity: Lessons Delhi Can Learn from Beijing

- With **air quality in Delhi and North India reaching hazardous levels each winter**, authorities are exploring **artificial rain as a short-term fix.** Experts, however, warn that cloud seeding is **scientifically unreliable, environmentally risky, and ethically questionable,** offering only temporary relief without addressing the root causes of pollution.

Delhi's Air Pollution Crisis and AQI Monitoring Challenges

- **Capping and Discrepancies in AQI Reporting:**
  India caps AQI at 500, but actual $PM_{2.5}$ levels often exceed this. Private sensors show higher values than official reports, creating false impressions of improvement. Lack of real-time calibration and limited public access to raw data undermine scientific credibility.
- **Manipulation via Cleaning Operations:**
  Deployment of continuous water sprinklers and tankers near monitoring stations artificially lowers dust and PM levels, temporarily improving AQI readings.
- **Relocation of Monitoring Stations:**
  Moving stations from high-pollution zones to parks or residential areas lowers recorded pollution,

compromising data representativeness and integrity.

- **Dysfunctional Stations During Peak Pollution:**
  Over 75% of AQI stations were non-functional during Diwali 2025, limiting the ability to activate pollution control measures like the Graded Response Action Plan (GRAP). The Supreme Court has demanded explanations from CAQM and CPCB.
- **Erosion of Public Trust:**
  Mismatch between official AQI and public experience (visibility, irritation) decreases trust in institutions.

Public Health and Social Impact

- Delhi's residents face $PM_{2.5}$ exposure 15–20 times above WHO safe limits.
- Underreported AQI causes risky public behavior—outdoor activities without protection.
- Vulnerable groups like children, elderly, and informal workers bear the highest exposure.
- Air pollution costs India over 1.4% of GDP in healthcare, productivity loss, and mortality.
- Lower-income communities near industrial areas often lack accurate monitoring.

Beijing's Pollution Control Journey (1998–2013)

- **Denial Phase:**
  Like Delhi, Beijing initially had unreliable data and denial. In 2007, Beijing's $PM_{2.5}$ levels were six times WHO limits. China initially used misleading "Blue Sky Days" metrics.
- **Trigger for Change:**
  The U.S. Embassy's independent $PM_{2.5}$ data (via Twitter) exposed discrepancies, forcing Beijing to acknowledge the crisis ahead of the 2008 Olympics.
- **Core Strategies:**
- Vehicular controls: odd-even rationing, carpooling, and registration lotteries to limit private vehicles.
- Industrial relocation outside city limits and shift from coal to cleaner fuels.
- Implementation of strict Euro-V vehicle emission standards.
- Regional coordination through Beijing–Tianjin–Hebei environmental plans.
- Public awareness campaigns and community monitoring.

Results:

From 2013 to 2017, $PM_{2.5}$ levels dropped by ~35%. Transparency and local accountability improved, though pollution remains above WHO norms.

Lessons for Delhi and Indian Cities

- **End Denial to Enable Action:**
  Progress starts when denial ends. Delhi risks repeating Beijing's initial delays by prioritizing optics over reform.
- **Adopt Regional Governance:**

Pollution crosses borders—Delhi needs a National Capital Region Airshed Policy akin to Beijing–Tianjin–Hebei coordination.

- **Political Will and Enforcement:**
  Federal cooperation, strong leadership, judicial oversight, and rigorous enforcement beyond symbolic actions are essential.

Way Forward for Delhi

- **Independent Audit of Stations:**
  Verify functionality, representativeness, and CPCB compliance.
- **Citizen Data Access:**
  Public dashboards should show raw pollutant data instead of averaged AQI alone.
- **Transparency in Station Relocation:**
  Mandatory public disclosure before station moves or maintenance.
- **Link Air Quality with Public Health:**
  Hospitals must track health outcomes related to pollution for real-time risk assessment.
- **Legal and Regulatory Reform:**
  Enact a Clean Air (Accountability and Data Integrity) Bill imposing penalties for data manipulation or suppression.
- **Behavioural Interventions:**
  Promote sustainable transport, electric vehicles, and waste segregation via community incentives.

Beijing's example proves that prioritizing transparency, regional coordination, and accountability can achieve measurable pollution reduction in a few years. For Delhi, restoring trust through credible data and governance is the critical first step in the fight for clean air.

Echoes of Unity: 150 Years of Vande Mataram

Marking a momentous occasion, the Indian Prime Minister recently inaugurated a year-long celebration commemorating 150 years of *Vande Mataram*, hailing it as an "enduring symbol of patriotism and unwavering devotion to the nation."

Understanding Vande Mataram

- **National Song of India**: *Vande Mataram* holds the esteemed status of India's National Song, embodying the ideals of devotion to the motherland and the spirit of sacrifice.
- **Origins**: Penned by Bankim Chandra Chatterjee on **November 7, 1875**, the song reflects the essence of Indian unity and patriotic fervor.
- **Motherland as Deity**: Rooted in Indian philosophy, the song envisions the nation as a living mother, worthy of reverence and selfless service.
- **Linguistic Harmony**: A unique blend of **Sanskrit and Bengali**, the composition bridges cultural

and linguistic traditions.

- **Literary Debut**: *Vande Mataram* was first featured in Chatterjee's novel *Anandamath* (1882), where saffron-clad sanyasis resist British rule during the 1770 Bengal famine.
- **Serialisation and Impact**: Initially serialized in *Bangadarshan* (1880–82), the novel and its anthem became a cornerstone of nationalist literature, with the song serving as a spiritual war cry for freedom.

Milestones in the Journey of Vande Mataram

- **First Public Rendition (1896)**: The song was publicly sung at the second session of the Indian National Congress.
- **Translation by Sri Aurobindo**: He rendered the poem into English, both in prose and verse, preserving its poetic and spiritual depth.
- **Tagore's Voice (1896)**: Rabindranath Tagore composed and sang *Vande Mataram* at the Calcutta Congress, later recording India's first commercial gramophone version (1904–05), immortalizing its patriotic essence.
- **Swadeshi Movement (1905)**: The song became a rallying cry during the anti-colonial Swadeshi movement.
- **Barisal Defiance (1906)**: Thousands in Barisal (now in Bangladesh) defied a police ban by chanting *Vande Mataram* at a political conference.
- **Bhikaji Cama's Tricolour (1907)**: In Stuttgart, Germany, Cama unfurled an early Indian flag with *Vande Mataram* inscribed, symbolizing the global reach of India's freedom struggle.
- **Revolutionary Adoption**: Freedom fighters like **Khudiram Bose**, **Ashfaqulla Khan**, and **Chandrashekhar Azad** embraced the song as a mantra of defiance and patriotism.
- **Constitutional Recognition (1950)**: On **January 24, 1950**, the Constituent Assembly officially declared *Vande Mataram* as the National Song of India.

Significance and Legacy

- **Cultural Renaissance**: The song marked a civilisational revival during a time when colonial rule sought to suppress India's spiritual and cultural identity.
- **Sacred Literature**: In *Anandamath*, the song became a sacred chant for freedom, sung by ascetic warriors.
- **Martyrs' Anthem**: For many revolutionaries, *Vande Mataram* was the final chant before martyrdom.
- **Spiritual Unity**: Tagore's rendition was described as a deeply spiritual moment, merging devotion, duty, and patriotism.
- **Symbol of National Integration**: Even today, it evokes reverence and pride, symbolizing India's civilisational continuity and unity.

Contemporary Discourse and Misinterpretation

- **Ideological Misuse**: Some critics today label the song as divisive or communal.
- **Historical Disconnect**: Such views often stem from a lack of understanding of its deep cultural and historical significance.

Relevance in Today's India

- **Vision for the Future**: *Vande Mataram* continues to inspire unity and collective strength as India strides toward development and self-reliance.
- **Living the Anthem**: The song's spirit thrives in the everyday contributions of farmers, soldiers, teachers, and innovators who serve the nation selflessly.
- **Patriotism in Practice**: It teaches that true patriotism is not a fleeting emotion but a lifelong commitment to the motherland.

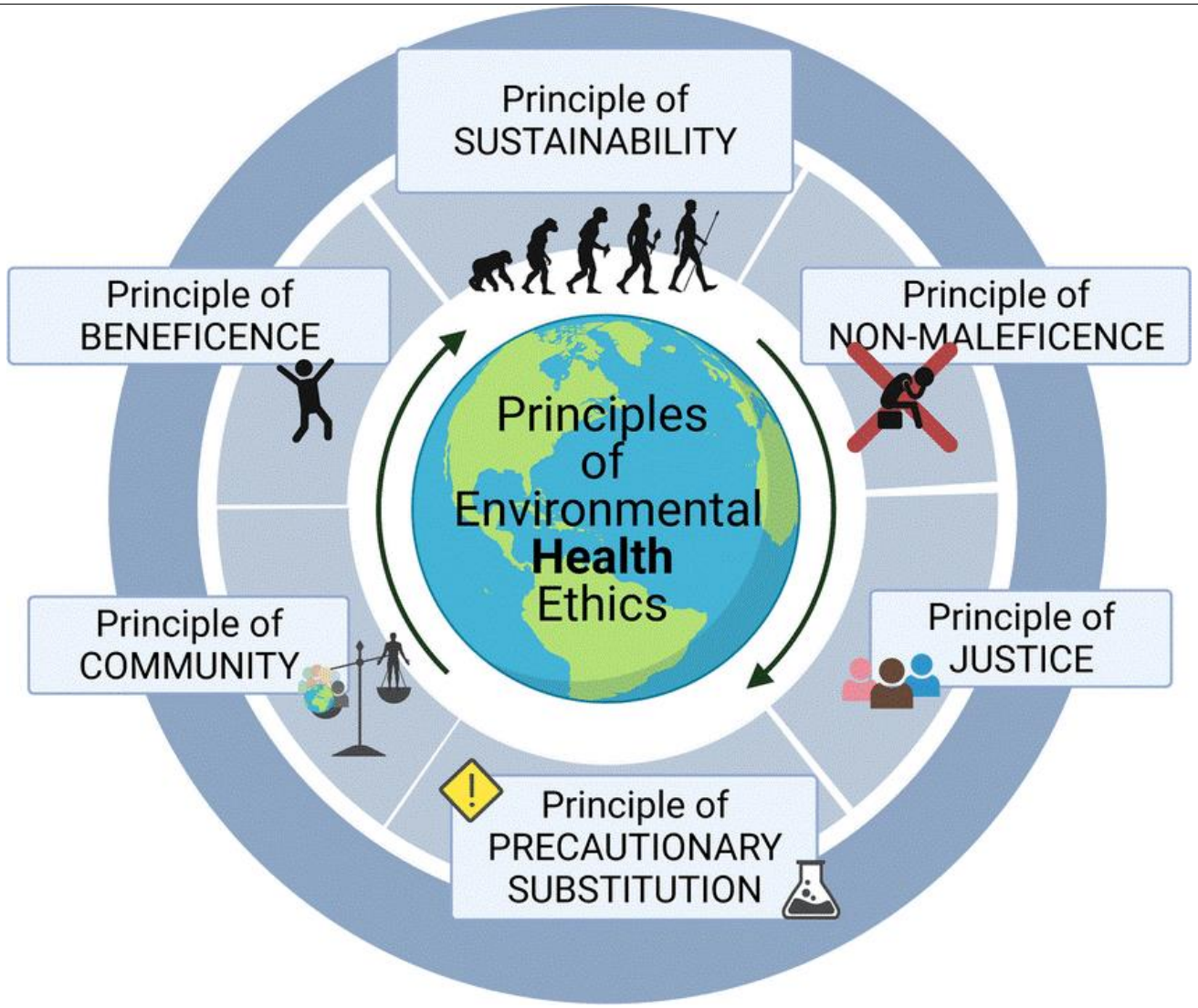
From a literary masterpiece to a national mantra, *Vande Mataram* has transcended time to become the soul of India's patriotic consciousness. It transforms emotion into action, reminding every citizen that the highest form of devotion is service to the nation.

Environmental Ethics in Indian Philosophy: A Sacred Duty of Consciousness

Environmental Ethics in Indian thought transcends utilitarian views of nature. It perceives the Earth not as a resource, but as an extension of consciousness—where caring for the planet is a sacred duty (Dharma), and ecological stewardship is spiritual evolution.

Foundational Features of Indian Environmental Ethics

- ***Holistic Worldview***: Pancha Mahabhutas and Planetary Balance - The five great elements—earth (Prithvi), water (Apas), fire (Agni), air (Vayu), and space (Akasha)—form the basis of both human health and ecological harmony. Disruption in one reflects imbalance in the other.
- ***Moral Stewardship***: Self-Care Through Nature-Care - Indian philosophy teaches that harming nature is equivalent to harming oneself. Soil, water, and air are not inert substances but living entities that sustain our physical and spiritual well-being.
- ***Ahimsa and Interdependence*** - Non-violence (Ahimsa) extends beyond humans to all beings and elements. Every creature, plant, and microbe is worthy of respect, forming a web of interdependence.
- ***Spiritual Ecology***: Psychological and Ecological Unity - Environmental degradation is not just physical—it signals a rupture in our inner consciousness. Healing nature is thus a path to healing the self.
- ***Sustainability as Spiritual Practice*** - Traditional practices like rainwater harvesting, seasonal cropping, and sacred groves emerged from spiritual reverence, not economic necessity. Sustainability was embedded in ritual and lifestyle.



Indian Philosophical Traditions on Ecology

- ***Vedic and Upanishadic Thought*** - The Vedas envision the cosmos as a sacred organism. The hymn "Mata Bhumih Putro Aham Prithivyah" (Earth is my mother, I am her child) encapsulates ecological kinship. Humans, gods, and nature form a moral continuum.
- ***Ayurveda***: Health Through Environmental Purity - Ayurveda links disturbed doshas (bodily energies) to polluted ecosystems. Bhoomi Devi (Mother Earth), water, and air are sacred entities whose purity ensures both physical and spiritual health.
- ***Jainism***: Ahimsa and Aparigraha as Ecological Ethics - Jainism extends consciousness to earth, air, and water. Practicing non-possession (Aparigraha) and non-violence (Ahimsa) fosters restraint and reverence for all life forms.
- ***Buddhism***: Interdependence and Compassion - Through Pratītyasamutpāda (dependent origination), Buddhism teaches that all beings arise in mutual interdependence. Compassion (Karuna) becomes ecological mindfulness in action.
- ***Sikhism***: Nature as Divine Teacher - Guru Nanak's verse "Pavan Guru, Pani Pita, Mata Dharat Mahat" sanctifies air, water, and earth as spiritual guides. Environmental care is an act of devotion

(Seva).

Comparative Glance: Western Environmental Philosophies

- ***Deep Ecology (Arne Næss)*** - Advocates intrinsic value of all life forms. Calls for a shift from anthropocentrism to ecocentrism. Influences include Norway's wilderness policies and global rewilding efforts.
- ***Utilitarian Environmentalism (John Stuart Mill)*** - Focuses on maximizing human welfare. While pragmatic, it risks reducing nature to economic utility. Seen in cost-benefit climate policies and renewable energy subsidies.
- ***Ecofeminism (Vandana Shiva, Val Plumwood)*** - Links ecological exploitation with gender oppression. Promotes nurturing, empathy, and cooperative coexistence as ethical responses to both.

Challenges to Indian Environmental Ethics

- ***Commodification of Spirituality*** - Sacred principles like Ahimsa and Dharma are being reduced to marketable eco-labels, diluting their moral essence.
- ***Urban Alienation*** - Modern lifestyles disconnect individuals from nature's rhythms, creating apathy and spiritual voids that weaken ecological empathy.
- ***Policy–Practice Gap*** - Environmental laws often measure compliance in numbers, not conscience. Without moral education, governance lacks soul.
- ***Cultural Dilution*** - Pollution through plastics and chemicals contradicts Vedic purity codes. Rituals lose authenticity when divorced from ecological discipline.
- ***Climate Modernity Dilemma*** - India faces a tension between material progress and ecological restraint. True modernity lies in harmonizing prosperity with Prakriti (Nature), not dominating it.

The Road Ahead: Reviving Ecological Dharma

- ***Integrate Ethics into Education*** - Embed Vedic ecology, Panchabhuta harmony, and Ahimsa ethics into NEP 2020. Cultivate ecological conscience from childhood.
- ***Policy Fusion***: Science Meets Spirituality - Link Ayurveda's balance principles with missions like Jal Jeevan, Namami Gange, and PM-PRANAM. Let compassion guide compliance.
- ***Community Stewardship*** - Empower temples, panchayats, and faith-based trusts to protect rivers, forests, and sacred groves. Decentralize ethics through Seva.
- ***Modern Technology for Ancient Wisdom*** - Use AI, GIS, and satellite mapping to safeguard sacred sites and traditional water systems. Innovation must serve Sanatan values.
- ***Global Advocacy*** - Present India's Ecological Dharma at COP-30 and UNESCO as a civilizational ethic of restraint and reverence. Environmental ethics is not policy—it's destiny.

Prakriti and Atman—One Consciousness

Indian philosophy teaches that Nature (Prakriti) and Self (Atman) are reflections of the same

consciousness. Restoring this unity transforms environmental protection into spiritual evolution. By aligning water, soil, and spirit, India can lead the world toward a compassionate, sustainable future.

Algorithmic Influence: India's Role in Shaping the AI World Order

China's World Artificial Intelligence Conference (WAIC) is emerging as a strategic platform to shape global norms, standards, and governance around artificial intelligence. The editorial warns that India must remain alert to the geopolitical and technological implications of China's growing influence in this domain.

Themes

China's Strategic AI Push

- WAIC is not just a tech summit—it's a diplomatic tool to project China's leadership in AI.
- Beijing is actively shaping global discourse on AI ethics, governance, and standards, often aligning them with its domestic surveillance and control models.

Global Governance and Norm-Setting

- China's efforts to influence international AI norms could marginalize democratic values like transparency, privacy, and accountability.
- The editorial draws parallels with China's earlier moves in digital infrastructure and cyber governance.

Opportunities and Challenges for India

- India stands at a crossroads as a rising AI power, noted for its democratic, ethical, and inclusive AI approach, contrasting with China''s centralized, state-led model. While WAICO promises AI technology sharing and governance cooperation, it also raises concerns over transparency, governance autonomy, and potential influence monopolies under Chinese control. India must balance engaging with WAICO to shape global AI rules while remaining vigilant to protect digital sovereignty and prevent undue dependence.

Strategic Considerations

- Transparency & Inclusivity: India should demand clear governance structures with rotating leadership and independent audits to ensure global representation.
- Interoperability & Ethical AI: Leveraging India's digital public infrastructure as a model, India must push for harmonized standards that respect privacy, open-source norms, and ethical AI use.
- Access & Equity: WAICO''s framework should provide fair access to computing resources for developing nations, avoiding technology gatekeeping.

Global AI Governance Context

The emergence of WAICO complements UN efforts for AI governance but also competes with Western regulatory frameworks like the EU's AI Act. For India, engaging multilaterally while preserving its

interests in an evolving AI ecosystem will be crucial.

Policy Recommendations

- **Institutional Capacity**: Establish a national AI ethics board and strengthen regulatory frameworks.
- **Global Engagement**: Participate actively in UN, OECD, and other global platforms shaping AI norms.
- **Public-Private Partnerships**: Leverage India's tech ecosystem to build scalable and ethical AI solutions.
- **Education and Skilling**: Promote AI literacy and research through academic-industry collaboration.

India can propose safeguards such as a firewall between governance and industrial policy, compute quotas, and a grievance redressal mechanism. Simultaneously, India should promote diverse, adaptive coalitions beyond rigid structures, reinforcing a multipolar AI governance order that reflects varied developmental models.

Trawling Tensions: Navigating the India-Sri Lanka Palk Bay Dispute

The India-Sri Lanka fishing dispute in the Palk Bay is a complex issue involving traditional fishing rights, ecological concerns, and diplomatic tensions. The Palk Bay, a narrow strip between Tamil Nadu and Sri Lanka, is a historically shared fishing zone, but the International Maritime Boundary Line (IMBL) divides it, leading to frequent arrests of Indian fishermen by the Sri Lankan Navy for crossing into Sri Lankan waters. The core of the conflict is the practice of bottom trawling by Indian fishermen, which is banned in Sri Lanka due to its destructive effects on marine biodiversity and coral beds, worsening ecological damage and sparking cross-border tensions.

Core Issues

- **Trawling Practices**: Indian fishermen, particularly from Tamil Nadu, use bottom trawlers that damage marine ecosystems and deplete fish stocks. This has led to resentment among Sri Lankan fishermen who rely on traditional fishing methods.
- **Legal and Sovereignty Concerns**: The 1974 and 1976 maritime boundary agreements between India and Sri Lanka ceded Katchatheevu Island to Sri Lanka and prohibited Indian fishing in Sri Lankan waters. However, Indian fishermen continue to cross the IMBL, citing historical rights.
- **Arrests and Detentions**: Frequent arrests of Indian fishermen by the Sri Lankan Navy have strained bilateral relations and caused humanitarian concerns.

Diplomatic and Policy Responses

- **Joint Working Groups (JWG)**: India and Sri Lanka have established JWGs to address the issue, but progress has been slow.
- **Alternative Livelihoods**: The Indian government has proposed deep-sea fishing schemes to transition fishermen away from trawling, but implementation has been inadequate.
- **State vs Centre Dynamics**: Tamil Nadu's political leadership often pressures the Centre to take a hardline stance, complicating diplomatic efforts.

Way Forward

- **Sustainable Fishing**: Transitioning to deep-sea fishing and phasing out trawlers is essential for ecological balance and long-term livelihoods.
- **Bilateral Cooperation**: Strengthening institutional mechanisms and ensuring consistent dialogue can help de-escalate tensions.
- **Community Engagement**: Involving fishing communities from both sides in confidence-building measures is crucial for lasting peace

In summary, resolving this vexatious dispute requires a multi-pronged approach: diplomatic negotiations focused on sustainable practices, regulatory reforms banning harmful methods like bottom trawling, facilitating legal cross-boundary fishing, and supporting fishermen''s livelihoods. This issue is not merely about maritime boundaries but embodies broader themes of environmental conservation, regional diplomacy, and socio-economic sustenance of fishing communities in India and Sri Lanka.

India needs to revise its Consumer Price Index urgently

India''s Consumer Price Index (CPI) is a critical economic indicator used to measure changes in the price level of a basket of consumer goods and services, reflecting the impact of inflation on households. As of October 2025, India''s CPI reached 197.3 points (base year 2012=100), with inflation dropping to 0.25% according to provisional official estimates.

What is the Consumer Price Index (CPI)?

The CPI tracks the average change over time in the prices paid by urban and rural consumers for a selected basket of goods and services. This basket includes food, housing, apparel, transportation, and healthcare costs. The Ministry of Statistics and Programme Implementation (MOSPI) is responsible for compiling and publishing CPI data monthly in India.

Historical Evolution in India

- The origin of CPI in India dates back to the early 20th century, when rising prices following the First World War led to family budget surveys and the first indices for industrial workers.
- In the late 1950s, the Labour Bureau began compiling the index scientifically for industrial workers after comprehensive family living surveys, with further improvements in methodology and scope in subsequent decades.
- The current all-India CPI uses the base year 2012=100 and covers both rural and urban populations.

CPI Calculation

The Consumer Price Index (CPI) is calculated by comparing the total cost of a fixed basket of goods and services in the current year to the cost of that same basket in a chosen base year, then multiplying by 100.

Steps Involved in CPI Calculation

- Define the basket of goods and services that represents typical consumer purchases.
- Collect prices for each of these items regularly from various locations across the country.
- Assign weights to each item based on its share in the average household expenditure, reflecting its importance.
- Calculate the total cost of the market basket in the base year and the current year.
- Use the formula:

$$\text{CPI} = \left(\frac{\text{Cost of Market Basket in Current Year}}{\text{Cost of Market Basket in Base Year}}\right) \times 100$$

This shows how prices have changed over time. If the cost of the basket increases from the base year to the current year, the CPI rises, indicating inflation.

Calculation Example

Suppose the market basket cost ₹5,00,000 in the base year and ₹5,50,000 in the current year:

$$\text{CPI} = \left(\frac{5,50,000}{5,00,000}\right) \times 100 = 110$$

This means prices have increased by 10% compared to the base year.

Methodology in India

- Price data are collected from selected markets and villages by official agencies.
- Weights and items are updated periodically, and price trends are aggregated from local to national levels using a Laspeyres-type index formula (fixed basket, fixed weights).
- The index is prepared separately for rural, urban, and combined sectors.

This approach ensures that the CPI accurately reflects consumer expenditure patterns and price changes across India.

CPI Data and Trends

- CPI values have shown a general upward trend over the past decade, indicating sustained inflationary pressures.
- The index rose from 142.10 points on average between 2011 and 2025, reaching an all-time high of 197.3 points in October 2025.
- Recent data shows monthly indices for 2025 began at 193.5 in January and climbed to 197.3 in October, reflecting moderate but persistent inflation.

Significance for Governance

- The CPI is vital for monetary policy decisions by the Reserve Bank of India (RBI), wage adjustments, and for government programs targeting subsidies or welfare schemes.
- CPI is also linked to the determination of dearness allowance for government employees and the cost-of-living adjustment for social security and pensions.
- Its accurate and timely computation ensures trust in macroeconomic decision-making and helps identify sectors experiencing high inflation.

Challenges and Updates

- The CPI is periodically revised to better reflect evolving consumer habits and economic conditions, with basket weights and base years updated for accuracy.
- Distortions can occur if the index does not adequately capture price changes in the informal sector, which represents a large share of the Indian workforce.
- The latest recalibrations and data releases indicate sustained efforts to ensure up-to-date and relevant CPI calculations, particularly as India navigates post-pandemic economic shifts.

Year	CPI (Oct)	Annual CPI Avg	Inflation Rate (Oct)
2025	197.3	—	0.25%
2024	196.8	190.9	—
2023	185.3	181.9	—

Issues with Current CPI

- **Base Year Problem**: CPI still uses **2012 as the base year**, which no longer reflects current consumption patterns.
- **Skewed Weightages**: Categories like **food and beverages** hold nearly **46% weight**, disproportionately affecting overall inflation readings.
- **Statistical Anomaly**: October 2025 CPI showed **0.25% inflation**, the lowest since 2012. But this was due to a **high base effect** from October 2024's 9.7% food inflation—not actual price drops.
- **Misleading Signals**: Despite rising vegetable prices, CPI showed negative food inflation, masking real consumer experiences.

Sectoral Insights

- **Food and Beverages**: Showed a 3.7% price fall due to base effect, not actual deflation.
- **Other Categories**: Fuel, housing, tobacco, and miscellaneous items saw **higher inflation** than last year.
- **GST Impact**: Rate cuts reflected only in **clothing and footwear**, not across broader consumption.

Perception vs Reality

- RBI's September survey found **perceived inflation at 7.4%**, far above the official CPI figure.
- This **disconnect undermines public trust** and complicates policy decisions.

Policy Implications

- RBI's **Monetary Policy Committee (MPC)** relies on CPI for rate decisions.
- With **growth data clouded by GST-related demand boosts** and CPI anomalies, policy calibration becomes difficult.
- The **Ministry of Statistics and Programme Implementation** plans to release a new CPI series by **Q1 of the next financial year.**

India's Consumer Price Index (CPI) is currently misaligned with real-world consumption and price dynamics due to its outdated base year and skewed weightages. This has led to distorted inflation readings, which risk misguiding monetary policy decisions and eroding public trust.

- **Statistical reforms are critical** to ensure CPI reflects actual consumer experiences.
- **Timely revision** of the CPI basket and methodology is essential for accurate inflation tracking.
- **Policy credibility** depends on reliable data—especially when inflation perception diverges from

official figures.

In short, the CPI must be urgently updated to serve as a trustworthy anchor for economic policymaking and public confidence.

AI for All: India's Blueprint for Equitable Tech Growth

The advent of deep technology, including AI, blockchain, and quantum computing, represents the new frontier of innovation crucial for economic development and societal progress. India's distinct model of "deep tech democracy" seeks to harness these technologies while ensuring equity, transparency, and inclusiveness.

India''s emerging deep tech ecosystem is growing rapidly, bolstered by government initiatives like the IndiaAI Mission, Union Budget allocations exceeding ₹10,000 crore, and supportive programs under Atal Innovation Mission and NITI Aayog. These reflect India's commitment to becoming a global hub of advanced technology grounded in democratic principles.

Key Features of India''s Deep Tech Democracy

- Openness: Emphasizing open-source technologies and digital public infrastructure ensures widespread access and innovation beyond elite circles.
- Inclusivity: Investments prioritize talent development from tier 2 and 3 cities and promote gender and socio-economic inclusiveness in tech entrepreneurship and education.
- Transparency: Ethical AI frameworks and simplified regulatory mechanisms foster responsible innovation and public trust, contrasting with opaque, proprietary models elsewhere.

Challenges

India faces infrastructural, funding, and skill development challenges, especially in translating advanced research into scalable societal solutions. Bridging the urban-rural digital divide and fostering industry-academic partnerships at scale remain vital priorities.

Strategic Initiatives and Policy Support

- Large scale funding via a ₹10,000 crore Deep Tech Fund of Funds catalyzes startup innovation in AI, space, biotechnology, and semiconductors.
- Centres of Excellence and PM Research Fellowships nurture next-generation talent.
- Expansion of Atal Tinkering Labs (to 50,000 schools) and AI CoEs in education embed innovation early.
- Ethical frameworks and regulatory reforms promote responsible AI deployment aligned with societal welfare.

Implications for India's Global Standing

- India's pluralistic, democratic approach to deep tech development positions it as a viable leader in the global AI and tech race, combining innovation with societal benefit and governance accountability. This model supports India's soft power and digital sovereignty in a competitive global landscape.

India's deep tech democracy underscores how democratic values can shape advanced technology development inclusively and ethically. Sustaining momentum requires continued public-private partnerships, regulatory agility, and commitment to bridging digital divides. This approach can serve as a global exemplar for inclusive, responsible AI and deep technology advancement.

Rashtriya Swayamsevak Sangh - 100 Years

- The Rashtriya Swayamsevak Sangh (RSS) is a **Hindu nationalist volunteer organisation** founded in **1925** in **Nagpur** by Dr. K.B. Hedgewar in response to perceived threats to Hindu culture and society, particularly during British colonial rule.
- It aims to **promote the idea of Hindutva**, which emphasises Hindu cultural and national identity.

- **Pre-Independence Era:**
  - The organization played a significant role in social and cultural mobilisation among Hindus. It focused on community service, education, and the promotion of Hindu values.
- **Post-Independence**:
  - After India''s independence in 1947, the RSS faced scrutiny, especially after the **assassination of Mahatma Gandhi** by **Nathuram Godse** in 1948. The organisation was banned for a short period but was later reinstated.

Ideology:

- The central ideology of the RSS, articulated by Vinayak Damodar Savarkar, promotes the idea that India is fundamentally a **Hindu nation.**
- The RSS emphasises the **importance of Indian culture and heritage**, aiming to unite people under a common national identity.
- The organization engages in various **social service activities,** including education, health care, and disaster relief, promoting the idea of "Seva" (service) among its members.

- **Contribution to Freedom Struggle:**
  - RSS **did not** participate directly in the Indian independence movement, it contributed to the socio-political awakening of Hindus.

- **History of Ban of RSS:**
  - **1948:** Banned after Gandhi''s assassination; lifted in 1949 after pledging loyalty to the Constitution.
  - **1966:** Government employees banned from joining RSS, reiterated in 1970 and 1980.
  - **1975-1977:** Banned during Indira Gandhi''s Emergency; lifted in 1977.
  - **1992:** Banned post-Babri Masjid demolition, lifted in 1993 after a commission deemed the ban unjustified.

- **Structure and Functioning:**
  - The RSS operates through a network of **shakhas (branches)** across India and abroad, focusing on physical, intellectual, and cultural training.
  - It has inspired many other organizations, including the **Vishva Hindu Parishad (VHP)**, **Bajrang Dal,** and **Akhil Bharatiya Vidyarthi Parishad (ABVP)**.
- **Political Influence:** It is considered the ideological **parent of the Bharatiya Janata Party (BJP)**, which has been a major political force in India since the 1990s.

<u>Rules on Government Employees Joining RSS</u>

- **DoPT's Directive:**
  - On 9th July 2024, the **DoPT** announced the **removal of references to the RSS** from **Official Memorandums (OM) issued in 1966, 1970, and 1980**.
  - The RSS is **no longer considered a "political" organisation**, allowing central government employees to participate in its activities without penalties under **Rule 5(1) of the Conduct Rules.**
    - However, this reclassification **does not apply to the Jamaat-e-Islami**, which remains a political organisation, prohibiting government officials from engaging in its activities.
    - **Rule 5 of the Central Civil Services (Conduct) Rules, 1964** prohibits government servants from being associated with political parties or engaging in political activities.
- **Official Memorandums (OM) of 1966, 1970, and 1980:**
  - **OM of 1966:** On **30th November 1966**, the **Ministry of Home Affairs (MHA)** issued a circular clarifying its stance on government employees'' involvement with the RSS and Jamaat-e-Islami, labelling participation in these organisations as contrary to government policy.
    - The circular referenced **Rule 5 of the Central Civil Services (Conduct) Rules, 1964** and stated that those involved with these groups could face **disciplinary action.**
    - A similar rule is present in the **All India Services (Conduct) Rules, 1968**, applicable to **IAS, IPS, and Indian Forest Service officers**.

- **OM of 1970:** On 25th July 1970, the MHA stressed that government employees should face disciplinary action for violating the instructions issued on 30th November 1966.
  - During the Emergency (1975 to 1977) government issued directives for action against members of various groups, including the **RSS, Jamaat-e-Islami, Ananda Marg**, and **CPI-ML**, whose activities were prohibited at that time.
- **OM of 1980:** On 28th October 1980, government issued a directive emphasising the **importance of maintaining a secular perspective among government employees** and highlighted the critical need to **eliminate communal sentiments** and biases.

- **Position Before 1966:**
  - Prior to 1966, government employees in India were governed by the **Government Servants' Conduct Rules of 1949,** which **explicitly prohibited participation in political activities.**
  - This prohibition was reiterated in **Rule 23 of the 1949 rules**, aligning with **Rule 5 of the Central Civil Services (Conduct) Rules, 1964**, and the **All India Services (Conduct) Rules, 1968**.
- **Penalty for Violations of Rules:**
  - Violations of these rules (**Rule 5 of the Central Civil Services (Conduct) Rules, 1964**, and the **All India Services (Conduct) Rules, 1968**) can lead to serious consequences, including **dismissal from service**.
  - Both rules state that if there''s any uncertainty about a party''s political involvement or an activity''s compliance, **the government''s decision is final.**

Jamaat-e-Islami

- It is a socio-religious and political organization that was founded in **1941** in British India by **Abul A''la Maududi**.
- It aims to **promote Islamic values** and implement Islamic principles in society and governance.
- It advocates for the establishment **of an Islamic state governed by Sharia law.**
- The Government of India officially banned Jamaat-e-Islami Jammu and Kashmir in March 2019 under the **Unlawful Activities (Prevention) Act (UAPA).**

Ananda Marg

- It was founded by **Prabhat Ranjan Sarkar** in **1955,** is a **socio-spiritual organisation** known for its **Progressive Utilisation Theory (Prout).**
  - **Prout** is a socioeconomic alternative model that promotes the **welfare and development of every person, physically, mentally, and spiritually.**
- It gained popularity in the 1960s, leading to conflicts with the West Bengal government. Key events include the 1975 assassination of railway minister L N Mishra, for which four members were convicted, and Anandamurti''s 1971 arrest for allegedly ordering a

disciple''s murder.

- **It was banned during the Emergency (1975-1977).**

UPSC CSE Prelims 2024 - Question

Consider the following pairs :

Party	**Its Leader**
1. Bharatiya Jana Sangh	**Dr. Shyama Prasad Mukherjee**
2. Socialist Party	**C. Rajagopalachari**
3. Congress for Democracy	**Jagjivan Ram**
4. Swatantra Party	**Acharya Narendra Dev**

How many of the above are correctly matched?

(a) Only one

(b) Only two

(c) Only three

(d) All four

Answer (b)

- Dr. Shyama Prasad Mukherjee founded Bharatiya Jana Sangh on **21st Oct. 1951 at Delhi** and he became its first President. ***Hence, Pair 1 is correctly matched.***
- C. Rajagopalachari parted ways with the Congress in 1957 after being disillusioned by the path it was taking. **He founded the Swatantra Party in 1959**, which favoured classical liberal principles and free enterprise. ***Hence, Pair 2 is incorrectly matched.***
- Babu Jagjivan Ram resigned from the Cabinet and the Congress Party on 2 February 1977. He formed his own party, **'Congress for Democracy' (CFD) on 5 February 1977.** ***Hence, Pair 3 is correctly matched.***
- Acharya Narendra Dev was instrumental in the establishment of the **Congress Socialist Party in 1934 as a radical faction working within the Indian National Congress.** ***Hence, Pair 4 is incorrectly matched.***
- The Congress Socialist Party under the leadership of Jayaprakash Narayan and Acharya Narendra Dev played a major role in the Quit India Movement (1942).
- ***Hence Only Two is Correct.***

The Bharatiya Jana Sangh (BJS) was a right-wing political party in India founded in 1951 by Shyama Prasad Mukherjee. It later evolved into the Bharatiya Janata Party (BJP).

Here are concise notes on the Bharatiya Jana Sangh:

Formation and Founder

- **Founded on 21 October 1951** in Delhi.
- **Founder:** *Dr. Shyama Prasad Mukherjee*, a prominent nationalist leader.
- Emerged as a political wing of the **Rashtriya Swayamsevak Sangh (RSS)**.

Ideology

- Advocated **Hindutva** and **Hindu nationalism**.
- Promoted **Integral Humanism**, a philosophy developed by Deendayal Upadhyaya.
- Stood for **national conservatism** and **economic nationalism**.

Political Journey

- Participated in the **1951–52 general elections**, winning **3 seats** in Parliament.
- Opposed special status for Jammu & Kashmir; Mukherjee died in custody during a protest against it.
- Gained traction in the 1960s and 70s, especially among urban middle-class voters.

Merger and Legacy

- **Dissolved in 1977**, merged with other parties to form the **Janata Party**.
- After internal conflicts, former BJS members formed the **Bharatiya Janata Party (BJP)** in **1980**, which became a major national party.

Who was Dr Shyama Prasad Mukherjee?

- Shyama Prasad Mukherjee was born in a Bengali Brahmin family on the 6th July, 1901, in Calcutta.
- He was an **Indian politician, barrister, and academician** who served as the **Minister for Industry and Supply** in Prime Minister Jawaharlal Nehru''s cabinet.
- At the age of 33, Shyama Prasad Mukherjee **became the youngest vice-chancellor of Calcutta University in 1934.**
- During His term as Vice-Chancellor, **Rabindranath Tagore delivered the university convocation address in Bengali for the first time,** and the Indian vernacular was introduced as a subject for the highest examination.
- He **demanded the partition of Bengal in 1946** to prevent the inclusion of its Hindu-majority areas in a Muslim-dominated East Pakistan.
- He also **opposed a failed bid for a united but independent Bengal made in 1947** by Sarat Bose, the brother of Subhas Chandra Bose, and Huseyn Shaheed Suhrawardy, a Bengali Muslim politician.
- He **founded the Bharatiya Jana Sangh (BJS)**, the predecessor of the modern-day Bharatiya Janata Party (BJP).
- In 1953, to **protest against the special status given to Kashmir** he tried to enter Kashmir without seeking permission and was arrested. He died in mysterious circumstances during detention.

Registered political parties Vs. Recognized political parties

Registered political parties are legally approved to contest elections, while recognized political parties meet specific performance criteria and enjoy additional privileges.

Registered Political Parties

- **Legal Status**: Registered under Section 29A of the Representation of the People Act, 1951.
- **Purpose**: Can contest elections and receive certain legal protections.
- **Eligibility**: Must submit an application to the Election Commission of India (ECI) with required documentation.
- **Benefits**:
- Can use a common symbol (if allotted).
- Eligible for tax exemptions on donations.
- Can access electoral rolls and other election-related materials.

Recognized Political Parties

- **Recognition Criteria**: Must meet specific performance benchmarks in elections, such as:
  - Winning a certain percentage of votes.
  - Securing a minimum number of seats in the legislature.
- **Types**:
  - **National Party**: Recognized in four or more states and meets national-level criteria.
  - **State Party**: Recognized in a particular state based on state-level performance.

Additional Privileges:

- Exclusive use of a permanent election symbol.
- Free airtime on public broadcasters (Doordarshan and All India Radio).
- Access to electoral rolls and consultation rights with the ECI.
- Priority in allotment of party offices and campaign resources.

All recognized parties are registered, but only those meeting performance criteria gain recognition, which confers additional privileges and status.

Brewing Trouble: Assam's Tea Industry Faces Climate and Economic Headwinds

Tea cultivation thrives in tropical to subtropical climates with high humidity, consistent rainfall, and moderate temperatures.

Ideal Climatic Conditions for Tea Cultivation

1. **Temperature Range**

- Optimal growth occurs between **15°C to 23°C**.
- Extreme cold or frost can damage tea plants, while excessive heat reduces leaf quality.

2. **Rainfall**

- Requires **1,500–2,500 mm of annual rainfall**, evenly distributed throughout the year.
- Monsoon rains are beneficial, but waterlogging must be avoided.

3. **Humidity**

- High humidity levels around **85%** are ideal for leaf development and flavor retention.

4. **Sunlight**

- Tea plants need **at least 5 hours of sunlight daily**.
- Partial shade is beneficial in hotter regions to prevent leaf scorching.

5. **Elevation**

- Grows well from **sea level up to 2,000 meters**.
- Higher elevations (like Darjeeling) produce more aromatic and delicate teas due to cooler temperatures and slower leaf growth.

6. **Soil Conditions**

- Prefers **slightly acidic, well-drained loamy soils** rich in organic matter.
- Soil pH should ideally be between **4.5 and 5.5**.

7. **Seasonal Variation**

- Seasonal changes influence flavor: the **second flush** (late spring to early summer) often yields the best quality tea.

Climate Challenges

- **Climate change** is disrupting traditional patterns, causing erratic rainfall, temperature spikes, and pest outbreaks.
- Adaptation strategies like **shade management, irrigation, and pest control** are increasingly necessary.

<u>Specialities of Assam Tea Cultivation</u>

1. **Unique Variety**
   - Cultivated from *Camellia sinensis var. assamica*, a native tea plant variety distinct from the Chinese strain.
   - Known for producing **strong, brisk, and malty-flavored black tea**, often used in breakfast blends like Irish Breakfast Tea.
2. **Geographical Advantage**
   - Grown at or near **sea level** in the Brahmaputra Valley, which provides rich alluvial soil and high humidity.

- Assam is the **largest tea-growing region in the world by production**, bordered by Bhutan, Bangladesh, and Myanmar.

3. **Climatic Conditions**
   - The region experiences **heavy rainfall (200–300 cm annually)** and warm temperatures, ideal for lush tea growth.
   - The **second flush** (May–June) is especially prized for its quality and flavor intensity.
4. **Distinct Harvest Cycles**
   - Tea is harvested in **flushes**: the first flush (spring) and second flush (summer), with the latter being more robust and flavorful.
   - The **second flush Assam tea** is globally sought after for its deep amber color and rich taste.
5. **Cultural and Economic Significance**
   - Tea cultivation is deeply embedded in Assam's identity, employing **millions of workers**, especially from tribal communities.
   - Assam contributes significantly to **India's tea exports**, making it a strategic agricultural sector.

<u>Crisis of Assam Tea Cultivation</u>

Assam's tea industry is facing a dual crisis: erratic climate patterns and stagnant prices, threatening livelihoods and long-term sustainability.

1. **Climate Disruption**
   - **Erratic rainfall and rising temperatures** have severely impacted tea cultivation in Assam.
   - Traditional weather patterns—crucial for tea growth—are no longer reliable. Unseasonal rains and prolonged dry spells reduce yield and quality.
   - **Pest infestations and plant diseases** are increasing due to climate volatility, raising production costs.
2. **Economic Stagnation**
   - Despite rising input costs, **tea prices have remained stagnant**, squeezing margins for growers.
   - Small tea growers, who form a significant part of the industry, are especially vulnerable. Many operate without formal recognition or access to credit.
   - **Labour wages remain low**, and workers face job insecurity due to declining profitability.
3. **Structural Issues**
   - The industry lacks **modernization and diversification**, making it less resilient to shocks.
   - There's limited investment in climate-resilient practices, irrigation infrastructure, and research.
   - Export competitiveness is declining due to **quality concerns and global competition**.
4. **Social Impact**
   - Assam's tea sector supports **millions of livelihoods**, especially among tribal and marginalized communities.

- The crisis threatens **food security, education, and healthcare access** for tea garden workers.
- Migration from tea estates is rising, leading to **urban stress and demographic shifts**.

5. **Policy Gaps**

- Existing government schemes are **fragmented and poorly implemented**.
- There's a need for **climate adaptation strategies**, financial support for small growers, and better market linkages.
- **Recognition of small tea growers** and integration into formal supply chains is critical.

The Assam tea industry stands at a critical juncture, grappling with the compounded effects of climate change and economic stagnation. Erratic weather patterns have disrupted traditional cultivation cycles, while stagnant prices and rising input costs threaten the viability of both large estates and small growers. Without timely intervention—through climate-resilient agricultural practices, inclusive policy reforms, and market diversification—the sector risks long-term decline. Safeguarding this heritage industry is not just an economic imperative but a social one, as it sustains millions of livelihoods and embodies the cultural identity of Assam.

Crypto Laundering in India: Trends, Challenges, and Governance

The conventional growth model, driven Cryptocurrency, once seen as a symbol of financial innovation, has increasingly emerged as a tool for global money laundering. Indian agencies now report large-scale frauds and rapid cross-border fund transfers, posing serious regulatory, financial and national-security challenges. Between January 2024 and September 2025, the Indian Cyber Crime Coordination Centre (I4C) flagged 27 crypto exchanges involved in laundering Rs. 623.63 crore from nearly 2,872 victims.

Cryptocurrencies are digital assets created and exchanged using blockchain — a secure, decentralised public ledger. Unlike regular money, they are not backed by any government or central bank. Their value depends on market demand, supply and speculation. **Popular examples** include Bitcoin, Ethereum and stablecoins.

Features of cryptocurrencies

- **Decentralisation:** No central authority controls cryptocurrency, which gives users freedom but also makes it easier for criminals to hide.
- **Pseudo-anonymity:** Transactions use wallet addresses instead of real names, making it difficult to identify people behind them.
- **Borderless transferability:** Crypto can move across countries instantly, avoiding the checks of regular banking systems.
- **Irreversibility:** Once a blockchain transaction is made, it cannot be undone, making recovery of stolen or laundered money very hard.

Crypto Exchanges– Crypto exchanges are digital marketplaces where users can buy, sell, trade, or convert

cryptocurrencies. They work somewhat like stock exchanges but operate with significantly fewer regulations, making them faster but also more vulnerable to misuse.

Types of exchanges:

- **Centralised Exchanges (CEXs):** Platforms such as Binance, Coinbase and WazirX. They typically require KYC verification, though compliance standards vary widely.
- **Decentralised Exchanges (DEXs)**: Peer-to-peer platforms like Uniswap that operate without any central authority. Users trade directly from their wallets, ensuring privacy but offering limited oversight.
- **Hybrid Exchanges:**These platforms combine features of both CEXs and DEXs — offering faster transactions and user-friendly interfaces while trying to maintain greater transparency and security

How do Crypto scams happen?

- **Fake Exchanges and Websites**– Fraudsters set up websites that look almost identical to genuine crypto platforms. Victims deposit money believing they are trading safely, only for the site to disappear along with their funds.
- **Pump-and-Dump Schemes**– Scammers artificially boost the price of low-value tokens through coordinated buying and aggressive social-media promotion. When unsuspecting investors join in, the scammers cash out, causing the token price to collapse.
- **Phishing and Hacking Attacks**– Users are tricked into revealing private keys or seed phrases through fake emails, apps or customer-support messages. Once accessed, wallets are emptied within minutes.
- **Rug Pulls**– Developers launch a flashy new token or decentralized Finance (DeFi) project, attract investor money, and suddenly shut it down—vanishing with the funds and leaving investors with worthless assets.
- **Romance and Task-Based Scams (Pig Butchering)**– Criminal networks build emotional connections or offer "high-income tasks" online, slowly convincing victims to invest in fake crypto platforms that show fabricated profits before ultimately wiping out their savings.

Across all these methods, stolen funds are quickly moved through multiple wallets, mixers and loosely regulated exchanges, making the money trail opaque and helping criminals evade traditional anti-money-laundering systems.

Size of India's crypto market

India's Crypto Market Size

India today ranks among the world's biggest crypto markets, reflecting both rising digital adoption and growing appetite for alternative assets.

Key Statistics:

- An estimated 119 million Indians use or hold cryptocurrency — one of the largest user bases globally.
- The domestic crypto market was valued at USD 2.6 billion in 2024 (IMARC Group).
- By 2035, it is projected to reach USD 15 billion, growing at a 17% CAGR (HDFCTru).

Who is investing?

Younger Indians dominate the crypto ecosystem:

- **Gen Z (18–25):** 37.6%
- **Millennials (26–35):** 37.3%
- **Adults (36–45):** 17.8%

Where is adoption growing?

Metro cities such as Delhi, Bengaluru and Mumbai continue to lead. But Tier-2 and Tier-3 cities — Jaipur, Lucknow and Patna — are emerging as surprising new hubs of crypto activity.

Challenges posed by Crypto in India

- **Anonymity and Multi-Layered Laundering**– Crypto transactions use wallet IDs instead of real names, allowing criminals to move money through hundreds of wallets, DEXs and mixers, making tracing extremely difficult.
- **Cross-Border Movement of Illicit Funds**– Cryptocurrencies enable quick transfers to countries like Dubai, China and Cambodia, where weak regulations and lack of uniform reporting make international coordination very challenging.
- **Use by Cyber-Criminal and Scam Networks**– Cyber-fraud groups increasingly use crypto for ransomware, extortion and global scam operations because it offers fast, borderless and hard-to-track payments.
- **Key Role in Online Fraud Schemes**– Crypto is now central to job scams, sextortion, investment frauds and app-loan scams, with victim money quickly converted into crypto and dispersed worldwide, reducing recovery chances.
- **Regulatory Arbitrage and Exchange Opacity**– Many exchanges operate across multiple jurisdictions with different compliance rules, and some Indian platforms have foreign ownership layers, creating opacity and opportunities for regulatory evasion.
- **Enforcement and Forensic Difficulties**– Agencies like ED, CBI, and I4C face challenges such as weak KYC standards, complex wallet tracing, lack of protocols for storing seized crypto, jurisdictional limits abroad, and a shortage of trained investigators. These challenges have even led one agency to store seized crypto with a private firm.
- **Macroeconomic and Financial Stability Risks**– The RBI fears that widespread crypto use could undermine financial stability, weaken monetary-policy control, and disrupt capital-flow management, while high volatility and terror-financing risks deepen concerns. Additionally, high taxes have pushed users offshore, shrinking domestic activity by 97%.

Crypto Governance in India

- **There is no central legislation**, which means crypto has no defined rights, liabilities or consumer protection, and it is not recognised as legal tender.
- **The Supreme Court–RBI conflict has created regulatory ambiguity**: the RBI banned banking services for crypto in 2018, the Supreme Court overturned it in 2020, and the government later introduced taxes without creating a regulatory framework.
- **The government remains hesitant to regulate crypto**because doing so may be seen as granting legitimacy, so only a discussion paper is currently being drafted.
- **There is no investor protection**, as crypto holdings do not have insurance, RBI ombudsman support or SEBI grievance mechanisms, unlike traditional financial products.
- **Offshore platforms operate outside Indian jurisdiction**, serving Indian users without taxation compliance or regulatory oversight.
- **Inter-agency coordination is fragmented**, with bodies like the RBI, ED, Income Tax Department, MeitY, state police and FIU-IND following different approaches, creating enforcement gaps.

Road ahead

- **India must enact a comprehensive Crypto Assets and Digital Transactions Act**to define asset classifications, licensing rules, consumer protections, Anti-Money Laundering (AML)/KYC standards and penalties for violations, while clearly distinguishing cryptocurrencies, stablecoins, utility tokens and security tokens.
- **Exchanges should be brought under a mandatory licensing regime,**similar to the EU's MiCA framework, requiring strict KYC norms, AML checks, travel-rule compliance, long-term data storage and mandatory proof-of-reserves audits.
- **A regulated system for custody of seized crypto assets is needed**, with national standards for secure storage, recovery procedures and liquidation, supported by a government-approved digital asset custodian.
- **Blockchain forensics capability must be strengthened**, with specialised labs, AI-based tracing tools, global analytics partnerships and systematic training for agencies like ED, I4C, FIU-IND and state cyber cells.
- **Cross-border cooperation should be expanded,**using Interpol task forces, FATF networks and bilateral agreements with hubs such as Singapore, the UAE and Europe, given the global movement of illicit funds.
- **A balanced taxation framework is necessary**, including reducing TDS rates, rationalising capital gains taxes and offering compliance incentives to prevent users from shifting to offshore platforms.
- **A robust consumer protection architecture must be built**, with a crypto grievance portal, mandatory insurance for exchange-held assets, transparent risk disclosures and compensation systems for fraud victims.
- **Stablecoins and DeFi need targeted regulation**, including licensing for issuers, reserve audits, transaction reporting and KYC-linked safeguards for high-value DeFi transactions.

- **Public awareness and digital literacy should be improved**, especially for young investors, through campaigns highlighting common scams, safe wallet practices and the risks of unverified investment schemes.

Cryptocurrencies bring useful innovation but also significant risks. In India, rising usage and unclear regulations have increased threats like cyber fraud, financial crime and monetary instability. India now needs a clear, balanced regulatory framework—aligned with global norms—to protect consumers, maintain financial stability and support the safe growth of digital assets.

Why Delhi Chokes: A Clear Guide to Air Pollution and Its Solutions

Air pollution is the introduction of chemicals, particulates or biological materials into the atmosphere that cause discomfort, disease, or death to humans. In India, air pollution is measured according to the National Air Quality Index developed by Central Pollution Control Board (CPCB) in 2014.

The measurement of air quality in the NAQI framework is based on eight pollutants, namely- **Particulate Matter (PM10), Particulate Matter (PM2.5), Nitrogen Dioxide (NO_2), Sulphur Dioxide (SO_2), Carbon Monoxide (CO), Ozone (O_3), Ammonia (NH_3) and Lead (Pb).**

Reasons for the rise in air pollution in Delhi

- **Stubble Burning:**Stubble burning in Punjab, Rajasthan, and Haryana emits large amounts of toxic pollutants in the atmosphere. These pollutants contain harmful gases like methane (CH_4), carbon monoxide (CO), volatile organic compounds (VOC) and carcinogenic polycyclic aromatic hydrocarbons. The IIT consortium report have estimated that stubble burning contributed up to 35% of Delhi's PM 2.5 levels during the peak October-November season.
- **Reduced Wind Speed:** Low-speed winds in winters are unable to disperse these pollutants effectively. Further, Delhi lies in a landlocked region and does not have the geographical advantage of sea breeze to disperse the suspended pollutants.
- **Effect of Northwesterly winds:** After the withdrawal of monsoons, the predominant direction of winds in northern India is northwesterly. These northwesterly winds bring the dust from the gulf region, northern Pakistan and Afghanistan.
- **Dip in Temperatures lowers the inversion height:** With the decrease in temperature, inversion height lowers down, leading to concentration of pollutants in the lower atmosphere. (Inversion height is the layer beyond which pollutants cannot disperse into the upper layer of the atmosphere).

AIR QUALITY INDEX (AQI)

- Launched in 2014 with an outline '**One Number – One Color – One Description**' to monitor air quality.
- Developed by **Central Pollution Control Board (CPCB).**
- Value ranges from **0 to 500.** Higher the AQI, the worse the air.
- **Pollutants** measured under AQI:

Particulate Matter (PM10)
Ammonia (NH_3)
Ozone (O_3)
Particulate Matter (PM2.5)
Carbon Monoxide (CO)
Nitrogen Dioxide (NO_2)
Lead (Pb)
Sulphur Dioxide (SO_2)

Note that it does **not** include **Carbon Dioxide (CO_2).**

- **Has six categories of air quality:**

Degree of Air Pollution			
SAFAR AQI Scale		World AQI Scale	
Good	0-50	Good	0-50
Satisfactory	51-100	Satisfactory	51-100
Moderate	100-200	Unhealthy**	100-150
Poor	201-300	Unhealthy	150-200
Very Poor	301-400	Very Unhealthy	200-300
Severe	401-500	Severe	Over 300

SYSTEM OF AIR QUALITY AND WEATHER FORECASTING AND RESEARCH (SAFAR)

Purpose
Provides near real - time air quality information for India's metropolitan cities.

Introduced by
Ministry of Earth Sciences. Developed by Indian Institute of Tropical Meteorology, Pune.

Pollutants Measured
PM2.5, PM10, Ozone, CO, NOx, SO_2, **Benzene, Toluene, Xylene, Mercury.**

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

Standards for air quality set up by CPCB in 2009.

Covers 12 pollutants

Sulphur dioxide (SO_2), Nitrogen dioxide (NO_2), PM10, PM2.5, Ozone, Lead, CO, Arsenic, Nickel, Benzene, Ammonia, and **Benzopyrene.**

NATIONAL AIR QUALITY MONITORING PROGRAMME (NAMP)

Launched By
Ministry of Environment, Forests and Climate Change (MoEFCC) in 2019.

Monitors
SO_2, NO_2, PM10, PM2.5, wind speed, direction, humidity, and **temperature.**

Focus on
Covers **non-attainment cities** identified by CPCB.

WHO AMBIENT AIR QUALITY DATABASE

2-3 YEARS

Started in 2011 and has since then been periodically updated every 2-3 years.

Compiles annual ground measurements of NO_2, PM10, and PM2.5 concentrations.

CONTINUOUS AMBIENT AIR QUALITY MONITORING SYSTEM (CAAQMS)

Commissioned by
Indian Army at Eastern Command HQ in Fort William Station, Kolkata.

Purpose
To monitor ambient air quality on **real-time basis.**

AIR

- **Vehicular Pollution:** Delhi has one of the highest number of registered private vehicles in India.

Official emissions inventories of 2018 show that vehicles emit about 40 per cent of the particulate load in the city of Delhi.

- **Construction Activities and Open Waste Burning:** Pollution due to landfill burning and construction debris enhances the pollution levels in the Delhi NCR region.
- **Firecrackers:** Firecrackers burning during Diwali further adds to the increase in air pollution levels.
- **Urban development strategy in India:** The current strategy focuses on real estate development, a widening of roads and allowing large fuel guzzling vehicles which are major reasons for increased pollution.
- **Expansion of 'Grey' infrastructure:** Water bodies, urban forests, green cover, and urban agriculture have all reported shrinkage, and "grey" infrastructure has seen rapid expansion.
- **Land use change:** The handing over of open spaces to real estate developers and lack of any meaningful afforestation affects the city's ecology.
- **Promotion of car sales:** Widening roads induces people to buy more cars, thus leading to more pollution levels.
- **Construction activities:** It contributes roughly 10% of air pollution in Delhi-NCR. There are hardly any steps being taken to monitor construction activities.

Effects

The harmful effects of air pollution have been tabulated below:

Economic effects	(1) Leads to loss of labour productivity, GDP and per capita income levels. (The Confederation of Indian Industry estimates that air pollution costs Indian businesses $95 billion, or 3 per cent of India's GDP every year). (Poor air amounts to about Rs 7 lakh crore of annual economic loss, which is more than a third of our annual GST collection) (2) Air pollution reduces agricultural crop yields and commercial forest yields.
Human Health Effects	(1) Air pollution leads to multiple health conditions including respiratory infections, heart disease and lung cancer. (2) As per the Global Burden of Disease comparative risk assessment for 2015, air pollution exposure contributes to approximately 1.8 million premature deaths and loss of 49 million disability adjusted life-years (DALYs) in India.
Environment	(1) Acid Rain: Damages crops, natural vegetation, soil chemistry and leads to damage to ancient monuments (Taj Mahal Yellowing). (2) Eutrophication of water bodies: Increases nitrogen intake of freshwater bodies leading to Eutrophication.

Govt initiatives

- **Cloud Seeding (Artificial Rain):** Piloted with IIT Kanpur, three rounds were conducted in 2025 to temporarily reduce airborne particulate matter, although results were mixed due to weather constraints. The key reason for limited results was **insufficient cloud moisture (only 15–20%)**, while successful cloud seeding typically requires 50% or more. High cloud bases (near 10,000 feet) also reduced effectiveness.
- **Crop Residue Management Scheme:** Crop Residue Management (CRM) scheme which provides subsidy to farmers for buying 'Turbo Happy Seeder', 'Super SMS attachment', 'rotavators' and 'superseeder'.
- **Commission for Air Quality Management (CAQM):** CAQM is a statutory body formed under the Commission for Air Quality Management in National Capital Region and Adjoining Areas, Act 2021. CAQM has provided a framework to tackle the problem of air pollution due to stubble burning.
- **Initiatives to reduce Vehicular Pollution:** The shift from BS-IV to BS-VI, push for Electric Vehicles (EVs), Odd-even Policy have all been implemented to reduce Vehicular pollution.
- **Graded Response Action Plan (GRAP):** GRAP measures like shutting down thermal power plants and a ban on construction activities are implemented to curb air pollution.
- **Dust and construction controls:** Mandatory deployment of anti-smog guns and water sprinklers at large buildings, construction sites, and hotspots; mist sprayers installed on electric poles at 13 major air pollution hotspots.

Road ahead

A start has been made to recognise the severity of air pollution on the health of the population and the economy. Delhi and Mumbai are the two financial backbones of our country. The following measures need to be undertaken to curb air pollution in Delhi and Mumbai:

- **Increase the AQI monitoring stations:**The adequate numbers of AQI monitoring stations as mandated by the National Clean Air Programme (NCAP) must be installed. Also, sensor based AQI monitoring units that give hyperlocal data must be set up.
- **Enhanced powers to the authorities to take action according to the hyperlocal data:** It will help the authorities take pre-emptive actions and allow denser monitoring. For example, if it is found that construction is taking place in a certain pocket without following norms, the authorities can identify the location and immediately penalise the violators.
- **National Nodal Authority for Air pollution:** India needs a nodal authority with constitutional powers to ensure collaborative pre-emptive action on air pollution with timelines for all stakeholders.
- **Setting up Independent commissions for management of AQI:** Independent commissions like the Commission for Air Quality Management (CAQM) for NCR and adjoining regions, should be set up in other major cities like Mumbai and Chennai. It will help in taking actions against the violators irrespective of the geographical region. Regional or airshed approach must be used to counter the geographical challenge to air pollution management as done in Los Angeles, Mexico City and many

mega-urban regions in China.

- **Stricter guidelines for industrial emissions:**SEBI's Business Responsibility and Sustainability Report (BRSR) framework can lay down tighter guidelines to ensure uniformity in the unit of reporting pollutant emissions, declaration of air pollution mitigation targets (like companies do for carbon emissions), and reporting of disaggregated emissions data. We must reduce exposure across the value chain from production to consumption to recycling of goods and delivery of services.
- **Making 'Clean air' an investment sector:** The push for substitution of fossil fuels will increase investment opportunities in clean energy transition sector like green mobility, clean cooking. This will open up a new sector for investment and will help in reducing the air pollution simultaneously.
- **Funds and Manpower Training to combat pollution:**The Sixteenth Finance commission should provide finance to urban local bodies for climate change and air pollution reduction interventions. The urban local bodies manpower must be properly trained and the dysfunctional State pollution Control Boards must be empowered to take punitive actions.
- **Increased awareness and incentive for civil society:** Different stakeholders need to know why cleaning the air will benefit their livelihoods and businesses. For instance, farmers will not curb stubble burning until a viable circular economy for alternative uses of biomass emerges. We must adopt sustainable lifestyles which are in line with government's LiFE initiative.
- **Increased use of Public transport and reduced dependence on private vehicles:**The Delhi Master Plan target of 80 per cent of motorised trips by public transport by 2020 has not been met yet. The deadline has been shifted to 2041. This deadline needs to be met by augmenting the public transport system. The private vehicles use must be disincentivized by introducing ward-wise parking management area plans and parking tax.
- **Limit crop residue burning:** We must implement known solutions like shifting to less water-intensive crops, altering irrigation arrangements, timing, harvesting, baling practices and building a wider year-round market for straw.
- **End-to-end construction and waste management:**It is pivotal to reducing tonnes of dust and waste released in the air and water bodies.
- **Learnings from London, China, Singapore, Hong Kong must be incorporated:**London does not allow private vehicles in areas well-connected by public transport. China uses 'fixed number of car sales per year' in Beijing. We must improve the public transport like London, China, Singapore and Hong-Kong.

Air pollution in Delhi is not caused by one single source — it is a result of vehicles, industries, construction dust, stubble burning, and weather conditions. Solving the crisis requires a **coordinated effort** from the central government, state governments, industries, and the public. Sustainable policies, technological solutions, and behavioral changes are essential to ensure cleaner air for the future.

The UNFCCC's 30th Conference of the Parties (COP30) concluded with adoption of Belem Package

UNFCCC COP 30 Climate Summit

- The 30th Conference of the Parties (COP30), held in the heart of the Amazon, concluded on November 21, 2025, with a mixed but forward-looking agreement dubbed the **Belém Package**. The annual UN climate summit, which aimed to shift global climate action into high gear, delivered a series of agreements on finance and adaptation, though it stopped short of a binding global commitment to immediately phase out fossil fuels.
- Hosted in Belém, a city historically tied to the world''s most vital rainforest, the conference placed a significant focus on forest conservation and the rights of indigenous communities. The outcome reflects a delicate balance struck between the urgent demands of island nations and developing economies, and the political realities facing major industrial powers.

The Belém Package: Decisions and Agreements

- The conference successfully produced **29 negotiated decisions**, known collectively as the Belém Package. Central to these was the **Global Mutirão Agreement**, "global mutirão" – a Portuguese term evoking community and collective effort – the gathering signalled both ambition and compromise. This agreement is a consensus that prioritised tangible implementation and international cooperation over the establishment of new, mandatory targets. This approach was a pragmatic response to the diverse economic needs of the participating nations.

Key outcomes included:

1. Belém Political Package: The outcome document reflected the mutirão ("coming together") spirit, emphasising collective effort and stronger multilateral climate action**.**

Two New Initiatives:-

- **Global Implementation Accelerator:** Launched as a two-year programme to bridge the gap between national climate plans and the 1.5°C pathway.
- **The Belém Mission to 1.5:** An action-oriented platform under the **COP29-COP31 troika** to foster international cooperation across mitigation, adaptation, and investment.

2. Global Mutirao Decision: A high-level political text adopted by Parties:-

- **Tripling Adaptation Finance:** Countries agreed to work toward at least tripling adaptation finance and mobilising a minimum of USD 1.3 trillion annually for climate action by 2035.
- *Double adaptation finance by 2025 and triple by 2035.*
- COP also adopted the Global Goal on Adaptation (GGA) with 60 indicators to assess global adaptation progress.
- **Belém Action Mechanism (BAM):** A new Just Transition Mechanism was adopted to support a fair and equitable global transition to a green economy for workers and communities.

- **Two Roadmaps:** The Forest and Climate Roadmap (to halt and reverse deforestation) and The Transitioning Away From Fossil Fuels Roadmap.
- **Climate Finance Work Programme:** A two-year programme was created to examine and implement **Article 9.1 obligations** requiring mandatory financial support from developed countries.
- **Loss and Damage Fund:** The fund was further operationalised to ensure timely financial assistance for climate-vulnerable nations.
- **GGA Indicators:** Countries endorsed a voluntary framework of 60 indicators across seven thematic and four-dimensional targets to track progress under the Global Goal on Adaptation (GGA).
- **Indigenous Rights:** The Belém Political Package reaffirmed the need to uphold Indigenous Peoples' rights, including land rights and traditional knowledge, in climate action.
- **Climate Disinformation Acknowledgement:** It formally acknowledged the harmful impact of climate disinformation and called for information integrity in science-based policymaking.

Sideline Outcomes of COP30

- **Tropical Forests Forever Facility (TFFF):** A Brazil-led blended-finance mechanism offering long-term performance-based payments to tropical forest countries for conservation efforts.
- **Global Ethical Stocktake (GES):** Complements the technical Global Stocktake by examining the moral and ethical dimensions of climate action and required behavioural changes.
- **FINI Initiative:** Fostering Investible National Implementation (FINI) platform aims to make National Adaptation Plans more investible and unlock USD 1 trillion in adaptation pipelines by 2028.
- **Belém Declaration on Fertilisers:** Seeks to reduce global GHG emissions from fertiliser production by 5% while improving nutrient-use efficiency and soil health.
- **Global Implementation Accelerator:** Established to bridge the gap between current national climate plans and the trajectory needed to meet the Paris Agreement's 1.5°C temperature-rise target.
- **Unilateral Trade Measures Dialogue**: Launched to address developing-country concerns that unilateral measures like CBAM act as reverse finance flows and undermine CBDR-RC principles.
- **Blue NDC Challenge:** Seventeen countries committed to integrating ambitious and quantifiable ocean-related measures in their 2025 NDC updates.
- **Super Pollutant Country Action Accelerator:** Provides targeted support to developing nations for rapid reduction of short-lived climate pollutants such as methane, black carbon, HFCs, & tropospheric ozone.
- **Gender Action Plan:** Advances gender-responsive budgeting and finance, and promotes the leadership of Indigenous, Afro-descendant, and rural women.

Challenges and Shortcomings of COP30

- **Fossil Fuel Phase-out:** The final Belém Political Package lacked a clear, time-bound roadmap for "transitioning away" from fossil fuels.
- **US Absence:** The **United States did not send an official delegation**, weakening the bargaining power of developed countries and creating a leadership vacuum.
- **Non-Binding Commitments:** Key commitments on fossil-fuel and deforestation were moved to voluntary, non-binding roadmaps outside the formal UNFCCC framework.
- **Deforestation Gaps:** Despite being held in the Amazon region, COP30 delivered only limited concrete actions to halt deforestation, relying largely on non-binding commitments.
- **Adaptation Deadline:** The pledge to triple adaptation finance was deferred to 2035, instead of the 2030 deadline demanded by climate-vulnerable nations.
- **Loans vs Grants:** Developed countries failed to shift away from loan-based climate finance, increasing debt burdens and deepening mistrust among vulnerable nations.
- **NDC Shortfalls:** Many countries did not submit updated national climate plans (NDCs) aligned with the 1.5°C target pathway.

The Fossil Fuel Compromise

- Perhaps the most significant and contentious aspect of COP30 was the language surrounding fossil fuels. Despite immense pressure from environmental advocates and vulnerable nations for a definitive **"phase-out"** commitment, the final text did not include this binding language.
- However, **COP30 President Marina Silva** expressed personal commitment to developing practical roadmaps for an eventual **"transition away" from coal, oil, and gas.** This outcome highlights the ongoing tension in international climate negotiations between climate goals and energy security concerns.

Looking Forward: The "Decade of Implementation"

- Belém marked a pivotal moment in the **"decade of implementation"** following the **2015 Paris Agreement.** While some activists expressed disappointment at the compromises, many political leaders celebrated the **strengthening of climate multilateralism** and the **focus on delivering tangible outcomes**.
- **"We have shown that compromise and cooperation remain the bedrock of our shared climate future,"** said a lead negotiator during the closing plenary**. "The work is far from over, but the path from Belém is clearer."**
- As the world looks toward the next COP, the agreements forged in the Amazon will serve as the new benchmark for global climate action.

The G20 Summit 2025

- The G20 Summit 2025, hosted in **Johannesburg on 22–23 November**, was the first time the leaders' meeting took place on African soil, giving the Global South a more prominent platform.

The South African presidency prioritised **climate adaptation, debt relief, inclusive industrialisation**, and upgrading global governance to better represent developing economies. The summit produced a lengthy Leaders' Declaration focused on resilience, equity and sustainable development, but it also exposed diplomatic rifts that complicated unanimous endorsement by every guest.

G20 Johannesburg Summit 2025

- The 2025 G20 Johannesburg Summit, held on 22-23 November 2025 at the Johannesburg Expo Centre, marked the **20th meeting of the G20** and the **first-ever summit hosted on the African continent**. South Africa used this opportunity to highlight Africa's development priorities, global equity, and South-South cooperation. **The summit gained attention due to the absence of top leaders from major economies, including China's Xi Jinping and U.S. President Donald Trump**. Despite this, leaders focused on global economic recovery, climate resilience, and digital cooperation.

G20 Summit 2025 Theme

- South Africa has selected the G20 Summit 2025 Theme **"Solidarity, Equality and Sustainability"** for its G20 Presidency, reflecting the group's original mission and values. The theme emphasises collective action, fairness in global development, and long-term environmental responsibility. It aims to strengthen unity among nations while promoting inclusive and sustainable growth worldwide.

G20 Historical Background

- The G20 was established in **1999** in the aftermath of the **Asian Financial Crisis** to bring together major advanced and emerging economies for global economic coordination. Initially a finance ministers' forum, it evolved into a **Leaders' Summit in 2008 after the Global Financial Crisis.**
- Formed in 1999 by **G7 finance ministers** and central bank governors to prevent future financial crises.
- Initially functioned as a finance ministers' and central bank governors' forum before expanding to leaders' summits in 2008.
- The shift to leaders' meetings came during the Global Financial Crisis, positioning the G20 at the center of global economic recovery.
- Represents **85% of global GDP, 75% of global trade**, and around **two-thirds** of the world's population, giving it unmatched influence.
- Membership includes a mix of advanced and emerging economies, ensuring a broad, inclusive approach to global challenges.
- Over the years, the G20 agenda expanded from macroeconomic coordination to climate change, health security, digital transformation, terrorism financing, and sustainable development.
- Played a major role in creating global financial reforms, including **Basel III**, strengthening financial

institutions, and enhancing global regulatory cooperation.

- Supported major global commitments such as the Paris Agreement, the 2030 Agenda for Sustainable Development, and debt relief initiatives for vulnerable nations.

G20 Member Countries

- The G20 Member Countries includes 19 countries: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, the Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Türkiye, the United Kingdom, and the United States, along with the European Union and, **since 2023, the African Union is a permanent member.**

India-Brazil-South Africa (IBSA) Leaders' Meeting held on the sidelines of the G20 Summit 2025

- **Founded:** In 2003 via the Brasilia Declaration and named as IBSA Dialogue Forum.
- **Members:** India, Brazil, South Africa; three major Global South democracies across three continents.
- **Objectives:** To contribute to the construction of a new international architecture and bring their voice together on global issues.

India pushed for urgent UNSC reform, called for united action for global peace and prosperity and also highlighted IBSA's possible role in shaping safe, trustworthy, and human-centric AI norms.

Key Proposals of India at Meeting

- **Institutionalizing Dialogue:** Proposed institutionalizing the National Security Advisers-level dialogue between the three countries to enhance cooperation on security issues.
- **IBSA Digital Innovation Alliance:** For sharing Digital Public Infrastructure (DPI) among three nations such as UPI, CoWIN-type health platform, Cybersecurity frameworks and Women-led tech initiatives.
- **Climate Resilience Fund:** Proposed establishing an IBSA Fund for Climate Resilient Agriculture.

G20 Johannesburg Summit 2025 Outcomes

- **122-Paragraph Document:**Members agreed a 122-para-Declaration covering climate finance, UNSC reform, debt, gender, youth, Africa-centric development and critical minerals.
- **UNSC Reform Push:**It calls for reforming the UNSC to better represent **Africa, Latin America and Asia-Pacific,** reflecting today's power realities instead of **1945 structures.**
- **Climate & Finance Commitments:**Leaders endorsed scaling climate finance from **"billions to trillions",** just transitions and support for vulnerable economies under the **Paris Agreement.**
- **Mission 300:**A joint initiative by the **World Bank and African Development Bank** aimed at providing electricity access to 300 million people in Sub-Saharan Africa by 2030.
- **Debt & Cost of Capital:**A Cost of Capital Commission was launched to tackle unfair risk premia on Global South borrowers and address **Africa's USD 1.8 trillion debt burden.**
- **Social Targets:**The Declaration adopted the **Nelson Mandela Bay Target (cut NEET youth share by 5% by 2030)** and a **goal of 25% gender parity** in labour force participation by **2030.**

- **Critical Minerals Framework:**Leaders welcomed a G20 Critical Minerals Framework to secure sustainable, diversified mineral value chains and local beneficiation in developing countries.

Opportunities In The G20

- **Platform for Global South:**With AU as a member and South Africa as host, G20 2025 gave Africa and the broader Global South greater voice in setting global economic priorities.
- **Economic Governance Reforms:**It can drive reforms in IMF–World Bank voting shares, lending norms and debt restructuring, making finance fairer for developing countries.
- **Technology & AI Governance:**It offers a forum to shape rules on AI, data governance, digital public infrastructure and critical minerals, preventing techno-monopolies.
- **Security & Drug-Terror Nexus:**G20 can coordinate responses to terror financing, drug trafficking **(e.g., fentanyl)** and cyber threats that cut across regions.
- **India's Proposals:**Prime Minister Narendra Modi proposed six new initiatives, including an **Open Satellite Data Partnership**, a Global Traditional Knowledge Repository, and an Africa Skills Multiplier program.

The G20 Presidency for 2026 was handed over to the United States.

Geopolitical Tensions & Erosion Of G20's Role

- **Absence of Big Three:**With **Trump, Xi and Putin** skipping Johannesburg, the summit tilted towards **"middle powers",** weakening the forum's clout on core strategic issues.
- **Trump's Unilateralism:**Trump's tariff wars, suspicion of multilateralism, and preference for bilateral deals **(e.g., G2 with China, G8+Russia)** undercut the logic of **G20 collective action.**
- **US-South Africa Clash:**The US opposed climate and debt language, refused to join the declaration**, and accused Pretoria of "weaponising" its presidency,** breaking G20's consensus norm.
- **Argentina's Late Exit:Argentina, led by Javier Milei,** withdrew support over references to **Middle East conflict,** exposing ideological and geopolitical fissures inside the grouping.
- **Europe's Ukraine Focus:**European leaders framed Ukraine as the defining security crisis, while many Global South states foregrounded Gaza and humanitarian issues, deepening narrative divides.

Way Ahead For The G20

- **Re-centering Economic Mandate:** The G20 must refocus on macro-financial stability, debt sustainability, trade and climate finance, areas where its decisions directly shape outcomes.
- **Bridging North–South Agendas:** It needs deliberate coalitions to reconcile European security concerns (Ukraine) with Global South priorities (debt, Gaza, development, climate justice).
- **Rebuilding US–G20 Engagement:** Durable relevance requires re-engagement of the US and other great powers, even while preserving space for African and Asian voices.
- **Deliverables Over Declarations:** Credibility now depends on implementable initiatives—actual climate finance, debt swaps, SDR re-channelling, infrastructure and energy projects—not just

communiqués.

- **Synergy with UN & Regional Forums:** G20 outcomes should feed into UN processes (COP, SDG Summit) and complement bodies like EAS, AU, BRICS, not compete with them.
- **Institutionalising Inclusivity:** Permanent mechanisms for Global South consultation, civil society inputs, and vulnerable country representation can anchor G20's legitimacy beyond big power politics.

Conclusion

- The 2025 Johannesburg summit delivered strong Africa-focused outcomes, yet lacked commitment from major powers. The absence of several leaders highlighted geopolitical divisions. However, the remaining members were able to adopt the declaration, demonstrating the G20's ability to function without full participation. India launched the **Australia-Canada-India Technology and Innovation (ACITI) Partnership** and integrated its proposals into the declaration**.**Without the US, China and Russia, the G20's role as the world's economic steering forum will weaken further. Sustaining its relevance now needs renewed big-power engagement, stronger Global South leadership and real, actionable results. Despite challenges, the Johannesburg G20 successfully focused on the Global South's developmental priorities, establishing frameworks and initiatives for future international cooperation.

NIPUN Bharat Mission

- The National Education Policy (NEP) 2020 and the **NIPUN Bharat Mission** have commendably brought foundational literacy and numeracy (FLN) to the forefront of India''s educational agenda. Recent data suggests an encouraging recovery in foundational learning outcomes, particularly in government schools, indicating that focused interventions can work at scale.
- However, beneath this veneer of progress lies a critical and widening disparity: a persistent numeracy gap. The data reveals that while India''s children are improving their reading skills, their ability to handle basic arithmetic is lagging significantly, a challenge that threatens to undermine the entire educational system and India''s demographic dividend.

The Stark Reality of the Divide

- The persistent difference between children's literacy skills (reading) and numeracy skills (math skills like division, place value, operations) at the foundational level.
- **ASER 2024:** 48.7% of Class 5 students can read fluently, but only 30.7% can solve basic division is approx. 18% gap.

Trends in India's Literacy–Numeracy Divide:

- ASER 2024 shows 48.7% of Class 5 students can read a Class 2 text, but only **30.7% can solve a basic division problem** — an 18-percentage point gap.

- ASER 2024 finds more than **50% of Class 8 students cannot perform basic division**, showing stagnation and cumulative learning gaps.
- Post-pandemic surveys (ASER 2022, 2023, 2024) confirm slower recovery in numeracy compared to literacy, especially among rural and low-income students.
- States like Kerala, Himachal Pradesh, and Punjab show high reading proficiency but continued weaknesses in fractions, decimals, and multi-digit division.
- **NCERT's NAS (2021, 2023)** reports national math proficiency below 45%, significantly lower than countries participating in TIMSS and PISA, reflecting systemic challenges.

Reasons for India Lagging in Numeracy:

- **Hierarchical nature of Mathematics:** Math builds layer by layer; when early concepts like place value or number sense are unclear, students cannot grasp later topics like decimals, fractions or division, causing learning gaps to widen rapidly.
- **Syllabus-driven, pace-based teaching:** Teachers often follow the textbook calendar rather than students' learning levels, pushing the class ahead even when most learners haven't mastered the basics — leading to cumulative deficits.
- **Lack of structured remedial support:** Most schools lack systematic catch-up programmes or differentiated instruction, so children who fall behind in early grades continue to lag throughout upper primary.
- **Real-life disconnect in math learning:** Studies (J-PAL) show children who score well in school tests struggle to apply math in practical settings and vice-versa, highlighting poor transfer of knowledge between classroom and real-life contexts.
- **Teacher capacity and pedagogy gaps:** Many teachers have limited exposure to activity-based, conceptual numeracy teaching, resulting in rote-led instruction that fails to build deep mathematical understanding.
- **COVID-19 learning disruptions:** School closures disproportionately affected rural and low-income students, sharply widening pre-existing foundational math gaps and delaying mastery of Class 1–5 competencies.

Impact of Poor Numeracy:

- **High failure rates in Maths and Science:** Weak foundational numeracy makes algebra, physics, geometry and problem-solving difficult, leading to significantly higher failure rates in these subjects in Class 10 board exams.
- **Early adolescent dropout:** As concepts become more abstract in Classes 6–9, children with foundational gaps cannot follow classroom teaching, pushing many to exit school before reaching the board exam stage.
- **Reduced access to higher education (especially STEM):** Students who cannot clear Maths in Class 10 or 12 lose eligibility for science streams, technical diplomas, engineering and competitive exams that require quantitative ability.

- **Lower employability and financial literacy:** Poor numeracy affects everyday skills such as budgeting, measurement, digital payments, and logical reasoning — limiting success in both formal employment and informal livelihoods.
- **Long-term economic and productivity loss:** A workforce with weak numeracy reduces national productivity, innovation capacity and readiness for a skill-based economy, threatening India's demographic dividend.

Initiatives Taken:

- **NIPUN Bharat Mission (2021):** National programme for Foundational Literacy & Numeracy for Classes 1–3.
- **Teaching at the Right Level (TaRL):** Level-based instruction model adopted by several States.
- **PARAKH Rashtirya Survekshan:** Nationwide assessment to track foundational learning.

State-level programmes:

1. Karnataka: Kalika Chetarike
2. Uttar Pradesh: Mission Prerna
3. Dadra & Nagar Haveli & Daman & Diu: Extended FLN to upper primary, improving outcomes Activity-based learning kits, math manipulatives, digital FLN tools, teacher training modules.

Way Ahead:

- **Extend FLN support up to Class 8:** Because nearly half of middle-grade students still cannot do basic division, extending foundational interventions beyond Class 3 ensures continuity and prevents learning gaps from widening further in upper primary.
- **Introduce FLN+ skills:** Strengthening these higher-order numeracy skills is essential since they form the backbone of board-exam math and significantly influence future readiness in science, commerce, and vocational pathways.
- **Shift to learning-level–based instruction:** Teaching should match students' actual competency levels—not rigid grade syllabi—so that slow learners receive the scaffolding needed to catch up instead of being left behind year after year.
- **Strengthen remedial learning, peer learning, and math labs:** Dedicated remedial periods, peer tutoring groups, and hands-on math labs can help rebuild foundational concepts through practice, concrete objects, and personalised support.
- **Integrate real-life mathematical contexts:** Embedding concepts like budgeting, measurement, discounts, and market arithmetic makes math relevant and enables children to transfer classroom learning to real-world situations effectively.
- **Improve teacher training in conceptual and activity-based pedagogy:** Teachers need continuous professional development to use manipulatives, visual tools, games, and child-centric methods that build conceptual understanding rather than rote procedural skills.

Conclusion:

- India stands at a critical juncture. The NIPUN Bharat mission has shown that progress is possible at scale. The next vital step is to channel that energy into a dedicated national push for numeracy, ensuring that every child not only learns to read, but also to reason with numbers. This is not just an academic priority but an economic and social imperative for an equitable and prosperous India.India's numeracy gap threatens long-term learning, employability, and economic mobility. Strengthening FLN beyond early grades and adopting learner-centric teaching is essential. A coordinated national push on numeracy—parallel to literacy—is now crucial for inclusive educational and economic progress.

Making of the Indian Constitution

Making of the Constitution

- **M.N. Roy** first time kept forward the idea of the Constituent Assembly in 1934.
- In **1935, the Indian National Congress** for the first time demanded a Constituent Assembly to frame the Constitution of India.
- In **1938 Jawahar Lal Nehru** declared that the Constitution of free India must be framed by a Constituent Assembly whose members are to be elected based on an adult franchise. It should be free from any external interference.
- In the **1940s "August Offer" demands and in 1942 Sir Stafford Cripps** was sent to India with a draft proposal on the framing of an independent Constitution to be adopted after World War II.M.N. Roy, the first person to put forward the idea of the Constituent Assembly
- **Muslim league** rejected the proposal as it demanded two dominion states with two separate constituent assemblies.
- Later in **1946, the Cabinet mission** put forward the idea of a Constituent Assembly which satisfied both the INC and the Muslim League.
- In **November 1946, the Constituent Assembly** was constituted under the scheme formulated by the Cabinet Mission Plan.

Constituent Assembly

The Cabinet Mission Plan provisioned the following scheme for setting up the Constituent Assembly of India:

- The **total strength of the Constituent Assembly was 389**. Of these, 296 seats were allotted to British India and 93 seats to the Princely States. Out of 296 seats allotted to British India, 292 members were drawn from the eleven governors' provinces 4 from the four chief commissioners' provinces, and one from each.
- Each province and princely state were to be allotted seats in proportion to their respective population. Roughly **one seat was to be allotted for every million population**.

- **Seats allocated to each British** province were to be divided among Muslims, Sikhs, and General (others), in proportion to their population.Constituent Assembly
- The representatives of each **community** were to be elected by members of that community in the provincial legislative assembly and voting was to be by the method of proportional representation using a single transferable vote.
- The **representatives of the princely states** were to be nominated by the heads of the princely states.

Thus, under the above provisions, the Constituent Assembly became a partly elected and partly nominated body. The members were indirectly elected by the members of the provincial assemblies. It did not present the sentiments of the masses as the members of provincial assemblies themselves were elected on a limited franchise.

- The election for **296 seats** allotted to the British Indian Provinces was held in July-August 1946. Out of these seats, the Indian National Congress won 208 seats, the Muslim League won 73 seats, and the remaining 15 seats were held by independent players.
- **93 seats allocated to princely** states were not filled as they refrained from the Assembly.
- Though the assembly did not reflect the mass verdict it had representatives from every section of the society.
- **Mahatma Gandhi** was not a member of the Constituent Assembly.

Working of the Constituent Assembly

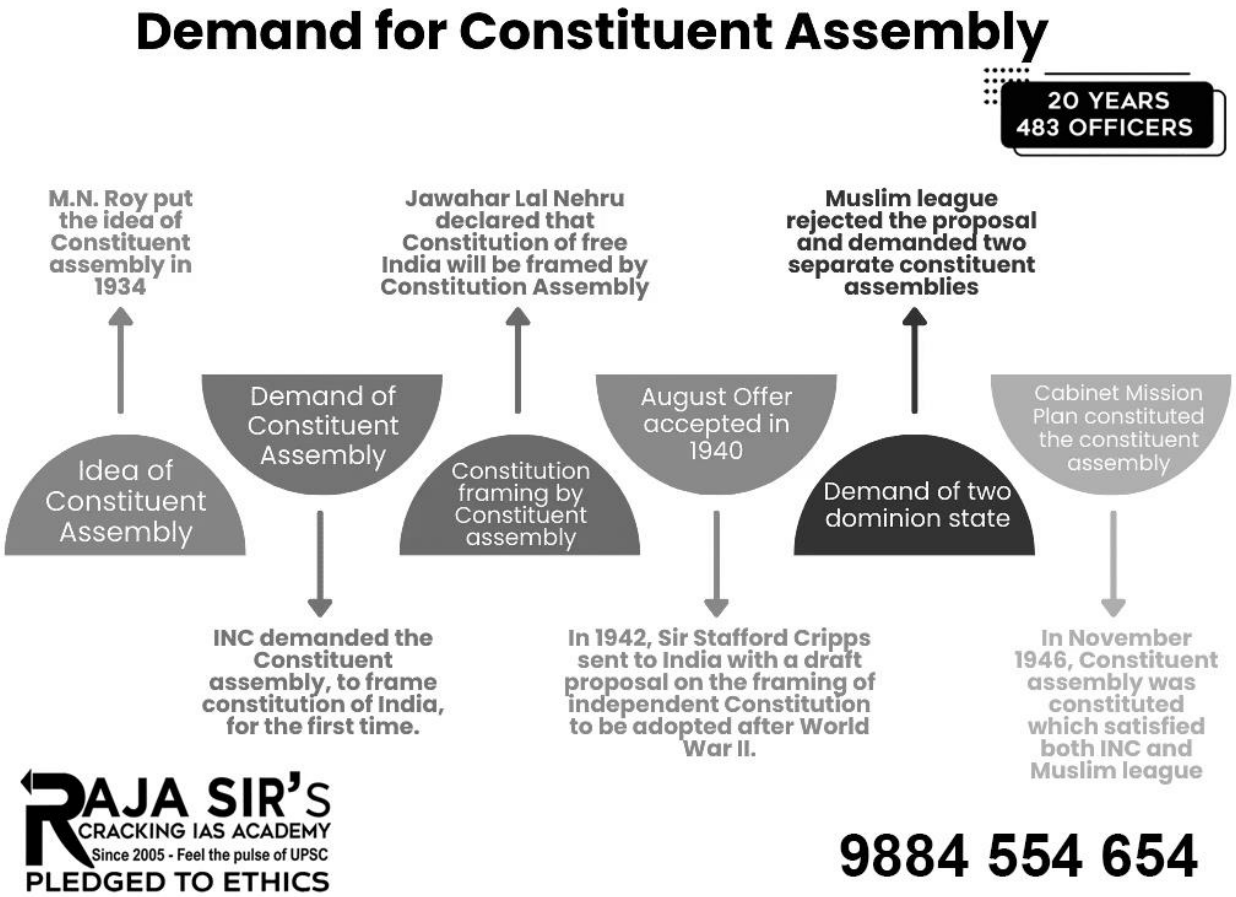
The Constituent Assembly held its first meeting on **December 9, 1946**. Muslim League boycotted the meeting and demanded a separate state of Pakistan. Only 207 members attended the first meeting. **Dr. Sachchidananda Sinha** was elected as the temporary/interim President of the Assembly, following the French practice. Later Dr. Rajendra Prasad was elected as the President of the Assembly and both H.C. Mukherjee and V.T. Krishnamachari became the Vice-President of the Assembly.

Objective Resolution: On December 13, 1946, Jawahar Lal Nehru moved the 'Objective Resolution' in the Constituent Assembly which was unanimously adopted by the assembly on January 22, 1947.

The important provisions of the Resolution were:

- This **Constituent Assembly** declares its firm and solemn resolve to proclaim India as an Independent Sovereign Republic and to draw up for her future governance a Constitution.
- Wherein the **territories comprising present-times British India,** the territories that now form the Indian State and such other parts of India as are outside India and the States as well as other territories as are willing to be constituted into independent sovereign India, shall be a Union of them all.
- Wherein the said territories, whether with their present boundaries or with such others as may be **determined by the Constituent Assembly** and thereafter according to the law of the Constitution, shall possess and retain with the residuary powers and exercise all powers and

functions of the Government and administration implied in the Union or resulting therefrom



- Wherein all power and authority of Sovereign Independent India, its constituent parts and organs of Government are **derived from the people.**
- Wherein shall be guaranteed and secured to all the people of India justice, social, economic, and political; **equality of status of opportunity, and before the law; freedom of thought, expression, belief, faith, worship, vocation, association, and action, subject to the law and public morality.**
- Wherein adequate safeguards shall be provided for **minorities, backward and tribal areas, and depressed and other backward classes**.
- Whereby shall be maintained the integrity of the territory of the **Republic and its sovereign rights on land, sea, and air according to justice and the law of civilized nations**.
- This ancient land attains its rightful and honoured place in the world and makes its full and willing contribution to the promotion of world peace and the welfare of mankind.

Initially, the representatives of the princely states stayed away from the Constituent Assembly. **On April 28, 1947 representatives of the 6 states** became part of the assembly and after the acceptance of

the **Mountbatten Plan of June 3, 1947,** most of the other princely states entered the assembly. Later the members of the Muslim League from the Indian dominion also joined the assembly.

Changes after the Indian Independence Act, of 1947: The act of 1947 made the following changes:

- The Assembly became the fully sovereign body and was empowered to **frame any Constitution** it pleased.
- It became the legislative body. It became responsible to frame the Constitution of India and enact ordinary laws for the country. Whenever the assembly worked as a Constitutional body, it was chaired by **Dr. Rajendra Prasad** and when it met as a legislative body, **G.V. Mavlankar became the chairman (this arrangement continued till November 26, 1949)**.
- Muslim League withdrew from the assembly and it reduced the total **strength of the assembly to 299 from 389**. The strength of Indian provinces reduced to **229 from 296** and that of princely **states to 70 from 93**.

Other Functions performed by the Assembly:

- Ratified India's membership of the Commonwealth in **May 1949.**
- Adopted the National Flag of India on **July 22, 1947**.
- Adopted National Anthem on **January 24, 1950**.
- Elected **Dr Rajendra Prasad** was the first President of India on January 24, 1950.

On **January 24, 1950, the Constituent Assembly** held its final session but continued as the provincial parliament from January 26, 1950, till the first general elections in 1951-52 were held.

Committees of the Constituent Assembly

Major Committees

Name of the Major Committees	**Chairperson**
Union power committee	Pandit Jawaharlal Nehru
Union constitution committee	
States committee	
Provincial constitution committee	Sardar Vallabhbhai Patel
Drafting committee	B. R. Ambedkar
Advisory committee	Sardar Vallabhbhai Patel.
Fundamental Rights Sub-Committee	J.B. Kripalani
Minorities Sub-Committee	H.C. Mukherjee
North East Frontier Tribal areas and Assam Excluded & Partially Excluded Areas sub-committee	A.V. Thakkar
Excluded and Partially Excluded Areas sub-committee	A.V. Thakkar
Rules and Procedure committee	Dr. Rajendra prasad.
Steering committee	

Minor Committees

Name of Minor Committees	**Chairperson**
Finance and staff committee	Dr. Rajendra Prasad.

Credentials committee	Alladi krishnaswami Ayyar.
House committee	Pattabhi Sitaramayya
Order of Business committee	Dr. K. M. Munshi
Ad Hoc committee on national flag	Dr. Rajendra Prasad
Committee on functions of Constituent assembly	G. V. Malvankar
Ad Hoc committee on Supreme court	S. Varadachari
Committee on Chief Commissioners' Provinces	Pattabhi Sitaramayya
Expert Committee on Financial Provisions of the Union Constitution	Nalini Ranjan Sarkar
Linguistic Provinces Commission	S.K. Dhar
Special Committee to examine the draft constitution	Jawaharlal Nehru
Press Gallery Committee	Usha Nath Sen
Ad Hoc committee on citizenship	S. Varadachari

DraftingCommittee

On August 29, 1947, a Drafting Committee was set up to prepare a draft of the new Constitution. It was a seven-member committee with Dr. B.R. Ambedkar as the Chairman of the committee. The other 6 members include:

Members of the Drafting Committee

- N. Gopalaswamy Ayyangar
- Alladi Krishnaswamy Ayyar
- Dr. K.M. Munshi
- Syed Mohammad Saadullah
- N.M. Rau
- T.T. Krishnamachari

The first draft prepared by the committee was published in February 1948. The second draft was published in **October 1948**.

Enactment of the Constitution

- Dr. B.R. Ambedkar introduced the final draft of the Constitution in the Assembly on **November 4, 1948,** for the first reading. The second reading was held on November 15, 1948, and the third reading on November 14, 1949.

- The draft was passed on **November 26, 1949** (thus, celebrated as Constitution day).
- The Constitution as adopted on **November 26, 1949,** contained the Preamble, 395 Articles, and 8 Schedules.
- Provisions of citizenship, elections, provisional parliament, temporary and transitional provisions, and short title are contained in **Articles 5, 6, 7, 8, 9, 60, 324, 366, 367, 379, 380, 388, 391, 392, and 393** came into force on November 26, 1949. The remaining provisions came into force on January 26, 1950.
- With the adoption of the Constitution, all the provisions under the Indian Independence Act, of 1947, and the **Government of India Act, of 1935** were repealed.
- The **Abolition of Privy Council Jurisdiction Act (1949)** continued.

Enforcement of the Constitution

- The **provisions of the Indian Constitution** related to citizenship, elections, provisional parliament, temporary and transitional provisions, and short title, contained in Articles 5, 6, 7, 8, 9, 60, 324, 366, 367, 379, 380, 388, 391, 392, and 393 came into force on November 26, 1949.
- The **majority of the Constitution**, excluding the mentioned provisions, came into force on January 26, 1950, celebrated as Republic Day. This date was chosen due to its historical significance, being the day of the **Purna Swaraj** celebration in 1930 after the resolution of the Lahore Session (December 1929) of the INC.
- The **''date of commencement''** of the Constitution marks the celebration of Republic Day, and it symbolizes the culmination of the independence movement.
- The **Indian Independence Act of 1947** and the Government of India Act of 1935, along with all enactments amending or supplementing the latter Act, were repealed with the commencement of the Constitution.
- The **Abolition of Privy Council Jurisdiction Act (1949)** was an exception and continued to be in effect after the Constitution came into force.

Experts Committee of the Congress

- **Formation of the Experts Committee:** On July 8, 1946, while Constituent Assembly elections were ongoing, the Congress Party (Indian National Congress) appointed an Experts Committee to prepare material for the Constituent Assembly.
- **Committee Members:** Jawaharlal Nehru served as the Chairman, and other members included M. Asaf Ali, K.M. Munshi, N. Gopalaswami Ayyangar, K.T. Shah, D.R. Gadgil, Humayun Kabir, and K. Santhanam.
- **Additional Member and Convener:** Krishna Kripalani was later co-opted as a member and the convener of the committee on the Chairman''s proposal.
- **Committee Proceedings:** The committee had two sittings: the first in New Delhi from July 20 to 22, 1946, and the second in Bombay from August 15 to 17, 1946.
- **Discussion Topics:** Apart from individual notes prepared by its members, the committee

deliberated on the procedure to be adopted by the Constituent Assembly. They also discussed the appointment of various committees and drafted a resolution on the objectives of the constitution, to be presented during the first session of the Constituent Assembly.

- **Role in Constitution Making:** According to Granville Austin, an American constitutional expert, the Congress Experts Committee played a crucial role in shaping India''s constitution. They worked within the framework of the Cabinet Mission Scheme, providing general suggestions on autonomous areas, powers of provincial and central governments, princely states, and the amending power. The committee''s drafted resolution closely resembled the Objectives Resolution.
- **Significance:** The committee''s efforts were instrumental in setting the foundation for India''s constitution, guiding the early discussions and shaping key aspects within the constitutional framework.

Criticism of the Constituent Assembly

The Constituent Assembly was criticized on various grounds including:

- Not a Representative Body as it did not reflect the mass verdict due to election by the limited franchise.
- Not a Sovereign body as it was formed based on the proposals of the British Government and held its meetings with their permission.
- Took greater time to frame the Constitution as compared to the American Constitution which took only 4 months.
- Dominated by Congress
- The domination of Lawyers and Politicians and the representation of other professionals were not significant
- Dominated by Hindus

Facts to Ponder

- In **1935, the Indian National Congress** for the first time demanded a Constituent Assembly to frame the Constitution of India.
- In **November 1946, Constituent Assembly** was constituted under the scheme formulated by the Cabinet Mission Plan.
- Muslim League withdrew from the assembly and it reduced the total **strength of the assembly to 299 from 389**. The strength of Indian provinces reduced to **229 from 296** and that of princely **states to 70 from 93**.
- **Members of the Drafting Committee**
  - N. Gopalaswamy Ayyangar
  - Alladi Krishnaswamy Ayyar
  - Dr. K.M. Munshi
  - Syed Mohammad Saadullah
  - B.N. Rau

- T.T. Krishnamachari
- One of the main criticism of The Assembly was it being a domination of lawyers and politicians and representation of other professionals was not significant.

- **S.N. Mukherjee** was the chief draftsman of the Constitution in the Constituent Assembly.
- **Prem Behari Narain Raizada** was the calligrapher of the Indian Constitution. He had handwritten the original text of the Constitution in a flowing italic style.
- It was beautified and decorated by artists from **Shanti Niketan** including **Nand Lal Bose and Beohar Rammanohar Sinha**.
- The calligraphy of the Hindi version of the original Constitution was done by **Vasant Krishan Vaidya** and decorated and illuminated by Nand Lal Bose.
- The elephant was adopted as the **symbol of the Constituent Assembly**. Thus, its figurine was carved on the seal of the assembly.
- Originally, the Constitution of India did not make any provision concerning an authoritative text of the Constitution in the Hindi Language. Later, a provision in this regard was made by the **58th Constitutional Amendment Act of 1987** which inserted a new Article 394-A in the last part of the constitution.

PYQS

UPSC CSE PRELIMS 2024 - QUESTION

Who was the Provisional President of the Constituent Assembly before Dr. Rajendra Prasad took over?

(a) C. Rajagopalachari
(b) Dr. B.R. Ambedkar
(c) T.T. Krishnamachari
(d) Dr. Sachchidananda Sinha

Our Test 19 – Qn.No.57

Who was chosen as the provisional president of the Constituent Assembly?

(a) Dr Rajendra Prasad
(b) Dr. Sachidanand Sinha
(c) Jawaharlal Nehru
(d) Alladi Krishnaswami Ayer

UPSC Prelims 2023 Question

Consider the following statements in respect of the Constitution Day:

Statement-I: The Constitution Day is celebrated on 26th November every year to promote constitutional values among citizens.

Statement-II: On 26th November, 1949, the constituent Assembly of India set up a Drafting Committee under the Chairmanship of Dr. B. R. Ambedkar to prepare a Draft Constitution of India.

Which one of the following is correct in respect of the above statements?

(a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I

(b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for

Statement-I

(c) Statement-I is correct but Statement-II is incorrect

(d) Statement-I is incorrect but Statement-II is correct

The UN ESCAP Asia-Pacific Disaster Report 2025

- **The UN ESCAP Asia-Pacific Disaster Report 2025, titled "Rising Heat, Rising Risk,"** warns that extreme heat has become the region''s fastest-growing climate hazard, threatening development gains and putting millions at risk. The report was launched at the **Ninth Session of the Committee on Disaster Risk Reduction in Bangkok, held from November 26-28, 2025**
- **The UN ESCAP Asia-Pacific Disaster Report 2025** warns that Asian megacities—Delhi, Karachi, Dhaka, Manila, Shanghai, Seoul could face 2–7°C extra heat due to the **urban heat island effect**, pushing temperatures far beyond global warming averages.

The Key Findings in UN ESCAP Asia-Pacific Disaster Report 2025:

1. Urban Heat Amplification (UHI Effect):

- Even if global warming stabilises at 1.5–2°C, cities may heat **by +7°C due to dense concrete**, limited green cover, and high waste heat from vehicles and ACs.
- Megacities like Delhi, Karachi, Dhaka are projected to experience high localised heat stress far beyond rural surroundings.

2. Chronic Heat Exposure in South Asia:

- **India, Pakistan, Bangladesh:** 300+ days with heat index >35°C; over 200 days above 41°C in several regions.
- **Heat index** includes humidity, making it a better indicator of felt temperature.

3. Rapid Rise in Extreme Heat Events:

- **2024 was the hottest year on record,** with Bangladesh's April–May heatwave affecting 33 million people.
- India's long heatwave in 2024 caused approx. 700 deaths, the second deadliest event in the region.

4. Population Exposure Trends:

- Over 40% of South Asia's population will face **heat index >35°C and 41°C** in both medium- and long-term scenarios.
- Exposure will worsen regardless of climate policy due to continued urbanisation.

5. Compounding Threat: Heat + Pollution

- High heat intensifies wildfires, droughts**, PM10/5 load, and releases VOCs.**
- Heat and pollution **amplify cardiovascular and respiratory** risks in a dangerous feedback loop.

6. Sectoral and Economic Impacts:

- Heat-related working-hour losses in Asia projected to **rise from 75 million to 8.1 million full-**

time job equivalents by 2030.

- Annual climate-related **economic loss** may rise to **$498 billion** under high-emissions scenarios.

Why South Asia Is Most at Risk?

- **High Humidity + High Temperature:** Humid conditions amplify "felt heat," pushing **heat index above 35–41°C for 300+ days a year.**
- **Dense Urbanisation:** Fast-growing megacities like Delhi, Dhaka and Karachi trap heat through concrete, vehicles and limited green cover.
- **Large Outdoor Workforce:** Millions rely on labour-intensive sectors—agriculture, construction—where exposure to heat is unavoidable.
- **Low Adaptation Capacity:** Limited access to cooling, reliable electricity, clean water and heat shelters heightens vulnerability.
- **High Population Density:** Even moderate heatwaves impact tens of millions due to crowded settlements and poor housing.
- **Poverty & Inequality:** Heat amplifies socio-economic disadvantages, making the poor disproportionately exposed and unprotected.

Challenges in Reducing Heat Risk:

- **Weak Heat Action Plans:** Many state and city heat plans lack funding, scientific grounding and legal backing for enforcement.
- **Poor Urban Planning:** Concrete-dominated cities leave little room for trees, ventilation corridors or blue-green infrastructure.
- **Digital & Monitoring Gaps:** Only half of global meteorological systems issue heat warnings; localised forecasts remain limited.
- **Insufficient Healthcare Systems:** Heat emergency units, hydration centres and rapid-response teams are inadequate in many districts.
- **Labour Protection Weakness:** Outdoor workers lack mandatory shade breaks, adjusted hours, or employer accountability during heatwaves.
- **Electricity & Water Stress:** Power outages and water shortages increase risk when cooling becomes essential for survival.

Way Forward:

- **National Heat-Health Warning Network:** Ensure district-level forecasts, heat alerts, and last-mile communication in local languages.
- **Heat-Sensitive Urban Design:** Promote cool roofs, reflective surfaces, urban forests, shaded corridors and permeable pavements.
- **Protect Workers Legally:** Mandate heat safety protocols—rest breaks, water access, shift changes—during extreme heat days.
- **Climate-Resilient Agriculture:** Adopt heat-tolerant crop varieties, micro-irrigation, agroforestry

and weather-indexed insurance.

- **Strengthen Local Health Systems:** Establish cooling shelters, mobile clinics, hydration kiosks, and emergency heat-response teams.
- **Expand Social Safety Nets:**Provide subsidised cooling appliances, water access, and targeted support for vulnerable households

Conclusion:

- Extreme heat is emerging as the fastest-growing climate threat in Asia, with South Asia at the epicentre due to its demographic, ecological and socio-economic vulnerabilities. Without urgent adaptation measures—urban redesign, labour protection, and robust warning systems - heatwaves will become chronic humanitarian crises. A proactive, science-driven, equity-focused strategy is essential to protect lives, livelihoods and long-term climate resilience.

India to Open Its Civil Nuclear Power Sector to Private Firms

- India is in the process of opening its civil nuclear power sector to private firms, a major policy shift that ends a six-decade government monopoly. The move, announced by Prime Minister Narendra Modi in this week November 2025, aims to attract private investment and technology to accelerate the expansion of India''s nuclear energy capacity

India's Current Nuclear Energy Landscape

- India's nuclear program includes both operational and under-construction reactors across various locations, such as the Kudankulam, Rajasthan, and Kakrapar sites. The program primarily utilizes **Pressurized Heavy Water Reactors (PHWRs)** and **Pressurized Water Reactors (PWRs),** with additional projects like the **Prototype Fast Breeder Reactor (PFBR)** in Kalpakkam. Several reactors are in various stages of construction and planned completion.

Nuclear Capacity and Generation

- **Current Capacity:** India operates 25 nuclear reactors across seven power stations with a combined installed capacity of **about 8,880 MW.**
- **Share:** Nuclear power contributed ~3% of India's total electricity generation in FY 2024-25.
- **Future Targets:** India aims to reach about **22.5 GW of nuclear capacity by 2031-32** and targets **100 GW by 2047.**
- **Reactor Types:** Most reactors are indigenous **Pressurised Heavy Water Reactors (PHWRs),** supplemented by a few **Light Water Reactors (LWRs)** imported from Russia and the United States.

India's Nuclear Reactors

Operational reactors

1. Tarapur: Units 1 and 2 (PHWR), Units 3 and 4 (IPHWR-540)
2. Kudankulam: Units 1 and 2 (VVER V-412 PWR)
3. Rajasthan: Units 2–6 (IPHWR-220), Unit 7 (IPHWR-700)
4. Kalpakkam: Unit 2 (PHWR)
5. Narora: Units 1 and 2 (IPHWR-220)
6. Kakrapar: Units 1 and 2 (IPHWR-220), Units 3 and 4 (IPHWR-700)
7. Kaiga: Units 1–4 (IPHWR-220)

Reactors under construction

1. Gorakhpur: Units 1 and 2 (IPHWR-700)
2. Kudankulam: Units 3, 4, 5, and 6 (VVER V-412 PWR)
3. Rajasthan: Unit 8 (IPHWR-700)
4. Kalpakkam: Prototype Fast Breeder Reactor (PFBR)
5. Kaiga: Units 5 and 6 (IPHWR-700)
6. Chutka: Units 1 and 2 (IPHWR-700)

Planned reactors

1. Mahi Banswara: Units 1–4 (IPHWR-700)
2. Gorakhpur: Units 3 and 4 (IPHWR-700)
3. Kaiga: Units 5 and 6 (IPHWR-700)
4. Chutka: Units 1 and 2 (IPHWR-700)

Uranium Supply

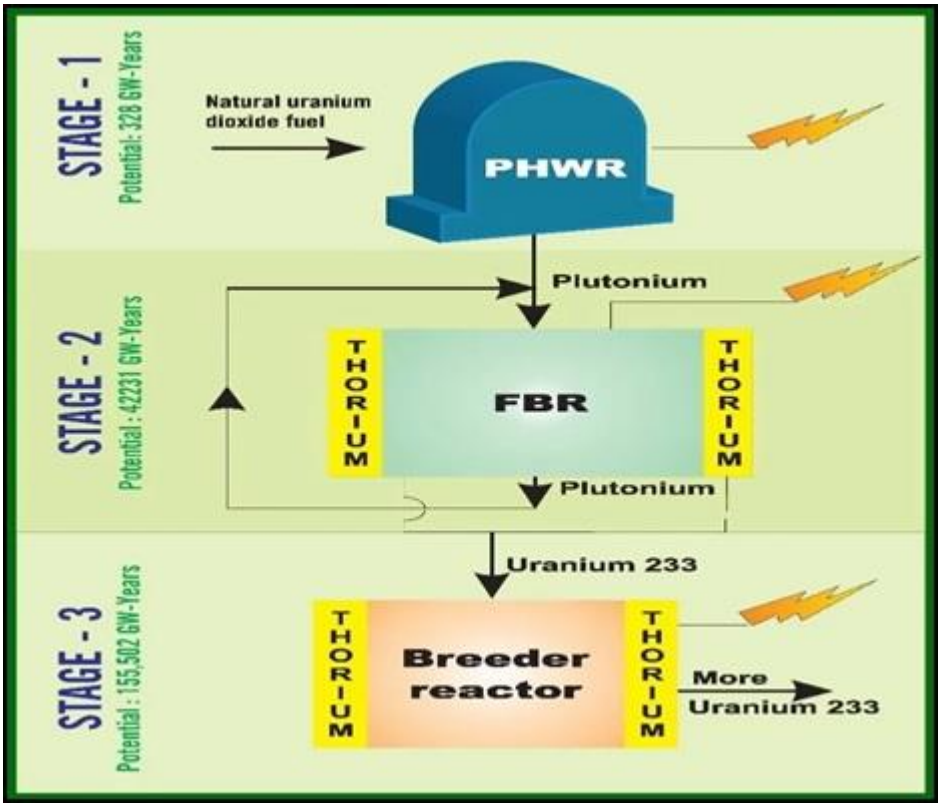
- **Uranium Imports:** Imports primarily come from **Kazakhstan**, which supplies nearly 80%, along with Russia, Uzbekistan, Canada, and Australia.
- **Domestic Reserves:** India has about 4,25,570 tonnes of natural uranium, mined by Uranium Corporation of India Limited (UCIL) mainly in Jharkhand and Andhra Pradesh.
- **Overseas Mining:** Stakes in uranium mines are being explored in Namibia, Mongolia, and Kazakhstan.

Legal and Policy Framework

- **Legal Framework:** The **Atomic Energy Act, 1962**, restricts nuclear power generation and operation to the central government and its PSUs.
- **Liability Law: The Civil Liability for Nuclear Damage Act (CLNDA), 2010**, specifies supplier liability provisions following the India-US nuclear agreement.
- **Safety Regulator:** The **Atomic Energy Regulatory Board (AERB)** oversees safety, licensing, and

regulatory compliance for all nuclear installations in the country.

- **Fuel Cycle:** India follows a closed fuel-cycle policy, allowing the reprocessing of spent fuel and the scientific management of nuclear waste.



Significance of Private-Sector Participation

- **Capital Mobilisation:** Corporate entry is expected to help close the USD 26 billion funding gap for the first 11,000 MW expansion phase.
- **Project Execution:** Engineering firms are likely to adopt a "Fleet Mode" approach to bring gestation periods down from 10-12 years to about 5 years.
- **Technology Deployment:** Private participation may accelerate the rollout of Small Modular Reactors (SMRs) and move development from site-specific construction to factory-produced units.
- **Manufacturing Depth:** Large industrial manufacturers can resolve supply-chain constraints and expand domestic forging capacity for Reactor Pressure Vessels (RPV) and Steam Generators.
- **Cost Competitiveness:** Market competition is projected to move tariffs toward ₹4-5 per unit through higher Plant Load Factors (efficiency) and lower operational overheads.

Structural Barriers for Private-Sector Participation

- **Liability Risks: Section 17(b) of the CLNDA** imposes unlimited supplier liability, making insurance coverage nearly impossible.
- **Financing Costs:** Exclusion of nuclear power from **India's Green Taxonomy** blocks access to low-cost Green Bonds. The current FDI policy prohibits investment in the nuclear energy sector.

- **Revenue Uncertainty:** Estimated generation costs of ₹6-8 per unit discourage private operators, as DISCOMs seldom sign Power Purchase Agreements exceeding the ₹4.50 threshold.
- **Land Acquisition:** Strong local resistance to large nuclear projects (e.g., **Jaitapur protests**) causes delays and uncertainty that private investors cannot absorb.
- **Operational Limits:** The Atomic Energy Act confines **private firms to "construction-only" roles**, denying the Build-Own-Operate model needed to manage operational risks and control the fuel cycle.

Recent Government Initiatives to Support Private-Sector Entry

- **Act Amendment:** The Atomic Energy Act 1962 is proposed to be amended to allow private companies to 'Build-Own-Operate' civilian nuclear power plants.
- **Liability Revision:** The CLNDA 2010 is proposed for revision to address investor concerns over unlimited supplier liability and align India's framework with international conventions.
- **Mission Launch:** The Nuclear Energy Mission for Viksit Bharat (announced in the Budget FY 2025), allocates ₹20,000 crore for R&D in Small Modular Reactors and advanced nuclear technologies
- **PPP Models:** New PPP models are being developed where private firms provide capital, land, and cooling water while NPCIL retains operational control and plant ownership.

AI, Space Militarisation, and Modern Global Warfare

- The evolution of warfare has always been tied to technological innovation, but the current integration of **artificial intelligence (AI)** with space technologies represents a fundamental shift in the character of modern global conflict. This powerful convergence is not merely about incremental improvements in existing military hardware; it is about **reshaping the entire global security architecture**, introducing unprecedented speed, autonomy, and complexity to the battlefield.
- Outer space, once a domain solely for exploration, has rapidly become a critical operational theater and a **foundational pillar of national security for major powers**, as nearly all modern military operations on land, air, and sea depend heavily on satellite-based systems for communication, surveillance, navigation, and targeting. AI acts as a crucial force multiplier, enabling the processing of vast data streams from these space assets in **near-real-time to provide superior situational awareness** and accelerate the decision-making cycle -an advantage often referred to as **"intelligentised warfare".** This synergy, however, also introduces profound strategic, ethical, and legal dilemmas, including the proliferation of Lethal Autonomous Weapons Systems (LAWS) and the heightened risk of an AI arms race that could lead to rapid, unintended escalation of conflicts. The following discussion explores how this transformative force is redefining security, governance, and global power competition in the 21st century.

AI, Space Militarisation, and Modern Warfare:

- AI, space militarisation, and modern warfare are reshaping global security by merging autonomous systems with satellite-based surveillance, communication, and targeting.

Growing Importance of Outer Space in National Security

- Space is now central to data flows, communication, scientific research, disaster warnings, financial transactions, and governance systems.
- Space-based systems support key civilian sectors—health, agriculture, climate monitoring, energy, transportation, and navigation.
- Most importantly, outer space has become a **foundational pillar of national security**, making satellite systems indispensable for modern armed forces.
- **In 2019, NATO recognised space as an operational domain**, joining land, air, maritime, and cyberspace.
- Multiple nations have since created dedicated space forces or space commands to protect their assets and military networks.

Transformation of Warfare Through Space-Based Systems

- Space technologies now assist land, air, and naval operations by enhancing command-and-control, surveillance, and precision warfare.

Satellites provide:

1. intelligence, surveillance, and reconnaissance (ISR)
2. secure communication
3. missile early-warning
4. navigation and precision targeting
5. maritime domain awareness

- However, space assets face increasing vulnerability to kinetic and non-kinetic attacks:

1. anti-satellite (ASAT) missiles
2. jamming of communication signals
3. GPS spoofing
4. cyber intrusions on ground stations
5. laser dazzling or blinding of satellites

- India's 2019 ASAT test demonstrated capability but also highlighted the need for greater space situational awareness.

AI as a Strategic Force Multiplier in Space

- AI elevates the military value of satellites by enabling:
- autonomous navigation
- real-time data processing
- predictive analytics for operational planning

- automated threat detection
- intelligent sensor networks
- AI is increasingly used in space surveillance and tracking , image interpretation , autonomous drones and loitering munitions , electronic warfare.
- The synergy of AI and space systems also enhances civilian applications such as disaster management, climate forecasting, and mineral exploration.
- However, the same capabilities enable offensive functions, raising concerns about surveillance, weapons autonomy, and possible arms races.

India's Rising Investments in Defence and Space Technology

- India's defence spending increased from **₹2.53 trillion (2014) to ₹6.81 trillion (FY 2025-26),** reflecting growing security needs.
- Space-based systems have gained priority due to **rising Chinese capabilities** and **Indo-Pacific security concerns.**
- In 2024, the **Cabinet Committee on Security** approved Phase-3 of the Space-Based Surveillance Programme for launching 52 surveillance satellites.
- 31 satellites will be produced by private companies.
- 21 will be built and launched by ISRO.
- India is adopting a mixed public–private model to strengthen its space ecosystem, similar to the US and European models.
- India's 2019 Project NETRA enhances space situational awareness and tracks threats to satellites.

AI-Enabled Space Security: Opportunities and Ethical Risks

AI improves efficiency but raises issues of:

- algorithmic bias
- autonomy in weapons
- accountability for machine errors
- risks of accidental escalation

AI-powered satellite surveillance could create:

- privacy concerns
- destabilising intelligence advantages
- dual-use systems that blur lines between offence and defence

Without clear ethical frameworks, AI-based military systems could amplify cyber threats, misinformation attacks, and automated battlefield decisions.

Gaps in International Space Law and the Limits of the Outer Space Treaty

- The 1967 Outer Space Treaty (OST) is the foundational global document governing space.

Article IV prohibits:

1. nuclear weapons or weapons of mass destruction (WMD) in space

2. stationing of WMDs in orbit
3. military bases on celestial bodies

However, the OST faces serious limitations:

- It does not explicitly prohibit ASAT tests.
- It does not address non-WMD modern weapons (AI systems, cyber tools, lasers, drones).
- Its terms are broadly interpreted and allow loopholes.

Countries have exploited these ambiguities to pursue space militarisation without formally violating the treaty.

The OST predates the digital age and lacks provisions for:

1. private sector involvement
2. autonomous systems
3. dual-use technologies
4. space traffic management

Need for a Comprehensive National Space Law in India

- India remains one of the few major spacefaring nations without a full-fledged national space legislation.
- Existing governance is handled through ISRO policies, IN-SPACe guidelines & sector-specific regulations.

A national space law should:

- create clear rules for private companies
- regulate dual-use technologies
- establish export-control mechanisms
- ensure accountability for space accidents
- **define liability in case of damage in orbit**
- strengthen India's international commitments
- incorporate AI-specific norms (transparency, oversight, audit)
- A strong legal framework would enhance investor confidence, support defence preparedness, and strengthen India's global credibility.

Policy Measures for Strengthening India's Space and Defence Preparedness

- Draft a comprehensive national space law covering commercial, civil, and defence activities.
- Strengthen AI governance through ethical principles, safety audits, and human oversight requirements.
- Enhance space situational awareness with more Space Situational Awareness (SSA) ground stations and AI-enabled sensors.
- **Boost cybersecurity for satellites and control systems to prevent hacking or spoofing.**

- Promote public–private partnerships to accelerate indigenous development of launch vehicles, micro-satellites, and AI systems.

Engage in global norm-building through forums like:

- UN COPUOS (Committee on the Peaceful Uses of Outer Space)
- QUAD
- G20
- BRICS

Establish a Unified Space Command integrating the armed forces for coordinated space defence.
Invest in secure communication networks, quantum encryption, and advanced surveillance platforms.

Conclusion

- AI and space technologies are redefining warfare, governance, and global power structures.This rapid technological advancement is a double-edged sword that introduces significant strategic instability. The reliance on complex, interconnected systems creates new vulnerabilities, while the proliferation of AI-driven autonomous weapon systems raises profound ethical, legal, and accountability challenges that international humanitarian law is still struggling to address. India must anticipate emerging risks, including dual-use dilemmas, surrogate militarisation, and AI-driven escalation.
- The next phase of global geopolitics will be shaped not only by territorial borders but by the ability of nations to responsibly govern and secure space and AI ecosystems.
- It demands urgent international dialogue and the establishment of robust, shared governance frameworks and norms of behavior to mitigate the risks of miscalculation and unintended escalation, ensuring that this powerful technological leap is managed responsibly to maintain global security and stability.