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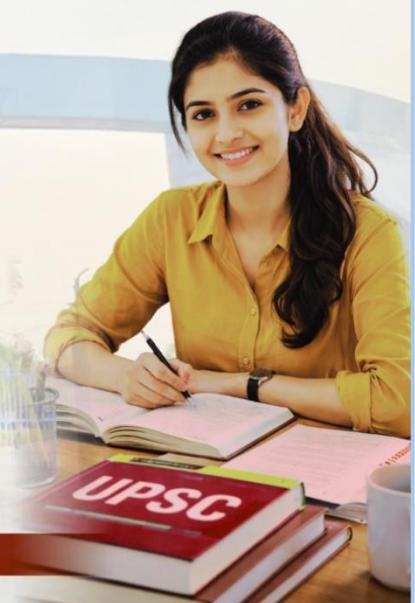
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GENERAL STUDIES 1

1.1. INDIAN SOCIETY

1.1.1. SOCIAL MEDIA REGULATION FOR CHILDREN

Context:

- The tragic suicide of three sisters in Ghaziabad, Uttar Pradesh, recently has reignited debates on social media's impact on **adolescent mental health**. Preliminary investigations point to screen addiction and **familial conflicts**, prompting calls for outright bans amid global precedents.
- However, such **blunt policy measures** may inadvertently compromise the **digital rights** of minors while absolving technology platforms of **structural accountability**, necessitating a shift toward a **healthy media ecology**.



Social Media's Dual-Edged Potential

I. Benefits of Social Media for Children

Social media platforms offer **substantial developmental and social advantages**, especially in an increasingly digital society, despite legitimate concerns:

- **Access to information and learning:** Enables exposure to **educational content, skill-building resources**, and **collaborative learning communities**, supplementing formal education.
- **Creative expression:** Provides avenues for **artistic, literary, musical, and innovative expression**, fostering **imagination, confidence, and problem-solving skills**.
- **Social inclusion and support:** Acts as a **lifeline for marginalised groups**, including **LGBTQIA+ youth, children with disabilities**, and those in **remote or socially restrictive environments**.
 - Facilitates **peer-support networks** and shared experiences that may be unavailable offline.
- **Digital skills development:** Early engagement enhances **media literacy, communication competencies**, and **digital skills** essential for **future employability**.
- **Civic and cultural engagement:** Encourages participation in **social causes, awareness campaigns**, and **cultural exchange**, promoting **active digital citizenship**.
- **Social mobility and gender equity:** Social media can expand access to **information and opportunities**, particularly for girls.
 - **National Sample Survey data** indicate that only **33.3% of women** in India have ever used the internet compared to **57.1% of men**, highlighting how **restrictive measures risk deepening gendered digital divides**.

II. Necessity of Banning Social Media Use Among Children

Concerns around banning or restricting social media for children arise from its **multi-dimensional impact on health, behaviour, and safety**, particularly during formative years:

- **Impact on cognitive functioning:** Excessive screen exposure is associated with **reduced attention span, impaired concentration, and difficulty in learning and information retention**, adversely affecting **academic performance**.
- **Mental health vulnerabilities:** Prolonged and addictive use has been linked to **heightened anxiety, depressive tendencies, low self-esteem**, diminished **emotional self-regulation**, and a rise in **attention-related disorders such as ADHD**.
- **Adverse physical health outcomes:** Repeated exposure to curated content encourages **sedentary lifestyles, disordered eating patterns, and unrealistic body image standards**, contributing to **sleep disturbances, obesity**, and related health concerns.
- **Disruption of social development:** Over-reliance on virtual interactions can reduce **face-to-face communication**, leading to **social withdrawal, strained family relationships**, and difficulties in **emotional regulation**.
- **Online safety and child protection risks:** Children are increasingly vulnerable to **cyberbullying, online harassment, sexual exploitation**, and exposure to **age-inappropriate or harmful content**.
- **Influence of hazardous viral trends:** The rapid spread of **risky online challenges**—such as **breath-holding** or **delinquent behaviour trends**—poses risks of **physical harm, legal consequences**, and **disciplinary action** among minors.
- **Inadequate parental supervision:** In **urban and dual-income households**, limited parental oversight has contributed to **unregulated screen time**, often reflected in the phenomenon of **excessive device-dependent childhood**.
- **Algorithm-driven overuse:** **Engagement-maximising algorithms** personalise content to prolong usage, making it **difficult for children to disengage** and increasing the risk of **addictive behaviour**.

Key Challenges Linked to Banning Social Media for Children

Drawing on **Stanley Cohen's concept of moral panic**, such prohibitionist responses risk framing digital platforms as *"folk devils"*—creating an illusion of control while **diverting attention from structural gaps in child mental-health governance and digital regulation**. These challenges manifest across multiple dimensions:

- **Concerns over age verification and privacy:** The absence of **credible age-verification systems** allows underage users to evade restrictions using **VPNs and other workarounds**. Measures such as **government ID linkage, biometric verification, or age-estimation tools** pose significant **privacy and data-security risks**.
- **Possibility of excessive regulation:** Blanket restrictions may inadvertently include **gaming and communication platforms** like **Roblox and Discord**, leading to **unnecessary curbs on legitimate users**.
- **Movement to unsafe online spaces:** Since bans are difficult to enforce, children may migrate to **unregulated and encrypted platforms**, including the **Dark Web**, increasing exposure to harm.

- **Rights-related concerns and exclusion:** Prohibitions can undermine **freedom of expression and access to information**, disproportionately affecting **vulnerable communities**, especially **LGBTQIA+ youth** who rely on online support networks.
- **Barriers to digital skill building:** Limiting access also curtails **creative engagement, educational collaboration**, and **interest-based learning**, weakening the development of **essential digital skills**.

Why a Blanket Ban Will Not Work in India

Copy-pasting foreign bans ignores India's unique socio-technical landscape, yielding democratic deficits and unintended harms.

- **Technical Porosity:** India's vast digital population makes enforcement impractical.
- **Diversity of Contexts:** One-size-fits-all policies ignore variations across class, caste, gender, and region.
- **Democratic Deficit:** Policies are often framed **without consulting children**, disregarding their agency.
- **Institutional Capacity Constraints:** Regulatory institutions lack technical expertise to monitor compliance effectively.
- **Risk of State Overreach:** Linking social media access to identity verification may erode civil liberties.

India's Initiatives to Protect Children on Online Platforms

India has enacted a multi-layered framework emphasizing prevention, consent, and enforcement.

- **Digital Personal Data Protection Act, 2023:** Mandates verifiable parental consent for processing data of those under 18, addressing consent gating flaws.
- **Section 67B, IT Act, 2000:** Imposes stringent penalties for child sexual abuse material (CSAM) publication, transmission, or viewing.
- **National Action Plan for Children, 2016:** Targets prevention of crimes, prioritizing sexual offenses.
- **Protection of Children from Sexual Offences (POCSO) Act, 2012:** Safeguards children under 18 from exploitation, ensuring child-centric judicial processes.
- **National Commission of Protection of Child Rights (NCPCR) Mechanisms:** Operates online complaint systems for swift redressal.
- **Ratification of UNCRC {UN Convention on the Rights of the Child (CRC)} 1990:** Promotes protections for online/offline child rights violations.

Global Steps taken to Protect children from Social Media

- **Australia:** Australia enacted a law that prohibits anyone under 16 from **holding accounts on 10 major platforms**—including **Instagram, TikTok, YouTube, Snapchat, and X**—enforced through mandatory age verification and fines of up to 50 million Australian dollars, making **Australia the first country** to effectively ban **under-16 social media accounts**.
- **Germany and France:** Raised age needed for parental consent to open an account.
- **United States:** Kids Online Safety Act provides protections for children online related to privacy and mental health concerns.

- **U.K.:** Online Safety Act, 2023 sets tougher standards for social media platforms like facebook- including appropriate age restrictions.
- **Netherlands and South Korea:** Restricted use of cell-phones in classrooms.

Way Forward

A **nuanced, child-centric strategy** must prioritise a **healthy media ecology** over blanket bans, integrating **multiple stakeholders** to create **sustainable and rights-respecting safeguards**.

- **Child-Centric Digital Governance:** Promote **age-appropriate design, privacy-by-default, and algorithmic accountability** through coordinated action by the State, platforms, and civil society; draw lessons from the **UK's Age-Appropriate Design Code**.
- **Strengthen Redressal Mechanisms:** Enhance **Child Helpline 1098**, appoint and train **cyber nodal officers**, and expand rapid-response tools such as **POCSO e-Box panic buttons** for online abuse reporting.
- **Improving Digital Skills and Education:** Institutionalise **digital literacy, responsible online behaviour, and self-regulation** through school-based initiatives; replicate **Kerala's Digital De-Addiction (D-DAD) centres** for children facing screen dependency.
- **Awareness Campaigns:** Leverage national programmes like **NIPUN Bharat** and **Digital India** to empower **communities, parents, and educators** to recognise and mitigate **online risks**.
- **Parental Involvement and Control:** Encourage **joint parent-child accounts, robust privacy settings, and screen-time management tools** such as **Google Family Link**.
- **Tech Company Accountability:** Enforce a **duty of care** on platforms, strengthen **digital competition laws**, and ensure oversight by an **independent regulator** beyond **MeitY**; platforms like **Meta** already prescribe **13+ age thresholds**.

Conclusion

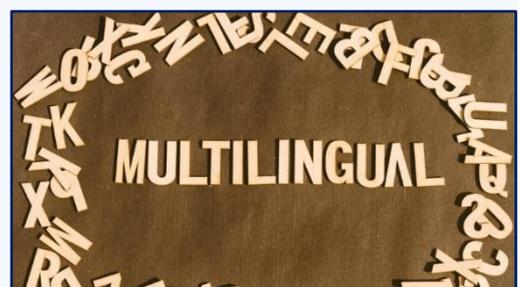
Bans provide illusory control, eroding digital rights while ignoring social media's dual-edged potential. True protection demands **robust regulation, local research, youth-inclusive policymaking, and equitable access**—fostering resilience in a tech-driven world. This **balanced ecology** aligns with India's constitutional ethos of empowering the young without compromising freedoms.

Q. Discuss the tension between child protection and digital rights in the regulation of social media platforms in India. How can the State ensure a rights-based, child-centric digital governance framework? 250 Words

1.1.2. ADVANCING MOTHER-TONGUE-BASED MULTILINGUAL EDUCATION IN INDIA

Context:

- On the occasion of **International Mother Language Day (February 21)**, under the theme **"Youth Voices on Multilingual Education,"** the release of the **seventh edition** of the **UNESCO State of the Education Report (SOER) for India 2025**, titled **"Bhasha Matters: Mother Tongue and Multilingual Education,"** has brought national attention to the critical role of linguistic identity in the learning process.



Background: The Indian Linguistic Tapestry

India's **extraordinary linguistic diversity**, encompassing **more than 1,300 mother tongues** and **121 constitutionally recognised languages** as per the **2011 Census**, represents a profound national asset.

- **Constitutional Provisions:**

- **Article 29(1)** protects the right of any section of citizens to conserve its distinct **language, script, or culture**.
- **Article 30** grants minorities the right to establish and administer **educational institutions of their choice**.
- **Article 350A** mandates that States provide adequate facilities for instruction in the mother tongue at the primary stage of education.
- **Article 350B** provides for a **Special Officer for linguistic minorities** to safeguard their interests.
- The **Eighth Schedule** recognises **22 official languages**, while **Part XVII of the Constitution** addresses official languages.

- **Policy Framework:** These provisions, combined with the **National Education Policy (NEP) 2020** and the **National Curriculum Frameworks (NCF) of 2022 and 2023**, place the **child's home or mother tongue** at the centre of early education.

Quality Education on Mother Tongue

1. Concept and Pedagogical Rationale

- **Mother -Tongue -Based Multilingual Education (MTB-MLE)** uses the **child's first language (mother tongue/home language)** as the primary medium of instruction in early grades, with **additional languages** (regional, national, global) introduced **gradually and systematically**.
- UNESCO and NEP 2020 converge on the principle that **foundational learning** is most effective when children are taught in a language they **fully understand**, which enhances **conceptual clarity, reading comprehension, and classroom participation**.

2. Cognitive and Developmental Advantages

- **Stronger Foundational Literacy and Numeracy:** When instruction begins in the mother tongue, children can focus on **academic content** without the added cognitive load of decoding an unfamiliar language.
- **Improved Retention and Reduced Dropouts:** Evidence from tribal and rural schools shows that MTB-MLE improves **attendance, confidence, and completion rates**, especially among **first-generation learners and girls**.
- **Lifelong Learning and Higher -Order Skills:** A secure base in the mother tongue facilitates smoother transition to **additional languages and complex subjects** in later grades.

3. Policy anchoring in NEP 2020 and NCFs

- The **National Education Policy 2020** recommends that the **medium of instruction** in school should be the **child's home language/local language till at least Grade 5 and preferably till Grade 8**, in line with global MTB-MLE principles.

- The **National Curriculum Frameworks (NCF) 2022 and 2023** further operationalise this by embedding **multilingual pedagogy, inclusive materials, and teacher-education reforms** into the curriculum design.

A Barrier of Language: The Learning Language Mismatch

- **Language Barrier:** According to the **National Council of Educational Research and Training (NCERT)**, **nearly 44% of children** in India enter school speaking a language different from the medium of instruction, creating an immediate **language barrier**.
 - For these children, learning becomes a **dual task**: they simultaneously **decode the language of instruction** and **grasp academic content**, which often leads to **weak foundational skills**.
- **Cumulative Learning Gaps:** Weak **early grade literacy** and **numeracy** tend to compound over time, widening the gap between children from **dominant language and minoritised language backgrounds**.
- **Reduced Confidence and Higher Dropout Risk:** Children who struggle to understand classroom instruction are more likely to feel alienated, disengage, and eventually drop out, particularly in **tribal, rural, and socio-economically marginalised communities**.
- **Reinforcement of Social Hierarchies:** When only dominant languages are privileged in schools, it **marginalises linguistic minorities** and reinforces existing social and educational inequalities.

Significance of 'Bhasha' Matters

1. **Educational Equity and Inclusion:** MTB-MLE is positioned as a **key strategy for inclusive education**, ensuring that **tribal, Dalit, Adivasi, and other minoritised groups** are not left behind due to language mismatch.
 - By recognising the child's **home language as a legitimate medium of learning**, schools become spaces of **identity affirmation** rather than cultural erasure.
2. **Preservation of Linguistic and Cultural Diversity:** When a language disappears, a **distinct worldview, oral traditions, and indigenous knowledge systems** are lost, which UNESCO frames as a **loss of humanity's accumulated knowledge**.
 - MTB-MLE helps **document, revitalise, and transmit** endangered and minoritised languages, thereby preserving India's **intangible cultural heritage**.
3. **Social Cohesion and National Identity:** A multilingual education system that values **all languages**, not just Hindi or English, fosters **unity in diversity** and strengthens **social cohesion**.
 - It also aligns with India's constitutional commitment to **linguistic pluralism**, as reflected in the **Eighth Schedule** and various language-related provisions.

Evidence from the Ground: Promising Practices

- **Odisha's Multilingual Education Programme:** Odisha runs a **long-standing MTB-MLE programme** covering **21 tribal languages** across **17 districts**, supporting around **90,000 tribal children** with bilingual teaching materials and trained teachers.
 - Evaluations indicate **improved reading comprehension, classroom engagement, and retention** among tribal students.

- **Telangana and Digital Multilingual Resources:** In **Telangana**, the **Digital Infrastructure for Knowledge Sharing (DIKSHA)**-enabled multilingual resources allow teachers and students to access **learning materials in local languages**, including tribal and minority languages.
 - This demonstrates how **digital public infrastructure** can scale multilingual education even in resource-constrained settings.
- **National Digital and Language-Technology Initiatives:** **PM eVIDYA** and **Adi Vaani** (a national consortium-developed platform) provide **multilingual audio-visual and digital content** for foundational learning.
 - **BHASHINI** (BHash-based ANd Intelligent Node for InclusioN in India) and **AI4Bharat's community-developed language technologies** support **speech-to-speech translation, text-to-speech, and machine-translation tools** for Indian languages, helping document endangered languages and generate local-language content.

Issues and Challenges in Implementation of Multilingual Model

Transitioning to a multilingual model faces significant structural and social hurdles.

- **Structural Barriers:**
 - **Policy Gaps:** Many states lack context-specific MTB-MLE frameworks, leading to fragmented implementation.
 - **Teacher Shortage:** There is a critical dearth of educators proficient in **tribal languages** and trained in multilingual pedagogy.
 - **Material Quality:** Textbooks and assessments in minoritised languages are often missing or of poor pedagogical quality.
- **Socio-Cultural Factors:**
 - **Parental Preference:** Many parents view **English-medium education** as the only route to social mobility, creating resistance to mother-tongue instruction.
 - **Linguistic Hierarchies:** The dominance of Hindi or English continues to marginalize regional and tribal dialects.
- **Resource Constraints:**
 - **Financing:** Initiatives often rely on short-term projects rather than **sustained, mission-mode funding**.
 - **Digital Divide:** Unequal access to connectivity limits the reach of digital multilingual resources in remote areas.

Way Forward: Policy and Implementation Pathways

To realize the vision of the UNESCO report and NEP 2020, a multi-pronged strategy is required.

- **Institutional Reforms**
 - **National Mission for MTB-MLE:** Establish a coordinated mission to harmonize Centre-State efforts and scale successful pilots into systemic reform.
 - **Localized Policies:** States must develop policies that reflect their specific linguistic realities rather than a one-size-fits-all approach.
- **Teacher Education**

- **Prioritize Recruitment:** Hire teachers fluent in **local dialects** and embed **MTB-MLE principles** in **B.Ed. and D.El.Ed.** programs.
- **Capacity Building:** Continuous professional development for teachers to use multilingual digital tools and inclusive assessment methods.
- **Curriculum and Community**
 - **Multilingual Materials:** Develop high-quality textbooks and digital content across all grades, including minoritised languages.
 - **Indigenous Knowledge:** Integrate local ecological knowledge and oral histories into the school curriculum to make learning culturally rooted.
 - **Institutionalize Participation:** Involve parents and community elders in **curriculum design and material development**.
- **Technological and Financial Commitment**
 - **Expand Digital Tools:** Platforms like **DIKSHA, PM eVIDYA, BHASHINI, and AI4Bharat** should be expanded to provide **multilingual content, teacher mentoring, and language-technology tools**.
 - **Sustainable Financing:** Allocate dedicated, long-term funds for material development and teacher training.
 - **Robust Monitoring:** Track language-wise learning outcomes and dropout rates to ensure accountability and course correction.

Conclusion

India's **multilingual moment** offers a historic opportunity to transform the educational landscape by centering **Mother Tongue-Based Multilingual Education (MTB-MLE)** in policy and practice. Far from being a liability, linguistic diversity serves as a **powerful engine for equity, inclusion, and innovation** when children learn in languages they understand and value. This shift is **not merely a pedagogical preference** but a **fundamental prerequisite for achieving SDG 4**, ensuring **quality education** is **truly inclusive and culturally rooted**.

Q. Discuss how linguistic diversity in India can act both as a challenge and as a driver of social cohesion. Illustrate your answer with reference to multilingual education reforms. (250 Words)

[Scan to attempt more questions...](#)



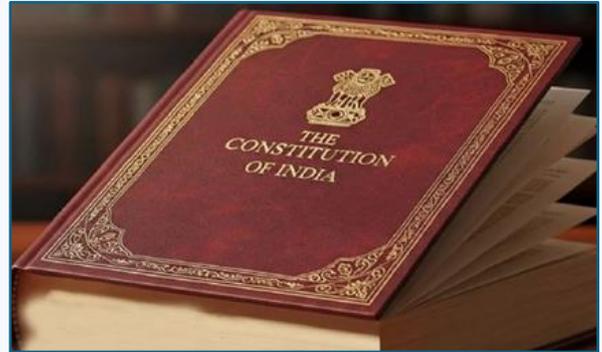
GENERAL STUDIES 2

2.1. POLITY & GOVERNANCE

2.1.1. REASSESSING THE CONSTITUTIONAL ROLE OF THE GOVERNOR

Context:

- Recent instances of Governor in states like Tamil Nadu, Karnataka, and Kerala departing from the text of the **customary address** or staging walkouts have sparked a national debate on the relevance of **Article 176 of the Indian constitution**.
- These friction points highlight an escalating tension between the **Constitutional Head** and the **Elected Executive** of states, raising questions about whether this ceremonial practice has transitioned from a symbol of continuity into a tool for **partisan obstruction**.



Constitutional Provisions Governing the Office of the Governor

The Constitution of India establishes the Governor as a vital link in the federal structure, functioning as both the **formal head** of the state and a **representative** of the Union.

- **Article 163 (Aid and Advice):** Mandates that the Governor must act on the **aid and advice of the Council of Ministers**. Since the address is an executive policy document, the Governor possesses no **independent discretion** to edit, skip, or modify the text prepared by the Cabinet.
- **Article 168 (Constitutional Integration):** Recognizes the Governor as an **integral part of the State Legislature**. This implies that the legislature is incomplete without the Governor, making their participation in the opening session a structural necessity rather than a mere choice.
- **Article 175 (Right to Address and Send Messages):** This gives the Governor the power to address the House or send **messages regarding pending Bills**. It is a tool for communication between the Head of State and the lawmakers, intended to ensure legislative focus on urgent matters.
- **Article 176 (The Mandatory Address):** Obligates the Governor to address the first session after a general election and the first session of each year. This address is essentially the **Government's Political Manifesto**, outlining the legislative agenda and policy goals.

Judicial Interpretations: Scope and Limits of Gubernatorial Powers

The Judiciary has consistently intervened to define the boundaries of the **"pleasure of the President"** and the scope of **discretionary authority**, ensuring the office does not overstep its mandate.

- **Nabam Rebia Case (2016):** The Supreme Court (SC) ruled that the Governor is **not a parallel power center**. The power to **summon, prorogue, or address the House** is **not discretionary** and must be exercised solely on the **aid and advice** of the Cabinet.

- **Shivraj Singh Chouhan Case (2020):** The SC reaffirmed that the **Floor Test** is the **sole constitutional mechanism** to test the majority of a government. It limited the Governor's subjective interference in determining the stability of a ruling party.
- **State of Tamil Nadu v. Governor of Tamil Nadu (2023):** The Court emphasized that Governors **cannot indefinitely withhold assent** to Bills. It established that if a Bill is **re-passed** by the House, the Governor **must grant assent**, reinforcing the **supremacy of the elected legislature**.
- **2025 Presidential Reference (Article 143):** While the SC held that **rigid timelines** cannot be imposed via "**deemed assent**," it clarified that **unexplained delays** are subject to **limited judicial review**, as they undermine the democratic process.

Is the Governor's Address a Colonial Relic?

1. **Arguments for Retaining the Address:** The Governor's address **symbolically reinforces the constitutional position of the Governor** as an integral part of the legislature and reflects the **continuity of India's parliamentary system**.
2. It provides a **structured and formal platform** for the elected government to present its **legislative agenda and policy priorities** before the House and the public.
3. **Arguments for Reconsideration:** The legislature **functions effectively without the Governor's address** in other sessions, indicating that governance is **not structurally dependent** on this ceremony.
4. Given its **increasing politicisation**, the practice is viewed by critics as having **outlived its utility**, contributing more to **constitutional friction** than to **democratic accountability**.

Key Controversies Surrounding the Office of the Governor

The office of the Governor has increasingly emerged as a **flashpoint of Centre-State friction**, owing to several systemic and institutional issues that affect federal balance and constitutional governance.

- **The Address as a Political Battleground:** When a Governor omits portions of the speech (e.g., criticisms of the Centre or specific state schemes), it creates a **Constitutional Vacuum**. Without a complete address, the subsequent **Motion of Thanks** becomes technically flawed, potentially **disrupting** or **stalling legislative business**.
- **Conflict in the Chancellor Role:** Tensions arise when Governors, acting as **Ex-officio Chancellors**, bypass state recommendations for **Vice-Chancellor (VC) appointments**. In 2025, the SC's intervention through the **Justice Dhulia Committee** highlighted that the Governor's role in universities must align with **institutional autonomy** rather than personal or central preference.
- **Withholding or Delaying Assent to State Bills:** By sitting on Bills or reserving them for the **President's Consideration** without valid constitutional grounds, Governors can effectively veto state laws, leading to a **paralysis of governance** in Opposition-ruled states.
- **The "Agent of the Centre" Perception:** Since Governors hold office at the "**pleasure of the President**," they are often perceived as **politically beholden** to the Union. This **Institutional Dependence** discourages them from acting as impartial constitutional arbiters.
- **Legislative and Executive Interference:** Constitutional tensions intensify when Governors delay the **summoning or proroguing of the Legislative Assembly** contrary to the aid and advice of the **Council of Ministers**.

- During periods of political instability, Governors have occasionally ordered **floor tests based on opposition claims**, bypassing the Speaker and established conventions.
- Disputes also arise in **post-election government formation**, where the exercise of gubernatorial discretion is perceived as partisan, thereby eroding **democratic legitimacy**.

Impact on Federalism and Constitutional Governance

The friction surrounding the Governor’s office strikes at the core of India’s **Federal Equilibrium**, shifting the relationship from a cooperative partnership to a site of institutional deadlock.

- **Erosion of Cooperative Federalism:** The transition toward **Coercive Federalism** occurs when the Governor’s office is used to censor or obstruct a State’s policy priorities. Recurrent instances of acting contrary to **aid and advice** foster deep-seated distrust, replacing collaboration with **partisan confrontation**.
- **Violation of Cabinet Responsibility:** Refusing to read the Cabinet-approved address directly challenges **Collective Responsibility** under **Article 163**. Bypassing this text undermines the **Democratic Mandate** and establishes an unelected, parallel power center.
- **Administrative Paralysis and Policy Stalling:** The arbitrary use of the “**Pocket Veto**”—enabled by the lack of strict timelines in **Article 200**—allows Governors to sit on Bills indefinitely. This leads to a breakdown of **Constitutional Comity**, stalling welfare schemes, and governance delivery.
- **Centralization through Indirect Control:** When the Governor is perceived as an **instrument of the Union executive**, it facilitates **indirect centralization**. This disturbs the federal balance particularly in Opposition-ruled regions, and dilutes the **institutional trust** required for a functional “Union of States.”
- **Judicialization of Federal Disputes:** Persistent confrontations compel States to seek frequent **judicial intervention**, resulting in the **judicialization of Centre–State relations**. This places an avoidable strain on the Judiciary and indicates a failure of established **Constitutional Morality**.

Committee Recommendations for Reform

Various panels have suggested reforms to restore the **Dignity of the Office** and ensure **Cooperative Federalism**.

Commission	Key Recommendations
Sarkaria Commission (1988)	Proposed that Governors should be eminent persons from outside the state and not active in politics. Article 356 should be a “last resort.”
Venkatachaliah Commission (2002)	Suggested a fixed five-year term ; removal should only occur after formal consultation with the Chief Minister .
Punchhi Commission (2010)	Recommended deleting the “ pleasure doctrine ” and providing for impeachment by the State Legislature. It also advised limiting the Governor’s role as University Chancellor to prevent administrative friction .

Way Forward: Restoring Constitutional Balance in the Governor’s Office

To ensure that the Governor’s address and other functions remain constructive, structural reforms are essential:

- **Codification of Gubernatorial Discretion:** The Union government should clearly define the limited circumstances in which a **Governor** may act independently, eliminating **arbitrary interpretations of Article 163** and ensuring predictability in constitutional conduct.
- **Institutionalising the Appointment Process:** Adopting a **collegium-based appointment mechanism** involving the Prime Minister, Chief Justice of India, Speaker of the Lok Sabha, and the concerned Chief Minister would promote **bipartisanship and political neutrality**.
- **Time-bound Action on Constitutional Duties:** Prescribing **reasonable timelines** for assent to Bills and performance of mandatory functions under Articles 176 and 200 would prevent **administrative paralysis** and misuse of the "pocket veto."
- **Upholding Constitutional Civility:** Governors should communicate reservations through **private and formal constitutional channels**, avoiding public divergence from **Cabinet-approved texts**, thereby preserving **collective responsibility and constitutional discipline**.
- **Reaffirming the Primacy of the Floor Test:** Consistent with *Shivraj Singh Chouhan (2020)*, the **Floor Test must remain the sole constitutional mechanism** to assess legislative majority, restricting subjective or politically motivated interventions.
- **Separation from Partisan Roles:** Limiting the Governor's role in **non-core executive functions** (such as University Chancellorships) would reduce institutional friction and reinforce the Governor's position as a **neutral constitutional arbiter**.

Conclusion

The role of the Governor must evolve from a perceived instrument of central oversight into a **neutral constitutional sentinel** to prevent the erosion of **cooperative federalism** and **democratic accountability**. Restoring this balance requires the urgent **codification of discretionary powers** and the adoption of **collegium-based appointments**, ensuring the office facilitates rather than obstructs the mandate of the elected state executive.

Q. Examine the constitutional mandate of the Governor's address under Article 176 and analyse its implications for federalism and democratic accountability in India. (250 Words)

2.1.2. 16th FINANCE COMMISSION

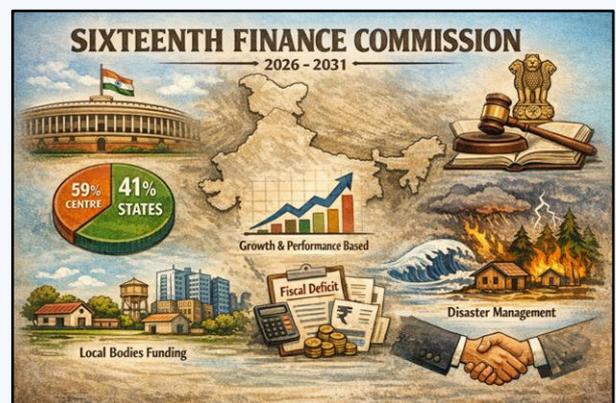
Context:

The 16th Finance Commission (FC) has submitted its report to the President on **November 17, 2025**, marking a pivotal moment in India's fiscal federalism for the award period of **2026–31**.

About the Finance Commission (FC)

The FC is a **Constitutional Body** acting as the "balancing wheel" of fiscal federalism in India.

- **Article 280:** Mandates the President to constitute an FC every five years.
- **Composition: Chairman:** Dr. Arvind Panagariya.
 - **Full-time Members:** Shri Ajay Narayan Jha, Smt. Annie George Mathew, and Dr. Manoj Panda.



- **Part-time Member:** Dr. Soumya Kanti Ghosh.
- **Key Functions:**
 - **Vertical Devolution:** Distribution of net proceeds of taxes between the Union and States.
 - **Horizontal Devolution:** Allocation of these proceeds among the States.
 - **Grants-in-aid:** Principles governing grants to States from the Consolidated Fund of India (Article 275).
 - **Local Bodies:** Measures to augment the State Consolidated Fund for Panchayats and Municipalities.

Key Recommendations of the 16th FC (2026–31)

1. Vertical Devolution (Union to States)

- Despite strong demands from several states (especially from the South) to increase the share to 45–50%, the 16th FC has maintained the status quo.
- **Share Retained at 41%:** The states' share in the "net proceeds" (divisible pool) of Union taxes remains at 41%.
- **The "Cess" Concern:** The Commission flagged the shrinking divisible pool due to the Centre's increased reliance on **cesses and surcharges** (which are not shared), though it did not recommend their inclusion in the pool.

2. Horizontal Devolution (Inter-state Allocation)

- The formula to divide the 41% among the 28 states has been redesigned to reward economic output and ecological preservation.

Criterion	Weight (%)	Significance
Income Distance	42.5%	Ensures equity for lower-income states.
Population (2011)	17.5%	Reflects the scale of service delivery requirements.
Demographic Performance	10.0%	Redefined to measure population growth between 1971–2011.
Area	10.0%	Accounts for higher costs in geographically large / sparse states.
Forest & Ecology	10.0%	Now includes "Open Forests" to reward ecological maintenance.
Contribution to GDP	10.0%	New Criterion. Replaces "Tax Effort" to reward economic efficiency.

3. Grants-in-Aid (₹9.47 Lakh Crore Total)

- A major shift in the 16th FC is the **discontinuation of Revenue Deficit Grants**, Sector-specific grants, and State-specific grants. Funding is now concentrated on two pillars:

A. Local Body Grants (₹7.91 Lakh Crore)

- **Rural-Urban Split:** Allocated in a **60:40 ratio** between Rural (RLBs) and Urban Local Bodies (ULBs).
- **Performance Linkage:** 80% as Basic Grants and 20% as Performance-based.
- **Conditions:** Grants are **only** released if states:

- Timely constitute **State Finance Commissions (SFCs)**.
- Publicly disclose **audited accounts** of local bodies.
- **Urbanization Premium:** A one-time grant of **₹10,000 crore** to states that successfully merge peri-urban villages into larger cities.
- B. Disaster Management (₹2.04 Lakh Crore)**
- **SDRF & SD MF:** Funds split between Response (SDRF) and Mitigation (SDMF) to prioritize prevention.
- **Cost Sharing:** Maintained at **75:25** for general states and **90:10** for North-Eastern and Himalayan states.

4. Fiscal Roadmap and Reforms

- The Commission has set strict targets to ensure long-term debt sustainability.
- **Fiscal Deficit Targets:**
 - **Centre:** Reduce to **3.5% of GDP** by 2030–31.
 - **States:** Cap at **3% of GSDP**.
- **Off-Budget Borrowing:** Recommended a **total ban** on off-budget borrowings; all liabilities must be transparently included in the budget.
- **Power Sector:** States are "cautiously nudged" to **privatize DISCOMs** to reduce the massive debt burden on state exchequers.
- **Subsidy Rationalization:** Advised states to review "unconditional cash transfers" and implement strict exclusion criteria for welfare schemes.

5. Public Sector Enterprise (PSE) Reforms

- **Exit Strategy:** Recommended the **closure of 308 inactive State PSEs**.
- **Performance Review:** State PSEs incurring losses for 3 out of 4 consecutive years must be reviewed by the State Cabinet for privatization or closure.

Criteria for Horizontal Devolution

The formula determines how the 41% share is divided among the 28 states. The 16th FC has introduced a landmark "Contribution to GDP" criterion.

Criterion	Weight (%)	Description
Income Distance	42.5%	Distance of a state's per capita income from the state with the highest income.
Population (2011)	17.5%	Shifted weight slightly higher to account for current service delivery needs.
Demographic Performance	10.0%	Rewards states with lower fertility rates (population control).
Area	10.0%	Accounts for the higher cost of service delivery in larger states.
Forest & Ecology	10.0%	Based on share of dense and open forest (new inclusion).
Contribution to GDP	10.0%	New Criterion. Replaces "Tax Effort." Rewards states contributing more to national economic output.

Note: The "Tax and Fiscal Effort" criterion used by the 15th FC has been subsumed/replaced by the **Contribution to GDP** metric.

Concerns Regarding the 16th FC

1. **Cesses and Surcharges:** The "Divisible Pool" is shrinking. The Centre collects nearly 18-20% of its gross revenue through cesses/surcharges, which are **not shared** with states. This reduces the effective devolution to ~31-32%.
2. **Southern State Paradox:** States like Tamil Nadu and Kerala argue that the "Income Distance" and "Population" criteria penalize them for being economically successful and controlling population growth.
3. **Conditional Grants:** Increasing the "Performance-linked" component (20% for local bodies) is seen by some as an infringement on the fiscal autonomy of states.
4. **Discontinuation of Revenue Deficit Grants:** The 16th FC has phased out many specific grants, forcing states to rely strictly on their own tax efforts and the devolution formula.

6. Suggested Measures & Way Forward

- **Cap on Cesses:** There is a growing demand to amend the Constitution or set a ceiling on cesses and surcharges to protect the divisible pool.
- **State Finance Commissions (SFCs):** States must ensure regular constitution of SFCs. The 16th FC recommended that Central grants be linked to the timely submission of SFC reports.
- **Accrual-based Accounting:** Moving toward better transparency in state finances to accurately reflect debt levels.
- **Incentivizing Urbanization:** The Commission introduced an "**Urbanization Premium**" (₹10,000 cr) to encourage the merger of peri-urban villages into larger cities for better planning.

Conclusion

The 16th Finance Commission marks a shift from "Equity-only" to "**Equity + Efficiency.**" While it addresses the needs of poorer states through high weightage on Income Distance, the introduction of the **GDP Contribution** criterion signals a new era where economic performance and fiscal discipline are rewarded. However, the true success of these recommendations will depend on how the Centre addresses the "Cess and Surcharge" loophole that continues to strain Centre-State relations.

Q. How have the recommendations of the 14th Finance Commission of India enabled the States to improve their fiscal position? (150 Words)

2.1.3. JUDICIAL REVIEW OF RELIGIOUS DISPUTES IN INDIA

Context:

Recently, the **Madras High Court** delivered **two landmark judgments** involving the **Thiruparankundram Deepathoon** and the **hymn-reciting rights of the Thenkalai sect** at the **Kanchipuram Varadaraja Perumal temple**.

These rulings highlight the **increasing role of the judiciary** in adjudicating complex religious disputes. By intervening in these matters, the court has reaffirmed that temples are not **exclusive "private spaces"** immune to **constitutional oversight**. This development signifies a critical juncture in Indian law where religious practices are systematically aligned with **Constitutional Principles**.



Evolution from Civil Rights to Constitutional Rights in Temple-Related Disputes

- 1. Pre-Constitutional Era: Temple Entry as Civil Disputes Civil Litigation Framework:** In the **pre-constitutional era**, disputes regarding **temple entry and co-worship** were treated as private **civil rights disputes**. **Kamudhi Temple Entry Case:** A classic example is the **Kamudhi temple entry case**, where the **Nadar community** fought for the right to enter the **Kamudhi temple** in **Ramanathapuram**, with the litigation eventually reaching the **Privy Council in London**. In **Sankaralinga Nadan and Ors v. Raja Rajeswara Dorai and Ors (1908)**, the **Privy Council** was called upon to decide whether the **Nadar community** had a **right to enter the Kamudhi temple**, reflecting how such questions were framed in terms of civil rights rather than fundamental rights.
- 2. Legislative Interventions in the Madras Presidency Regulatory Milestones:** In 1927, the **Madras Presidency government** enacted the **Madras Hindu Religious Endowments Act** to govern temples and their endowments.
Supervisory Role: This legislation enabled the **auditing of temple funds** and the **creation of local temple committees**, thereby enshrining the **supervisory role of the Presidency government** over temple administration.
- 3. Post-1950: The Shift to Fundamental Rights Constitutional Adoption:** The Indian Constitution adopted in 1950, introduced **Articles 25 and 26**, granting **freedom of worship** to both **individuals** and **religious denominations**. **Public Interest Restrictions:** These rights were made **subject to public order, health, and morality**, allowing the state to regulate worship that offended the **public conscience**. **Jurisprudential Transformation:** Courts moved beyond civil rights to focus on **constitutional directives, equality, and religious freedom**, leading to the blossoming of modern jurisprudence around **temple entry, religious freedoms, and equality in the appointment of priests**.
- 4. Role of States in Shaping Temple-Related Jurisprudence Legislative Leadership:** Many States led the way by enacting the **Hindu Religious and Charitable Endowments Act** for better governance.
However, these regulations invited **judicial oversight**, where **writ courts** adjudicated whether **State intervention** respected **religious denominational rights** while safeguarding the **constitutional rights** of others, thereby contributing to the development of temple-related jurisprudence over the last 70 years.

Core Constitutional Concept: The Essential Religious Practice (ERP) Test

- 1. Nature of the Essential Religious Practice Test Concept of the Doctrine of Essentiality:** In development of **jurisprudence on religious disputes**, inquiry has been undertaken by courts to determine whether **religious practices** conflict with **constitutional principles**, particularly in instances involving **restriction of entry** or **customary practices** that infringe upon **fundamental rights**, and such matters have accordingly been brought before **constitutional courts** for adjudication.
Subsequently, **Essential Religious Practice (ERP) Test**, doctrine evolved by **Supreme Court**, has been applied to ascertain whether particular custom or practice is **essentially integral to religion**, failing which it has been subjected to scrutiny under established **constitutional norms**.
Secular vs. Sacred: Practices that are not **essentially religious** have been deemed "**secular**" and

therefore open to **judicial guidance**, whereas those found to be **essential** are given **greater protection**, though not **absolute immunity**.

- 2. Criticism and Continued Use of the Essential Religious Practice Test Judicial Criticism:** The **essential religious practice test** has faced criticism for **inconsistent interpretation in subsequent judgments**, with different benches arriving at **divergent conclusions** on what qualifies as “essential”. Despite this criticism, courts have continued to use the test to bring a **measure of objectivity to decisions** by **focusing on the core tenets of the religion** itself, **rather than on transient or peripheral customs**.
 - **Sabarimala Judgment and Consolidation of Doctrine:** In **Indian Young Lawyers Association v. State of Kerala (2018)**, widely known as **Sabarimala Case**, significant consolidation was undertaken when it was held by **Supreme Court** that even practices regarded as essential cannot be shielded from **judicial review** if found inconsistent with **constitutional morality**.
 - **Supremacy of Constitutional Morality:** It has now been established as **law of land** that **religious freedoms** remain subject to **constitutional morality**, which is founded upon foundational principles of **justice, liberty, equality, and fraternity**.

Recent Madras High Court Judgments

- 1. Thiruparankundram Deepathoon Judgment Upholding Rituals:** The court permitted the **lighting of the Karthigai Deepam** at the stone pillar on the hilltop, treating it as a part of the **temple’s ritual framework**. **Regulation of Customs:** This reaffirmed that **constitutional courts** can uphold religious rituals when they intersect with **tradition and constitutional law**.
- 2. Kanchipuram Varadaraja Perumal Temple Dispute Sectarian Rights:** The court resolved a divide between the **Thenkalai and Vadakalai sects** regarding **hymn-recitation**.
 - **Exclusive Rights Upheld:** Relying on **200-year-old disputes** and orders from 1915/1969, the court upheld the **exclusive right of the Thenkalai sect** to lead recitations, balancing **sectarian autonomy** with **non-discrimination**.
 - **Significance of Judiciary’s Role in Constitutionalization of Faith** Progression of religious disputes to **High Courts** and **Supreme Court** has marked transformative phase in **Indian jurisprudence**, as religious institutions have increasingly been situated within **democratic constitutional framework**, thereby limiting perception of absolute institutional autonomy.
 - **Affirmation of Constitutional Supremacy in Religious Adjudication:** When such disputes are brought before **constitutional courts**, authority of judiciary to examine intersection between **faith** and **fundamental rights**—including **Article 14 (equality)**, **Article 15 (non-discrimination)**, **Article 21 (life and personal liberty)**, **Article 25 (freedom of religion)**, and **Article 26 (denominational rights)**—is reaffirmed, particularly in matters concerning **temple entry, ritual participation, and institutional representation**.
 - **Integration of Temples within Public Law Framework:** Argument that temples constitute purely **private religious spaces** immune from oversight has been weakened, as many institutions are governed under **religious endowment legislations**, thereby bringing their administration within domain of **public law** and enabling legitimate **judicial supervision**.

- **Institutionalisation of Religion:** Increasing frequency of litigation has positioned **law relating to religion** at forefront of **constitutional discourse**, where courts function as structured forums for resolving tensions between **religious practice** and **individual dignity**, without allowing either sphere to dominate absolutely.
- **Harmonisation of Denominational Autonomy:** Judicial engagement has aimed at reconciling **autonomy of religious denominations** with **constitutional morality (adherence to foundational values of justice, liberty, equality, and fraternity)**, ensuring that traditional authority remains subject to **rule of law**.
- **Protection of Individual Rights within Religious Spaces:** Through exercise of **judicial review**, deeply entrenched practices have been examined to ensure that rights of individual worshippers are not curtailed in violation of **equality, non-discrimination, or personal liberty**, thereby reinforcing rights-based constitutional order.
- **Restructuring of State–Religion–Citizen Interface:** Continuous constitutional scrutiny has reshaped relationship between **State, religious institutions, and citizens**, embedding governance of faith-based institutions within broader constitutional architecture while maintaining space for legitimate religious freedom.
- **Challenges in Judicial Adjudication of Constitutionalization of Faith** Despite the progressive intent behind the “constitutionalization” of religion, the judiciary faces significant institutional and social hurdles when entering the sacred sphere.
- **Judicial Overreach and Expertise Gap:** Extensive intervention into rituals and doctrines risks **judicial overreach**, as courts may intrude upon domains traditionally managed by religious authorities.
- Furthermore, judges may lack the **theological expertise** required to interpret ancient scriptures, leading to decisions that are legally sound but **religiously contested**.
- **Inconsistency in the ERP Test:** The **Essential Religious Practice (ERP) test** often suffers from **doctrinal uncertainty** due to inconsistent application across different benches.
- Further, varying interpretations of what constitutes an “essential” practice undermine **legal predictability**, making it difficult for religious institutions to anticipate judicial outcomes.
- **Risk of Politicization:** High-profile religious rulings are frequently **politicized**, with actors utilizing court orders to mobilize support or deepen **social divisions**.
- **Conflict Between Morality and Autonomy:** A fundamental challenge lies in balancing **Constitutional Morality** with the **denominational autonomy** guaranteed under **Article 26**. Courts often face accusations of “**secular paternalism**” when pushing for reform, or complicity in discrimination when deferring to traditional customs.
- **Implementation and Enforcement Hurdles:** Even when courts issue landmark directions, the **ground-level implementation** remains problematic. The **execution of judicial orders** is often hindered by **local resistance, social boycotts, or institutional non-cooperation**.

Way forward: Strengthening Constitutional-Religious Harmony

1. Strategic Directions for the Judiciary

- **Consistency in Standards:** Courts should apply **clear and consistent standards** in the **ERP test** to avoid contradictory rulings.

- **Avoidance of Overreach:** Interventions should focus on **core principles** rather than **micromanaging rituals**.
- **Evidence-Based Adjudication:** Greater reliance on **theological and historical evidence** is needed to make decisions **context-sensitive**.
- **Pre-litigation Mediation:** Mechanisms like **expert-committee consultations** should be explored to reduce **adversarial litigation**.
- **Promoting Institutional Mediation:** Courts should encourage **Peace Committees** and mediation for disputes involving shared sacred sites, as seen in the **Thiruparankundram case**.

2. Role of the Legislature and Executive

- **Legislative Review:** Religious endowment laws should be updated to match **contemporary constitutional values** like **financial accountability**.
- **Administrative Training:** **Temple management bodies** should be trained to implement **equality and representation** in daily administration.
- **Neutral Regulation:** The state must ensure that the **regulation of religious practices** is **neutral and non-discriminatory**.

3. Engagement of Civil Society and Religious Institutions

- **Internalising Equality:** Religious institutions should adopt **non-discrimination** in their **administrative decisions**.
- **Inter-sect Dialogue:** Promoting **amicable dispute resolution** can reduce the **polarisation** that leads to litigation.
- **Constitutional Literacy:** Educational curricula should foster a **constitutional-minded citizenry** that respects both **faith and fundamental rights**.

Conclusion

The evolution of temple jurisprudence in India signifies that religious freedom is not an absolute right but one that is **tethered to the bedrock of the Constitution**. By entering the “**sanctum**,” the judiciary does not seek to replace faith, but to ensure that faith operates within the framework of **Justice, Liberty, and Equality**. The enduring role of the courts remains to protect the core spiritual essence of religions while purging practices that undermine human dignity.

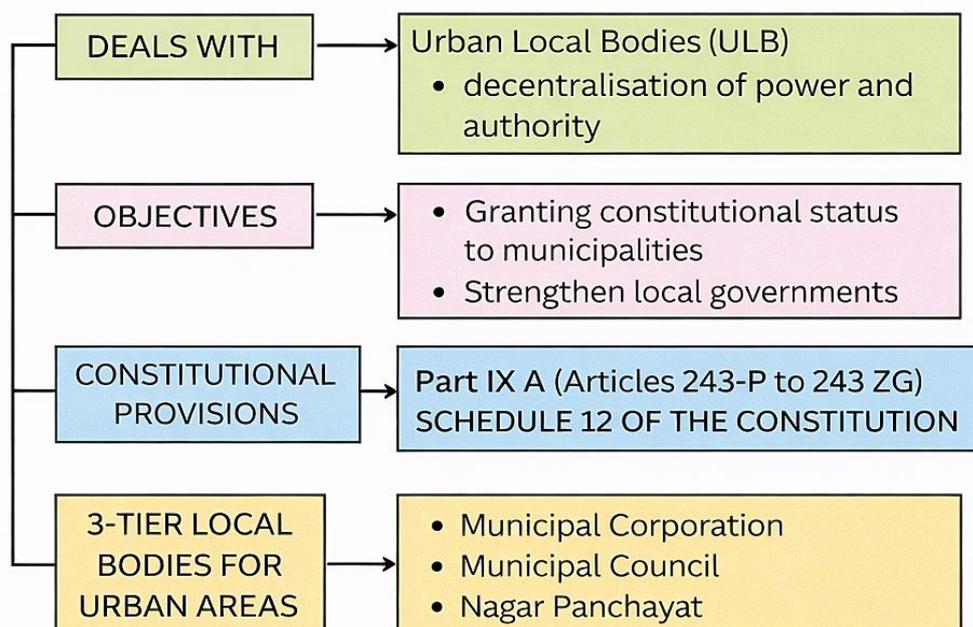
Q. “Religious freedom in India is not absolute but subject to constitutional morality.” Analyse this statement with reference to recent judicial trends and landmark judgments. 250 Words

2.1.4. URBAN LOCAL BODIES (ULBS) IN INDIA

Context: Urban Local Bodies (ULBs) are institutions of **local self-government** in urban areas, constitutionally recognized under the **Constitution (Seventy-fourth Amendment) Act, 1992**. This amendment inserted **Part IX-A (Articles 243P–243ZG)** and the **12th Schedule**, which lists 18 functional subjects such as urban planning, water supply, sanitation, slum improvement, and public health.



74TH CONSTITUTIONAL AMENDMENT ACT



Types of Urban Local Bodies (ULBs) in India:

In India, Urban Local Bodies (ULBs) are classified based on the size, population, and revenue of the settlement. Under the **74th Constitutional Amendment Act**, there are three primary types, along with specialized administrative bodies.

1. The Three Constitutional Tiers

- **Municipal Corporation (Nagar Nigam):** Established for large **metropolitan cities** (e.g., Delhi, Mumbai, Bangalore). They deal directly with the State government and have more functional autonomy.
- **Municipality (Nagar Palika):** Established for **medium-sized towns** or smaller cities. They are divided into wards and governed by a municipal council.
- **Nagar Panchayat:** A body for **transitional areas**—places currently transforming from a rural (village) to an urban center.

2. Specialized Urban Bodies

Type	Purpose	Key Feature
Notified Area Committee	For fast-developing towns or those not meeting municipality criteria.	Entirely nominated by the State Govt; no elections.
Town Area Committee	For small towns with limited civic functions (lighting, drainage).	Semi-autonomous; functions like a giant village panchayat.
Cantonment Board	For areas where military personnel and civilians live together.	Under the administrative control of the Ministry of Defence .
Township	Established by large Public Sector Undertakings (PSUs).	Provides civic amenities to employees (e.g., Steel City townships).

Port Trust	Managed by a board to protect and manage port areas.	Handles both civic and commercial port interests.
Special Purpose Agency	Created for specific functions (e.g., Delhi Development Authority).	Focuses on a single task like "housing" or "water supply" across city lines.

Governance Structure of Urban Local Bodies (ULBs):

Regardless of the type, most ULBs share a common internal structure:

- **The Council:** The deliberative wing consisting of elected Ward Councillors.
- **The Mayor/Chairperson:** The titular head (elected or nominated depending on the state).
- **The Commissioner:** An IAS officer or state cadre official who acts as the **Executive Head** to implement decisions.

Financial System of Urban Local Bodies (ULBs):

Sources of Revenue

1. **Own Tax Revenue-** Property Tax (the mainstay), Profession Tax, Advertisement Tax. Post-GST, ULBs lost significant autonomy as Octroi and Entry Tax were subsumed.
2. **Own Non-Tax Revenue-** User charges (water, sanitation), building license fees, rent from municipal properties, and fines/penalties.
3. **Fiscal Transfers Devolution:** Based on State Finance Commission (SFC) and Central Finance Commission (CFC) recommendations.
4. **Grants:** Scheme-specific funds (AMRUT, SBM 2.0).
5. **Market-Linked and Innovative Financing-** Municipal Bonds, Loans from HUDCO/Banks, and Public-Private Partnerships (PPPs).

The proposed Urban Challenge Fund seeks to:

- Make urban projects "market-linked"
- Require cities to raise 50% funding through bonds/loans
- Provide 25% central support

Structural Fiscal Problems of Financial System of ULBs:

India's municipal revenue is around **1% of GDP**, much lower than global standards (5–8% in developed countries).

- **Vertical & Horizontal Imbalance:** A massive gap exists between the vast constitutional responsibilities of ULBs and their narrow tax base (less than **1% of GDP**), alongside a sharp disparity between "Mega-Cities" and dependent Tier-II/III towns.
- **Loss of Productive Taxes:** Before GST, ULBs collected **Octroi** and **Entry Tax**, which were buoyant and grew with the economy.
- **Dependency:** Post-GST, these were subsumed, making ULBs dependent on "Compensation" from the State/Centre, which is often delayed, leading to the "long delays" mentioned in the article regarding the National Health Mission and other schemes.
- **Functional Overlap:** States have devolved functions (from the 12th Schedule) but not the funds or functionaries to manage them.

- **Committed Liabilities:** A lion's share of ULB budgets (often 60%-80%) goes toward "Revenue Expenditure" (salaries and pensions), leaving negligible funds for "Capital Expenditure" (new infrastructure).
- **Poor Accounting:** Many ULBs still don't maintain **audited annual accounts** or use **double-entry bookkeeping**. This makes it impossible for them to access the "Urban Challenge Fund" or issue Municipal Bonds.

Government Initiatives for ULBs:

- **Urban Challenge Fund (UCF):** A ₹1 lakh crore flagship aimed at making cities "bankable." The Centre provides **25% funding** only if ULBs raise **50% via market instruments** (Bonds, PPPs) across growth, redevelopment, and sanitation verticals.
- **Credit Repayment Guarantee:** A ₹5,000 crore corpus providing a **70% guarantee** (up to ₹7 crore) to help Tier-II, Tier-III, and Himalayan/NE cities access market loans for the first time.
- **AMRUT 2.0 (Water Security):** Targets **100% water supply** in 4,378 towns and sewage management in 500 cities. It promotes the circular economy through "Jal Hi AMRIT" (wastewater reuse) and "Pey Jal Survekshan."
- **SBM-Urban 2.0 (Garbage Free):** Focuses on **100% waste segregation**, remediation of all "legacy dumpsites" (landfills), and ensuring zero discharge of untreated used water into the environment.
- **PM e-Bus Sewa:** A green mobility drive to deploy **10,000 electric buses** across 169 cities using a PPP model, including support for charging infrastructure and depot modernization.
- **Digital & Reform Push:** Extends Smart City missions for **ICCC completion**, uses **TULIP** for youth internships in ULBs, and mandates **digital land records** and property tax improvements for grant eligibility.

Way Forward:

1. **Empowering Fiscal Autonomy:** States must transition from "controlling" to "facilitating" by devolving actual taxing powers and allowing ULBs to update property tax registers and circle rates without political interference.
2. **Administrative Capacity Building:** Prioritize the adoption of **double-entry accrual accounting** and digital land records. Without transparent books, smaller cities cannot leverage the **Credit Repayment Guarantee Scheme**.
3. **Balancing "Bankability" with Service:** While pursuing "monetizable assets," the Centre must ensure **Minimum Service Guarantees**. Market-linked finance should supplement, not replace, funding for non-profit social sectors like slum formalization.
4. **Strengthening Master Plans:** City planning must move from "violations and regularizations" to strict enforcement. A "Master Plan" should be a legally binding document that ensures long-term sustainability rather than short-term profit.
5. **Institutionalizing Performance Grants:** Future funding (like the UCF) should be linked to measurable outcomes—such as the percentage of waste segregated or water audited—rather than just the ability to borrow.
6. **Protecting Vulnerable Populations:** As cities move toward cost-recovery models (user fees), robust social safety nets and protections for **renters and low-income households** must be integrated into the urban reform agenda.

Conclusion

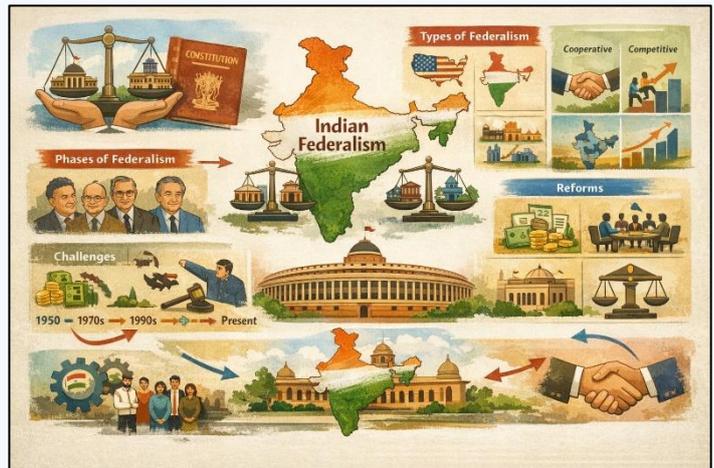
The future of Indian cities lies in transforming ULBs from "grant-seekers" into **fiscally autonomous hubs**. By harmonizing market discipline with social equity, cities can leverage **digital governance** and **transparent accounting** to build resilient, bankable, and inclusive urban ecosystems for a billion citizens.

Q. Analyse the role of local bodies in providing good governance at local level and bring out the pros and cons merging the rural local bodies with the urban local bodies. (250 word) 2024

2.1.5. FEDERALISM IN INDIA

Context:

The **Justice Kurian Joseph Committee** argues that Indian federalism is witnessing increasing centralisation of power by the Union. Drawing from Constituent Assembly debates and earlier Centre–State commissions, it highlights structural concerns such as ease of constitutional amendments, misuse of Governors, fiscal imbalance post-GST, reorganisation of Jammu & Kashmir, growing control over education and health, and anxieties over delimitation.



Key Features of Federalism

Federalism is a **dual polity** system where power is constitutionally divided between a **central authority** and **regional states**, ensuring autonomy for both while maintaining national unity through a shared framework.

- Dual Government Polity:** The existence of **two levels of government**—the Union (Central) and the States. Each operates within its own sphere, drawing authority directly from the Constitution.
- Written and Supreme Constitution:** The Constitution is the **supreme law** of the land. It defines the structure, organization, and powers of both levels to prevent arbitrary encroachment.
- Division of Powers:** Powers are clearly demarcated through the **Seventh Schedule**, which contains three lists:
 - **Union List:** Subjects of national importance (Defense, Foreign Affairs).
 - **State List:** Subjects of local importance (Police, Agriculture).
 - **Concurrent List:** Subjects where both can legislate (Education, Forests).
- Independent Judiciary:** An independent judiciary (the **Supreme Court**) acts as the "Umpire." It resolves disputes between the Center and States and interprets the Constitution to maintain the federal balance.
- Rigidity of the Constitution:** Provisions affecting the federal structure (like Article 368) cannot be changed unilaterally by the Center. They require a **special majority** in Parliament and ratification by at least **half of the State legislatures**.

6. Bicameralism: The existence of two houses in Parliament. The **Rajya Sabha** (Upper House) specifically represents the interests of the States at the national level, acting as a federal check.

Types of Federalism

1. Structural Models: These define how a federation is initially formed.

- **Holding Together Federalism:** A large country decides to divide its power between the constituent states and the central government to maintain diversity and unity.
Example: India, Spain, Belgium.
- **Coming Together Federalism:** Independent states come together on their own to form a bigger unit to increase their security and economic pull.
Example: USA, Australia, Switzerland.

2. Functional Styles

These describe how the different levels of government interact in day-to-day administration:

- **Dual Federalism ("Layer Cake"):** The Union and States remain supreme in their respective spheres without interfering in each other's affairs. Powers are clearly demarcated and separate.
- **Cooperative Federalism ("Marble Cake"):** A flexible relationship where the Center and States work together on shared goals.
Example: The **GST Council** and **NITI Aayog** are the best Indian examples of this.
- **Competitive Federalism:** States compete with one another (and sometimes with the Center) to attract investments and improve governance.
Example: Indices like the **SDG India Index** or **Ease of Doing Business** rankings foster this spirit.
- **Fiscal Federalism:** This involves the transfer of financial resources from the Center to the States.
Example: Article 280 (Finance Commission) governs this in India.

3. Special Categories

- **Asymmetric Federalism:** Not all constituent units have the same powers. Some states are granted special status due to historical or cultural reasons.
Example: **Articles 371 to 371-J** provide special provisions for states like Maharashtra, Gujarat, Nagaland, and Karnataka.
- **Quasi-Federalism:** A system that is federal in structure but unitary in spirit. K.C. Wheare used this term for India because the Center holds "residuary powers" and can override states during emergencies.

Nature of Indian Federalism

The Indian Constitution does not use the word "Federation." **Article 1** describes India as a "**Union of States.**"

- 1. The "Quasi-Federal" Tag:** The nature of Indian federalism is best described as "**Sui Generis**" (unique). Scholar **K.C. Wheare** famously called India "Quasi-Federal" because it is a federal state with subsidiary unitary features, rather than a unitary state with subsidiary federal features.
- 2. Unitary Tilt (The "Strong Center"):** Unlike the US, the Indian Center has superior powers:
 - **Article 3:** Parliament can change state boundaries or names without their consent.
 - **Residuary Powers:** Vested in the Union (not the States).

- **Emergency Provisions:** During an emergency, the federal structure can turn completely **Unitary** (Articles 352, 356, 360).
- **Single Citizenship:** Only Indian citizenship exists; there is no "State" citizenship.
- **Unified Judiciary & All India Services:** IAS/IPS officers are recruited by the Center but serve the States.

3. Federal Strength (The "Basic Structure")

- Despite the tilt, the States are not mere administrative agents:
- **S.R. Bommai Case (1994):** The Supreme Court ruled that **Federalism is part of the Basic Structure**.
- **Independent Powers:** Within the "State List" (Schedule 7), states have supreme legislative authority.
- **Financial Autonomy:** Articles 280 (Finance Commission) and 279A (GST Council) ensure a mandatory share of revenue for States.

Phases of Federalism in India

Phase I: Single Party Dominance (1950–1967)

- **"The Congress System":** Identical parties at the Center and in almost all States led to a centralized, consensus-based federalism.
- **Planning Commission:** State autonomy was diluted by centralized economic planning (the "Socialist Pattern").
- **Nature:** Cooperative but dominated by the Union.

Phase II: Confrontational Federalism (1967–1989)

- **Rise of Regionalism:** Opposition parties won power in several states (e.g., DMK in Tamil Nadu, Left in WB).
- **Article 356 Abuse:** The Center frequently dismissed state governments using **President's Rule**.
- **Key Development:** The **Sarkaria Commission (1983)** was set up to review Center-State relations due to rising friction.

Phase III: Multi-Party / Coalition Era (1989–2014)

- **Regional Leverage:** National governments depended on regional parties for survival, shifting the power balance toward the States.
- **S.R. Bommai Judgment (1994):** The Supreme Court restricted the arbitrary use of Article 356.
- **Economic Liberalization:** States began competing for global investments independently.

Phase IV: Dominant Party & Cooperative-Competitive (2014–Present)

- **Structural Shifts:** Replacement of the Planning Commission with **NITI Aayog** (Cooperative Federalism).
- **One Nation, One Tax:** Implementation of **GST**, creating a constitutional body (GST Council) where Center and States vote together.
- **Friction Points:** Renewed debates over the role of the Governor, Central Agencies (ED/CBI), and the "Cess and Surcharge" issue.

Challenges to Indian Federalism

A. Fiscal Federalism & The "Shrinking Pool"

- **Cess and Surcharge:** These are not part of the **divisible pool**, meaning they aren't shared with States. In 2025-26, they constitute **18–20%** of the Center's gross tax revenue.
- **Finance Commission Tensions:** High-performing states (especially in the South) argue that "Income Distance" criteria penalize their economic and demographic success.
- **GST Autonomy:** States have lost the power to levy most indirect taxes, increasing their dependency on Central transfers.

B. The Office of the Governor

- **Constitutional Deadlocks:** Governors in states like Tamil Nadu and Kerala have faced criticism for withholding **assent to Bills** indefinitely (Pocket Veto).
- **Political Partisanship:** The office is increasingly viewed as an "agent of the Center," causing friction in states ruled by opposition parties.

C. Overreach on State Subjects

- **Concurrent List Expansion:** The Center is legislating more frequently on subjects like **Education** and **Agriculture** with minimal state consultation.
- **Central Agencies:** Allegations of "weaponizing" the **ED, CBI, and NIA** have led several states to withdraw "General Consent" for investigations.

D. Institutional Erosion

- **NITI Aayog:** Unlike the former Planning Commission, NITI Aayog lacks the financial power to allocate capital grants to states.
- **Inter-State Council (Art 263):** This constitutional dispute-resolution body remains underutilized, meeting too infrequently to bridge the trust deficit.

E. New Emerging Conflicts (2025-26)

- **One Nation, One Election:** Concerns that national narratives will overshadow regional issues and disrupt state assembly tenures.
- **Delimitation Fear:** States that successfully managed population growth fear a **loss of Lok Sabha seats** to high-population states after the upcoming census.

Measures to Strengthen Indian Federalism

1. Reforming the Office of the Governor

- **Time-bound Decisions:** Implement the **Punchhi Commission's** recommendation to set a fixed timeframe (e.g., 6 months) for Governors to decide on State Bills.
- **Neutral Appointments:** Ensure Governors are eminent persons from outside the state, not active in politics recently, as suggested by the **Sarkaria Commission**.

2. Fiscal Federalism Fixes

- **Sharing Cess and Surcharge:** Amend the Constitution to include a portion of cesses and surcharges in the **divisible pool** shared with States.
- **Grant Autonomy:** Empower **NITI Aayog** or a similar body to provide statutory capital grants to states, filling the void left by the Planning Commission.

3. Institutional Revitalization

- **Active Inter-State Council (Art 263):** Make it a mandatory, permanent forum for discussing all major policy shifts and bills concerning the **Concurrent List**.
- **Zonal Councils:** Hold regular meetings of Zonal Councils to resolve specific regional and boundary disputes before they escalate.

4. Consultative Lawmaking

- **Federal Impact Assessment:** Before legislating on Concurrent List subjects (like Education or Agriculture), the Center should conduct a "Federal Impact Assessment" in consultation with states.
- **Democratic Delimitation:** Address the concerns of performing states (South India) regarding the **2026 Delimitation** exercise to ensure they are not politically penalized for population control.

Conclusion

Indian federalism must evolve from "command-and-control" to a **collaborative-competitive model**. By revitalizing constitutional bodies like the Inter-State Council and ensuring fiscal transparency, India can balance regional aspirations with national integrity, fostering a resilient, decentralized, and inclusive **Viksit Bharat**.

Q. What changes has the Union Government recently introduced in the domain of Centre-State relations? Suggest measures to be adopted to build the trust between the Centre and the States and for strengthening federalism. (250 Words) 2024

2.1.6. THE IMPERATIVE FOR DIVERSITY IN INDIA'S JUDICIARY

Context

- A **Private Member's Constitutional Amendment Bill**, recently introduced by a member of Rajya Sabha and a senior advocate **P. Wilson**, has brought renewed attention to the need for **diversity in judicial appointments** and the establishment of **regional benches of the Supreme Court**.
- This initiative addresses longstanding concerns over the **collegium system's** failure to reflect India's social mosaic, including underrepresentation of **Scheduled Castes (SC), Scheduled Tribes (ST), Other Backward Classes (OBC), women, and religious minorities**.



Background: Constitutional Provisions on Judicial Appointments

The Indian Constitution establishes a framework for judicial appointments that balances executive and judicial roles, evolving through judicial interpretation to prioritize independence.

- **Article 124:** Supreme Court judges are appointed by the **President** after consulting the **Chief Justice of India (CJI)**, emphasizing judicial input.

- **Article 217:** High Court judges require consultation with the **CJI, High Court Chief Justice**, and **State Governor**, ensuring multi-stakeholder involvement.
- **Article 130:** The Supreme Court's seat is in **Delhi**, but the **CJI** can designate other places with central approval, enabling regional benches without amendment.
- **Article 16:** Provides **equal opportunity in public employment** and reservations, a principle extendable to judiciary via amendment for social representation.

Evolution of the Appointment Process: The Collegium System

1. Historical Development of the Collegium System

The **collegium system** emerged as a judicial safeguard against executive overreach, transforming appointments from an executive-dominated process to one led by the judiciary. Initially, appointments were **executive-led post-consultation**, reflecting the framers' intent, but judicial interpretations reshaped this framework.

- **Pre-1980s:** Appointments were executive-led post-consultation, as per the original constitutional design.
- **First Judges Case (S.P. Gupta v. Union of India, 1981):** Upheld **executive primacy**, citing accountability to the people.
- **Second Judges Case (Supreme Court Advocates-on-Record Association v. Union of India, 1993):** Overturned the first; established **collegium** comprising **CJI + four senior-most Supreme Court judges** for SC appointments and **CJI + two senior judges** for High Courts, prioritizing judicial independence.
- **Third Judges Case (1998):** Expanded collegium's role; government objections can be raised once, but reiterated recommendations are binding, cementing judicial primacy.

2. Operational Mechanism of the Collegium System

The collegium system operates with the judiciary at the helm, ensuring insulation from political favoritism but criticized for opacity and nepotism.

- **Operational Mechanism:** Collegium initiates proposals based on **merit**, seniority, and performance. Recommendations sent to **Central government** for clearance; government can seek reconsideration, but finality rests with collegium.
- **Current Status (2026):** The Supreme Court has returned to its full sanctioned strength of **34 judges**, with appointments recommended by the collegium. However, judicial vacancies persist, with **331 vacancies** in High Courts in 2024, highlighting delays in appointments under the collegium system.
- **Transparency Efforts:** The Supreme Court instructed the central government to develop a new **Memorandum of Procedure (MoP)** for transparency, finalized in 2017 but not adopted by the government.

3. Key Judgments Shaping the Collegium System

Landmark rulings have defined judicial appointments, reinforcing independence while striking down reforms that threatened it.

- **Supreme Court vs. Union of India Cases (Judges Cases):** Affirmed collegium as part of the **basic structure** doctrine, safeguarding judicial independence.

- **Fourth Judges Case (2015): 99th Constitutional Amendment (2014)** created **National Judicial Appointments Commission (NJAC): CJI + 2 senior judges + Union Law Minister + 2 eminent persons.**
 - Supreme Court invalidated it (5:0 verdict) as it violated **judicial independence (basic structure)**, citing **executive veto powers**.
 - **Rationale:** Executive dominance via Law Minister and non-judicial members compromised primacy; reverted to collegium.

About the Private Member's Bill seeking Diversity in Indian Judiciary

The Bill seeks to mandate **diversity** and **accessibility** without undermining merit.

- **Diversity Mandate:** Proportional representation for **SC/ST/OBC, women,** and **religious minorities** in Supreme Court and High Court appointments, reflecting population shares.
- **Timeline: 90-day cap** for Centre to notify collegium recommendations.
- **Regional Benches:** Establish in **Delhi (principal), Kolkata, Mumbai, Chennai;** full jurisdiction except **constitutional matters** (reserved for Delhi's Constitution Bench).
- **Rationale:** Improves **access to justice**, reduces Delhi-centric pendency (**>90,000 cases pending in the Supreme Court as of January 2026**), addresses geographic barriers.

Why There is a Need for Diversity in the Judiciary

1. Addressing Chronic Underrepresentation

- **2018-2024 High Court appointments (715 judges): 22 SC, 16 ST, 89 OBC, 37 minorities** (~23% marginalized).
- **Supreme Court:** Only **11 women** (~8% of 287 total); no **SC/ST women**; one religious minority (**Justice Fathima Beevi**).
- **Direct elevations from Bar: 9 men vs. 1 woman** (**Justice Indu Malhotra**).

2. Structural Barriers to Institutional Advancement

- **Late appointments:** Women judges are often appointed at a relatively late age, restricting their tenure and limiting their ability to attain seniority.
- **Short tenures:** Several women judges have served for fewer than three years, diminishing their influence in the Court's institutional processes.
- **Limited opportunities:** The absence of systematic efforts to address these barriers perpetuates a cycle of underrepresentation.

3. Implications for Equitable Justice Delivery

- **Narrow Viewpoints:** Homogenous benches overlook marginalized realities (e.g., **Hathras rape case** dismissed Dalit woman's testimony vs. **2012 Delhi gangrape** acceptance).
- **Democratic Deficit:** Judiciary as "guardian of democracy" lacks credibility without reflecting society; contrasts with reservations in Parliament/public services.
- **Institutional Legitimacy:** Diverse judges enrich reasoning (e.g., **Justice Nagarathna** on gender sensitivity; **Justice Leila Seth** on inheritance rights).

4. Critiques of the Collegium System's Selection Criteria

- **Nepotism and Opacity:** In the absence of an enforceable **Memorandum of Procedure**, the selection process is seen as opaque. While transparency was briefly prioritized under **CJI Dipak Misra**, the practice of disclosing detailed resolution reasons has not been consistently sustained.
- **"Merit Myth" and Social Capital:** The argument for "**merit**" is often used to oppose diversity. Sociologists like **Satish Deshpande** argue that "merit" often masks **caste privilege** rooted in elite education and networks.
 - Yale professor **Daniel Markovits** describes a "**Meritocracy Trap**" where rules are rigged in favor of the privileged.
 - **Dr. B.R. Ambedkar** similarly warned that merit is rendered useless if an individual is denied the social assets associated with their status.
- **Gender Blindness:** Because the **Collegium** is composed of the senior-most judges (who are predominantly male), gender considerations often remain at the margins. This limits the **depth of perspectives** available in cases concerning **family law, gender justice, and workplace harassment**. For instance, women underrepresented in **Collegium**, limiting diverse perspectives in gender justice cases (e.g., family law, workplace harassment).

Global Best Practice

- **United Kingdom (Judicial Appointments Commission):** The UK uses an independent commission comprising judges, legal practitioners, and **lay members**. This ensures that the selection process is not an exclusive judicial "silo" and actively promotes diversity through a statutory duty.
- **South Africa (Judicial Service Commission):** The South African model is a global benchmark for **transparency**. It includes representatives from the legislature, the executive, and the legal academy. Crucially, the South African Constitution mandates that the judiciary must reflect the racial and gender composition of the country.
- **Kenya (Public Interviews):** Kenya conducts **public televised interviews** for judicial candidates. This level of transparency builds immense public trust and ensures that social sensitivity is tested alongside legal knowledge.

Way Forward: Reforms for an Inclusive Judiciary

Targeted interventions can embed diversity while preserving independence, aligning with constitutional principles.

- **Judicial Self-Reform:** Collegium voluntarily prioritizes diversity; publish annual **caste/gender data** for transparency.
- **Constitutional Amendments:** Extend **Article 16** logic to **Articles 124/217**; mandate proportional representation via **104th Amendment**-style provisions.
- **Revive NJAC Broadly:** For India, a revived commission should:
 - Include a **Diversity Secretariat** to identify and mentor talent from marginalized backgrounds.
 - Maintain a **Judicial Majority** to preserve independence, but include **Eminent Lay Persons** to provide social context.

- Institutionalize **Public Consultations** or feedback loops from the Bar Council before final recommendations.
- **Regional Benches:** Implement via **Article 130** as recommended by Law Commission / Parliamentary panels; start with **Kolkata**, expand.
- **Legislation:** Enact **Judicial Diversity Act** for social background as appointment criterion.
- **Data Transparency and Public Accountability:** Mandate annual, machine-readable disclosures by the **Law Ministry** and judiciary on **caste, gender, minority, and intersectional composition of appointments**; integrate this data into **RTI** for civil society oversight; use evidence to pinpoint recruitment gaps and adjust policies dynamically for proportional diversity aligned with India's demographics.
- **Strengthening the Lower Judiciary as a Pipeline:** Enforce **merit-cum-diversity recruitment in subordinate courts** with **targeted outreach**, reservations in promotions, and **scholarships/mentorship programs for women, SC/ST/OBC candidates**; fill vacancies swiftly to build experience for elevation; create structured talent pools from lower judiciary to feed higher courts with representative judges.
- **Cultural and Institutional Transformation:** Introduce **mandatory judicial education modules** on gender justice, caste dynamics, intersectionality, and lived realities of marginalized groups; adopt inclusive court practices like specialized benches and trauma-informed procedures; foster a cultural shift viewing diversity as essential to constitutional equality and legitimacy, moving beyond quotas to systemic inclusion.

Conclusion

As **Ambedkar** famously noted, "**Political democracy cannot last unless there lies at the base of it – social democracy.**" Moving toward a representative bench is not a compromise on merit but a fulfillment of the constitutional promise of equality. A judiciary that is diverse in its composition will be more robust in its deliberations and more just in its delivery.

Q. "Judicial independence and judicial diversity are not contradictory but complementary constitutional values." Examine in the context of judicial appointments in India. (250 Words)

2.1.7. PRIVACY-TRANSPARENCY PARADOX: BALANCING THE RTI ACT WITH THE DPDP ACT

Context:

- **Recently**, the **Supreme Court of India** referred a series of petitions to a **Constitution Bench** to resolve the "**constitutional sensitivity**" arising from the **Digital Personal Data Protection (DPDP) Act, 2023**.
- These petitions challenge the amendment to **Section 8(1)(j)** of the **Right to Information (RTI) Act, 2005**, which critics label a "body blow" to democratic transparency.
- Chief Justice of India **Surya Kant** remarked that the Court must now legally define the boundaries of "**personal information**" to ensure that the **fundamental right** to know is not unfairly silenced by the right to privacy.



Background: Evolution of the Legal Framework

The current legal conflict represents a **fundamental clash** between **two sets of rights**, both of which are **central to India's constitutional fabric**.

1. The RTI Act, 2005: The "Sunlight" Law

The RTI Act was not a mere administrative gift; it was the formal codification of a right already existing in the Constitution.

- **Constitutional Basis: The "Right to Know" (Article 19)**

- **Clarity from *State of UP v. Raj Narain (1975)*:** In this landmark election case involving Prime Minister Indira Gandhi, the Supreme Court delivered a historic ruling. Justice Mathew famously observed:

"In a government of responsibility like ours... the people of this country have a right to know every public act, everything that is done in a public way, by their public functionaries."

- **The Logic:** The Court held that **Freedom of Speech and Expression (Article 19(1)(a))** is **meaningless** if citizens do not have the facts to speak about. You cannot express an opinion or hold a government accountable if you are kept in the dark. Thus, **RTI is an inherent part of Article 19**.
- **The Philosophy:** It moved the needle from **"Official Secrecy" to "Public Trust,"** establishing that information belongs to the people, and the State is merely its **custodian**.
- **Later, in 1990s,** the NGO **Mazdoor Kisan Shakti Sangathan (MKSS)**, led by activists like Aruna Roy, started a massive movement in **Rajasthan**. They coined the famous slogan: *"Hamara Paisa, Hamara Hisab"* (Our Money, Our Accounts), demanding **transparency in minimum wage payments and ration distribution**.
- **The Original Section 8(1)(j): A Balanced Exemption**
 - This was a **calibrated safety valve**. It didn't ban the release of all personal data. It only protected information that:
 - Had **no relationship** to any public activity or interest.
 - Would cause an **unwarranted invasion** of an individual's privacy.
- **The "Public Interest" Override:**
 - Even if information was "personal," it **could still be disclosed** if the Public Information Officer (PIO) found that the **"larger public interest"** outweighed the harm to the individual or justified the disclosure.
 - **The Golden Rule (Legislative Parity):** The Act explicitly mandated that information which cannot be denied to **Parliament or a State Legislature** shall not be denied to any citizen.

2. The DPDP Act, 2023: The Privacy Shield

The 2023 Act introduces a new layer of protection for "Informational Privacy" in the digital age, following a redefined constitutional interpretation.

- **Constitutional Basis: The "Right to Privacy" (Article 21)**

- **The *Puttaswamy* Landmark (2017):** A 9-judge bench declared **Privacy** as a fundamental right under **Article 21** (Right to Life and Personal Liberty).

- **The Three-fold Test for State Interference:** The Court ruled that the government can only restrict privacy if it satisfies three strict criteria:
 - **Legality:** The restriction must be backed by a clear **written law**.
 - **Legitimate Aim:** The State must have a valid reason (e.g., national security or social welfare).
 - **Proportionality:** The restriction must be **necessary** and the **least intrusive** way to achieve the goal.
- **The Amendment (Section 44(3)): The "Blanket Ban"**
 - The **DPDP Act** used **Section 44(3)** to delete the balanced "**public interest**" criteria from the RTI Act.
 - It replaced it with a **restrictive mandate**: any "**information which relates to personal information**" is **now exempted from disclosure**.
 - **The Problem:** By removing the "**public interest override**," the amendment ignores the **Proportionality Doctrine** requirement. It makes **privacy an absolute shield**, even when disclosing the information is necessary to expose corruption or ensure government accountability.

Key Judicial Landmark: CPIO v. Subhash Chandra Agarwal (2019)

- The Supreme Court previously held that **transparency and privacy** are **co-equal rights**. It ruled that details like **judicial assets** or **appointment files** could be disclosed if it served a legitimate public purpose.
- The 2023 amendment bypasses this judicial precedent by removing the "public interest" gateway entirely, making the RTI Act potentially "**defunct**" in matters involving public officials.

Significance of the RTI Act in a Robust Democracy

- **Upholding Participatory Democracy:** Transparency acts as the bedrock of a "**responsive government**." The RTI Act ensures that the "**sovereign**" (**the people**) can effectively check the "**agent**" (the State), moving beyond mere voting to active daily oversight.
- **Empowering Social Audits and Welfare Delivery:** The RTI is a vital tool for the **marginalized** to verify **PDS (ration) distribution, MGNREGA wages, and pension lists**. Since these lists often contain names and personal data to prevent leakages and "**ghost beneficiaries**," the act ensures that welfare reaches the intended recipient.
- **Institutionalizing an Anti-Corruption Mechanism:** It facilitates the scrutiny of **assets, educational qualifications, and disciplinary records** of public officials. This transparency is essential to ensure integrity in public office and to discourage the abuse of power.
- **Successes of RTI & E-Governance in Ensuring Probity:** Since 2005, RTI has successfully unearthed major corruption scandals. Let me give you a few big examples:
 - **The Adarsh Housing Society Scam (Mumbai):** RTI applications revealed how a high-rise building meant for Kargil war widows was illegally usurped by politicians and top bureaucrats.
 - **The 2G Spectrum Scam:** RTI was instrumental in uncovering the arbitrary allocation of telecom spectrums, which caused massive losses to the public exchequer.

- **Commonwealth game scam**
- **Vyapam Scam (Madhya Pradesh):** Persistent RTI queries helped expose this massive, systemic medical admission and recruitment scam.
- **E-Governance as a supplement to RTI:** While RTI is a "**demand-side**" tool (citizens asking for information), **E-governance** is a "**supply-side**" tool. E-governance ensures probity by reducing human interface, minimizing discretion, and proactively placing data in the public domain.
- **Examples: *Bhoomi* (Karnataka's digitized land records), *GeM* (Government e-Marketplace, which ensures transparent public procurement), and *DBT* (Direct Benefit Transfers, which track welfare money directly to the beneficiary's bank account).**

Challenges Associated with the RTI–DPDP Conflict

- **The "Legitimate Uses" Paradox:** While the State can process citizen data without consent for welfare (**Section 7 of DPDP**), the RTI amendment prevents citizens from accessing State data. This creates a **one-way mirror** where the **State monitors the citizen, but the citizen cannot scrutinize the State.**
- **Chilling Effect on Press Freedom:** Journalists collecting data for investigative reports could be labeled "**Data Fiduciaries.**" **Non-compliance with strict DPDP rules** can lead to fines up to **₹250 crore**, threatening to **reduce journalism** to mere government press releases.
- **Failure of the Proportionality Test:**
 - The Supreme Court requires that any restriction on a fundamental right must be the "**least restrictive means**" to achieve a goal.
 - Petitioners argue that removing the "public interest override" is **manifestly arbitrary**, as it creates a category of absolute secrecy that fails to balance the **Right to Know (Art. 19)** with the **Right to Privacy (Art. 21)**.

Way Forward: Restore the Transparency–Privacy Balance

- **Harmonizing Article 19 and Article 21:** We need a **balance between the Right to Know and the Right to Privacy. Both are important and both must not be subjugated.**
 - The Constitution Bench should uphold the spirit of the **2019 *Central Public Information Officer* judgment**, which held that **judicial independence and privacy do not stand in contradiction with the need for transparency. On similar lines, they can decide what is 'personal information'.**
- **Protecting the Information Seekers:** The government must operationalize the **Whistleblowers Protection Act, 2014**, to ensure the physical safety of activists.
- **Journalistic Safeguards:** India should adopt provisions similar to the **EU's General Data Protection Regulation (GDPR) model**, offering **explicit exemptions** for journalistic purposes to ensure the media can perform its **watchdog role** without financial ruin.
- **Implementing ARC Reforms:** It is high time we **replace the colonial Oath of Secrecy with an Oath of Transparency, as suggested by 2nd ARC** to change the bureaucratic mindset from within.

Conclusion

The tension between the **Right to Know (Article 19)** and the **Right to Privacy (Article 21)** is not a zero-sum game. While protecting personal data is essential in the digital age, it must not become a tool for administrative opacity. As the Supreme Court reviews the amendment, the priority must be to ensure that the **"informed citizenry"** envisioned in 2005 remains empowered to hold the State accountable.

Q. *The 'Legitimate Uses' framework of the DPDP Act, 2023, coupled with the dilution of the RTI Act, creates a 'one-way mirror' that undermines democratic accountability. Critically analyze this statement in the light of the emerging constitutional conflict between the Right to Know and the Right to Privacy. (250 Words)*

2.1.8. ON THE IMPORTANCE OF SATIRE

Context: Satire has long been a powerful medium of political and social commentary. In India, debates around satire frequently intersect with concerns about national security, public order, and reputation of constitutional authorities

Background: The Controversy

- A 52-second satirical cartoon allegedly featuring the Prime Minister was blocked from the social media handles of The Wire.
- The government justified the action on grounds that it spread "informed rumours/unverified information" affecting:
 - Defence and national security
 - Reputation of the country
 - Foreign relations
- The Editors Guild of India criticized the move, calling it a sign of growing intolerance toward scrutiny and satire.
- **Core Constitutional Question:** Is satire a threat to national security, or a democratic safeguard essential for accountability.



Satire in Democratic Theory: A Functional Analysis

In democratic discourse, satire transcends mere entertainment, serving as a sophisticated tool for civic engagement and institutional checks. Its functions can be categorized into three pillars:

1. Accountability and Transparency

- **Mechanism:** Satire strips away political rhetoric to expose **contradictions, hypocrisy, and excesses** in governance.
- **Impact:** By simplifying complex policy or legislative issues through humor and irony, it enhances **political literacy** and makes governance more accessible to the lay citizen.

2. Safety Valve for Dissent

- **Mechanism:** It provides a **non-violent, creative outlet** for public dissatisfaction and frustration with the state.
- **Impact:** By channeling criticism constructively, satire reduces the likelihood of radical or extreme responses to perceived injustice.

3. Strengthening Public Opinion & Political Discourse

- **Global Tradition:** Mature democracies (e.g., the United States) treat political cartoons and late-night satire as integral to the “marketplace of ideas.”
- **Judicial Perspective:** Courts often cite historical examples—such as early American cartoons portraying **George Washington** as an “ass”—to argue that the ability to tolerate ridicule is a hallmark of a robust republic.
- **Impact:** It broadens the spectrum of public opinion, ensuring that dissent is not just tolerated but seen as an essential ingredient of public life.

Constitutional Framework: Art. 19 & Reasonable Restrictions

- **Article 19(1)(a):** Guarantees all citizens the fundamental right to **freedom of speech and expression**, which includes the right to propagate ideas through various media (print, digital, art).
- **Article 19(2):** Empowers the State to impose “**reasonable restrictions**” on this right.
- **The Test of Reasonableness and Proportionality:** To ensure that restrictions do not turn into suppression, the Judiciary employs specific legal doctrines:
- **Doctrine of Proportionality:** Any restriction must be the **least restrictive measure** possible. It must have a rational nexus with the objective and must not be excessive or disproportionate to the “evil” it seeks to remedy.
- **Procedural Safeguards:** As established in *Shreya Singhal v. Union of India*, any censorship—especially digital blocking—must follow natural justice. This includes the **right to be heard** for the content creator before access is restricted.
- **Arbitrariness:** Blanket or “emergency” bans that bypass transparency or judicial oversight are considered unconstitutional as they fail the “reasonableness” test.

Key Judicial Precedents on Free Speech and Satire

- **Shreya Singhal v. Union of India (2015):** The Supreme Court struck down **Section 66A** of the IT Act for being “vague” and “chilling.” It mandated **procedural safeguards**, specifically the right of the “originator” to be heard before content is blocked.
- **Indibly Creative v. State of West Bengal (2019):** The Court ruled that the State has a **positive duty to protect speech** rather than using potential public disorder as a pretext for censorship, affirming satire as vital for exposing societal contradictions.
- **Kama v. M. Jothisorupan (2018):** The Madras High Court recognized **exaggeration** as a legitimate and essential element of satire, defining it as an “intrinsic weapon of attack” necessary for democratic critique and exposing hypocrisy.
- **Delhi High Court on Satirical Journalism:** The Court upheld satire as a **prime mode of dissent**, ruling that humor and irony should be evaluated through the lens of a “**reasonable person**” rather than a “hyper-sensitive” individual.

Global Perspectives on Satire

- **United States: First Amendment & Malice Standard**
 - **Legal Basis:** Provides near-absolute protection for political satire within the “marketplace of ideas.”
 - **Judicial Milestone (*Hustler v. Falwell*):** The U.S. Supreme Court ruled that public figures must tolerate “offensive parody” unless it contains false statements made with “actual malice.”
 - **Principle:** Public officials must accept higher levels of ridicule to ensure institutional transparency and accountability.
- **European Court of Human Rights (ECHR): Artistic Freedom**
 - **Legal Basis: Article 10** of the European Convention guarantees free expression, protecting ideas that “offend, shock, or disturb.”
 - **Judicial Recognition (*Vereinigung v. Austria*):** The Court affirmed that satire inherently distorts reality and deserves high protection as a form of artistic expression.
 - **Rationale:** Tolerance of provocative satire is a hallmark of **pluralism** and democratic maturity.

Key Challenges to Satire in the Digital Age

- **Vague Grounds for Restriction:** Frequent invocation of “**National Security**” or “Public Order” under Article 19(2) without clear distinctions between legitimate satire and actual misinformation.
- **Chilling Effect & Self-Censorship:** Fear of heavy-handed legal action (Defamation, IT Act, or UAPA-like laws) forces creators to suppress their own work to avoid prosecution or social backlash.
- **Executive Overreach in Regulation:** Expanding powers under **IT Rules (2021/2026)** allow for rapid “emergency” content blocking without transparency or providing creators a fair hearing.
- **The “Heckler’s Veto”:** Organized mob pressure or threats lead the State to curb speech to prevent unrest, effectively rewarding intolerance instead of protecting the artist.
- **Criminal & Civil Liability:** The strategic use of **Criminal Defamation** and high-stakes civil lawsuits to financially and legally drain independent media houses and satirists.
- **Polarization & Shrinking Civic Space:** A declining societal and political tolerance for ridicule, where hypersensitivity and polarization replace democratic resilience and open debate.

Way Forward: Safeguarding Satire and Democratic Expression

- **Refine Legal Definitions:** Establish clear legislative distinctions between **satire/parody** and “deliberate misinformation.” Restrictions must be **narrowly tailored** under the Doctrine of Proportionality to ensure creative dissent is not mislabeled as a “threat to national security.”
- **Reinforce Procedural Due Process:** Strictly implement **Shreya Singhal (2015)** mandates, ensuring the “right to be heard” for content creators. The Executive must provide **written, reasoned orders** for all digital takedowns to facilitate effective judicial review.
- **Neutralize the “Heckler’s Veto”:** Adhere to the **Indibly Creative (2019)** precedent by recognizing the State’s **positive duty to protect speech**. Law enforcement should manage mob pressure or “outrage” rather than silencing the artist to maintain order.

- **Establish Independent Oversight:** To counter the 2026 IT Rules' **3-hour takedown window**, an independent body comprising judicial and civil society members should perform **post-facto audits** of "emergency" orders to prevent executive overreach.
- **Decriminalize Satirical Expression:** Shift from punitive criminal sanctions (e.g., criminal defamation or sedition-type charges) to **proportionate civil remedies**. This removes the "chilling effect" that stifles independent media and political commentators.
- **Foster Constitutional Morality:** Promote a **democratic culture of tolerance** through constitutional literacy. A mature Republic should view satire not as an affront to institutional dignity, but as a vital sign of a resilient and self-correcting democracy.

Conclusion

Satire, though critical and uncomfortable, is constitutionally protected unless it incites violence. A mature democracy ensures tolerance, distinguishes real security threats from critique, and safeguards accountability, dissent, and citizens' freedom.

Q. In the light of recent controversies over digital content blocking, examine the constitutional protection accorded to satire in India. Discuss the judicial safeguards, emerging challenges in the digital age, and suggest measures to balance free expression with legitimate State interests.

(250 words)

2.1.9. PARLIAMENT'S HISTORIC LAW: AN EXTENDED WAIT FOR WOMEN

Context:

- The **Constitution (One Hundred and Sixth Amendment) Act, 2023**, popularly known as the **Nari Shakti Vandan Adhiniyam (Women's Reservation Act)**, was enacted in September 2023 to reserve **one-third (33%)** of all seats for women in the **Lok Sabha, State Legislative Assemblies**, and the **Legislative Assembly of the National Capital Territory of Delhi**.
- While celebrated as a milestone for gender justice, the **Nari Shakti Vandan Adhiniyam Act** delays effective representation until at least **2034**, turning a constitutional promise into a deferred reality.



Key Features of the Women's Reservation Act, 2023

- **Reservation for Women:** The Act mandates the reservation of approximately **one-third (33%)** of all seats for women in the **Lok Sabha, State Legislative Assemblies**, and the **Legislative Assembly of the National Capital Territory of Delhi**. This quota specifically includes a sub-reservation within the seats already set aside for **Scheduled Castes (SCs)** and **Scheduled Tribes (STs)**.
- **Commencement of Reservation:** The implementation is contingent upon the publication of the **first Census** conducted after the Act's commencement. Following this publication, a **delimitation exercise** will be performed to identify the specific seats reserved for women. The provision is

initially set for a duration of **15 years**, though it may be extended beyond this period by a law enacted by Parliament.

- **Rotation of Seats:** To ensure varied geographic representation, seats reserved for women will be **rotated** across different constituencies. This rotation is scheduled to occur after each subsequent **delimitation exercise**, as regulated by parliamentary legislation.

Constitutional Mechanism Responsible for the Delay: Delimitation

- **What is Delimitation:** It is the process of redrawing boundaries of territorial constituencies to ensure that each seat represents a roughly equal number of people, reflecting population shifts over time.
- **Two Sequential Preconditions:** Reservation commences only after a **national Census** (slated for **2027**) and **Delimitation Commission** constitution by the President under **Article 82**. Census under data verification and publication require **12-18 months** historically - pushes the timeline toward 2029.
- **Delimitation Complexity:** The Commission balances **population parity, geographic compactness, administrative boundaries, SC/ST quotas**, and **women's seats** across **543 Lok Sabha** and **4,000+ Assembly** constituencies.
- Prior commissions (1952, 1963, 1973, 2002) took **3-6 years**; the upcoming one, involving **post-1976 seat reallocation**, may extend to **2032-33**.

Rationale Behind the Design: Accommodation Through Expansion

The decision to tie reservation to delimitation is rooted in a strategic "political arithmetic":

- **Avoiding Male Displacement:** Implementing a **33% quota** within the current 543 seats would immediately displace **181 male incumbents**.
- **The "Bigger Pie" Strategy:** Delimitation after 2026 is expected to increase the total Lok Sabha seats (potentially to **800 or even 888**). By expanding the total number of seats, political parties can accommodate 33% women without reducing the absolute number of seats currently held by men.
- **Cost of Consensus:** While this approach minimizes political friction, it results in a **"representation tax"** where women must wait an additional decade for their guaranteed rights.

Current Representation Landscape

- **Women's electoral participation has grown**—from **3% contestants** (1957) to **10%** (2024)—yet victories stagnate:
 - **14% Lok Sabha** (75/543 in 18th), **9% State Assemblies** (e.g., 21% Chhattisgarh, 0% Nagaland), **17% Rajya Sabha** (42/245).
 - Globally, average stands at 26%; India trails G20 peer.

Historical Background: A Long and Interrupted Journey

The struggle for women's representation in India has spanned nearly three decades:

- **1987 (Margaret Alva Committee):** First recommended 33% reservation for women in local bodies, leading to the **73rd and 74th Constitutional Amendments**.

- **1996 (Geeta Mukherjee Committee):** Examined the **first version** of the Bill in Parliament; however, the Bill lapsed multiple times due to lack of consensus.
- **2010:** The Bill successfully passed the **Rajya Sabha** but was never brought to a vote in the Lok Sabha.
- **2023:** The Act finally passed both Houses, yet the wait continues due to the aforementioned clauses.

Does having more women in power actually change anything on ground?

- Scholars talk about the '**Critical Mass**' theory. Research shows that when women cross a 30% threshold in a legislature, the country's **Human Development Index (HDI)** actively improves.
- **Why? - Because women prioritize different things.** A famous **UN Women study on Indian Panchayats** showed that local councils led by women **built 62% more drinking water projects** than those led by men. They invest in health, schools, and social safety nets. That is true **inclusive growth. Thus, women legislators foster ideal of inclusive growth.**

Critical Challenges and Structural Hurdles to Women's Representation

Despite the historic nature of the Women's Reservation Act, 2023, several systemic, design, and federal challenges persist that may impede the substantive empowerment of women in Indian politics.

I. The Five Pillars of Female Exclusion

Despite the law, significant hurdles remain for women entering the legislative space:

- **The Patriarchal Mindset:** Deep-seated social norms view women as homemakers. This is evidenced by the "**Sarpanch Pati**" phenomenon in PRIs, where elected women serve as proxies for their husbands.
- **The "Winnability" Trap:** Under the **First-Past-The-Post (FPTP)** system, parties hesitate to field women, claiming they are less "**winnable**" than dominant-caste men. Currently, major parties give less than **10%** of tickets to women.
- **The "Money and Muscle" Gap:** As highlighted in Milan Vaishnav's '**When Crime Pays**', which has thrown light on this. He explains that Indian politics runs on two things: **Money and Muscle**. Elections are incredibly **expensive**, and parties love candidates who **bring their own black money or have local strongman** (goonda) networks. Due to lack of both money and muscle, Women are structurally locked out of this. They usually don't control the family wealth, and they certainly aren't part of local criminal mafias."
- **The Double Burden:** Cultural expectations regarding unpaid care work and domestic duties make the 24/7 nature of political campaigning difficult for women to sustain.
- **Toxic Political Environment:** Female politicians are disproportionately targeted with **sexist remarks**, online character assassination, and character-based gatekeeping.

II. Linkage with Delimitation and Federal Tensions

By tying the **Women Reservation Act to Delimitation**, gender justice has been entangled with India's most sensitive **Federal issue**:

- **North-South Divide: Southern states**, which have successfully controlled population growth, fear losing parliamentary seats to Northern states with higher growth rates.

- **Hostage to Deadlock:** Since **delimitation has been frozen since 1976** (extended in 2001) to prevent this imbalance, any delay in resolving this federal friction will automatically delay women's reservation.

III. Design Gaps in the 2023 Act

- **Exclusion of Upper Houses:** The Act does not apply to the **Rajya Sabha** or **State Legislative Councils**, limiting women's presence in houses that provide expert scrutiny.
- **Lack of OBC Sub-Quota:** Unlike SC/ST women, there is no sub-reservation for **Other Backward Classes (OBC)** women, who represent nearly 40% of the female population, potentially leading to the "elite capture" of reserved seats.
- **Operational Ambiguity on Rotation:** The Act mandates seat rotation after each delimitation, but lacks clarity on how candidates will nurture constituencies if their boundaries change every few years.

Global Best Practices for Representation

- **The Zipper System (Sweden):** Political parties alternate between male and female candidates on their lists (**Man-Woman-Man**), ensuring 50% representation.
- **Voluntary Party Quotas (South Africa):** Parties voluntarily commit to fielding a certain percentage of women candidates without the need for a constitutional mandate.
- **Reserved Seat Model (Rwanda):** Rwanda leads the world with over **60%** women in parliament through a combination of reserved seats and proportional representation.

Possible Strategies for Accelerating Implementation

To bridge the gap between promise and practice, the following measures are suggested:

- **Constitutional Delinking:** Amend the Act to remove the mandatory link to the Census and Delimitation.
- **The Power of Article 15(3):** Utilize **Article 15(3)**, which empowers the State to make "**special provisions for women and children**," to justify immediate reservation within the existing 543 seats.
- **Interim Expansion:** Incremental expansion of the Lok Sabha by adding seats specifically for women before the full-scale delimitation.
- **Ticket Reservation:** Amend the **Representation of the People Act, 1951** to mandate that all recognized political parties reserve 33% of their tickets for women.

Conclusion

The **Women Reservation Act** represents a landmark yet deferred promise, where procedural hurdles delay substantive justice until 2034. By linking reservation to delimitation, the Act risks becoming a symbolic gesture that stalls **Anne Phillips' "Politics of Presence."** To achieve true democratic legitimacy and inclusive growth, India must resolve federal frictions and ensure that **representation delayed does not become representation denied.**

Q. In light of the Women's Reservation Act, 2023, identify the structural, socio-political, and institutional barriers that limit women's effective political participation in India. Suggest measures for accelerated implementation. (250 Words)

2.1.10. AVIATION SAFETY AND NON-SCHEDULED OPERATORS IN INDIA

Context

- A cluster of recent aviation mishaps, including small aircraft crashes at **Baramati (Maharashtra)** in January 2026, near **Simaria (Jharkhand)**, and a helicopter crashlanding near **Mayabunder in the Andamans**, signals **deep-rooted safety concerns** in India's **non-scheduled operators (NSOs)** sector.
- These incidents emphasize that **charter aviation** requires rigorous regulation akin to **scheduled commercial flights**, as the sector's growth heightens oversight imperatives.



Background: The NSO Landscape in India

- **Definition of NSOs:** Non-Scheduled Operators are entities that provide air transport services (passenger or cargo) without a published timetable, often operating on a charter basis.
- **Current Scale:** As of late 2025, India has approximately **133 NSO permit holders** utilizing a diverse fleet of fixed-wing aircraft and rotary-wing (helicopters) assets.
- **Growth Drivers:** The expansion of the NSO sector is fueled by the rise in **VIP travel, religious tourism (heli-pilgrimage), medical evacuations (Air Ambulances), and corporate logistics**, often operating in "**uncontrolled environments**" or **remote airfields** where commercial airlines do not fly.

Present Scenario of Aviation Industry in India

- **Position in the Global Aviation Market:** India ranks as the **third-largest domestic aviation market** after the **US and China**, managing about **4.2% of global air traffic**. The **Indian aircraft fleet** constitutes roughly **2.4% of the world fleet**, growing rapidly due to **fleet expansions and new aircraft orders**.
- **Growth in Passenger Numbers:** Domestic **air passenger demand** is estimated to reach **715 million by 2030** and is projected to grow to around **1.1 billion by 2040**, a six-fold increase from current levels.
- **Expansion of Airport Infrastructure:** The number of functional airports increased from **74 in 2014 to 163 in 2025**. By 2047, the aim is to have **350–400 airports**, emphasizing **greenfield development** and **public-private partnership (PPP) models**.
- **Contribution to the Economy:** In 2025, the aviation sector supports over **7.7 million jobs** and contributes approximately **1.5% to India's GDP**.
- **Regulatory Evolution in Civil Aviation**
 - **Air Corporations Act, 1953:** Nationalised nine airlines, giving **government-owned carriers a dominant role** until the mid-1990s.
 - **Open Sky Policy (1990–94):** Allowed private **air taxi operators**, ending the **monopoly of Indian Airlines (IA) and Air India (AI)**.

- **Bharatiya Vayuyan Adhiniyam, 2024:** Replaced the **Aircraft Act, 1934**, aligning Indian laws with **ICAO standards** and the **Chicago Convention**. Supports **Make in India** and **Atmanirbhar Bharat** initiatives in aviation, simplifies **licensing and regulations**, establishes a **structured appeals process**, and modernises **aviation governance**.

Regulatory Structure Overseeing Aviation Industry in India

- **Policy and Strategic Oversight:** The **Ministry of Civil Aviation (MoCA)** leads overall direction for the sector.
 - It sets **national policies** like the **National Civil Aviation Policy (NCAP)** and manages **international air service agreements**. **MoCA** drives key programs such as **UDAN** for regional flights and airport privatization efforts.
- **Safety and Operations Regulation:** The **Directorate General of Civil Aviation (DGCA)** handles technical rules and enforcement.
 - DGCA creates **Civil Aviation Requirements (CARs)** for flight operations, pilot rest limits, aircraft upkeep, and airline standards. It grants **Air Operator Certificates (AOCs)**, approves new planes, and runs safety checks.
- **Accident Investigation:** The **Aircraft Accident Investigation Bureau (AAIB)** is a **statutory body** under **India's Ministry of Civil Aviation**, established in **2012** per **Aircraft (Investigation of Accidents and Incidents) Rules, 2017**, to probe civil aviation accidents and serious incidents independently of regulatory functions.
 - Investigations follow **International Civil Aviation Organization (ICAO) Annex 13** rules, focusing only on causes and safety advice. Findings help prevent future risks without assigning blame.
 - **ICAO** is a specialized **United Nations agency** that sets **global standards** for safe, orderly, and sustainable international civil aviation, including safety, navigation, and environmental practices.
- **Security Management:** The **Bureau of Civil Aviation Security (BCAS)** ensures protection across aviation.
 - **About Bureau of Civil Aviation Security (BCAS):** Established in **1987 under Ministry of Civil Aviation**, BCAS sets aviation **security standards per ICAO Annex 17**, overseeing **passenger screening, access control, cargo security, and compliance audits** at airports.
 - **Headquartered in New Delhi**, it operates **four regional offices** at **major international airports: Delhi, Mumbai, Kolkata, and Chennai**. Led by a **Director General of Police (DGP)-rank officer** designated as **Commissioner of Security**.
 - It conducts **mock drills, issues directives, and trains personnel** via **Aviation Security Training Institute (ASTI)** in Gurgaon to counter threats like terrorism in India's growing aviation sector.
 - The **BCAS** releases **security guidelines** for **airlines, airports, and ground handling agencies**, and works in close coordination with **intelligence and law enforcement authorities**.
- **Key Legislative Measures:** Modern laws update old rules for better efficiency.
 - **Bhartiya Vayuyan Adhiniyam, 2024** replaces the **1934 Aircraft Act**, simplifying **DGCA** roles, boosting safety checks, and raising fines.
 - **Protection of Interest in Aircraft Objects Act, 2025** fixes gaps in global leasing rules, aiding quick plane recovery and lender trust.
- **Global Standards and Compliance:** India, as a contracting state to the **International Civil Aviation Organization (ICAO)**, must follow its **Standards and Recommended Practices**

(SARPs) covering **aircraft certification, airworthiness, safety systems, accident probes, and environmental rules.**

- o Compliance with the **Chicago Convention** shapes **India's global aviation reputation**, influencing insurance costs, leasing terms, and trust from other nations for international flights.

Major Challenges in India's Aviation Industry

- **Pilot Training and Skill Shortages:** Limited availability of **flight simulators**, shortage of **qualified instructors**, high **training expenses**, and restrictions related to **type-rating certification** have made pilot supply rigid. The approval of nearly **236 temporary foreign pilots in 2025** reflects dependence on short-term and costly solutions.
- **Market Dominance and Systemic Risks:** The domestic market is largely dominated by **IndiGo (around 63–65%)** and the **Air India Group (about 27–28%)**, together accounting for almost **90% of passenger traffic**. IndiGo serves as the **only airline on nearly 60% of routes**, meaning operational disruptions can lead to complete loss of service on those routes.
- **Insufficient Operational Buffer:** Unlike global airlines that maintain **20–25% standby crew strength**, Indian carriers operate at near **full capacity utilisation**, leaving minimal buffer to manage sudden operational disturbances.
- **Regulatory Weaknesses:** Almost **half of the sanctioned technical posts in DGCA remain vacant**, reducing effective oversight. Service disruptions are often addressed through **temporary schedule relaxations** instead of consistent regulatory enforcement, indicating reactive management.
- **High Costs and Fuel Price Fluctuations:** Airlines face persistent financial strain due to fluctuating **Aviation Turbine Fuel (ATF) prices**, which are closely linked to **global crude oil rates and U.S. dollar movements**, creating cost uncertainty.
- **Frequent Airline Insolvencies:** The collapse of carriers such as **Kingfisher Airlines (2012)**, **Jet Airways (2019)**, and **Go First (2023)** underscores ongoing **financial instability and structural weaknesses** in the sector.
- **Increasing Safety and Compliance Risks:** Rising air traffic, repeated operational breakdowns, and the issuance of **19 safety violation notices by DGCA in 2025** highlight mounting concerns regarding **regulatory compliance and systemic resilience**.

Key Strategies to Strengthen Aviation Industry in India

- **Shift from Short-Term Fixes to Long-Term Reforms:** Replace **ad hoc schedule relaxations** with **institutional strengthening** to ensure the aviation system can handle rising **passenger demand**, projected to reach **715 million by 2030**.
- **Strengthen Regulatory Supervision:** Fill **vacant technical positions** in the **DGCA** and implement **rule-based and risk-based supervision** to improve **safety compliance** and build **regulatory credibility**.
- **Develop Comprehensive Pilot Training Facilities:** Increase **simulator availability**, strengthen **domestic training institutes**, simplify **licensing procedures**, and resolve **type-rating constraints** to meet future **pilot demand** and reduce reliance on **temporary foreign pilots**.

- **Institutionalise Crew Reserve Standards:** Set **minimum spare crew thresholds** aligned with **global norms (20–25%)** to prevent **cascading flight disruptions** during peak travel or operational shocks.
- **Promote Viable Regional Airlines:** Go beyond granting **NOCs** by ensuring **effective UDAN subsidies, priority slots at congested airports**, and coordinated growth of **Tier-II and Tier-III airport infrastructure**, reducing dependence on **dominant carriers**.
- **Optimize Aviation Fuel Policies:** Consider **tax reforms on Aviation Turbine Fuel (ATF)** and explore **fuel hedging strategies** to mitigate **global price volatility** and **currency-linked cost fluctuations**.

Conclusion

To ensure **India's rapid aviation growth** remains secure, the government must move beyond policy and enforce a **"zero-tolerance" approach toward safety violations** within the expanding **non-scheduled sector**. Ultimately, success depends on **bridging the gap between commercial interests and safety standards** through transparent oversight, better pilot training, and robust institutional support.

Q. India's Non-Scheduled Operators (NSOs) sector has witnessed multiple accidents, exposing systemic safety and regulatory gaps. Critically examine the key issues faced by India's aviation industry and suggest strategies for strengthening regulatory oversight and regional connectivity.

(250 words)

2.2. INTERNATIONAL RELATIONS

2.2.1. INDIA-US TRADE DEAL 2026

Context:

- Recently **India and the United States** announced a consequential trade agreement, ending nearly a year of intense **"transactional diplomacy."** Coming shortly after major pacts with the **European Union (EU)** and the **United Kingdom (UK)**, this deal completes a critical pillar of India's **"New Trade Architecture."**
- By reducing reciprocal tariffs to **18%** and securing a **\$500 billion purchase commitment**, the agreement transitions the relationship from a period of **"tariff wars"** to one of strategic economic alignment.



A Growing Network of Trade Partnerships

- **Expansion of Global Trade Architecture:** The India–U.S. trade deal represents a key outcome of India's **expanding international trade network**, reinforcing its position in global commerce.
- **Enhanced Access to Europe:** Trade agreements with the **European Free Trade Association (EFTA)**, the **United Kingdom**, and the **European Union** provide India with **preferential market access across Europe**.
- **Strengthening the Pacific Footprint:** Agreements with **Australia and New Zealand** position India as an important **trade partner in the Pacific region**.

- **Deeper Engagement with West Asia:** Trade pacts with **Oman** and the **United Arab Emirates** have expanded India's **market access in West Asia**.
- **Consolidation in the U.S. Market:** The latest agreement with the **United States** strengthens India's **presence in the American market**, reflecting **deep integration with the global trading system**.

About India-US Trade Relations

The road to the India-US trade deal²⁰²⁶ was characterized by a blend of deep economic integration and acute policy friction.

- **Investment:** The **United States is India's third-largest investor**, with **cumulative FDI inflows of USD 70.65 billion (2000–2025)**.
- **Bilateral Trade Performance:** In **FY25**, **India-U.S. bilateral trade** touched a **record USD 132 billion**, up from **USD 119.71 billion in FY24**, with **India posting a trade surplus of USD 40.82 billion** against the United States.
- **Primary Trading Partnership:** The United States (**largest import market in the world**) remains India's **largest trading partner**, accounting for nearly **one-fifth** of India's total exports, including critical sectors like **Pharmaceuticals, IT services, Engineering goods, and Textiles**.
 - **India's Import from US:** In **FY25**, India's imports from the United States largely consisted of **mineral fuels and oils, precious and semi-precious stones and metals, nuclear reactors and machinery**, and **electrical equipment**.
 - **India's Export to US:** In contrast, India's exports to the US in **FY25** were led by **electrical machinery, precious and semi-precious stones and metals, pharmaceutical products, machinery and mechanical appliances, mineral fuels**, and **articles of iron and steel**.
- **Military Partnership:** **US-India COMPACT (Catalyzing Opportunities for Military Partnership, Accelerated Commerce & Technology)** launched in **2025** introduced **Mission 500** to expand **bilateral trade to USD 500 billion by 2030**, supported by negotiations for a **Bilateral Trade Agreement (BTA)**.

Key Provisions of the India-US Trade Deal 2026

The agreement balances substantial tariff relief for India with massive commercial and energy commitments for the U.S.

- **Expanded Import Commitment by India:** India has undertaken to import **USD 100 billion worth of goods annually from the U.S. for five years**, more than doubling FY25 import levels.
 - The India's import basket will mainly comprise **energy products (oil, gas and coal), aircraft and aircraft components, advanced technology and high-value manufactured goods, precious metals, nuclear-related equipment**, and **select agricultural commodities**.
- **Tariff Rationalisation by the United States:** The U.S. has agreed to reduce tariffs on Indian exports to **18% from the earlier peak of 50%**, significantly improving **market access and price competitiveness** for Indian exporters, particularly in **engineering goods, textiles and auto components**.

- **Safeguarding Sensitive Domestic Sectors:** While expanding market access, India has retained firm protection for **sensitive sectors**, including **genetically modified agricultural products, dairy, poultry, maize, cereals and corn**, reflecting a calibrated trade strategy aligned with **farmer welfare and food security** concerns.

Strategic and Economic Significances of the India-US Trade Deal 2026

- **Managing Trade Imbalances:** The arrangement seeks to address the **U.S. trade deficit in goods**, particularly in agriculture, while for India it **reduces tariff-related pressures** and preserves stable access to the U.S. market.
- **Energy Security and Diversification:** Increased **energy imports from the U.S.** support India's strategy of **diversifying supply sources**, lowering dependence on geopolitically volatile regions and enhancing long-term energy security.
- **Geopolitical Significance:** Beyond economic considerations, the deal reinforces **India-U.S. strategic alignment** amid shifting global trade patterns, supply-chain realignments and **competitive dynamics with China**, with trade increasingly serving as an instrument of **strategic diplomacy**.
- **Enhanced Competitive Position:** With tariffs reduced to **18%**, India now enjoys a **cost advantage** over key competitors such as **Vietnam and Bangladesh (20%)** and **China (30-35%)**.
- **Improved Economic Stability:** By eliminating the risk of a trade confrontation, the deal is expected to **reduce uncertainty**, support **rupee stability**, and **revive FDI** in **India's manufacturing sector**.

Key Concerns of the India-US Trade Deal 2026

- **Strategic Autonomy Concerns:** The effectiveness of the deal is linked to expectations of **reducing Russian oil imports**, which could strain India's **long-standing strategic partnership with Russia**, its major defence supplier, and test India's **multi-alignment and de-hyphenated foreign policy** approach.
- **Risk of Chinese Retaliation:** As India's role as a **strategic counterbalance to China** strengthens, the possibility of **trade retaliation by Beijing** remains, especially given India's dependence on China for **rare earths and pharmaceutical APIs**.
- **Lack of Regional Parity:** India continues to face a relative disadvantage as competitors like **Bangladesh and Vietnam** benefit from **GSP (Generalized System of Preferences) concessions**, which were withdrawn from India in 2019.
- **Domestic Economic Vulnerabilities:** Greater market opening in **dairy and poultry**, if pursued, could expose Indian farmers to **subsidised U.S. agricultural imports**, risking rural distress. Additionally, replacing **discounted Russian oil** with costlier alternatives may raise the **import bill and widen the Current Account Deficit (CAD)**.
- **Regulatory and Technical Barriers:** Despite tariff reductions, stringent **U.S. Sanitary and Phytosanitary (SPS) standards** continue to restrict Indian agri-food and pharma exports, while potential alignment with **US-centric IPR (Intellectual Property Rights) regimes** could escalate healthcare costs.
- **Digital Trade Frictions:** Differences over **data localisation norms** and India's **Digital Personal Data Protection Act (2023)** remain unresolved, as U.S. technology firms seek unrestricted data flows that may conflict with India's **privacy and national security priorities**.

Way Forward: Leveraging the Indo–US Trade Relations for *Viksit Bharat*

- **Preserve Strategic Autonomy with Energy Security:** Balance geopolitical alignment with economic prudence by diversifying energy sources, accelerating the **National Green Hydrogen Mission**, and expanding **nuclear energy including SMRs**, while leveraging trade partnerships for **technology transfer**.
- **Diversify Trade and Export Markets:** Reduce overdependence on the U.S. by fast-tracking **FTAs with the Gulf and East Asian regions**, enabling Indian exporters to access a wider set of stable markets.
- **Safeguard Farmers and MSMEs:** Calibrate tariff commitments through **phased liberalisation and product-specific safeguards** to protect **agricultural livelihoods and small enterprises** from import shocks.
- **Institutionalise the Trade Framework:** Expedite the **India–U.S. Bilateral Trade Agreement (BTA)** to address regulatory barriers, strengthen **semiconductor and pharmaceutical supply chains**, and enhance investment certainty.
- **Leverage Friendshoring for Manufacturing:** Use the **18% tariff advantage** to attract supply chains relocating from China, moving from **assembly-led growth to deep manufacturing** under *Make in India for the world*.
- **Promote Innovation-Driven Growth:** Deepen collaboration under **iCET (Initiative on Critical and Emerging Technology)** in **AI, space and advanced technologies**, align IPR norms for high-tech sectors while retaining public-interest safeguards, and position India as a **global R&D and innovation hub**.

Conclusion

The **India–U.S. Trade Deal 2026** is a historic turning point that replaces transactional friction with a stable, strategic economic alliance between the world's two largest democracies. By securing critical market access and fostering high-tech collaboration, the agreement serves as a powerful catalyst for the **Viksit Bharat 2047** vision, ensuring India's ascent as a self-reliant global manufacturing and innovation hub.

Q. Analyse how the India–US Trade Deal 2026 strengthens India's position in global supply chains while also posing challenges to its strategic autonomy. (250 Words)

2.2.2. INDIA-BANGLADESH RELATIONS

Context:

Following the **BNP's February 2026 landslide victory**, India has pivoted toward a pragmatic "reset." PM Modi's early outreach to **Tarique Rahman** aims to stabilize ties amid demands for **Sheikh Hasina's extradition** and growing Chinese influence.

Historical Background of India-Bangladesh Relations:

1. The Liberation Phase (1971–1975)

- **Birth of a Nation:** India played a decisive role in the **1971 Liberation War**, providing refuge to 10 million people and military support to the **Mukti Bahini**.



- **Early Framework:** Relations were defined by the **1972 Treaty of Friendship** and the **1974 Land Boundary Agreement (LBA)** signed by Indira Gandhi and Sheikh Mujibur Rahman.
- **Sudden Halt:** The 1975 assassination of Sheikh Mujibur Rahman marked a tragic end to this "Golden Start."

2. Strategic Divergence & Military Rule (1975–1996)

- **Tilted Neutrality:** Military regimes (Ziaur Rahman and Gen. Ershad) shifted away from secularism and moved closer to China and Pakistan to counterbalance India.
- **Security Friction:** This era saw the rise of anti-India rhetoric and the use of Bangladeshi soil by **Northeast insurgent groups** (like ULFA).

3. The "Golden Chapter" / Shonali Adhyay (1996–2024)

- **Water & Security:** The 1996 **Ganges Water Sharing Treaty** was a breakthrough.
- **Hasina Era (2009-2024):** Relations peaked.

Key achievements included:

- **2015 LBA Implementation:** Exchange of 162 enclaves, settling the land border.
- **Connectivity Revolution:** Revival of pre-1965 rail links and use of Chattogram/Mongla ports.
- **Zero Tolerance to Terror:** Dhaka's crackdown on Indian insurgents transformed regional security.

4. The Current Crisis & Political Realignment (2024–2026)

The fall of the Sheikh Hasina government has introduced new variables:

- **The 2026 Election Outcome:** With **Tarique Rahman's BNP** securing a two-thirds majority in February 2026, New Delhi has moved quickly to establish ties. PM Modi was among the first to congratulate Rahman, signaling a shift from "party-specific" to "state-specific" diplomacy.
- **The Extradition Dilemma:** A major irritant is the presence of Sheikh Hasina in India. The new Dhaka administration has signaled that her extradition and legal accountability for 2024 events are priorities for "national healing."
- **Rise of New Actors:** The emergence of the **National Citizen Party (NCP)** and the consolidation of **Jamaat-e-Islami** in border districts present fresh security challenges regarding radicalization and "anti-India" sentiment.

Area of Cooperation Between India Bangladesh Relations:

1. Connectivity: The "Land Bridge" to Northeast

- **Rail Links:** Six out of eight pre-1965 rail links have been restored. The **Akhaura-Agartala** link (Tripura) and the **Haldibari-Chilahati** route are key for reducing the "Chicken's Neck" bottleneck.
- **Port Access:** Under the 2023 agreement, India now uses **Chattogram and Mongla ports** to transport goods to Northeast states, cutting transit time by 60%.
- **Inland Waterways:** The **Protocol on Inland Water Transit and Trade (PIWTT)** allows cargo movement through the Ganga-Brahmaputra-Meghna river systems.

2. Economic Cooperation: Moving Toward CEPA

- **Trade Volume:** Bangladesh is India's largest trade partner in South Asia (~\$14bn).
- **CEPA 2026:** Both nations are fast-tracking the **Comprehensive Economic Partnership Agreement (CEPA)**, set to be finalized by late 2026. This is crucial as Bangladesh "graduates"

from Least Developed Country (LDC) status, losing its duty-free access to Indian markets under SAFTA.

- **Border Haats:** These local markets (e.g., Kamalasagar-Tarapur) bolster the border economy and reduce smuggling.

3. Energy & Digital Partnership: The New Frontier

- **Maitree Thermal Power Plant:** This 1320 MW project (a joint venture between India's NTPC and BPDB) became fully operational in early 2026, providing base-load power to Bangladesh.
- **Energy Pipelines:** The **India-Bangladesh Friendship Pipeline** delivers high-speed diesel from Siliguri to Parbatipur, ensuring fuel security for northern Bangladesh.
- **Space & Tech:** Cooperation now includes the **Maitri Satellite** and the integration of India's UPI with Bangladesh's digital payment systems.

4. Security & Water Management

- **Border Security:** Implementation of "Smart Fencing" and AI-driven surveillance on the 4,096 km border to curb illegal infiltration and cattle smuggling.
- **Water Sharing: Ganga Water Treaty:** Set to expire in **December 2026**; technical negotiations for renewal are the top priority.
- **Teesta Dispute:** India is considering a technical team visit to assist in the conservation and management of the Teesta River within Bangladesh as a "middle-path" solution.

Issues Between India Bangladesh Relations:

1. The "Hasina Factor" & Extradition

- **The Dilemma:** Following the **BNP's February 2026 victory**, Dhaka has formally requested the **extradition of Sheikh Hasina** to face trial for "crimes against humanity" (2024 unrest).
- **India's Stand:** New Delhi is in a legal and diplomatic bind, balancing the **Extradition Treaty** obligations against the "political offense" exception and the risk of setting a precedent for former allies.

2. Water Diplomacy: The 2026 Deadlines

- **Ganga Water Treaty:** This landmark 30-year treaty expires in **December 2026**. Negotiations are critical as Bangladesh reports failing to receive its guaranteed share 65% of the time during dry seasons.
- **Teesta Standoff:** Still stalled due to West Bengal's objections. China's proposal for a **\$1 billion Teesta Management Project** near the Indian border is a major strategic "red flag" for India.

3. Border Friction & "Zero Killings"

- **BSF Firing:** Deaths along the 4,096 km border remain a highly emotive issue in Dhaka. The new BNP government has prioritized a "humane border" and the cessation of "shoot-on-sight" policies to cool domestic anti-India sentiment.
- **Illegal Migration:** Continues to be a domestic political flashpoint in India, especially with the upcoming **Assam and West Bengal state elections** in May 2026.

4. The China-Pakistan Strategic Tilt

- **Defense Shift:** Bangladesh is exploring the procurement of **JF-17 fighter jets** (China-Pakistan joint venture) and has established a **direct sea link between Karachi and Chattogram** (Nov 2024).

- **Infrastructure:** China remains Bangladesh's largest trading partner (\$18bn+), using the current diplomatic vacuum to deepen its "Belt and Road" footprint.

5. Minority Safety & Identity Politics

- **Communal Tensions:** India remains concerned about the security of the **Hindu minority** in Bangladesh. Dhaka views India's vocal stance as "interference," leading to a "cool" diplomatic atmosphere

Way Forward:

- **Pragmatic De-hyphenation:** Decouple bilateral ties from the fate of individual leaders. Engaging with the **BNP government (2026)** on equal terms while managing the **Sheikh Hasina extradition** request through a "purely legal and judicial" channel will prevent political fallout.
- **Water Management 2.0:** Prioritize the renewal of the **Ganga Water Treaty (expiring Dec 2026)** and adopt a **basin-wide management** approach for the Teesta, shifting focus from "sharing" to "joint conservation and dredging."
- **Economic Moats (CEPA):** Fast-track the **Comprehensive Economic Partnership Agreement** to protect trade volumes as Bangladesh graduates from LDC status. Integrating UPI and digital payment systems will deepen the "people-to-people" economic bond.
- **Security & "Smart Borders":** Shift from "lethal" to **"Smart Fencing"** and AI-surveillance to reduce border killings—a major emotive issue in Dhaka—while maintaining zero tolerance for insurgency.
- **Competitive Partnership:** Counter China's influence not by demanding exclusivity, but by offering **faster, high-quality, and transparent delivery** of Indian Lines of Credit (LoCs).

Conclusion:

India's "Neighborhood First" success depends on a **resilient, party-agnostic partnership**. By prioritizing **CEPA 2026** and **"Smart Borders,"** New Delhi can transform volatile political shifts into a stable, connectivity-led alliance, ensuring a secure, integrated, and prosperous **Bay of Bengal** region.

Q. Critically examine the compulsions which prompted India to play a decisive role in the emergence of Bangladesh. 250 Words

2.2.3. INDIA AND MALAYSIA RELATIONS

Context:

India and Malaysia have recently elevated their relationship to a **Comprehensive Strategic Partnership**, reflecting a shared vision for a stable Indo-Pacific. This partnership is a cornerstone of **India's Act East Policy**.

Historical Background of the India and Malaysia Relations:

- **Ancient Ties:** Links date back to the 1st century AD through maritime trade, influenced by Buddhism, Hinduism, and later Islam.



- **Colonial Era:** Large-scale migration of Indians (mostly Tamils) occurred during British rule to work in rubber plantations.
- **Diplomatic Launch:** Relations were formally established in 1957 following Malaysia's independence.
- **The "Mahathir" Friction:** Relations faced a diplomatic chill under **PM Mahathir Mohamad (around 2019)** due to his comments on **Article 370** and the **Citizenship Amendment Act (CAA)**, leading to a brief boycott of Malaysian palm oil by Indian traders.

Areas of Cooperation of the India and Malaysia Relations:

1. Economic and Trade Cooperation

- **Trade Volume:** Bilateral trade has reached approximately **\$20 billion** in recent years. Malaysia is **India's 3rd largest trading partner in ASEAN**.
- **Currency Settlement:** In a move to "de-dollarize" bilateral trade, both nations have operationalized a mechanism to settle trade in **Indian Rupees (INR)** through Special Rupee Vostro Accounts (SRVA).
- **Key Commodities:**
 - **India's Imports:** Dominated by **Palm Oil** (India is the **largest buyer**), Mineral Oils, and Electrical machinery.
 - **India's Exports:** Primarily Mineral fuels, Aluminum, Meat products, and Organic chemicals.
- **Investment:** Major Malaysian investments in India include infrastructure (highways/airports) and telecommunications, while Indian IT giants (TCS, HCL, Infosys) have large hubs in Cyberjaya.

2. Defense and Security

- **Hardware & LCA Tejas:** Malaysia has emerged as a top prospective buyer for India's **LCA Tejas** fighter jets. India has also offered to set up a Maintenance, Repair, and Overhaul (MRO) facility in Malaysia.
- **Joint Exercises:**
 - **Harimau Shakti:** Annual military exercise focused on counter-insurgency and jungle warfare.
 - **Samudra Laksamana:** Naval exercise focused on maritime security in the Indo-Pacific.
- **Maritime Security:** Both nations collaborate on patrolling the **Strait of Malacca**, one of the world's most critical maritime "chokepoints."

3. Technology and Digital Economy

- **Semiconductors:** Malaysia is a global leader in **Assembly, Testing, and Packaging (ATP)** of chips. Under the new partnership, India seeks to link its "India Semiconductor Mission" with Malaysia's established ecosystem.
- **Fintech & UPI:** Following the success of UPI in India, both countries are working to integrate **UPI with Malaysia's PayNet** to allow seamless cross-border QR code payments.
- **Digital Public Infrastructure (DPI):** India is sharing its "India Stack" (Aadhar, UPI, DigiLocker) expertise to help Malaysia enhance its digital governance.

4. Energy and Sustainability

- **Green Hydrogen:** With Malaysia's Petronas investing heavily in Indian renewables, both countries are exploring a **Green Hydrogen corridor**.

- **Carbon Capture:** In line with global climate goals, there is emerging cooperation in **Direct Air Capture (DAC)** technology for carbon sequestration and synthetic fuel production.

5. Cultural and People-to-People Ties

- **The Diaspora:** Home to over **2.7 million** People of Indian Origin (PIOs), Malaysia hosts one of the largest Indian diasporas in the world.
- **Education:** Recognition of medical and engineering degrees is a key agenda item to facilitate the movement of professionals.
- **Tourism:** India is one of the top source markets for Malaysian tourism, aided by recent **visa-free entry** initiatives for Indian citizens.

Significance of the India and Malaysia Relations:

1. Strategic and Geopolitical Significance

Malaysia is the "central pillar" of India's **Act East Policy** and the **Indo-Pacific Vision**.

- **Chokepoint Control:** Malaysia sits astride the **Strait of Malacca**, through which nearly **60% of India's trade** to the East passes. Stability here is vital for India's energy and economic security.
- **ASEAN Centrality:** As a founding member of ASEAN, Malaysia's support is crucial for India to balance regional dynamics and ensure a "rules-based order" in the South China Sea.
- **Multipolarity:** Both nations share a vision of a multipolar Asia where no single power (referencing China) dominates the maritime or economic landscape.

2. Economic and Technological Synergy

The relationship is moving "from Palm Oil to Microchips."

- **Semiconductor Value Chain:** Malaysia is the **world's 6th largest semiconductor exporter**, excelling in **Packaging and Testing**. This is critical for the **India Semiconductor Mission** as Indian firms seek to bridge the gap between chip design and the final product.
- **Digital Public Infrastructure (DPI):** Malaysia is a key partner for the internationalization of India's **UPI** and digital governance models.
- **Local Currency Trade:** By settling trade in **INR and Malaysian Ringgit**, both nations are insulating their economies from global dollar fluctuations, a model for the "Global South."

3. The Diaspora: The "Living Bridge"

- **Demographic Weight:** With **2.9 million people of Indian origin** (the **3rd largest** Indian diaspora globally), the community holds significant political and economic power in Malaysia.
- **Strategic Capital:** The diaspora serves as a reservoir of soft power, facilitating trade, cultural exchange, and high-level political trust.
- **Welfare & Mobility:** Recent moves like the extension of **OCI cards to the 6th generation** and **visa-free travel** have solidified this human connection.

4. Defense and Regional Security

- **Net Security Provider:** India's offer of advanced military hardware (LCA Tejas, BrahMos) and maintenance (MRO) facilities positions India as a credible security partner for Malaysia, reducing its dependence on Western or Chinese arms.

- **Counter-Terrorism:** Joint efforts in deradicalization and intelligence sharing are vital for regional stability, especially given the history of extremist movement across the maritime borders.

Challenges in the India and Malaysia Relations:

- **Internal Matters:** Past tensions arose from Malaysia's vocal stance on India's internal policies, specifically the **Abrogation of Article 370 (Kashmir)** and the **Citizenship Amendment Act (CAA)**.
- **The Zakir Naik Issue:** A major point of contention is the extradition of fugitive preacher Zakir Naik. India continues to push for his return, while Malaysia has historically been hesitant, citing the need for "compelling evidence" and legal procedures.
- **Palm Oil Diplomacy:** Trade has often been used as a tool of "economic signaling." India's fluctuating import duties and past unofficial boycotts (due to political statements) create market volatility.
- **Trade Deficit:** India faces a persistent trade deficit with Malaysia. Efforts are ongoing to review the **MICECA** (India-Malaysia Comprehensive Economic Cooperation Agreement) and the **AITIGA** (ASEAN-India Trade in Goods Agreement) to create a more balanced trade environment.
- **South China Sea (SCS):** While both nations favor a "rules-based order" and **UNCLOS**, their approaches differ. Malaysia maintains a cautious, non-confrontational "bureaucratic" approach toward China's incursions, whereas India has become more vocal about maritime security in the Indo-Pacific.
- **ASEAN Centrality:** India's challenge is to align its "Act East Policy" with Malaysia's regional priorities without getting caught in the US-China rivalry.
- **Labor Welfare:** Issues regarding the social security of Indian workers and visa facilitation (like the **2026 Social Security Agreement**) require constant diplomatic management to avoid becoming domestic political flashpoints in either country.

Way Forward

1. Strengthening the "Tech-Bridge"

- **Semiconductor Integration:** India should leverage Malaysia's 50-year expertise in **Outsourced Semiconductor Assembly and Test (OSAT)** to complement its own "India Semiconductor Mission." Creating a joint supply chain corridor can reduce dependence on East Asian giants.
- **Digital Sovereignty:** Scaling up the integration of **UPI and PayNet** will facilitate seamless remittances for the 3-million-strong diaspora and boost small-business trade.

2. Institutionalizing Economic Ties

- **MICECA Review:** Expediting the review of the Malaysia-India Comprehensive Economic Cooperation Agreement is essential to address the trade deficit and include modern chapters on E-commerce and Labor mobility.
- **Local Currency Expansion:** Encouraging more banks to adopt the **INR-Ringgit** settlement mechanism will provide a cushion against global currency volatility.

3. Defense and Maritime Security

- **From Buyer to Partner:** Transitioning from "exercises" to "co-production." If Malaysia selects the **LCA Tejas**, India should establish the proposed MRO (Maintenance, Repair, and Overhaul) hub in Malaysia, serving the wider ASEAN region.
- **Strait of Malacca Cooperation:** Enhanced coordinated patrols and sharing of "White Shipping" (commercial) data under the **SAGAR** initiative to ensure the safety of global sea lanes.

4. Navigating Diplomatic Sensitivities

- **Silent Diplomacy:** Creating a dedicated high-level mechanism to handle sensitive issues like the extradition of **Zakir Naik** or domestic political statements, ensuring they do not derail the broader economic and strategic agenda.
- **ASEAN Leadership:** As Malaysia takes on a leading role in ASEAN, India should use this opportunity to synchronize its **Act East Policy** with Malaysia's regional vision for the South China Sea.

Conclusion:

The India-Malaysia partnership is poised to transcend traditional trade, evolving into a **high-tech alliance**. By integrating **semiconductor supply chains**, digital public infrastructure, and **green energy**, both nations can lead the **Global South**. This synergy will secure the **Strait of Malacca** and anchor a stable, multipolar Indo-Pacific.

Q. Discuss the strategic, economic, and people-to-people dimensions of relations between India and Malaysia. What are the major challenges in the relationship, and how can they be addressed? 250 words

2.2.4. INDIA GREECE RELATION

Context:

The relationship between India and Greece has undergone a paradigm shift, evolving from a historical and cultural association into a **Strategic Partnership**. As both nations sit at the crossroads of critical maritime corridors, their synergy is vital for the emerging Indo-Pacific and Mediterranean security architecture.



Historical Timeline: India-Greece Relations

1. Ancient Origins (4th – 1st Century BCE)

- **The Alexander Catalyst (326 BCE):** Alexander the Great's arrival at the Beas River marked the first formal contact. The established **Satrap (Provinces)** created a permanent Greek presence in Northwest India.
- **Mauryan Diplomacy:** The defeat of Seleucus Nicator by Chandragupta Maurya led to the first known international matrimonial alliance and the appointment of **Megasthenes**, whose work **Indica** remains a foundational text for Indian history.
- **Indo-Greek Synthesis:** The reign of **Menander I (Milinda)** saw the birth of the **Milinda Panha**, a philosophical dialogue merging Greek logic with Buddhist tenets.

2. Cultural & Intellectual Fusion

- **Gandhara School of Art:** A unique Greco-Buddhist artistic style where Indian spiritual themes were rendered with Greek physical realism (e.g., **Buddha portrayed with curly hair and muscular features like Apollo**).
- **Science & Astronomy:** Exchange of knowledge was profound; Indian astronomy (**Gargi Samhita**) openly acknowledges Greek mastery in the field.
- **Philosophy:** Parallel developments in **Stoicism (Greece)** and **Upanishadic thought (India)** suggest deep intellectual cross-pollination.

3. Trade & The Colonial Gap

- **Maritime Silk Route:** During the Roman/Byzantine eras, Greeks acted as primary intermediaries for Indian spices and silk.
- **Merchant Communities:** In the 1770s, Greek traders established a presence in **Kolkata and Dhaka**. The Greek Orthodox Church in Kolkata (1780) stands as a legacy of this era.

4. Modern Era (1947 – Present)

- **Establishment of Ties (1950):** Formally entered diplomatic relations post-independence.
- **Strategic Reliability (1998):** Greece stood out by **refusing to condemn India's nuclear tests** (Pokhran-II), reinforcing trust during a period of global isolation.
- **Diplomatic Reciprocity: India:** A "**quid pro quo**" of diplomatic support has defined the modern era. India supports Greece on the **Cyprus issue**, while Greece consistently supports India's position on **Kashmir** and its claim for a permanent seat at the UNSC.

Area of Cooperation of the India Greece Relations

1. Defense and Security Cooperation

Defense is the strongest pillar of the upgraded **Strategic Partnership** (2023).

- **Joint Exercises:** Regular participation in high-stakes drills like **Exercise Iniochos** (Air Force) and **Exercise Tarang Shakti**.
- **Maritime Security:** Both nations advocate for **UNCLOS** (United Nations Convention on the Law of the Sea) and a "Free and Open Indo-Pacific." They collaborate on anti-piracy and security in the Mediterranean and Indian Ocean.
- **Defense Industry:** Moving from buyer-seller relationships to **joint production** of defense equipment and maintenance of hardware (especially aircraft).

2. Connectivity and Infrastructure (IMEC)

Greece is India's "**Gateway to Europe**" via the Mediterranean Sea.

- **IMEC Corridor:** The **India-Middle East-Europe Economic Corridor** is a game-changer. Greece's **Port of Piraeus** is a leading candidate to be the primary European entry point for Indian goods.
- **Civil Aviation:** Increased focus on direct flight connectivity to boost tourism and business exchange.

3. Economic and Trade Relations

- **Trade Target:** Both nations have committed to **doubling bilateral trade by 2030** (currently ~\$2 billion).
- **Key Sectors:**

- **Shipping:** Utilizing Greek expertise in global shipping (Greece owns roughly 20% of the world's merchant fleet).
- **Agriculture:** Joint ventures in food processing and cold storage.
- **Infrastructure:** Indian firms (like GMR) are actively building major infrastructure in Greece, such as the **Kastelli Airport** in Crete.

4. Energy and Climate Change

- **International Solar Alliance (ISA):** Greece joined the ISA in 2021, marking a shift toward renewable energy collaboration.
- **Green Hydrogen:** Both nations are exploring the production of green fuels for shipping.

5. Migration and Mobility

- **MMPA:** A **Migration and Mobility Partnership Agreement** is being finalized to facilitate the movement of skilled professionals, students, and workers while curbing illegal migration.

6. Science and Technology

- **Space Cooperation:** Discussions between **ISRO** and the **Hellenic Space Center** for satellite tracking and maritime surveillance.
- **Digital Economy:** Cooperation in **UPI** (Unified Payments Interface) integration and FinTech to ease transactions for Indian tourists and businesses in Greece

Significance of the India-Greece Relationship

1. Geopolitical Significance: The "Counter-Axis" Strategy

- **The Turkey Factor:** Turkey's growing "Triple Axis" with **Pakistan and Azerbaijan** (supporting each other on Kashmir and Nagorno-Karabakh) has pushed India to seek reliable partners in the Eastern Mediterranean. Greece, having its own tensions with Turkey, is a natural strategic counterweight.
- **Support on Core Issues:** Greece is a consistent supporter of India's stance on **Kashmir**, while India reciprocates by supporting Greece on the **Cyprus dispute**. This "sovereignty-based" mutual support is a bedrock of their diplomacy.

2. Geo-economic Significance: The Gateway to Europe

- **IMEC Terminal:** With the **India-Middle East-Europe Economic Corridor (IMEC)**, India needs a stable entry point into the European Single Market. The Greek **Port of Piraeus** (one of the largest in the Mediterranean) serves as the most logical logistical terminus for Indian goods.
- **Alternative to BRI:** Strengthening ties with Greece helps India provide an alternative to China's "Belt and Road Initiative" (BRI), as China currently holds a significant stake in Piraeus.

3. Maritime & Security Significance

- **Mediterranean Footprint:** As India expands its naval reach, Greece provides a "home base" in the Mediterranean. Joint exercises in these waters allow the **Indian Navy and Air Force** to project power far beyond the Indian Ocean.
- **Adherence to UNCLOS:** Both nations are vocal proponents of the **United Nations Convention on the Law of the Sea (UNCLOS)**, countering unilateral territorial claims by aggressive neighbors (China in the South China Sea and Turkey in the Aegean Sea).

4. Energy & Sustainability Significance

- **Green Shipping:** Greece owns nearly **20% of the world's merchant fleet**. Collaboration in **Green Hydrogen** is significant for decarbonizing global shipping routes.
- **Energy Transit:** Greece is positioning itself as an energy hub for Europe (via the EastMed pipeline). Partnering with Greece gives India a seat at the table in Mediterranean energy politics.

5. Demographic & Labor Significance

- **Migration Management:** Greece faces a labor shortage in agriculture and construction, while India has a surplus of skilled and semi-skilled labor. The **Migration and Mobility Partnership** ensures a legal, regulated flow of people, benefiting both economies and reducing illegal migration.

Challenges of the India Greece Relation

1. The "China Factor" in Greece

- **Port of Piraeus:** A major challenge is that the **COSCO Shipping** (a Chinese state-owned enterprise) owns a majority stake (67%) in the Port of Piraeus.
- **Strategic Conflict:** Since Piraeus is the intended terminal for the **IMEC**, China's control over the infrastructure could pose security and operational risks for Indian trade interests.
- **Investment Competition:** China has been a primary investor in Greece during its debt crisis, making it difficult for Greece to completely decouple from Beijing's economic influence.

2. Regional Volatility and IMEC Implementation

- **The Middle East Crisis:** The IMEC corridor (India-UAE-Saudi Arabia-Jordan-Israel-Greece) relies heavily on stability in West Asia. Ongoing conflicts (like the Israel-Hamas-Hezbollah situation) threaten the viability of the rail and sea links required to reach Greek shores.
- **Logistical Gaps:** There is still a lack of seamless rail-to-ship connectivity between the various transit points of the corridor.

3. The Turkey-Pakistan-Azerbaijan Axis

- **Security Pressures:** Turkey's aggressive stance in the Eastern Mediterranean and its military-political alignment with Pakistan forces Greece and India into a defensive posture.
- **Balancing Act:** While this brings India and Greece closer, it also complicates India's broader relations in the Islamic world, as Turkey remains an influential regional player.

4. Economic and Trade Bottlenecks

- **Low Bilateral Trade:** Despite the potential, trade stands at roughly **\$2 billion**, which is significantly lower than India's trade with other European partners like France or Germany.
- **Regulatory Hurdles:** Indian exporters often face stringent **EU sanitary and phytosanitary (SPS) standards**, which act as non-tariff barriers for agricultural and pharmaceutical products.
- **Limited Direct Connectivity:** The lack of frequent direct flights and shipping lines currently increases the "cost of doing business."

5. Technological and Environmental Costs

- **High Cost of Green Transition:** While both nations are keen on **Direct Air Capture (DAC)** and Green Hydrogen, these technologies are currently expensive.

- **R&D Gap:** Scaling DAC from a niche experiment to a mainstream source for **synthetic low-carbon fuels** in the shipping industry requires massive capital investment that neither nation has fully committed yet.

Way Forward

- **Diversifying Infrastructure:** To mitigate the "China Factor" at Piraeus, India should invest in and utilize alternative Greek ports such as **Thessaloniki** or **Alexandroupolis**, ensuring multiple gateways into Europe.
- **Operationalizing IMEC:** India must lead diplomatic efforts to stabilize the "Middle-East segment" of the corridor while fast-tracking the digital and physical integration of customs and rail links.
- **Defense Industrial Integration:** Shift from joint exercises to **joint manufacturing**. Establishing "Maintenance, Repair, and Overhaul" (MRO) hubs in Greece for Indian-made platforms can serve the broader Mediterranean and European markets.
- **Green Technology Leadership:** Leverage the **International Solar Alliance** to scale **Direct Air Capture (DAC)** technology. This can transform the Greek shipping fleet into a leader in **synthetic low-carbon fuels**, fulfilling both nations' **net-zero commitments**.
- **Institutionalizing Mobility:** Early implementation of the **Migration and Mobility Partnership Agreement (MMPA)** to provide Greece with skilled labor in sectors like IT, nursing, and agriculture, while protecting the rights of Indian workers.
- **Soft Power Synergy:** Utilize the shared **Greco-Buddhist heritage** (Gandhara Art) and the International Day of Yoga to increase people-to-people ties and boost the tourism circuit between Athens and Buddhist sites in India.

Conclusion

The India-Greece partnership is a cornerstone for **Viksit Bharat @2047**, transforming the Mediterranean into a "maritime bridge" for Indian aspirations. By integrating the **IMEC** with Greek logistics and pioneering **Green Hydrogen** technologies, both nations can lead the global energy transition, securing India's role as a **Vishwa Mitra** and an economic powerhouse.

Q. "In the context of India–Greece relations, critically examine the key drivers behind their recent transformation and analyse the strategic significance of this partnership for India's European and Indo-Pacific outreach." 250 words

2.2.5. INDIA FRANCE RELATION

Context: Recently India and France elevated their ties to a "**Special Global Strategic Partnership**". Key highlights include the launch of the **2026 Year of Innovation**, a 10-year defense cooperation renewal, and a Joint Declaration on **Critical Minerals**

Historical Background of India France Relation

1. Early Post-Independence (1947–1962)



- **Decolonization with Grace:** Unlike the Portuguese in Goa, France chose a peaceful diplomatic path to cede its Indian territories (**Puducherry, Karaikal, Mahe, and Yanam**). The Treaty of Cession was signed in 1956 and ratified in 1962.
- **Defense Beginnings:** Cooperation started as early as 1953 with the induction of **Dassault Ouragan** (Toofani) aircraft into the IAF.

2. Cold War Era: The "Reliable Alternative"

- While India practiced Non-Alignment, France emerged as a key technology partner that didn't come with the "strings" attached to the US or USSR.
- **Space (1960s-70s):** France helped ISRO establish the **Sriharikota** launch facility and shared critical rocket engine technology (the **Viking** engine became the basis for India's **Vikas** engine).
- **Nuclear Support (1980s):** In 1984, when the US backed out of supplying nuclear fuel for the **Tarapur** plant (due to domestic laws), France stepped in to provide the fuel, ensuring India's energy security.

3. The 1998 Turning Point (Strategic Partnership)

- **First Strategic Partner:** In January 1998, France became the **first country** to sign a Strategic Partnership with India.
- **Pokhran-II Support:** After India's 1998 nuclear tests, while the US and others imposed sanctions, France **refused to impose bilateral sanctions** and instead opened a high-level "Strategic Dialogue." This earned France lasting trust in New Delhi.

4. Post-2000s: Deepening Global Alignment

- **Civil Nuclear Deal (2008):** Following the NSG waiver, France was the first country to sign a bilateral civil nuclear cooperation agreement with India.
- **Climate Leadership (2015):** The joint launch of the **International Solar Alliance (ISA)** at COP21 in Paris shifted the relationship from bilateral cooperation to global leadership.
- **Indo-Pacific Pivot (2018):** Adoption of the "Joint Strategic Vision of India-France Cooperation in the Indian Ocean Region" cemented France's role as India's primary partner in the maritime domain.

Key Pillars of Cooperation of India France Relation

I. Pillar of Security & Sovereignty

- Focus has shifted from "Buyer-Seller" to "**Co-development and Co-production**".
- **Defense Industrial Roadmap (2026-2036):** A 10-year renewal focusing on 100% technology transfer.
 - **Air: Safran-HAL JV** for the 110kN engine (for AMCA); **H125 Helicopter Assembly Line** (Tata-Airbus) in Karnataka—India's first private-sector chopper plant.
 - **Naval:** Procurement of **26 Rafale-M** jets and **3 additional Scorpene submarines** to bolster the Indian Navy.
 - **Missiles: BEL-Safran JV** for domestic production of **HAMMER** air-to-ground missiles.
- **Space: TRISHNA mission** (thermal imaging) and satellite-based Maritime Domain Awareness for the Indian Ocean.
- **Strategic Autonomy:** Both nations act as a "Third Way" alternative to the US-China bipolarity.

II. Pillar of Technology & Innovation (The "New" Digital Era)

- The year **2026** is designated as the "**India-France Year of Innovation**".
- **Artificial Intelligence: AI Impact Summit (New Delhi, 2026):** Focus on "AI for Global Good."
- **Indo-French Centre for AI in Health:** Launched at **AIIMS, New Delhi**, for AI-driven diagnostics.
- **Digital Infrastructure:** Expansion of **UPI in France** and the launch of the **Indo-French Innovation Network** (digital platform by IFCCI and Capgemini).
- **Critical Minerals: A Joint Declaration (2026)** to secure supply chains for Lithium, Cobalt, and Rare Earths, vital for the green transition.

III. Pillar of Planet & Global Issues

- **Civil Nuclear 2.0:** A pivot toward **Small Modular Reactors (SMRs)** and Advanced Modular Reactors (AMRs) to complement the Jaitapur project.
- **International Solar Alliance (ISA):** Continued leadership in global solar adoption.
- **Blue Economy:** Roadmap for sustainable fisheries and "Eco-Ports" infrastructure.
- **Green Hydrogen:** Strategic partnership aimed at making India a production hub.

IV. Pillar of Partnership for People

- **Education:** Target of **30,000 Indian students** in France by 2030.
- **Mobility:** Amendment of the **Double Tax Avoidance Agreement (DTAA)** in 2026 to facilitate the movement of professionals.
- **Culture:** France is a primary partner for India's **National Museum** project.

V. Geopolitics: The Indo-Pacific & Multilateralism

- **Synergy of Chairs:** In 2026, **France (G7 President)** and **India (BRICS President)** aligned agendas on global debt, climate finance, and AI governance.
- **Triangular Cooperation:** The **Indo-Pacific Triangular Development Fund** for supporting Pacific Island nations.
- **IMEC:** Commitment to the India-Middle East-Europe Economic Corridor as a resilient supply chain alternative.

Challenges of India-France Relation

1. The Nuclear Liability Deadlock (Jaitapur)

- **The Issue:** Despite being proposed in 2008, the **Jaitapur Nuclear Power Project** (10,380 MW) remains stalled.
- **The Barrier:** India's *Civil Liability for Nuclear Damage Act (2010)* makes suppliers liable for accidents. French firm **EDF** is hesitant to take on this financial risk, leading to a shift in focus toward **Small Modular Reactors (SMRs)** instead.

2. Trade & Economic Underperformance

- **The Issue:** Bilateral trade (approx. \$15 billion) is significantly lower than India's trade with Germany or the USA.
- **The Barrier:** The absence of an **India-EU Free Trade Agreement (FTA)**. Negotiations are often hampered by "non-trade" issues like labor standards, environmental norms, and data privacy regulations favored by the EU/France.

3. Strategic "Asymmetry" in Global Conflicts

- **Russia-Ukraine:** While France is a core NATO member taking a hard line against Russia, India maintains a "nuanced" stance. This creates occasional diplomatic friction in joint statements.
- **China Paradox:** France has significant economic interests in China. India occasionally worries that France's pursuit of "European Strategic Autonomy" might lead to a softer approach toward Chinese assertiveness in the Indo-Pacific.

4. Technology Transfer (ToT) Hurdles

- **The Issue:** While the "Make in India" defense roadmap is ambitious, the **depth of technology transfer** remains a point of negotiation.
- **The Barrier:** French firms are often protective of "black-box" technologies (like jet engine source codes). Moving from "Assembly" to "Full Intellectual Property (IP) Sharing" is a slow and politically sensitive process.

5. Regional Instability & Connectivity

- **IMEC Challenges:** The **India-Middle East-Europe Economic Corridor (IMEC)**, championed by both, faces severe security risks due to ongoing instability in West Asia (Red Sea crises), threatening its commercial viability.

Way Forward

1. Strategic & Geopolitical Alignment

- **Operationalizing IMEC:** Prioritize the first Ministerial Meeting in 2026 to transform the **India-Middle East-Europe Economic Corridor** from a vision into a physical, secure trade reality.
- **UNSC & Global Governance:** France should intensify joint lobbying for **UN Security Council reforms**, actively advocating for India's permanent membership to reflect the 21st-century multipolar reality.
- **Africa Forward:** Leverage the **2026 Nairobi Summit** (Africa-France-India) to co-invest in digital health, agriculture, and solar energy across the African continent.

2. Defense & Technological Sovereignty

- **Beyond Procurement:** Transition fully to the **Joint Advanced Technology Development Group** (established in 2026) to ensure 100% Intellectual Property (IP) sharing for critical aero-engines (Safran-HAL) and underwater drones.
- **Export Hub:** Utilize the newly inaugurated **H125 Helicopter Assembly Line** (Karnataka) as a springboard to make India a primary export hub for French-origin defense platforms to the Global South.

3. Energy & Nuclear Workarounds

- **SMR Priority:** Given the liability deadlock at Jaitapur, fast-track the **Bharat-French SMR (Small Modular Reactor)** partnership. These are factory-built, lower-risk, and easier to finance, providing a pragmatic path toward India's 100 GW nuclear target by 2047.
- **Green Hydrogen Ecosystem:** Establish joint standards and supply chains to integrate Indian green hydrogen production with French industrial demand.

4. Digital & Innovation Leadership

- **Democratizing AI:** Use the **2026 AI Impact Summit** outcomes to bridge the "Global AI Divide," ensuring that AI tools developed by the Indo-French partnership are open-source and accessible to developing nations.
- **DPI Diplomacy:** Scale the success of UPI in France (Eiffel Tower/Galleries Lafayette) to other EU nations, positioning Indo-French digital cooperation as a global model for Digital Public Infrastructure.

Conclusion

"The India-France partnership is no longer just about protecting each other's interests; it is about **co-designing global sovereignty**. By resolving the nuclear liability issue through SMRs and aligning their Indo-Pacific strategies through the **Triangular Development Fund**, India and France can act as the 'stabilizing poles' of an increasingly volatile world."

Q. "India–France Strategic Partnership has evolved from a buyer–seller defence relationship to a comprehensive techno-strategic collaboration." Examine the significance of this transformation in the context of recent developments. (250 words)

2.2.6. AMBIGUITIES IN THE U.S.–INDIA TRADE DEAL

Context:

- The interim U.S.–India trade deal marks a key step in strengthening bilateral economic ties.
- It aims to reduce recent trade tensions and revive broader trade negotiations.
- However, concerns remain over tariff concessions, agricultural safeguards, NTBs, and policy autonomy.



Background

India and the United States initiated negotiations for a bilateral trade agreement after a period of strained trade relations. The tensions were triggered by higher U.S. tariffs on Indian exports and additional duties linked to geopolitical considerations.

The interim agreement aims to reduce certain tariffs and address "long-standing concerns" in bilateral trade.

Key features include:

- U.S. reduction of tariffs on select Indian exports.
- India's commitment to reduce tariffs and non-tariff barriers on various U.S. industrial and agricultural products.
- Indications of increased Indian purchases of U.S. goods such as energy and aircraft.

The arrangement is positioned as a confidence-building step toward a more comprehensive trade deal.

Significance of the Interim Trade Deal

- 1. Strengthening Bilateral Economic Architecture:** The deal reinforces the economic pillar of the India–U.S. strategic partnership, complementing cooperation in defence, technology, semiconductors, and critical supply chains.
- 2. Supply Chain Diversification:** Amid global supply chain realignments, closer India–U.S. trade ties may enhance resilience and reduce overdependence on single geographies.
- 3. Boost to Export-Led Growth:** Improved access to the U.S.—India’s largest export destination—can support India’s ambition of expanding manufacturing under initiatives like *Make in India*.
- 4. Geopolitical Signalling:** The agreement signals India’s continued engagement with major global economies while navigating a complex geopolitical environment.
- 5. Precursor to a Comprehensive FTA:** As an interim arrangement, it may serve as a testing ground for deeper trade liberalisation in the future.

Potential Gains for India

- 1. Improved Market Access:** Lower U.S. tariffs could benefit Indian labour-intensive sectors such as textiles and apparel. Enhanced access to the U.S. market may boost exports and employment.
- 2. Trade Stabilisation:** The agreement may reduce uncertainty in bilateral trade relations, providing predictability for exporters and investors.
- 3. Strategic Economic Alignment:** Closer economic engagement strengthens the broader India–U.S. strategic partnership, which includes cooperation in defence, technology, and supply chains.

Key Areas of Ambiguity

- 1. Agricultural Safeguards:** Agriculture remains a sensitive sector for India due to:
 - The dominance of small and marginal farmers.
 - Concerns related to price stability and livelihood security.
 - The interim deal does not clearly confirm tariff protection for sensitive crops like cereals. Earlier FTAs safeguarded these sectors.
 - Lack of clarity increases uncertainty about exposure to U.S. agricultural competition.
- 2. Non-Tariff Barriers (NTBs) and GM Imports**
 - The U.S. has consistently objected to India’s restrictions on genetically modified (GM) food imports, considering them trade barriers.
 - The agreement refers to resolving “long-standing concerns,” but it remains unclear whether India’s regulatory framework on GM products will be modified.
- 3. Tariff Asymmetry**
 - India appears to be reducing tariffs and NTBs across a broader range of products.
 - The U.S. retains the ability to impose or reimpose tariffs under certain conditions.
 - Since U.S. tariffs were already low, India’s larger tariff cuts may create an imbalance, raising concerns about fairness and proportionality in the trade agreement.

4. Conditional Trade Pressures

- Reports suggest the possibility of renewed U.S. tariffs linked to India's external trade decisions, such as energy imports from specific countries.
- If trade measures are used to influence domestic economic choices, it may affect policy autonomy.

5. Impact on Farmers and Vulnerable Groups: India's agricultural sector employs nearly half of the workforce. Increased exposure to highly mechanised and subsidised U.S. agriculture could:

- Depress domestic prices
- Affect income stability
- Increase rural distress

6. Institutional and Legal Dimensions: Some U.S. tariff measures have faced legal scrutiny domestically. Negotiating concessions in response to potentially contestable measures introduces uncertainty.

- Legal due diligence in trade negotiations
- Transparency in commitments
- Parliamentary oversight

Way Forward

1. **Clear Safeguards for Sensitive Sectors:** India should ensure explicit protection for sensitive agricultural products through tariff rate quotas, safeguard clauses, and phased liberalisation mechanisms.
2. **Strengthening Domestic Competitiveness:** Rather than relying solely on tariff protection, India must enhance agricultural productivity, invest in value chains, improve storage and logistics, and support small farmers through technology and institutional reforms.
3. **Transparent Negotiations:** Greater transparency in trade commitments and structured parliamentary scrutiny can enhance accountability and public trust.
4. **Preserve Regulatory Autonomy:** India must maintain its right to regulate in areas of food safety, environmental protection, and public health, consistent with WTO norms.
5. **Diversification of Trade Partnerships:** Reducing overdependence on any single market by diversifying trade relations with the EU, ASEAN, Africa, and other regions will strengthen bargaining power.
6. **Strategic Calibration:** Trade policy should align with long-term developmental goals, including Make in India, Atmanirbhar Bharat, and sustainable agriculture.

Conclusion

The interim U.S.–India trade deal improves market access and stabilises ties but leaves concerns over agricultural safeguards, regulatory autonomy, and balanced concessions. India must ensure transparent negotiations and protect vulnerable sectors while aligning trade commitments with long-term developmental and strategic interests.

Q. *Examine the potential benefits and concerns arising from the interim U.S.–India trade deal. How can India balance trade liberalisation with protection of vulnerable sectors? (150 words)*

2.2.7. THE EVOLVING NATURE OF GLOBAL TRADE AGREEMENTS

Context: Global trade is shifting from **WTO-led multilateralism** to **bilateral FTAs** and imperial **Agreements on Reciprocal Trade (ARTs)**, prioritizing unilateral interests and digital control over non-discriminatory, rules-based international cooperation.

The Three Typologies of International Trade Deals

1. Multilateralism (The WTO Era)

- This is the "gold standard" of the post-WWII global order, governed by the **World Trade Organization (WTO)** and the **General Agreement on Tariffs and Trade (GATT)**.
- **Core Principle:** The **Most-Favoured-Nation (MFN)** rule. If a country grants a trade favor (like a 5% tariff) to one member, it must immediately extend that same favor to all other 160+ WTO members.
- **The Goal:** To create a non-discriminatory, rules-based system where large and small nations follow the same playbook.
- **Scope:** Broadly covers goods, services (**GATS**), and intellectual property (**TRIPS**).
- **Democratic Agency:** Features a "one-country-one-vote" system, allowing developing nations like India to form coalitions and bargain against superpowers.

2. Preferentialism (FTAs and Customs Unions)

- While the WTO emphasizes non-discrimination, **Article XXIV of GATT** provides a legal "escape hatch." It allows countries to sign deals that give special treatment to specific partners.
- **Free Trade Agreements (FTAs):** Signatories eliminate tariffs among themselves but maintain their own individual tariffs for the rest of the world (e.g., India-UAE CEPA, RCEP).
- **Customs Unions (CUs):** Members not only eliminate internal tariffs but also adopt a **Common External Tariff (CET)** for non-members (e.g., the European Union).
- **"WTO-Plus" Features:** Modern FTAs often include chapters that the WTO hasn't fully mastered, such as **environmental standards, labor laws, and digital trade rules**.

3. Reciprocal Trade (The "ART" Model)

- The most recent and controversial typology, championed by the **Trump administration** (and now adopted as a strategy in various forms), is the **Agreement on Reciprocal Trade (ART)**.
- **Philosophy:** Moves away from "trade liberalization" toward **"strict reciprocity."** It is a tit-for-tat model: "If your tariff on our cars is 20%, ours on yours will also be 20%."
- **Legal Status:** These are often signed **outside** of the WTO's Article XXIV framework. Because they aren't notified to the WTO, they lack transparency and cannot be scrutinized by other nations.



- **"Imperial" Nature:** These deals often include "One-Sided" clauses. For example, a partner country might be forced to adopt U.S. national security trade restrictions or surrender **data sovereignty** (the right to tax digital services like Netflix or Google).
- **The "Shadow" Factor:** ARTs are often negotiated under the threat of unilateral, high-penalty tariffs, making them power-based rather than rules-based.

Key Shifts in Trade Dynamics

1. Geopolitical Reconfiguration

Traditional trade models were built on **comparative advantage** (producing where it's cheapest). Today, "efficiency" is being replaced by "**resilience**" and "**security**."

- **Friend-shoring:** Nations are redirecting supply chains toward "politically aligned" partners to mitigate risks from adversaries.
- **Decoupling & De-risking:** The U.S. and EU are actively reducing dependence on China, especially in critical sectors like semiconductors, rare earth minerals, and green energy.
- **Trade Rerouting:** While U.S. imports from China fell by ~20% in 2025, imports from **ASEAN (especially Vietnam)** surged, suggesting that Chinese goods are being "rerouted" or processed through intermediary countries to bypass tariffs.

2. The Weaponization of Tariffs

Tariffs are no longer just economic tools to protect domestic industry; they have become **strategic weapons**.

- **Unilateralism:** The 2024–2026 period has seen a massive spike in manufacturing tariffs, notably a global trend sparked by the U.S. "Liberation Day" reciprocal tariffs.
- **Reciprocity over Liberalization:** The shift toward **Agreements on Reciprocal Trade (ARTs)** marks a departure from the "win-win" philosophy of FTAs. These agreements often force partners to lower their tariffs while the dominant power maintains its protectionist barriers.

3. Digital Sovereignty vs. Data Flows

In the 20th century, trade was about containers; in the 21st, it is about **data bytes**.

- **The E-commerce Moratorium:** Developing nations (led by India and South Africa) have challenged the WTO moratorium on customs duties for electronic transmissions, arguing it results in massive revenue loss.
- **Restrictive Digital Clauses:** New ARTs often include clauses that **prohibit data localization** and **ban digital taxes** (like India's Equalisation Levy), stripping nations of their "Digital Sovereignty"—the ability to regulate and tax their own digital markets.

4. "Green" Protectionism

Climate change is the new frontier for trade barriers.

- **CBAM (Carbon Border Adjustment Mechanism):** The EU's carbon tax on imports ensures that "green" domestic products aren't undercut by "dirty" imports from countries with lax environmental laws.
- **Sustainability Standards:** Trade deals now mandate adherence to high labor and environmental standards, which developing nations often view as "**non-tariff barriers**" designed to keep their goods out of Western markets.

Strategic Implications for India

1. The "Dual Axis" Strategy: EU vs. USA

India balances two distinct models:

- **EU Axis (Formal Multi-alignment):** The India-EU **FTA** emphasizes rules-based trade, eliminating tariffs on **96% of goods** to reduce Chinese dependency.
- **U.S. Axis (Transactional Reciprocity):** A narrower **Bilateral Trade Agreement (BTA)** focuses on specific tariff disputes (steel/aluminum) and energy security (LNG/Crude) rather than deep structural integration.

2. Digital Sovereignty: The "Red Line"

India maintains a strict stance on protecting its digital borders:

- **Refusal of "Data Free Flow":** India rejects trade clauses (U.S./UK) that ban **data localization**, ensuring domestic control.
- **The Delhi Declaration (2026):** At the AI Impact Summit, India opposed "**AI extractivism**," advocating for sovereignty over data to prevent foreign firms from harvesting local data for profit.

3. Friend-Shoring and "De-risking" from China

India positions itself as the primary global alternative to China:

- **Trusted Source Strategy:** Participation in the **Critical Minerals Ministerial** secures raw materials for EVs and semiconductors, slashing reliance on Chinese imports.
- **Selective Integration:** By avoiding the China-led **RCEP** and prioritizing "democratic partners" (UK, EU, UAE), India pursues a strategy of values-based globalization.

4. Impact on Domestic Policy: Atmanirbharta 2.0

Trade negotiations are now a direct extension of internal economic policy:

- **PLI Scheme Alignment:** Negotiators protect **Production Linked Incentive (PLI)** sectors (solar, white goods) by ensuring tariff cuts do not hurt domestic capacity.
- **Rare Earth Corridors: Budget 2026** introduced mineral corridors to link international raw material procurement directly to domestic manufacturing hubs.

Conclusion

India's shift toward **Strategic Pragmatism** secures its digital and energy sovereignty, positioning the nation as a resilient, trusted hub within a fragmented global order through high-standard, value-based trade partnerships.

Q. The global trade architecture is witnessing a shift from rule-based multilateralism to power-driven bilateralism. Examine this transformation in the context of WTO, Free Trade Agreements (FTAs), and Agreements on Reciprocal Trade (ARTs). Discuss the implications for developing countries. (250 words)

2.2.8. INDIA-BRAZIL RELATIONS

Context: During Brazilian President Lula's February 2026 state visit, India and Brazil agreed to deepen strategic ties with critical minerals/rare-earth cooperation and aim to raise bilateral trade above \$20 billion, boosting Global South cooperation.



Historical Background: India-Brazil Relations

- **1948:** Diplomatic relations established; India was one of the first to recognize Brazil's independence (from Portugal) and vice-versa.
- **Decolonization Era:** Both nations shared a strong commitment to the **Non-Aligned Movement (NAM)** and anti-colonialism.
- **Post-Cold War Shift:** Relations deepened in the 1990s as both liberalized their economies and sought a greater voice in global governance.
- **2003 (IBSA):** Formation of the **India-Brazil-South Africa (IBSA)** Dialogue Forum, institutionalizing South-South cooperation.
- **2006 (Strategic Partnership):** Formalization of a "Strategic Partnership," expanding ties into space, defense, and nuclear energy.
- **Multilateral Alignment:** Co-founding members of **BRICS** (2009) and the **G4** (advocating for UNSC reform), cementing their roles as regional leaders.

Key Pillars of Cooperation in the India-Brazil Relations

1. Digital Transformation and Emerging Tech

This is the newest and most dynamic pillar, described as a "Digital Superpower (India) meeting a Renewable Superpower (Brazil)."

- **Digital Partnership for the Future:** A landmark agreement signed during President Lula's 2026 visit to share India's **Digital Public Infrastructure (DPI)** (UPI, Aadhaar) to help Brazil bridge its digital divide.
- **AI Alliance:** Collaboration on **Artificial Intelligence (AI)** governance and ethics, focusing on "inclusive technology" for the Global South.
- **Open Planetary Intelligence Network (OPIN):** Launched to leverage digital tools for sustainable development and climate action.

2. Energy Transition and Climate Change

Both nations are co-leading the global green agenda through the **Global Biofuel Alliance (GBA)**.

- **Biofuels & SAF:** Focus on harmonizing global standards for ethanol blending and creating a **Sustainable Aviation Fuel (SAF)** corridor.
- **Belém 4x Pledge:** A commitment to expand sustainable fuel use fourfold by 2035.
- **Green Hydrogen:** Joint research into green hydrogen production and storage technologies.

3. Defense and Security

Defense has shifted from buyer-seller relations to joint **co-design and co-production**.

- **Aerospace:** MoU between **Adani Group and Embraer** (2026) to set up a Final Assembly Line for regional jets in India.
- **Naval Cooperation:** Maintenance and lifecycle support for **Scorpene-class submarines** (Mazagon Dock Ltd partnership).
- **Cyber Security:** Inauguration of the **India-Brazil Cyber Dialogue (2025)** to combat transnational cybercrime and protect data.

4. Food and Nutritional Security

- **Genetic Synergy:** Cooperation in animal husbandry, specifically improving milk yields of **Gir and Kankrej cattle** (Indian breeds highly successful in Brazil).
- **Agro-chemicals:** India is a major supplier of agro-chemicals (\$1B+ annually) to Brazil's massive agricultural sector.
- **Sustainable Farming:** Joint R&D in precision farming and climate-resilient crop varieties.

5. Industrial Partnerships & Critical Minerals

- **Critical Minerals Accord (2026):** A strategic pact to secure India's access to Brazil's vast reserves of **Lithium, Niobium, and Rare Earths**, vital for India's EV and semiconductor missions.

Significance of the India-Brazil Relations

- **Global South Leadership:** Together with South Africa (**IBSA**), they champion the interests of developing nations in climate justice, debt distress, and food security.
- **Multilateral Reform:** Partners in the **G4** (seeking permanent UNSC seats) and **BRICS**, working to create a multipolar world order.
- **Energy Security:** Brazil is a vital source of crude oil and a global leader in **Biofuels**; its expertise is crucial for India's ethanol blending targets.
- **Economic Complementarity:** A "World's Pharmacy (India) meets World's Barn (Brazil)" partnership; bilateral trade reached **\$15.21 billion** in 2025.
- **Strategic Resource Security:** The **2026 Critical Minerals Accord** ensures India's access to Lithium and Niobium, essential for the "Atmanirbhar Bharat" EV and semiconductor missions.
- **Food Security:** Brazil's massive agricultural output provides a safety net for India's pulses and oilseed requirements.
- **Football Cooperation:** India and Brazil are strengthening football ties through the 2025 Football+ Summit in Chennai, promoting grassroots collaboration, ISL cooperation, Brazilian mentorship, technical expertise, and youth development, deepening India's World Cup admiration.

Challenges in India-Brazil Relations

- **Geographical Distance & Logistics:** Lack of direct air/maritime links leads to high shipping costs and long transit times, reducing competitiveness compared to China or the US.
- **Trade Asymmetry & Concentration:** Trade is restricted to **primary commodities** (Crude oil, soy, pharma). Low "intra-industry depth" makes the economic tie vulnerable to global price volatility.
- **The "China Factor":** China is Brazil's top trading partner; this deep interdependency crowds out Indian firms from Brazilian infrastructure and market share.
- **WTO Sugar Dispute:** Friction over **India's sugarcane subsidies**, which Brazil (and Australia) claims distorts global prices. A permanent resolution remains pending in 2026.

- **Divergent Strategic Priorities:** Differing "rhythms" in global governance; Brazil is often more receptive to Chinese-led BRICS initiatives, while India maintains a more cautious, autonomous stance.

Way Forward

- **Expand Trade Basket:** Broaden the **India-MERCOSUR PTA** (Brazil, Argentina, Paraguay, Uruguay) beyond the current 450 items to include high-value sectors like IT, Pharma, and Auto to diversify trade.
- **Enhance Connectivity:** Operationalize a **direct maritime corridor** and air-links between Mumbai/Delhi and São Paulo to slash high logistics costs.
- **Strategic Resource Integration:** Rapidly implement the **2026 Critical Minerals Accord** to move from mere extraction to joint refining of Lithium and Niobium for the EV supply chain.
- **Digital Synergy:** Export India's **Digital Public Infrastructure (DPI)** (UPI/Aadhaar) to Brazil to foster financial inclusion and deepen technological interdependency.
- **Institutional Diplomacy:** Resolve the **WTO Sugar Dispute** through a "compensation mechanism" (e.g., ethanol tech for market access) rather than litigation.

Conclusion

The India-Brazil partnership is a **Strategic Synergy** for the **Multipolar World**, merging India's digital leadership with Brazil's resource wealth to co-lead the **Global South** in green energy and critical minerals.

Q. India–Brazil relations have gained renewed momentum in the context of critical minerals, Global South cooperation and multipolarity. Examine the key pillars of India–Brazil strategic partnership. Discuss the challenges and suggest measures to strengthen bilateral engagement. (250 words)

2.2.9. INTERNATIONAL LAW

What is International Law?

International Law (Public International Law) is a system of rules, norms, and standards generally accepted in relations between nations.

- **Nature:** Unlike domestic law, it is **consensual**. There is no "World Government"; instead, it operates on the principle of **Sovereign Equality** (UN Charter Art 2.1).

Sources of International Law

As per **Article 38(1) of the ICJ Statute**, the sources are:

- **Primary Sources:**
 - **Treaties/Conventions:** Expressly recognized written agreements. Example: **UNCLOS** (Law of the Sea) or the **Paris Agreement** (Climate).
 - **International Custom:** Evidence of a general practice accepted as law (Opinio Juris). Example: Diplomatic immunity was a custom long before it was written into a treaty.
 - **General Principles:** Principles recognized by "civilized nations" (e.g., Good Faith). Example: **Res Judicata** (a matter already judged cannot be relitigated) or the **Right to be Heard**.



- **Subsidiary Sources:** Judicial decisions (ICJ/Domestic courts) and teachings of highly qualified publicists.
Example: The **Kulbhushan Jadhav Case (2019)**, which clarified the interpretation of consular access rights.

Need for International Law

1. Maintaining International Peace and Security

Without a legal framework, the global system reverts to "might is right."

- **Conflict Limitation:** It provides the rules for when force can be used (Jus ad Bellum) and how it must be conducted (Jus in Bello).
- **Dispute Resolution:** It offers platforms like the **International Court of Justice (ICJ)** and **Permanent Court of Arbitration (PCA)** to settle border and maritime disputes (e.g., the Chagos Archipelago or South China Sea) through logic rather than lasers.

2. Management of "Global Commons"

- **High Seas:** Governed by **UNCLOS**, ensuring freedom of navigation and fair distribution of deep-sea mineral resources.
- **Outer Space:** The **Outer Space Treaty** prevents the weaponization of space and ensures celestial bodies aren't "claimed" by private corporations or states.
- **Atmosphere:** Frameworks like the **Paris Agreement** regulate carbon emissions, which recognize that "pollution knows no borders."

3. Facilitating Global Economic Cooperation

- **Standardization:** The **WTO** provides a rules-based trading system that prevents arbitrary tariffs and trade wars.
- **Investment Protection:** Bilateral Investment Treaties (BITs) encourage foreign direct investment (FDI) by providing legal recourse to companies if a state illegally seizes their assets.
- **Functional Needs:** Simple things like international mail (UPU), flight paths (ICAO), and cross-border banking (SWIFT/Basel III) rely entirely on international legal protocols.

4. Protection of Fundamental Human Values

- **Human Rights:** The **UDHR** and subsequent covenants set a "floor" for how a state must treat its own citizens.
- **Criminal Accountability:** It ensures that perpetrators of genocide or war crimes cannot hide behind "sovereignty" (e.g., the role of the **International Criminal Court**).
- **Refugee Protection:** It defines the obligations of states toward those fleeing persecution, preventing humanitarian catastrophes from becoming regional instabilities.

Scope of International Law

1. Expansion of Subjects (Who is governed?)

The scope has moved beyond the "Westphalian" model of only sovereign states.

- **Sovereign States:** Remains the primary subject (e.g., India's maritime boundaries).
- **International Organizations:** Entities like the **UN, WTO, and WHO** now have legal personality and can sue or be sued.
- **Individuals:** Under International Criminal Law (ICC) and Human Rights law, individuals have both rights and liabilities (e.g., prosecution for war crimes).

- **Non-State Actors:** Multinational Corporations (MNCs) and NGOs are increasingly falling under international regulatory scopes regarding environmental and labor standards.

2. Expansion of Material Scope (What is governed?)

The "Material Scope" has shifted from mere diplomacy to complex technical and social regulations.

A. The Law of Co-existence (Traditional)

- **Diplomatic Relations:** Immunity of diplomats and embassies.
- **Territorial Integrity:** Rules regarding land borders and airspace.
- **War and Neutrality:** The "Laws of War" (Geneva Conventions) which dictate how conflicts are fought.

B. The Law of Cooperation (Modern)

- **Economic & Trade Law:** Regulating global markets via the **WTO** and **IMF**.
- **Environmental Law:** The most rapidly expanding scope, including the **Paris Agreement** and the new **Global Plastics Treaty (2025)**.
- **Human Rights:** International oversight of domestic treatment of citizens.

C. The Frontiers (Emerging)

- **Outer Space Law:** Regulating satellite traffic and lunar resources (e.g., Artemis Accords).
- **Cyberspace & AI:** The 2026 scope now includes "Algorithmic Sovereignty" and the prevention of transboundary cyber-attacks.
- **Bio-Ethics:** International regulation of CRISPR and human cloning.

3. Geographical Scope (Where does it apply?)

- **Land & Air:** Sovereign territory and international flight paths (ICAO).
- **The Seas:** From internal waters to the High Seas (UNCLOS).
- **The Polar Regions:** The **Antarctic Treaty System** which keeps the continent demilitarized.
- **Extra-Terrestrial:** The moon and other celestial bodies.

Regulation of Interstate Relations

- **Sovereign Equality & Non-Interference:** Based on **Article 2 of the UN Charter**, all states have equal voting rights and must not interfere in the domestic affairs of others, maintaining the "Westphalian" global order.
- **Use of Force (Jus ad Bellum):** Prohibited under **Article 2(4)** of the UN Charter, with only two exceptions: **Self-defense (Art 51)** and **UN Security Council Authorization**.
- **Diplomatic Inviolability (1961/1963):** Regulated by the **Vienna Conventions**, ensuring embassies are off-limits to local police, diplomats have immunity from prosecution, and citizens have the right to **consular access** (e.g., Kulbhushan Jadhav case).
- **Law of Treaties:** Governed by the **Vienna Convention on the Law of Treaties (1969)**. Key principle: **Pacta Sunt Servanda** (Agreements must be kept).
- **Jurisdictional Regulation of "Frontiers":** International law defines boundaries in the **High Seas** (UNCLOS), **Airspace** (Chicago Convention), and **Cyberspace** (2026 UN Cybercrime Treaty) to prevent overlaps and conflict in global commons.
- **Peaceful Dispute Settlement:** Under **Article 33 of the UN Charter**, states are obligated to settle quarrels through a hierarchy of tools: from soft diplomacy (negotiation/mediation) to binding legal rulings (**ICJ** or **Arbitration**).

Major Branches of International Law

Branch	Focus Area	Key Instrument/Institution
Law of the Sea	Maritime zones, EEZ, High Seas	UNCLOS (1982)
Humanitarian Law (IHL)	Rules of war; protection of civilians	Geneva Conventions (1949)
Environmental Law	Climate change, biodiversity	Paris Agreement, ICJ Climate Advisory
Space Law	Space as " Province of All Mankind "; non-appropriation of celestial bodies; liability for space debris.	Outer Space Treaty (1967), Artemis Accords
Criminal Law	Genocide, War Crimes, Crimes against Humanity	International Criminal Court (ICC)
Trade & Economic	Non-discrimination in trade (MFN Status); Investor-State Dispute Settlement (ISDS); Intellectual Property (TRIPS).	WTO

Issues in International Law

- **The Enforcement Gap ("Toothless Tiger"):** Unlike domestic law, there is no global police. Enforcement is hindered by **Selective Compliance** (powerful states ignoring rulings), **UNSC Paralysis** (P5 Veto power preventing action), and the requirement of **State Consent** for ICJ jurisdiction.
- **Sovereignty vs. Human Rights:** The "Westphalian Trap" allows states to use **Non-Interference** as a shield for domestic abuses. While the **Responsibility to Protect (R2P)** doctrine exists, its application remains inconsistent and politically motivated.
- **Legal Fragmentation:** The proliferation of specialized regimes (Cyber, Space, Trade) creates **Conflicting Jurisdictions**. A single issue may be judged differently by the WTO (economic) vs. an Environmental Tribunal (sustainability), causing legal uncertainty.
- **Democratic Deficit & Eurocentrism:** Many rules were authored by Western powers during the colonial era. The **Global South** often views frameworks like **TRIPS** or sovereign debt rules as biased, leading to urgent calls for the democratization of the UN and Bretton Woods institutions.
- **Technological "Grey Zones":** Law lags behind innovation. Key dilemmas include whether **Cyber-attacks** constitute "armed attacks" under Article 51, legal liability for **Lethal Autonomous Weapons (AI)**, and establishing "causality" for **Climate Liability** and reparations.

Way Forward

- **UNSC Reform:** Expanding the Security Council to include permanent representation from the Global South (India, Brazil, African nations) to improve legitimacy.
- **Compulsory Jurisdiction:** Moving towards a system where states accept the **ICJ's** jurisdiction automatically for certain categories of disputes (e.g., environmental or trade issues).
- **AI Governance:** Finalizing the **Global Digital Compact** to establish ethical boundaries for AI in warfare and state surveillance.

- **Shared Responsibility:** Recognizing India's stance on "shared responsibility" in refugee crises and environmental protection—shifting the burden from just the host/victim country to the global community.
- **Non-state actors & accountability:** Corporations, insurgent groups and private cyber actors complicate applicability and remedies.

Conclusion

International law must evolve from a "law of nations" to a "**law of humanity**," integrating AI ethics, climate liability, and space governance to ensure a resilient, rule-based global order.

Q. Discuss the sources and major branches of International Law. Examine the key challenges in its enforcement in the contemporary world order. Also analyse its significance for India. (250 words)

2.2.10. INDIA-ISRAEL STRATEGIC PARTNERSHIP

Context:

- Amidst significant **geopolitical turbulence** in **West Asia**—characterized by a massive American military presence in the **Persian Gulf** and a **fragile ceasefire in Gaza**—the **Prime Minister of India** is undertaking a **high-profile, two-day** standalone visit to Israel, **solidifying** India's "**de-hyphenation**" strategy.
- This visit marks the **second time** an **Indian Prime Minister** has visited the nation, following the **historic 2017 trip**.



About India's De-Hyphenation Policy Towards Israel

1. Historical Background

- **Creation of Israel:** Israel was created in 1947 following the **Balfour Declaration**. The **UN Partition Plan** conceived **two separate states** — a **Jewish State (Israel)** and an **Arab State (Palestine)** — but its implementation led to the displacement of Palestinians and a protracted conflict.
- **India's Initial Hyphenated West Asia Policy:** As a result of the regional conflict, India initially pursued a **Hyphenated West Asia Policy**, wherein **Israel and Palestine were considered as one diplomatic block** in foreign policy. Although **Israel was recognized in 1950**, the following approach was adopted:
 - **Full diplomatic relations were avoided for decades.**
 - **Strong support was extended to the Palestinian cause**, including the recognition of **Palestine in 1988**.
- The main problem with the hyphenation policy was that **any growing closeness with Israel was perceived as abandonment of Palestine**.

2. Key Diplomatic Milestones Before De-Hyphenation

- Following support from Israel during the **Kargil War**, the **Vajpayee Government** sent the first-ever high-level Indian ministerial delegations to Israel in 2000, including:
 - **External Affairs Minister Jaswant Singh**

- **Home Minister L.K. Advani**
- In **2003**, **Ariel Sharon** was hosted in New Delhi, becoming the first Israeli Prime Minister to visit India.
- In **October 2015**, **President Pranab Mukherjee** became the first Indian Head of State to visit the region, and both **Israel and Palestine were visited in the same trip**, thereby continuing the hyphenated approach.

3. What is the "De-Hyphenation" Policy?

- **De-hyphenation means that relations with Israel and Palestine are treated as two completely separate tracks.**
- Under this approach:
 - **Defence technology can be procured from Israel.**
 - **Support for an independent Palestinian state can continue.**
 - **Humanitarian aid can be sent to Gaza.**
- One relationship is not allowed to dictate the other.
- For instance, in **2017**, the first-ever **standalone visit to Israel by an Indian Prime Minister** was undertaken, thereby breaking the diplomatic hyphen.
- Previously, state dignitaries used to visit **Israel and Palestine in the same trip**, reflecting the hyphenated approach.

4. Evolution of India-Israel Relations

The bilateral trajectory is categorized into distinct chronological phases:

- **The "Taboo" Phase (1950s – 1980s):** Friendship with Israel was considered a "**taboo**" due to the **Cold War** and solidarity with **Arab nations**. During the **1967 Six-Day War**, India strongly backed the Arab states.
- **The "Cautious Stance" (1992):** Full diplomatic relations were established. This was enabled by the **Oslo Accords** (Arab-Israeli peace process), allowing India to engage Israel without estranging Arab states.
- **The "Strategic Dimension" (2014 – Present):** The relationship became **openly strategic**. The 2026 visit marks only the second time an Indian PM has ever visited Israel.

5. Modern Dimensions of Cooperation

- **Beyond Weapons to Water:** India is currently **Israel's biggest defense customer**, buying **34% of their arms exports**. Cooperation also includes the establishment of **35 "Centers of Excellence"** for advanced farming and **water management technology**.
- **Recalibrated UN Voting:** Historically, votes were cast against Israel. Recently, India has **abstained from certain votes** (such as calls for a truce) because the resolutions did not condemn the **terrorism of Hamas attacks**. **India remains clear: support for Palestine is maintained**, but **terrorism is not accepted**.

Why Israel is important for India

1. **Critical Defence Support:** Israel emerged as a **reliable strategic partner** when India faced international constraints during the Kargil conflict.
 - Supplied **laser-guided bombs (LGBs)** that enabled precision strikes in high-altitude terrain

- Provided **UAVs (Searcher, Heron)** for real-time surveillance
 - This timely assistance highlighted Israel's value as a partner willing to support India during crises, unlike many Western suppliers.
- 2. Advanced Defence Technology and Joint Development:** Israel is a major source of **cutting-edge military technology** for India. Key examples include:
- **Barak-8 / MRSAM** missile system (jointly developed with DRDO)
 - **Phalcon AWACS** mounted on Indian aircraft
 - **Spike anti-tank guided missiles**
 - These systems significantly enhance India's air defence, battlefield awareness, and strike capability.
- 3. Counter-Terrorism and Internal Security Expertise:** Israel's experience in combating terrorism has translated into cooperation in:
- Intelligence sharing
 - Urban warfare tactics
 - Homeland security and border management
 - Technologies such as **surveillance systems, electronic warfare equipment, and cyber-security tools** are particularly relevant for India's internal and border security challenges.
- 4. Agriculture and Water Management Technologies:** Israel has contributed to India's **food and water security** through technology transfer in:
- **Drip irrigation and micro-irrigation**
 - Desert agriculture
 - Water recycling and desalination techniques Over **30 Indo-Israeli Centres of Excellence** operate across Indian states, improving productivity in **horticulture and dry-land farming**.
- 5. Economic and Developmental Pillars:** Beyond defense, the relationship is anchored in "soft" sectors that impact India's internal development:
- **Water and Agriculture:** Israel's **MASHAV** agency has facilitated over 35 **Centres of Excellence** in India. Technologies in drip irrigation, desalination, and dry-land farming are vital for India's water-stressed regions like Rajasthan and Haryana.
 - **Trade and Investment:** Bilateral trade reached **\$3.75 billion** (FY2024-25). Current negotiations for a **Free Trade Agreement (FTA)** and the Bilateral Investment Agreement (signed Sept 2025) aim to diversify trade into electronics, medical equipment, and green energy.
 - **The IMEC Corridor:** The visit seeks to revitalize the **India-Middle East-Europe Economic Corridor**. As a shorter, secure alternative to the **Suez Canal**, IMEC positions Israel (specifically **Haifa Port**) as a bridge for Indian goods entering Europe.

Regional Dynamics and the "Hexagonal Alliance" Proposal

Israeli Prime Minister Benjamin Netanyahu has proposed a "**Hexagonal Alliance**"—a six-sided partnership involving **India, Greece, Cyprus, and Arab nations**—to counter "radical axes" in the region. This presents a complex diplomatic landscape for India:

Geopolitical Challenges in the West Asian Matrix

Navigating the intricate web of rivalries in West Asia remains a primary challenge:

- **The Iran Dilemma:** Iran is deeply hostile to Israel and fosters the Palestinian cause. For India, Iran is vital for the **Chabahar Port** to reach **Central Asia**. Joining Israel's proposed "**hexagonal alliance**" could severely damage ties with Tehran.
- **The Turkey Factor:** Turkey opposes Israel to claim leadership in the Islamic World. India must navigate this carefully, as Turkey also supports **Pakistan on the Kashmir issue**.
- **Moderate Arab States:** Today, India does massive business with **Saudi Arabia, the UAE, and Oman**. These nations are now largely comfortable with India talking to Israel, as seen in the **I2U2 framework**.
- **The US Factor:** In the past, India opposed America's presence in the Middle East. Today, India and the US work closely together to bring stability to the region, creating partnerships like **I2U2(India, Israel, the United Arab Emirates, and the United States)** and the **IMEC trade route**.

Way Forward: Practicing "Principled Pragmatism"

India's future trajectory in West Asia should be defined by a careful balance of national interest and ethical diplomacy:

- **Preserving Strategic Autonomy:** Netanyahu's proposal for a "**hexagonal alliance**" should be politely declined. India's long-standing policy of avoiding military alliances against third countries ensures it does not become a party to regional sectarian conflicts.
- **Prioritizing Developmental Growth:** The relationship with Israel must be leveraged primarily for its strengths in **futuristic defense technology (Mission Sudarshan Chakra)**, advanced **agriculture**, and **water management** to support India's domestic goals.
- **Active Advocacy for Regional Stability:** India should utilize its unique position—as a friend to both Israel and the Arab world—to advocate for a **peaceful, two-state solution**. Promoting stability is essential for the long-term viability of economic projects like the **IMEC corridor**.
- **Leadership in the Global South:** Ensure that while deepening ties with **Tel Aviv**, India continues to advocate for **humanitarian stability** in **Gaza** to maintain its moral standing among developing nations.

Conclusion

The visit reflects the consolidation of a **mature, interest-driven partnership** between India and Israel. While defence cooperation remains central, the relationship has expanded into technology, agriculture, innovation, and connectivity. However, engagement must be carefully calibrated within the complex geopolitics of West Asia.

A policy of "**Principled Pragmatism**" — combining strategic autonomy, economic cooperation, and commitment to peace — would enable India to safeguard its national interests while contributing constructively to regional stability.

Q. Discuss the strategic significance of Israel in India's foreign policy calculus. How has the relationship evolved from cautious engagement to an openly strategic partnership? (250 Words)

2.3. SOCIAL JUSTICE

2.3.1. BONDED LABOUR IN INDIA

Context: 2026 marks 50 years of the **Bonded Labour System (Abolition) Act, 1976**. While "traditional" feudal bondage (like Kamaiya or Vettichakiri) has declined, new forms have emerged in the informal economy.

About Bonded Labour:

Bonded labour (also called debt bondage/Bandhua Mazdoori) is a form of **modern slavery** where a person (or family) is forced to work to repay a loan or debt under exploitative terms, often for **nominal or no wages**, and cannot freely leave the work until the debt is extinguished.



Key features:

- Debt and labour tied; work done in lieu of repayment
- Loss of freedom to change employer, move freely, or refuse work
- Debt often inflated with interest, trapping labourers (sometimes generationally)

Key Legal Framework on Bonded Labour

1. Constitutional Provisions

- **Article 23:** Explicitly prohibits "**begar**" (forced labour without payment) and other similar forms of forced labour.
- **Article 21:** Interpreted by the SC to include the **Right to Live with Dignity**; bonded labour is a violation of this fundamental right.
- **Article 24:** Prohibits the employment of children in hazardous factories/mines.
- **Directive Principles (DPSP):**
 - **Article 39:** Directs the State to prevent the abuse of workers' health and strength.
 - **Article 42:** Mandates just and humane conditions of work.

2. Legal Framework

- **Bonded Labour System (Abolition) Act, 1976:** Formally ends the bonded labour system.
- **Debt Extinguishment:** All existing bonded debts are legally discharged/cancelled.
- **Enforcement:** Grants the **District Magistrate (DM)** the power to identify, release, and rehabilitate victims.
- **Bharatiya Nyaya Sanhita (BNS), 2023: Section 143:** Criminalizes trafficking and unlawful compulsory labour (replaces older IPC sections).
- **SC/ST (Prevention of Atrocities) Act, 1989:** Provides enhanced protection and penalties as most victims are from marginalized communities.

3. Recent Judicial Interpretations (2026)

- **Kerala High Court Ruling:** Clarified that preventing an employee from resigning or withholding their salary to force continued service constitutes **Bonded Labour** under Article 23.

4. International Obligations

- **ILO Conventions:** India has ratified **Convention No. 29** (suppressing all forced labour), **No. 105** (prohibiting forced labour for economic/political purposes), and **No. 182** (eliminating debt bondage for children).
- **SDG Target 8.7:** Commits India to end modern slavery, forced labour, and human trafficking by **2030**.
- **UDHR Article 4:** Aligns with the UN declaration that prohibits holding any individual in slavery or servitude.

Reasons for Bonded Labour

1. Economic Factors

- **Poverty & Indebtedness:** Extreme poverty forces families to take "bridge loans" for health emergencies, weddings, or funerals.
- **Lack of Formal Credit:** Marginalized groups lack collateral, making them dependent on predatory local moneylenders/landlords.
- **Informalization:** Over **90%** of India's workforce is in the informal sector (brick kilns, stone quarries, agriculture) where labour laws are poorly enforced.

2. Socio-Cultural Factors

- **Caste Hierarchy:** Bondage is deeply rooted in the caste system; **80–90%** of victims belong to SC/ST or OBC communities.
- **Illiteracy:** Lack of education prevents workers from understanding contract terms or their legal rights under the 1976 Act.

3. Administrative & Legal Gaps

- **Poor Identification:** Bonded labour has shifted from "traditional feudalism" to "hidden commercial bondage," making it harder for authorities to detect.
- **Dysfunctional Vigilance Committees:** District-level committees, mandated by law to monitor bondage, often remain inactive or underfunded.
- **Low Conviction Rates:** Despite rescues, employers are rarely prosecuted under the **BNS (2023)** or the **1976 Act**, leading to a lack of deterrence.

4. Modern Triggers

- **Climate Vulnerability:** Agricultural distress due to erratic weather (like the **2025-26 droughts**) drives distressed migration, where workers fall into the debt-traps of labour contractors.

Government Initiatives

- **Central Sector Scheme for Rehabilitation (2021):**
 - Financial assistance: **₹1 lakh** for adult males, **₹2 lakh** for women and children, and **₹3 lakh** for extreme cases (transgender, sexual exploitation).
 - Creation of a **Rehabilitation Fund** (corpus of ₹10 lakh) at the district level for immediate relief.

- **Standard Operating Procedure (SOP):** States like Karnataka and Tamil Nadu have developed SOPs for faster identification and rescue.
- **International Alignment:** India has ratified **ILO Convention 182** (Worst Forms of Child Labour) and is committed to **SDG 8.7** (ending modern slavery by 2030).
- **Labour Codes (2020/2025):** The **Code on Wages** and **Social Security Code** aim to formalize contracts and ensure universal minimum wages, removing the economic vacuum that leads to debt-bondage.
- **Convergence with Other Schemes**
 - **MGNREGA:** Guaranteed 100 days of work to prevent re-entry into debt.
 - **PM-Awas Yojana:** Priority allotment of housing for rescued families.
 - **Samagra Shiksha Abhiyan:** Rescued child labourers are mainstreamed into formal schools.

Way Forward

To move from "legal abolition" to "practical eradication" by the **SDG 8.7 target of 2030**, a multi-dimensional strategy is required:

1. Strengthened Governance & Enforcement

- **Active Vigilance Committees:** Ensure statutory district-level committees meet quarterly (as mandated) to proactively identify hidden bondage in newer sectors like shopping malls, call centers, and massage parlors.
- **Summary Trials:** Strict adherence to **Section 21** of the 1976 Act and **BNS 2023** to conclude trials within **three months** to create a credible deterrent for employers.

2. Comprehensive Rehabilitation

- **Digital Integration:** Link the **e-Shram portal** with the Bonded Labour Rehabilitation Scheme to track rescued workers and ensure they don't slip back into the debt cycle during migration.
- **Immediate Relief Transparency:** Solve the "Implementation Gap" by automating the transfer of the **₹30,000 immediate relief** through Direct Benefit Transfer (DBT) within 24 hours of rescue.

3. Preventive & Structural Reforms

- **Financial Inclusion:** Promote **Micro-credit facilities** and SHGs (Self-Help Groups) in vulnerable districts (e.g., Bolangir, Kalahandi) to provide alternatives to predatory local moneylenders.
- **Social Awareness:** Conduct grassroots legal literacy camps (like the **NSS initiatives in 2026**) to educate workers on their right to "Release Certificates," which legally extinguish all their bonded debts.

4. Inter-State Coordination

- **Migration Governance:** Establish a **Centralized Tracking System** for interstate migrant workers to monitor those moving from "source" states (Bihar, Odisha) to "destination" industries (brick kilns in Punjab, cattle farms in Tamil Nadu).

Conclusion

Fifty years after the 1976 Act, eradicating bonded labour requires shifting from mere rescue to holistic rehabilitation. Strengthening district vigilance, ensuring timely DBT relief, and strictly enforcing the **BNS 2023** are vital to breaking the debt-poverty cycle and achieving **SDG 8.7**.

Indian Scientific Service (ISS)

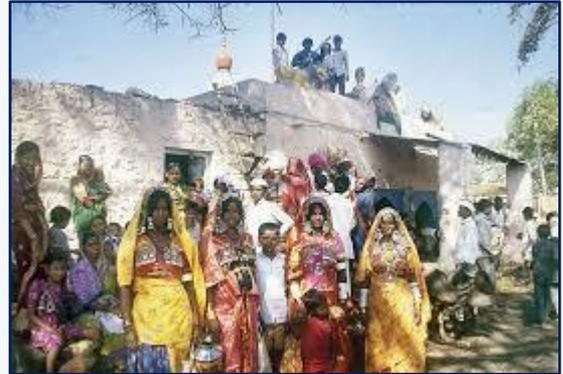
Q. Critically analyse the constitutional and legal framework for the eradication of bonded labour in India. Suggest measures to strengthen implementation and rehabilitation mechanisms.

(250 words)

2.3.2. A SEPARATE CLASSIFICATION FOR DENOTIFIED TRIBES

Context

- The **Ministry of Social Justice and Empowerment** has recently assured leaders of the **Denotified, Nomadic, and Semi-Nomadic Tribes (DNTs)** that their communities will be **enumerated in the second phase of the Census 2027**.
- The move follows decades of demand for a **“separate Census column”** to address the **statistical invisibility of over 10 crore people**.
- Its primary aim is to rectify **historical marginalisation** by enabling **constitutional recognition** comparable to **SCs, STs, and OBCs**.
- While the **Office of the Registrar General of India** has agreed in principle, the absence of a **distinct constitutional category** remains a key concern for these communities.



Who are Denotified Tribes (DNTs) in India?

- **Denotified, Nomadic and Semi-Nomadic Tribes (DNTs)** are communities that were once branded as **“criminal tribes”** by British administrators, who believed that certain communities were inherently **“addicted”** to crime.
- **Nomadic Tribes (NTs)**: These communities follow a **mobile lifestyle**, periodically shifting locations without permanent settlements to sustain livelihoods through **pastoralism, trade, or traditional services** (e.g., **Banjara, Rabari**).
- **Semi-Nomadic Tribes (SNTs)**: Such groups combine **seasonal migration with partial settlement**, often practising **transhumance**—maintaining a base while moving livestock seasonally (e.g., **Gaddi, Maldharis**).

Historical Background: Evolution of Denotified Tribes (DNTs) in India

- **Criminal Tribes Act (CTA), 1871**: Enacted in **1871**, the **CTA** enabled the **registration, surveillance, and control** of certain communities, labelling them as **“criminal tribes”** habitually involved in **non-bailable offences**. Colonial authorities justified this by linking **criminality to caste**, portraying it as hereditary.
- **Denotification after Independence (1952)**: In **1952**, the Government of India repealed the **CTA** on the recommendation of the **Ayyangar Committee (1949)**. Previously notified groups were officially **“denotified,”** giving rise to the term **Denotified Tribes (DNTs)**.
- **Habitual Offender Laws**: Despite repeal, several States enacted **Habitual Offender laws (1952)**, which, though removing the hereditary label, continued **surveillance and targeting** of these communities.
- **Continuing Marginalisation**: Although the legal **“criminal tribe”** tag was abolished, **structural stigma, policing bias, and social exclusion** persisted long after Independence.

History of Enumeration of Denotified Tribes (DNTs) in India

- **Early Census Classification (1871–1931):** Although the **Criminal Tribes Act (CTA), 1871** and synchronous Censuses began together, communities were explicitly recorded as “**criminal tribes**” from **1911** onwards. The **1911 and 1931 Census reports** enumerated them separately, with **1931** being the last Census to do so.
- **Post-Independence Discontinuation (1952):** Following the **repeal of the CTA** and formal **denotification**, separate enumeration ended. The Republic adopted the position that **caste-based enumeration** would be limited to **Scheduled Castes (SCs)** and **Scheduled Tribes (STs)**, leaving DNTs without distinct statistical recognition.
- **Early Institutional Measures (1949 onwards):** The **Ayyangar Commission (1949)** examined their condition. After 1952, several communities were listed as “**Vimukt Jatis**” under **Backward Classes**, and over time, most were absorbed into **SC, ST, or OBC categories**.
- **Lokur Committee (1965):** Recommended treating **denotified and nomadic groups as a distinct category** for targeted development.
- **Civil Society and Commissions (1998 onwards):** In **1998**, **Mahasweta Devi** and **G.N. Devy** formed **Denotified, Nomadic and Semi-Nomadic Tribes – Rights Action Group (DNT-RAG)**, which led to the creation of a **Technical Advisory Group** and subsequently the first **National Commission for DNTs**, chaired by **B.S. Renke (Report, 2008)**. A **second Commission** under **Bhiku Ramji Idate** submitted its report in **2017**. Both stressed that accurate **identification and classification** require a **dedicated Census enumeration**.
- **Pending NITI Aayog-Commissioned Study:** A **NITI Aayog-commissioned study** by the **Anthropological Survey of India** recommended classification for these groups, but the report has not been implemented and remains pending.

Key Recommendations of Idate Commission on DNTs

The **Bhiku Ramji Idate Commission** was established to examine the status of DNTs. Key findings and suggestions included:

- **Identification of Communities:** Recognition of nearly **1,200 communities** as **Denotified, Nomadic and Semi-Nomadic Tribes (DNTs, NTs, SNTs)**, with about **267–268 communities** found to be **outside any constitutional category (SC/ST/OBC)**.
- **Constitutional Amendment Proposal:** Recommendation to introduce a **third Schedule** titled “**Scheduled Denotified, Nomadic and Semi-Nomadic Tribes**”, alongside **SCs and STs**, to ensure **dedicated constitutional safeguards**.
- **Permanent National Commission:** Proposal to establish a **permanent National Commission for DNTs, NTs and SNTs**, replacing ad-hoc bodies, to oversee **policy implementation and welfare measures**.
- **Extension of PoA Act:** Suggestion to extend the **Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act** to DNT/NT/SNT communities through inclusion in a **separate schedule**, ensuring protection from **violence and discrimination**.
- **Sub-Classification within DNTs:** Emphasis on **sub-classification** to address “**graded backwardness**” among **settled and nomadic groups**, in line with evolving **Supreme Court jurisprudence** on internal categorisation within reserved classes.

Significance of Separate Classification for DNTs

- **Addressing Data Deficit:** A **dedicated Census entry** would eliminate long-standing **statistical invisibility**, enabling accurate data collection for informed and region-specific policy formulation.
- **Robust Legal Backing:** Explicit **constitutional recognition** would strengthen the foundation for targeted **affirmative action, scholarships, welfare measures, and protective safeguards** for DNT/NT/SNT communities.
- **Equitable Internal Prioritisation: Sub-classification within DNTs** would help identify and prioritise the most marginalised **nomadic and semi-nomadic groups**, reflecting the concept of **"graded backwardness"** upheld by the **Supreme Court**.
- **Improved Governance Outcomes:** Formal classification would streamline **certification processes**, enhance policy oversight, and promote more transparent and need-based **resource distribution**.

Key Challenges Faced by Denotified, Nomadic, and Semi-Nomadic Tribes (DNTs)

Despite the formal end of colonial-era labels, DNT communities remain at the extreme periphery of India's development narrative, facing a unique convergence of historical, legal, and social hurdles.

- **Socio-Economic Marginalization & Asset Deficit:**
 - **Generational Poverty:** Structural exclusion has led to critical deficits in **literacy, healthcare, and permanent housing**, with almost no intergenerational wealth or land ownership.
 - **Documentary Invisibility:** Their **nomadic lifestyle** results in a lack of permanent addresses, making it nearly impossible to acquire essential identity markers (**Ration cards, Voter IDs, Caste certificates**). This excludes them from the "paper-based" welfare state.
- **The "Double Burden" of Social Stigma:**
 - **Systemic Profiling:** The **"stigma of criminality"** persists in the administrative psyche long after the 1952 repeal.
 - **Criminalization of Lifestyle:** Traditional movements and occupations are frequently viewed with suspicion. This leads to **targeted policing** and frequent harassment under various **Habitual Offenders Acts**, which often function as a modern proxy for colonial-era surveillance.
- **Intra-Category Competition & Invisibility:**
 - **Dilution of Benefits:** Most DNTs are fragmented across existing **SC, ST, or OBC lists**, which prevents a focused policy approach for their specific needs.
 - **The "Graded Inequality" Trap:** Within these broad categories, DNTs cannot compete with **politically organized and socially advanced groups**. Consequently, their unique grievances are overshadowed by the dominant groups in the same reserved pool.
- **Administrative and Legal Limbo:**
 - **Non-Classification:** Approximately **268 DNT communities** are not included in any SC, ST, or OBC list. This lack of classification places them entirely outside the protection of **Articles 15(4) and 16(4)**, leaving them without any constitutional or legislative safety net.

Government Initiatives: SEED Scheme

The **Scheme for Economic Empowerment of DNTs (SEED)**, launched by the **Ministry of Social Justice and Empowerment**, provides integrated support in **livelihood, education, housing, and health** for **DNT/NT/SNT communities**.

- **Financial Outlay & Mechanism:** Allocated **₹200 crore (2020–25)**, the scheme operates through existing platforms such as **NRLM, Free Coaching, IAY-linked housing programmes**, and the **National Health Authority**.
- **Problems with the SEED Scheme:**
 - **DNT Certificate Requirement:** A central condition for availing benefits is the issuance of a **DNT certificate** by State governments, which must be **distinct yet not exclusive of SC/ST/OBC status**.
 - **Certification Bottlenecks:** In practice, only select districts in a few States issue **DNT certificates**, while many others delay or deny certification despite **Central government advisories**.
 - **Low Utilisation of Funds:** Due to these administrative hurdles, actual expenditure has remained **significantly below the allocated amount**, limiting the scheme's on-ground impact.
 - **Lack of a Single Nodal Authority:** Implementation is fragmented across multiple agencies (**NRLM, housing bodies, health authorities**), with no dedicated **nodal institution** solely accountable for DNT-specific outcomes.

Way Forward: Strategic Policy and Governance Reforms

To transition from colonial-era suspicion to constitutional parity, the following streamlined reforms are essential for the holistic empowerment of DNTs:

- **Data-Driven Governance via Census 2027**
 - **Specific Identification:** The Office of the Registrar General must implement a **dedicated column or code** for DNTs/NTs/SNTs to end statistical invisibility.
 - **Standardized Protocols:** Develop clear guidelines for **self-identification** that account for nomadic movement, ensuring no sub-group is excluded during the enumeration process.
- **Constitutional and Legislative Empowerment**
 - **The "Distinct Schedule":** Enact a **Constitutional Amendment** to create a distinct Schedule for DNTs, as recommended by the Idate Commission, to provide a clear legal identity.
 - **Atrocity Prevention:** Extend legal safeguards equivalent to the **SC/ST (Prevention of Atrocities) Act** to protect these communities from persistent social profiling and institutional harassment.
- **Institutional and Administrative Strengthening**
 - **Permanent Statutory Body:** Establish a **Permanent National Commission for DNTs** with statutory powers to monitor welfare outcomes and investigate rights violations.
 - **Unified Certification: Centralize and digitize** the DNT certification process to ensure uniform issuance across all States and UTs, removing current administrative bottlenecks.
- **Optimizing Welfare Delivery (SEED Scheme)**
 - **Direct Implementation:** Re-orient the **SEED scheme** for direct execution by a specialized DNT Welfare Board to improve fund utilization and reduce inter-agency delays.
 - **Mobile Outreach:** Deploy **mobile enrollment units** and digital records to ensure that education, health, and housing benefits "follow" nomadic families during migration.

Conclusion

The **Denotified, Nomadic, and Semi-Nomadic Tribes** remain "**the most marginalized of the marginalized.**" While the **2027 Census enumeration** is a welcome step, it must be supported by a robust legal framework and a separate constitutional identity. Without these, these communities will continue to exist in the shadows of the Indian republic—statistically invisible and socially excluded.

Q. Analyse the socio-economic and legal challenges faced by Denotified, Nomadic and Semi-Nomadic Tribes (DNTs) in India. Suggest suitable measures to address these issues. (250 words)

2.3.3. REDEFINING TRIBAL WOMEN'S INHERITANCE RIGHTS

Context:

- The question of **women's inheritance rights** in **tribal communities** remains unresolved. Most **tribal customary laws** deny women absolute rights over property.
- Moreover, the **Hindu Succession Act, 1956**, which grants **daughters equal rights in ancestral property**, does not apply to **Scheduled Tribes**, thereby excluding tribal women from its protection.
- However, recently, the **Supreme Court of India** has dealt with cases concerning inheritance rights of tribal women. In some instances, it granted rights to those who had adopted **Hindu customs** ("**Hinduisation**"), while in others it **upheld their exclusion based on statutory exemptions**. This inconsistent approach has created **legal uncertainty for tribal women** whenever questions of inheritance arise.



Background: The Hindu Succession Act and Tribal Exclusion

The primary legal hurdle for tribal women lies in the statutory architecture of the **Hindu Succession Act (HSA), 1956**.

- **The Scope of Section 2(1):** This section defines the **applicability of the Act to anyone who is a Hindu by religion** or **falls under the broad category of "Hindus"** (including **Buddhists, Jains, and Sikhs**). Historically, courts often used this section to "bring in" tribal individuals who had adopted Hindu customs, a process known as "**Hinduisation.**"
- **The Overriding Effect of Section 2(2):** Crucially, **Section 2(2)** acts as a proviso, stating that notwithstanding anything in **Section 2(1)**, the Act **shall not apply** to any Scheduled Tribe within the meaning of **Article 342** (which empowers the President to specify tribes or tribal communities as Scheduled Tribes, thereby providing them a distinct legal status separate from the HSA), unless the **Central Government** specifically notifies otherwise in the Official Gazette.
- **The 2005 Amendment:** The **Hindu Succession (Amendment) Act, 2005** granted daughters equal **coparcenary rights** (the legal right to be a joint heir to ancestral property from birth, enjoying the same rights as sons to claim partition and ownership).
 - However, because of Section 2(2), these benefits did not extend to tribal women. This has created "**invidious discrimination,**" where a **non-tribal woman** enjoys **statutory property rights** while a tribal woman in the same region is left to the mercy of restrictive customs.

- **Resultant Vacuum:** In the absence of statutory law, succession is governed by **un-codified customary practices**. These are frequently **patrilineal**, aiming to keep land within the **male lineage** to prevent "**alienation**" to outsiders through marriage.

Defining 'Hindu' and the "Hinduisation" Critique

The term "Hindu" lacks a rigid definition, encompassing diverse practices rather than a singular creed, which has historically complicated tribal legal status.

- **Broad Judicial Interpretation:** In *Sastri Yagnapurushadji v. Muldas Brudardas Vaishya (1966)*, the Supreme Court famously described the Hindu religion as a "**way of life**" that does not claim any one prophet, worship one God, or subscribe to a single dogma or set of rites.
- **The Mechanics of Identity:** A person can be a **Hindu by birth** or through **bona fide conversion**, which requires a clear intention and unequivocal conduct.
 - A converted person remains a member of their tribe unless they and their ancestors have long abandoned tribal customs, including customary laws of marriage and inheritance.
- **Implications for Tribals:** Previously, courts broadened Section 2(1) to include tribes by arguing they weren't "expressly excluded" there. However, this contradicted Section 2(2) and forced tribal women into a coercive choice: abandon their indigenous identity to become "Hindu" for the sake of economic rights, or retain their identity and remain landless.

Landmark Judicial Interventions: A Shift in Jurisprudence

Recent verdicts have reframed the debate by applying the principles of **Transformative Constitutionalism** to the traditionally insulated sphere of tribal customary law.

- **The Principle of Equality (*Ram Charan v. Sukhram, 2025*):** The Court recognized that excluding daughters from ancestral property violates the fundamental right to equality under **Article 14** and the prohibition of discrimination under **Article 15(1)**. It emphasized that biological differences should not be a basis for denying succession and that in the absence of codified law, principles of **justice, equity, and good conscience** must apply to grant women their share.
- **Reaffirming Jurisdictional Boundaries (*Nawang v. Bahadur, 2025*):** A Bench of Justices Sanjay Karol and Prashant Kumar Mishra overturned a Himachal Pradesh High Court order that had granted rights to 'Hinduised' tribal daughters. The Supreme Court clarified that the judiciary cannot overstep its jurisdiction to "legislate" by extending the HSA to tribes; that power rests solely with **Parliament**.
- **Protecting Indigenous rubric:** The Court affirmed that tribal inheritance remains governed by the **customary practices** of the community unless the Central Government officially intervenes. This ruling ended the inconsistent practice of granting rights based on "Hinduisation," which had previously created legal uncertainty and forced a choice between tribal identity and property rights.

Strategic Significance: Why This Matters

The rethinking of tribal inheritance is not merely a legal technicality; it has deep socio-economic implications for the progress of indigenous communities:

- **Economic Empowerment:** Establishing **property rights** provides tribal women with **collateral for credit**, enabling entrepreneurship and financial independence. It creates a robust safety net

against poverty and mitigates the risk of domestic vulnerability by ensuring shelter and land security.

- **Social Justice and Equity:** Correcting this legal exclusion dismantles the "second-class citizen" status of tribal women compared to their non-tribal counterparts. It fulfills the constitutional promise of **Substantive Equality**, where **justice is determined by outcomes rather than just formal procedures**.
- **Integration without Assimilation:** By advocating for a **separate law** rather than a forced merger into the HSA, the state acknowledges that equality can—and should—exist within the framework of **Cultural Pluralism**. It allows tribes to modernize their internal structures without losing their unique identity.

Multidimensional Challenges: The Roadblocks to Reform

Despite judicial nudges, several hurdles persist in the transition to a gender-just inheritance system:

- **Land Alienation Paradox:** Communities resist female inheritance under **Fifth/Sixth Schedules** fearing **exogamous marriages** transfer land to non-tribals, as **Chhotanagpur customs** (reinforced by **CNTSP Act, 1908**) mandate **Khandan**-male succession to safeguard communal land bases.
- **Orality-Legal Uncertainty:** Uncodified **customary laws** allow patriarchal elites to manipulate interpretations, with **Article 371A (Nagaland)** enabling village-specific variations that burden women with proving "**ancient and certain**" usage per **Madhu Kishwar (1996)**.
- **Patriarchal Inertia:** Land is entrenched as a **male lineage preserve**, compelling women to relinquish High Court-won shares (e.g., **Santhal** cases) under social coercion for "familial harmony," violating **Article 21** dignity amid **NCRB**-tracked violence surges.
- **Jurisdictional Limbo:** While **Ram Charan (2025)** affirms equity-based equality, **Nawang (2025)** prohibits **HSA** extension, stranding tribal women in a statutory void dependent on **Parliamentary action** to fulfill **Article 39(b)-(c)** resource equity.
- **Implementation Disparities:** **Patrilineal dominance** in tribes like Gonds and Oraons, coupled with illiteracy and remoteness, undermines **PESA Gram Sabha** enforcement; **Mizoram's** codification contrasts mainland inconsistencies, encouraging **forum shopping**.
- **Lingering Jurisdictional Dilemma:** While **Ram Charan case** established the moral and constitutional right to equality, **Nawang case** restricted the judicial path to achieving it. This leaves tribal women in a state of **legal limbo**: they are entitled to equality in theory, but cannot claim it through existing statutes like the HSA, leaving the resolution entirely dependent on legislative will.

Way Forward: Bridging the Parity Gap

To resolve tensions between **Constitutional Morality** and **Customary Autonomy**, a structured multi-pronged strategy is essential, harmonizing **tribal identity** with **gender equality** through legislative, judicial, and policy innovations.

- **Codification on Mizoram Model:** States with significant **Scheduled Tribe** populations (e.g., Jharkhand, Odisha, Chhattisgarh) must codify succession laws, emulating Mizoram's framework where daughters receive shares while safeguards like youngest son's **elder-care premium** prevent **land alienation** to non-tribals and preserve matrilineal elements.

- **Parliamentary Intervention: Hindu Succession Act (HSA), 1956** cannot be judicially extended per **Nawang v. Bahadur (2025)**; Parliament should enact a dedicated **Tribal Succession Act** mirroring HSA's equality provisions (post-2005 coparcenary rights) but customized to **tribal land-holding patterns** under **FRA, 2006** and **PESA, 1996**.
- **Institutional Strengthening:** Empower **National Commission for Scheduled Tribes (NCST)** and **Tribal Advisory Councils** for custom audits, gender sensitization, and awareness campaigns; establish **fast-track tribal inheritance courts** integrated with **e-Courts** for rural access.
- **Policy Synergies and Monitoring:** Link reforms with **Forest Rights Act (2006)** titling and **PESA (1996)** Gram Sabhas via mandatory **gender audits**; launch SHG-led land pooling initiatives; mandate annual **Ministry of Tribal Affairs** reports to Parliament tracking tribal women's property ownership metrics.

Conclusion

The rethinking of tribal women's inheritance rights is a step toward **substantive equality**. By moving beyond the binary of "Hinduisation" and acknowledging that Articles 14 and 15 apply to every citizen, the Indian legal system can finally bridge the gender parity gap. True empowerment lies in a framework where a tribal woman does not have to sacrifice her identity to claim her rightful share of ancestral dignity.

Q. *Transformative Constitutionalism seeks to harmonize fundamental rights with customary practices. Analyse this statement with reference to tribal women's inheritance rights. (250 Words)*

Scan to attempt more questions...



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GENERAL STUDIES 3

3.1. ECONOMY

3.1.1. HIGHLIGHTS OF UNION BUDGET 2026–27

Context:

The **Union Budget 2026–27**, presented by **Nirmala Sitharaman**, is the **first Budget prepared in Kartavya Bhawan**, symbolising a shift from entitlement-based governance to **duty-driven development** (“Kartavya”).

It is framed around **three Kartavyas**, aiming to balance **growth, inclusion, and resilience** amid global economic volatility, supply-chain realignments, and India’s aspiration of **Viksit Bharat @2047**.



Macroeconomic Snapshot

- **Total Expenditure (BE 2026–27):** ₹53.5 lakh crore
- **Non-debt Receipts:** ₹36.5 lakh crore
- **Net Tax Receipts:** ₹28.7 lakh crore
- **Capital Expenditure:** ~₹12.2 lakh crore (growth-oriented stance)
- **Fiscal Deficit:** 4.3% of GDP (glide path consolidation)
- **Debt–GDP Ratio:** 55.6% (improving sustainability)

Philosophy & Framework of the Budget

The Budget is anchored in **three Kartavyas**, reflecting a transition from entitlement-based to responsibility-based public policy.

1□. **First Kartavya – Accelerate & Sustain Economic Growth**

- Enhance productivity and competitiveness
- Build resilience against volatile global economic conditions

2. **Second Kartavya – Fulfil Aspirations & Build Human Capacity**

- Empower citizens as partners in India’s growth
- Focus on skills, employability, and services-led growth

3. **Third Kartavya – Sabka Sath, Sabka Vikas**

- Ensure equitable access to resources and opportunities
- Focus on regions, communities, and vulnerable sections

1. **FIRST KARTAVYA: ACCELERATE & SUSTAIN ECONOMIC GROWTH**

I. **Manufacturing Push in Strategic & Frontier Sectors**

(a) **Biopharma SHAKTI (Strategy for Healthcare Advancement through Knowledge, Technology and Innovation)**

- ₹10,000 crore (5 years) to position India as a **global biopharma hub**

- New & upgraded **National Institutes of Pharmaceutical Education and Research (NIPER)**, 1,000+ clinical trial sites
- **Significance:** Moves India up the **pharma value chain**

(b) India Semiconductor Mission (ISM) 2.0

- Focus on **equipment, materials, full-stack IP**, and **industry-led R&D**
- Reduces import dependence, strengthens **strategic autonomy**

(c) Electronics Components Manufacturing

- Outlay enhanced to **₹40,000 crore**
- Complements PLI ecosystem

(d) Rare Earth Corridors

- Odisha, Kerala, Andhra Pradesh, Tamil Nadu

(e) Chemical Parks & Capital Goods

- 3 Chemical Parks (challenge mode)
- Hi-Tech Tool Rooms, CIE Scheme, Container Manufacturing (₹10,000 crore)

II. Integrated Programme for Textile Sector

- **National Fibre Scheme:** Natural fibres (silk, wool, jute), man-made & new-age fibres
- **Textile Expansion & Employment Scheme:** Cluster modernisation, machinery, testing & certification
- **Mega Textile Parks:** Focus on technical textiles, value addition
- **Mahatma Gandhi Gram Swaraj Initiative:** Khadi, handloom & handicrafts + branding & global linkage

III. Rejuvenation of Legacy Industrial Clusters

- **200 clusters** to be revived via infrastructure & technology upgrade

IV. Champion SMEs & Micro Enterprises

- **₹10,000 crore SME Growth Fund** to create future Champions, incentivizing enterprises based on select criteria
- Additional ₹2,000 crore to **Self-Reliant India Fund** to continue support to micro enterprises and maintain their access to risk capital.
- **Corporate Mitras** via ICAI/ICSI/ICMAI to design short-term, modular courses and practical tools.

V. Infrastructure as Growth Engine

- **Public Capex:** ₹12.2 lakh crore
- **Infrastructure Risk Guarantee Fund** (crowding-in private investment)
- New **Dedicated Freight Corridor** (Dankuni–Surat)
- 20 National Waterways (5 years)
 - Start: NW-5 (Odisha – Talcher/Angul to Paradeep/Dhamra)
- Ship repair hubs: **Varanasi & Patna**
- Coastal Cargo Promotion Scheme- Modal share: **6% → 12% by 2047**
- **Seaplane VGF Scheme** (connectivity + tourism)

VI. Energy Security & Climate Action

- ₹20,000 crore for **Carbon Capture Utilisation & Storage (CCUS)**

VII. City Economic Regions (CERs)

- ₹5,000 crore per CER (5 years)
- **7 High-Speed Rail Corridors** as growth connectors
- **Municipal Bonds:** ₹100 crore incentive for issuances > ₹1000 crore

2. SECOND KARTAVYA: ASPIRATIONS & HUMAN CAPITAL

I. Services-Led Growth

- High-Powered **Education-to-Employment & Enterprise Committee** recommends measures that focus on the Services Sector as a core driver of Viksit Bharat.

II. Health & Human Resources

- **100,000 Allied Health Professionals** to be added over the next 5 years.
- **5 Regional Medical Hubs** (medical tourism)
- **3 new All India Institutes of Ayurveda**
- **1 girls' hostel** to be established in every district

III. Orange Economy (AVGC)

- **Visual Effects, Gaming and Comics (AVGC)** labs in **15,000 schools & 500 colleges**, Support via **Indian Institute of Creative Technologies, Mumbai**

IV. Tourism, Culture & Sports

- National Institute of Hospitality
- 10,000 trained tourist guides in 20 tourist sites
- **National Destination Digital Knowledge Grid** to digitally document all places of significance—cultural, spiritual and heritage.
- **15 iconic heritage sites (Lothal, Dholavira, Rakhigarhi, Adichanallur, Sarnath, Hastinapur, and Leh Palace** etc.) to be developed into vibrant, experiential cultural destinations
- **Khelo India Mission** (decade-long vision)

3. THIRD KARTAVYA: SABKA SATH, SABKA VIKAS

I. Increasing Farmer Incomes (Centred on water security, crop diversification, and digital enablement).

- Integrated development of **500 reservoirs & Amrit Sarovars** to reinforce irrigation capacity, ensure reliable water availability, and strengthen rural livelihoods.
- High-value crops: coconut, sandalwood, cocoa, cashew
- **Coconut Promotion Scheme**
- **Bharat-VISTAAR:** (Virtually Integrated System to Access Agricultural Resources)— a **multilingual, AI-enabled platform** that integrates **AgriStack portals** with **ICAR's agricultural practice packages**,

II. Empowering Divyangjan

- **Divyangjan Kaushal Yojana** (IT, AVGC, hospitality)

III. Mental Health & Trauma Care

- **NIMHANS-2** in North India

- Upgrade Ranchi & Tezpur institutes as regional apex bodies.

IV. Purvodaya & North-East Focus

- East Coast Industrial Corridor (node at Durgapur)
- 5 tourism destinations in Purvodaya States
- 4,000 e-buses
- Development of Buddhist Circuits in **Arunachal Pradesh, Sikkim, Assam, Manipur, Mizoram and Tripura.**

Fiscal Federalism: Government provided ₹1.4 lakh crore to the States for the FY 2026-27 as Finance Commission Grants as recommended by the 16th Finance Commission.

Critical Analysis of Union Budget 2026–27

Strengths of Union Budget 2026–27

- **Strong growth push with fiscal prudence:** Public capital expenditure raised to **₹12.2 lakh crore**, while fiscal deficit reduced to **4.3% of GDP** (from 4.4% in 2025–26).
- **Manufacturing and self-reliance focus:** Major allocations such as **₹40,000 crore** for electronics components, **₹10,000 crore** for Biopharma SHAKTI, and **₹10,000+ crore** for container manufacturing strengthen industrial depth.
- **Infrastructure-led multiplier effect:** Total expenditure at **₹53.5 lakh crore**, with large investments in freight corridors, waterways (20 NWs), and high-speed rail to boost logistics efficiency.
- **Support to MSMEs and entrepreneurship:** **₹10,000 crore SME Growth Fund** and **₹2,000 crore** additional support to the Self-Reliant India Fund improve access to risk capital.
- **Energy and sustainability orientation:** **₹20,000 crore** committed over five years for Carbon Capture, Utilisation and Storage (CCUS), aligning growth with climate goals.
- **Human capital and services emphasis:** Creation of **100,000 Allied Health Professionals**, AVGC labs in **15,000 schools and 500 colleges**, and tourism skill initiatives strengthen employment potential.
- **Balanced regional and social inclusion:** Targeted spending on Purvodaya & North-East, agriculture (500 reservoirs, Amrit Sarovars), and **₹1.4 lakh crore** Finance Commission grants to States.

Concerns of Union Budget 2026–27

- **High borrowing requirement:** Gross market borrowing at **₹17.2 lakh crore** keeps pressure on interest rates and private investment (crowding-out risk).
- **Revenue dependence on optimistic assumptions:** Net tax receipts projected at **₹28.7 lakh crore** may be vulnerable to global slowdown and trade uncertainties.
- **Implementation capacity risks:** Large-scale initiatives—**200 legacy clusters, 20 national waterways, 7 high-speed rail corridors**—demand strong Centre–State coordination.
- **Limited direct income support to farmers:** Despite structural measures (500 reservoirs, high-value crops), absence of major enhancement in direct income transfers may delay short-term relief.
- **Private investment uncertainty:** Infrastructure Risk Guarantee Fund announced, but effectiveness depends on design; private capex response remains unclear.
- **Social sector outlay visibility:** While programmes are announced (mental health, Divyangjan, skills), **explicit budgetary allocations** for some schemes are not clearly specified.

WAY FORWARD

- **Strengthen implementation:** Ensure time-bound execution through robust Centre–State coordination, outcome-based monitoring, and third-party audits.
- **Deepen fiscal consolidation:** Gradually reduce debt–GDP ratio by broadening the tax base, improving compliance, and rationalising non-merit subsidies.
- **Crowd-in private investment:** Operationalise the Infrastructure Risk Guarantee Fund with clear rules to unlock private and foreign capital.
- **Boost farm incomes faster:** Complement structural reforms with targeted income and price-risk support, stronger agri-value chains, and export facilitation.
- **Enhance human capital delivery:** Align skilling, education, and health initiatives with industry demand through PPPs and district-level skill mapping.
- **Improve transparency:** Clearly earmark and disclose scheme-wise allocations and outcomes to strengthen credibility and accountability.

Conclusion

The Union Budget 2026–27 lays the foundation for **Viksit Bharat 2047** by combining **fiscal discipline, manufacturing-led growth, and human capital investment**. Its focus on **infrastructure, technology-driven agriculture, green transition, and inclusive regional development** positions India to transform demographic potential into sustainable, globally competitive prosperity.

Q. The Union Budget 2026–27 reflects a calibrated approach towards growth, inclusion, and fiscal consolidation." Critically examine this statement in the context of India's goal of achieving Viksit Bharat 2047. (250 words)

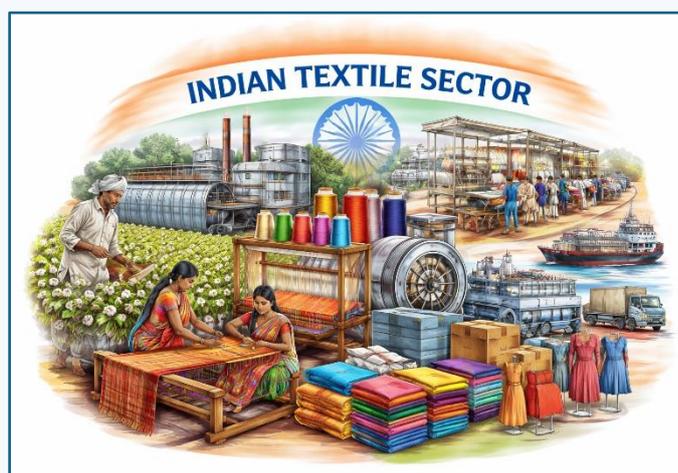
3.1.2. STRENGTHENING INDIA'S TEXTILE VALUE CHAIN

Context:

The Union Budget 2026–27 positions the textile sector as a "**frontier sector**" essential for India's growth strategy. It transitions from fragmented support to an **integrated value-chain approach** (Fibre to Fashion), focusing on global competitiveness, sustainability (ESG compliance), and large-scale employment.

Current Status of the Indian Textile Sector

- **Economic Contribution:** Contributes ~2% to India's GDP.
 - Accounts for **11% of Manufacturing GVA**.
 - **8.63% share in total exports** (FY25).
- **Global Standing:** **6th largest exporter** of Textiles & Apparel (T&A) globally (~4% market share).



World Leader:

- World's **largest cotton cultivator by acreage**
- **Largest producer of jute**

- **2nd largest producer** of silk and cotton
- **2nd largest global hub** for Man-Made Fibres (MMF)
- **2nd largest producer** of polyester and viscose fibres
 - **Export Performance:** Reached **USD 37.75 billion in FY25** (up from USD 35.87 billion in FY24) despite global headwinds.
 - **Employment:** 2nd largest employer after agriculture; provides direct jobs to **45 million+ people**, with a high participation rate for women and rural youth.

Significance of the Textile Sector

1. Economic Engine

- **GDP & GVA:** Contributes approximately **2% to India's total GDP** and **11% to the Manufacturing Gross Value Added (GVA)**.
- **Market Size:** Currently valued at **\$179 billion**, with a vision to reach **\$350 billion by 2030**.

2. Socio-Economic Impact

- **Mass Employment:** The **second-largest employer** in India after agriculture, providing direct jobs to over **45 million people**.
- **Women Empowerment:** One of the few sectors with a high percentage of female labor participation, driving financial independence in both urban and rural areas.
- **Rural Livelihoods:** Deeply integrated with the rural economy through **6 million cotton farmers** and millions of artisans in the handloom/handicraft clusters.

3. Strategic & Cultural Importance

- **Technical Textiles:** A frontier segment for **Industrial, Medical (Meditech), Defense, and Infrastructure** applications, moving India up the technology value chain.
- **Heritage Preservation:** The sector keeps alive centuries-old traditional crafts (**Varanasi Silk, Kanchipuram, Chanderi**) which are leveraged under the **One District One Product (ODOP)** initiative.
- **Sustainability Leadership:** Through the **Tex-Eco Initiative**, the sector is transitioning toward circularity (upcycling and natural dyes), aligning with global ESG (Environmental, Social, and Governance) norms.
- **Strategic Hub:** Positioned as a "**China Plus One**" alternative for global brands seeking resilient supply chains.

Government Initiative for the Textile Sector

Integrated Programme for Textile Sector (Budget 2026–27)

The **Integrated Programme for the Textile Sector** introduced in the 2026–27 Budget is a holistic "**Fibre-to-Fashion**" strategy. It moves away from piecemeal schemes toward a unified framework.

The 5 Pillars of the Integrated Programme

1. National Fibre Scheme (Raw Material Security)

- **Objective:** Achieving self-reliance across the entire fibre spectrum.
- **Focus:** While supporting natural fibres (Jute, Silk, Wool), it gives a major push to **Man-Made Fibres (MMF)** and **Technical Textiles**.

- **Impact:** Reduces import dependence on high-performance synthetic fibres and encourages diversification beyond cotton.

2. Textile Expansion and Employment Scheme

- **Objective:** Upgrading the "mid-stream" of the value chain (spinning, weaving, processing).
- **Strategy:** Capital support for state-of-the-art machinery.
 - Establishing **Common Testing and Certification Centres** to meet global quality standards.
- **Impact:** Increases productivity and facilitates "Plug & Play" manufacturing for large-scale employment.

3. National Handloom and Handicraft Programme

- **Objective:** Unifying fragmented schemes to support the "**Orange Economy**" (Artisans).
- **Key Features:**
 - Enhanced market linkages for weavers.
 - Promotion of **Natural and Vegetable Dyes** through "Mega Cluster Development."
- **Impact:** Preserves India's cultural heritage while improving the income of rural artisans.

4. Tex-Eco Initiative

- **Objective:** Aligning Indian textiles with the **European Green Deal** and global ESG (Environmental, Social, and Governance) norms.
- **Focus:** Promoting circularity, upcycling, and eco-friendly manufacturing processes.
- **Impact:** Ensures Indian exports are not hit by "Carbon Border Taxes" and captures the premium global green market.

5. Samarth 2.0

- **Objective:** Revamping the textile skill ecosystem.
- **Strategy:** Deeper collaboration between **Industry and Academia** to create a pipeline of "Industry-ready" skilled manpower.
- **Impact:** Bridges the skill gap in specialized areas like technical textiles and apparel design.

Budgetary Synergy: The "3S" Strategy

The Integrated Programme is designed to achieve three specific outcomes:

1. **Scale:** Through Mega Textile Parks (PM MITRA).
2. **Sustainability:** Through the Tex-Eco Initiative.
3. **Speed:** Through **TReDS** (Trade Receivables Discounting System) for faster MSME liquidity and the **extension of Export Obligation periods** (from 6 to 12 months).

Other Key Government Initiatives

1. **PM MITRA Parks-** 7 Parks across TN, Telangana, Gujarat, Karnataka, MP, UP, and Maharashtra.
 - **Finance:** ₹4,445 Cr outlay; target investment of ₹10,000 Cr per park.
 - **Impact:** Expected to generate **3 lakh jobs** (1L direct, 2L indirect) via "Plug & Play" infrastructure.
2. **Mahatma Gandhi Gram Swaraj Initiative:** Strengthening Khadi, Handloom, and Handicrafts.
 - **Key Pillars:** Global branding, process modernization, and alignment with **One District One Product (ODOP)**.
 - **Goal:** Linking village industries to international markets.

3. **PLI Scheme for Textiles:** Incentivizing production of **Man-Made Fibre (MMF)** apparel/fabrics and **Technical Textiles** to achieve global scale.
4. **Export & MSME Liquidity Measures**
 - **Polic** Export obligation period extended from **6 to 12 months** for textile/leather garments manufactured using duty-free imported inputs.
 - **Financial Tech:** Mandatory **TReDS (Trade Receivables Discounting System)** usage by CPSEs and integration with GeM for faster MSME invoice discounting.
 - **Growth Fund: ₹10,000 Cr SME Growth Fund** created to nurture "Champion SMEs."
 - **Cotton Reforms:** 'Kasturi Cotton Bharat' for branding and 'Kapas Kisan' app for transparency.

Challenges in the Indian Textile Sector

1. Structural & Technical Challenges

- **Highly Fragmented:** Over **80% of the industry is MSME-driven**, leading to a lack of economies of scale compared to competitors like China or Vietnam.
- **Technological Obsolescence:** Traditional looms and processing units suffer from low productivity and high energy consumption.
- **Raw Material Imbalance:** Historically "Cotton-centric" (~60% of output), whereas the global market demand is shifting rapidly toward **Man-Made Fibres (MMF)**.

2. Logistics & Infrastructure

- **High Logistics Costs:** In India, logistics costs are ~13–14% of GDP, significantly higher than the 8% in competing nations, making Indian exports less price-competitive.
- **Fragmented Value Chain:** Spinning, weaving, and processing units are often located in different states, increasing lead times and transport costs.

3. Global Trade & External Factors

- **Tariff Disadvantages:** Competitors like Bangladesh and Vietnam enjoy **Least Developed Country (LDC)** status or favorable FTAs, giving them 10–12% duty-free access to EU/US markets, whereas Indian exports face high duties.
- **Sustainability Compliance:** Emerging "Green" regulations (like the EU's Carbon Border Adjustment Mechanism) pose a threat to units that haven't shifted to sustainable manufacturing.

4. Financial & Labor Issues

- **Credit Crunch:** MSMEs struggle with delayed payments, though initiatives like **TReDS** are now being mandated to solve this.
- **Skill Gap:** Lack of specialized training for high-value segments like **Technical Textiles**.

Way Forward

- **FTA Utilization:** Rapidly finalize implement the **India-EU FTA** and **India-UK FTA** to eliminate the 9–12% tariff disadvantage India faces against LDC competitors (Bangladesh/Vietnam).
- **Market Diversification:** Shift focus beyond traditional US/EU markets to emerging hubs in the **UAE, Japan, and Australia** using existing CEPA/ECTA agreements.
- **Product Mix Change:** Globally, the ratio of Cotton to MMF is 30:70, while in India, it is reversed. India must incentivize **Polyester and Viscose** production via PLI schemes to capture the global activewear and specialized apparel market.

- **Technical Textiles:** Invest in R&D for high-value segments like **Meditech, Protech (Defense), and Geotech (Infrastructure)**.
- **Traceability:** Implement **Blockchain-based tracking** to prove "Green" credentials, ensuring Indian products are not blocked by future "Carbon Border Taxes."
- **E-Commerce Linkage:** Connect traditional artisans (under **Mahatma Gandhi Gram Swaraj**) directly to global B2C platforms.

Conclusion

With a **Vision 2030 target of USD 100 billion in exports** (expanding from ₹3 lakh crore to ₹9 lakh crore), the 2026-27 Budget provides the necessary structural scaffolding. By balancing "Village Industries" (Khadi) with "Frontier Manufacturing" (Technical Textiles), India is well-poised to become a resilient global sourcing hub.

Notes:

TReDS (Trade Receivables Discounting System) is a digital platform that allows **MSMEs to obtain timely finance by discounting their trade receivables** through multiple financiers. These receivables may arise from sales made to **corporates, government departments, PSUs, and other institutional buyers**, enabling quicker cash flow and improved liquidity for small businesses.

Q. Critically examine how recent policy initiatives, including those announced in the Union Budget 2026–27, aim to strengthen India’s textile value chain and enhance its global competitiveness.” (250 words)

3.1.3. DISCOMS AND THE ROAD AHEAD

Context:

The Indian power sector, long plagued by a "legacy of losses," is witnessing a historic shift. Historically, Power Distribution Companies (DISCOMs) have been the weakest link in the energy value chain, characterized by mounting debt and operational inefficiencies. However, recent data for **FY 2024-25** reveals a decisive turnaround: DISCOMs recorded a positive **Profit After Tax (PAT) of ₹2,701 crore**, a stark contrast to the ₹67,962 crore loss a decade ago.



About DISCOMs:

1. The Core Function

DISCOMs are responsible for buying electricity from **GENCOs** (Generation Companies) and delivering it to the end consumer.

- **Procurement:** They sign Power Purchase Agreements (PPAs) with thermal, hydro, or solar plants.
- **Infrastructure:** They maintain the network of poles, transformers, and local wires.

- **Revenue:** They bill customers and collect payments to pay back the GENCOs and the transmission companies (TRANSCOs).
- **Historical Mandate:** Originally formed under the **Electricity (Supply) Act, 1948**, they were legally required to maintain a 3% profit margin, a target they failed to meet for decades.

2. The "Utility" Landscape

There are **72 DISCOMs** currently operating in India:

- **State-owned:** The majority (44), often operated as government departments or state corporations.
- **Private:** 16 entities (e.g., Tata Power, Adani Power in cities like Delhi or Mumbai).
- **Power Departments:** 12 (mostly in Union Territories).

Financial Status of DISCOM:

1. The Legacy Era (Pre-2014)

- **Deep Red:** Characterized by "never-declining" losses. In **2013-14**, the sector recorded a massive loss of **₹67,962 crore**.
- **The Gap:** The **ACS-ARR gap** (Cost vs. Revenue) was wide, hovering around **78 paise per unit**, meaning DISCOMs lost money on nearly every kilowatt-hour sold.
- **Efficiency:** AT&C losses were high, exceeding **22%**, due to rampant theft and aging infrastructure.

2. The Struggle Period (2015–2021)

- **Rising Debt:** Despite various bailout attempts (like UDAY), debt continued to pile up. By **2020-21**, accumulated losses reached **₹5.5 lakh crore**.
- **Payment Crisis:** DISCOMs became "defaulters" to power generators (GENCOs), leading to a circular debt crisis in the entire energy value chain.
- **Structural Issues:** Delayed state subsidies and non-cost-reflective tariffs (prices not raised despite rising coal costs) kept the sector in a "minus" state.

3. The "Decisive Turnaround" (2022–2025)

- **Profitability:** For the first time in decades, DISCOMs recorded a **Profit After Tax (PAT) of ₹2,701 crore** in **FY 2024-25**.
- **Efficiency Gains:** AT&C losses dropped significantly to **15.04%**.
- **Cost Recovery:** The ACS-ARR gap narrowed from 78 paise to a negligible **0.06 paise per unit**.
- **Debt Liquidation:** Outstanding legacy dues, which were **₹1.39 lakh crore** in mid-2022, plummeted to just **₹4,927 crore** by **January 2026** thanks to strict EMI-based repayment rules.

Policy Reforms in the DISCOM:

1. **Revamped Distribution Sector Scheme (RDSS)-** A **performance-linked** infrastructure scheme with a ₹3 lakh crore outlay. It funds supply upgrades and **Smart Prepaid Meters** only if DISCOMs achieve annual targets for reducing technical and commercial losses.
2. **Late Payment Surcharge (LPS) Rules, 2022-** A mandatory framework to liquidate **legacy dues** via **48 interest-free EMIs**. It imposes strict penalties, including barring DISCOMs from power exchanges for any defaults on current payments.

- 3. Electricity (Amendment) Rules-** Ensure **fiscal transparency** by mandating timely subsidy payments from State Governments. It requires subsidies to be paid **upfront**, ensuring real-time bridging of the gap between supply costs and revenue.
- 4. Mandatory Feeder Segregation-** Focuses on physically separating **agricultural feeders** from others. This enables precise metering of farm consumption, facilitates daytime solar power supply, and prevents masking commercial losses as agricultural use.
- 5. Integrated Rating Exercise-** An annual **Power Finance Corporation (PFC)** assessment scoring DISCOMs on 25+ parameters. These ratings dictate **creditworthiness**, influencing bank lending and incentivizing operational improvements.

Challenges Faced by DISCOMs:

Despite the optimism, the "profitability" of DISCOMs remains fragile due to several underlying factors:

- 1. Dependency on State Subsidies-** Profitability is largely artificial, driven by massive **tariff subsidies** and state **loss takeovers**. For example, TNPDC's ₹2,073 crore profit exists only due to ₹31,000 crore in state support; otherwise, it faces a ₹14,034 crore loss.
- 2. Transient Revenue Surplus-** The current surplus is temporary. Looming liabilities, including **periodic employee pay revisions** and rising operational costs, threaten to pull DISCOMs back into revenue deficits.
- 3. Non-Cost-Reflective Tariffs-** Political reluctance prevents aligning consumer tariffs with the actual **Average Cost of Supply (ACS)**. This creates a structural revenue gap where collections fail to cover procurement and distribution costs.
- 4. Lack of Agricultural Metering-** Prevalent **unmetered supply** in the farm sector prevents accurate data collection. Without metering, DISCOMs cannot distinguish between genuine agricultural consumption and systemic technical or commercial losses.
- 5. High Outstanding Debt-** Despite reducing legacy dues, total debt remains high at **₹7.26 lakh crore**. This burden restricts capital for **grid modernization** and the integration of green energy.

The Way Forward

- 1. Universal Feeder Segregation-** Physical separation of agricultural and domestic feeders must be expanded nationwide. This provides **accurate consumption data** and prevents technical/commercial losses from being hidden under the guise of agricultural supply.
- 2. Promotion of Solar Pumps-** Aligning with **NITI Aayog** recommendations, scaling solar pumps (via **PM-KUSUM**) reduces **power procurement costs**. Shifting the agricultural load to decentralized solar minimizes the need for high-cost transmission and state subsidies.
- 3. Targeted Subsidy & DBT-** The political executive should move away from universal free power to avoid benefiting economically stronger sections. Implementing **Direct Benefit Transfer (DBT)** ensures subsidies reach the intended consumers while encouraging energy conservation.
- 4. Tech-Driven Efficiency-** Rapid deployment of **Smart Prepaid Meters** is essential to eliminate billing errors and improve collection. Modernizing infrastructure is key to lowering the **Average Cost of Supply (ACS)** and integrating renewable energy.

5. Political & Administrative Will- Transforming DISCOMs requires a "public-spirited bureaucracy" and the political will to implement **cost-reflective tariffs**. Commercial viability is the only way to ensure long-term, reliable power for consumers.

Conclusion:

The future of India's power sector hinges on transitioning DISCOMs from subsidy-dependent entities to **commercially viable hubs**. Integrating **smart-grid technologies**, scaling **decentralized solarization**, and ensuring **cost-reflective tariffs** will be pivotal. Only through sustained political will and fiscal discipline can DISCOMs support India's growing energy demand and **Net Zero** aspirations.

Q. Despite recent financial improvements, India's power distribution companies (DISCOMs) continue to face deep structural challenges. Critically examine the major challenges confronting DISCOMs and suggest measures to ensure their long-term financial and operational sustainability. (250 words)

3.1.4. RAILWAY SAFETY: KAVACH AND AI INTEGRATION

Context:

Indian Railways is moving toward a "**Zero Accident**" goal by leveraging indigenous technology and Artificial Intelligence. The focus has shifted from reactive measures to **Predictive and Automated Safety**.

- **Statistical Progress:** Consequential train accidents declined from **135 (2014-15)** to **11 (2025-26)** (as of Nov 2025).
- **Fiscal Commitment:** Safety expenditure has seen a nearly 3x increase, reaching **₹1,17,693 crore** in the 2025-26 budget.



KAVACH: The Indigenous Automatic Train Protection (ATP)

Kavach is a locally developed, high-tech situational awareness system designed by the **Research Designs & Standards Organization (RDSO)**.

A. Technical Core

- **Safety Integrity Level (SIL-4):** Certified to the highest global safety standard (probability of error is 1 in 10,000 years).
- **Mechanism:** Uses **RFID tags** on tracks, **UHF Radio** communication, and **On-board computers**.
- **Interoperability:** Unlike many global systems, Kavach is designed for multi-vendor interoperability, preventing "lock-ins" with a single supplier.

B. Key Safety Features

- **SPAD Prevention:** Detects and prevents **Signal Passing at Danger** by automatically stopping the train before the signal.
- **Collision Avoidance:** Prevents **head-on, rear-end, and side-on** collisions through real-time train-to-train communication.

- **Automated Braking:** Enforces speed limits; applies brakes if the Loco Pilot fails to slow down for turnouts, gradients, or permanent/temporary speed restrictions.
- **Cab Signaling:** Displays signal status, target speed, and distance directly in the loco cab—essential for visibility at **160 kmph**.
- **Roll-Back/Forward Protection:** Prevents unintended movement of the train when stationary or on gradients.
- **SOS Functionality:** Allows both Loco Pilots and station staff to broadcast an **Emergency Stop** signal to all trains in the vicinity.
- **Auto-Whistling:** Automatically triggers the train horn when approaching **Level Crossing (LC) Gates**.

C. Evolutionary Versions

1. Kavach 3.2 (The Foundation)

- **Core Role:** Established basic **Automatic Train Protection (ATP)** protocols.
- **Deployment:** Successfully tested and implemented on ~1,465 route km on the South-Central Railway.
- **Capability:** Focused on preventing SPAD (Signal Passing at Danger) and rear-end collisions in non-complex environments.

2. Kavach 4.0 (The Current Gold Standard)

- **Status:** Approved in July 2024; currently being rapidly deployed.
- **Upgrade:** Designed to handle **complex terrains**, high-density traffic, and diverse Indian Railway zones.
- **Key Milestone:** Covered **472 km in a single month** (Jan 2026).
- **Network Reach:** Spans five zones including major sections of the Delhi-Mumbai and Delhi-Howrah corridors.
- **Precision:** Enhanced interoperability between different manufacturers and more robust radio communication.

Kavach 5.0 (The Future / Urban Transit)

- **Specialization:** Optimized for **Suburban Sections** (e.g., Mumbai Local network).
- **Headway Reduction:** Its primary goal is to **reduce the distance/time between trains** safely, allowing for higher frequency (more trains per hour).
- **Flagship Integration:** Scheduled to be the safety backbone for **Vande Bharat 4.0** trains.

AI and "Deep Tech" Integration

Indian Railways is deploying AI to move away from human-dependent inspections to **Machine-Vision** and **Acoustic sensing**.

- **Intrusion Detection (IDS):** Uses **Distributed Acoustic Sensing (DAS)** to detect **elephants** or wildlife on tracks, alerting pilots instantly.
- **Predictive Maintenance:** AI-driven **Machine Vision (MVIS)** and **Wheel Impact Load Detectors (WILD)** identify faulty components or wheel wear while the train is in motion.
- **Electronic Interlocking:** Replaces manual track-switching with a centralized computer-based system, eliminating human error in route setting.

- **Video Analytics (VA):** Employs **Facial Recognition (FRS)** and loitering detection at stations for proactive security management.
- **Fog Safety Devices (FSD):** GPS-based handheld devices that provide pilots with distances to approaching landmarks (signals/gates) during zero-visibility conditions.

Other Government Initiative:

1. **Rashtriya Rail Sanraksha Kosh (RRSK):** A dedicated **Special Solvency Fund** for critical safety assets.
 - **Focus:** Elimination of unmanned level crossings, track renewals, and bridge rehabilitations.
 - **Status:** Extended for a second five-year period starting 2022-23 to sustain safety CAPEX.
2. **Mission Raftar:** To double the average speed of freight trains and increase passenger train speeds to **160 kmph**.
 - **Safety Link:** High speeds necessitate the mandatory deployment of **Kavach** (ATP) and the removal of all level crossings on **Golden Quadrilateral/Diagonal routes**.
3. **Digital India in Railways:** Implementation of the **Network Management System (NMS)** for centralized real-time monitoring of every Kavach-equipped train.
 - **Connectivity:** Expansion of the **Optical Fibre Cable (OFC)** network (67,233 km) to provide the backbone for AI and communication.
4. **Aatmanirbhar Bharat (Indigenous Innovation):** Funding provided to **RDSO** to develop Kavach as an indigenous alternative to the expensive European Train Control System (ETCS).
5. **"One Station One Product" & Gati Shakti:** Integration of railway safety with the **PM Gati Shakti National Master Plan** to ensure multi-modal connectivity does not compromise track integrity or safety protocols.

Key Challenges in Railway Safety in India:

1. **Massive Scale & Geography:** Covering over **68,000 route km** across diverse terrains (mountains, coastal areas, deserts) requires immense time and infrastructure.
2. **High Capital Expenditure:** Estimated cost of **₹50 Lakh per km** for trackside equipment and **₹70 Lakh per locomotive**. Total network coverage requires multi-billion dollar investment.
3. **Retrofitting Legacy Assets:** Integrating modern Kavach 4.0/5.0 hardware into thousands of **older locomotives** and varied signaling systems (mechanical to electronic) is technically complex.
4. **Bandwidth & Spectrum:** Kavach relies on **UHF (Ultra High Frequency)**. Managing interference and ensuring 100% signal availability in remote/hilly regions is a bottleneck.
5. **Supply Chain & Interoperability:** Dependency on a limited number of certified vendors. Ensuring different manufacturers' equipment works seamlessly across all 17 railway zones.
6. **Cybersecurity Risks:** As signaling moves to digital and radio-based networks, the system becomes vulnerable to **cyber-attacks or signal jamming**, requiring advanced encryption.
7. **Human Factor & Training:** Transitioning a workforce of over **one million** from manual/visual-based driving to high-tech "Cab-Signaling" requires massive reskilling.

Way Forward:

1. **Standardization:** Expedite the transition from Kavach 4.0 to 5.0 across all 17 zones to ensure uniform safety protocols.
2. **Aggressive Rollout:** Prioritize the 10,000 km of High-Density Network (HDN) to cover 90% of traffic volume in the shortest possible timeframe.
3. **Public-Private Partnership (PPP):** Explore private investment for trackside equipment installation to reduce the fiscal burden on the **Rashtriya Rail Sanraksha Kosh (RRSK)**.
4. **Indigenous Component Ecosystem:** Foster a local supply chain for UHF radios and RFID tags to lower the "per-kilometer" implementation cost.
5. **5G for Railways:** Transition from UHF to dedicated **5G-R (Railway)** bands to provide higher bandwidth for AI-driven predictive maintenance and real-time 4K video surveillance.
6. **Satellite Backup:** Integrate **ISRO's NavIC** for redundant positioning data, ensuring safety even in radio-shadow regions like deep tunnels or mountainous terrain.
7. **Dynamic Training:** Implement AI-based driving simulators for Loco Pilots to master **Cab-Signaling** and automated braking responses under diverse stress scenarios.
8. **Track Fencing:** Complete the fencing of all **Mission Raftar** routes (160 kmph) to eliminate cattle straying and human trespassing—the leading causes of emergency braking.

Conclusion:

By integrating **Kavach 4.0**, **suburban-focused 5.0**, and **AI-driven diagnostics**, Indian Railways is pivoting from reactive safety to a **predictive, fail-safe architecture**. This digital overhaul not only secures lives but unlocks the capacity for **high-speed logistics**, positioning the network as a globally competitive, **Aatmanirbhar** backbone of India's future infrastructure.

Q. Critically examine how the deployment of Automatic Train Protection (ATP) systems and artificial intelligence is enhancing operational safety, network capacity, and institutional resilience of Indian Railways. (250 words)

3.1.5. THE NEXT PHASE OF RURAL WOMEN ENTREPRENEURSHIP IN INDIA**Context**

- The **Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM)** has mobilized approximately **10 crore households** into **91 lakh Self-Help Groups (SHGs)**, further organized into a tiered federal structure of **Village Organizations and Cluster-Level Federations (CLFs)**.
- With over **₹11 lakh crore** in bank credit leveraged and the emergence of more than **2 crore "Lakhpati Didis" (women earning over ₹1 lakh annually)**, the ecosystem is now poised for its next phase (**2026-27 to 2030-31**), shifting focus from group-based credit to individualized, high-growth entrepreneurship.



Background: Trajectory of Rural Women Entrepreneurship

- **Early Phase – Financial Inclusion:** The initial phase focused on **thrift, savings, and microcredit**, enabling poor rural women to access institutional finance and reduce dependence on informal moneylenders.
- **Institutional Expansion under DAY–NRLM:** The programme subsequently evolved into a structured ecosystem comprising **91 lakh SHGs, 5.35 lakh Village Organisations (VOs), and 33,558 Cluster-Level Federations (CLFs)**, thereby institutionalising collective action and governance.
- **Economic Outcomes Achieved:** SHGs have cumulatively leveraged **over ₹11 lakh crore of bank credit**, while maintaining **low NPAs of about 1.7%**, reflecting strong financial discipline and repayment capacity.
- **Income Transformation:** The emergence of more than **two crore “Lakhpati Didis”**, each earning over ₹1 lakh annually, signals a shift from subsistence activities to diversified and semi-commercial enterprises.

Significance of the Next Phase of Rural Women Entrepreneurship in India

The evolution of rural women’s entrepreneurship is critical for India’s goal of becoming a **\$5 trillion economy**. Its significance lies in:

- **Shift from Livelihood Support to Enterprise Expansion** The next phase represents a transition from **subsistence-based livelihoods** to **enterprise-driven economic activities**, enabling rural women to scale businesses, diversify income sources, and move up the value chain.
- **Strengthening Community-Owned Institutions:** By revitalising **Cluster-Level Federations (CLFs)**, this phase enhances **institutional autonomy and leadership**, allowing women to exercise collective decision-making and local economic governance.
- **Deepening Financial Empowerment:** The focus moves beyond access to microcredit towards **financial empowerment**, including higher loan dosages, individual credit histories, and the introduction of **innovative and blended finance**.
- **Improving Income Stability and Productivity:** Customised credit, professional support, and market integration improve **enterprise productivity, income sustainability, and economic resilience** of rural households.
- **Formalisation of Women-Led Enterprises:** Linking women entrepreneurs with banks, credit bureaus, and formal markets accelerates the **formalisation of the rural informal economy**.
- **Alignment with Development Goals:** The next phase aligns rural women entrepreneurship with broader national priorities such as **inclusive growth, poverty reduction, demographic dividend utilisation, and Sustainable Development Goals (SDGs)**, especially **SDG-1 (No Poverty), SDG-5 (Gender Equality), and SDG-8 (Decent Work and Economic Growth)**.

Key Impacts of the SHG Movement

The **Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM)** has fundamentally altered the socio-economic fabric of rural India. Based on recent data and developments as of 2026, the key impacts of this movement are categorized below:

1. Economic Transformation and Wealth Creation

- **Creation of “Lakhpati Didis”:** The mission has successfully enabled over **2 crore women** to cross the annual income threshold of ₹1 lakh. The government is currently targeting an expansion to **3 crore members**, moving families from subsistence to surplus.
- **Capital Formation:** Around **₹56.69 lakh crore** has been infused into community institutions as capitalization support (**Revolving Funds and Community Investment Funds**), providing the “seed capital” necessary for rural micro-enterprises.
- **Diversified Livelihoods:** Beyond traditional agriculture, women have entered high-value sectors such as **drone piloting (Namo Drone Didi)**, LED bulb manufacturing, and solar panel maintenance, significantly increasing the rural household GDP contribution.

2. Financial Inclusion and Credit Discipline

- **Massive Credit Leverage:** SHGs have leveraged more than **₹11 lakh crore** in bank credit. This has reduced reliance on predatory informal moneylenders by approximately **20%**.
- **Exemplary Repayment Rates:** Despite the absence of collateral, the **Non-Performing Asset (NPA) ratio** for SHG loans is a mere **1.7%**. This demonstrates a level of credit discipline that often surpasses the formal corporate sector.
- **Banking at the Doorstep:** Over **1.44 lakh SHG members** serve as **BC Sakhis** (Business Correspondent Agents), bringing essential banking services (deposits, pensions, insurance) to the last mile.

3. Social and Institutional Capital

- **Institutional Tiering:** The movement has built a robust three-tier structure: **91 lakh SHGs** at the base, **5.35 lakh Village Organizations (VOs)**, and **33,558 Cluster-Level Federations (CLFs)**. This hierarchy ensures that even the most marginalized women have an institutional platform for grievance redressal and collective bargaining.
- **Community Resource Persons (CRPs):** A cadre of over **6 lakh trained CRPs** (Krishi Sakhis, Pashu Sakhis, etc.) provides specialized technical assistance in agriculture and livestock, ensuring the sustainability of rural ventures.

4. Political and Administrative Empowerment

- **Emergence as a Political Constituency:** With 10 crore households mobilized, SHG women have emerged as a decisive “vote bank,” compelling state governments to launch women-centric Direct Benefit Transfer (DBT) schemes like the **Ladli Laxmi Yojana** in Madhya Pradesh, **Maiya Samman Yojana** in Jharkhand, **Mukhyamantri Mahila Rozgar Yojana** in Bihar and **Ladki Bahin Yojana** in Maharashtra.
- **Participation in Governance:** The movement has acted as a nursery for leadership, with many SHG members successfully contesting **Panchayati Raj Institution (PRI)** elections and leading village-level developmental planning through the **VPRP (Village Prosperity and Resilience Plan)**.

5. Impact on Human Development Indicators

- **Investment in Human Capital:** Increased household income has a direct correlation with improved **nutritional intake** and higher **enrolment rates for girl children** in secondary and higher education.

- **Social Cohesion:** SHGs have become effective “**pressure groups**” to tackle social issues such as alcoholism, domestic violence, and child marriage at the village level.

Key Challenges Facing Rural Women Entrepreneurship in India

Despite the successes, several structural bottlenecks impede the transition to the next level of entrepreneurship:

- **Institutional Dependency:** Many CLFs remain subservient to government functionaries rather than operating as independent, community-owned entities.
- **Credit Ceiling and History:** Individual entrepreneurs often struggle to scale because they lack **personal CIBIL scores** and credit histories, as most past lending was group-based.
- **Idle Capital and Accountability:** Large volumes of capital—estimated at **₹56.69 lakh crore** in total capitalization support—remain underutilized or lack robust social and statutory audits.
- **Marketing and Branding Gaps:** Rural products often fail to compete in urban or global markets due to poor packaging, inconsistent quality, and the lack of a professional supply chain.
- **Siloed Implementation:** Livelihood schemes across various ministries (Agriculture, Food Processing, Animal Husbandry) often operate in isolation, leading to duplication and inefficiency.

Government Initiatives Supporting Rural Women Entrepreneurship in India

The **Union Budget 2026-27** and recent policy shifts have introduced targeted interventions:

- **DAY-NRLM Sub-schemes:** Programs like **Mahila Kisan Sashaktikaran Pariyojana (MKSP)** focus on sustainable agriculture, while the **Start-up Village Entrepreneurship Programme (SVEP)** supports non-farm enterprises.
- **Women-Centric Direct Benefit Transfer (DBT) Schemes:** State schemes such as **Ladli Laxmi Yojana, Maiya Samman Yojana, Ladki Bahin Yojana, and Mukhyamantri Mahila Rozgar Yojana** enhance income security and entrepreneurial risk-taking.
- **Technological Integration:** The use of the **Lakshpati Didi Mobile App** for tracking income and the **VPRP (Village Prosperity and Resilience Plan)** for demand-driven planning.
- **Individual Credit History Integration:** A systematic push to generate **CIBIL scores** for individual SHG members, allowing them to bypass group-lending limits and access larger personal business loans.
- **Market Access and Promotion of SHG Product:** Platforms such as **SARAS Aajeevika, GeM onboarding**, and State-level marketing initiatives support **branding, quality assurance, and market integration** of SHG products.
- **National Rural Economic Transformation Project (NRETP):** Supported by the World Bank, **NRETP** strengthens **enterprise promotion, cluster-based livelihoods, digital inclusion, and market access** for rural women entrepreneurs.

Way Forward to Strengthen Rural Women Entrepreneurship in India

- **Revitalizing Community Institutions:** Transforming **Cluster-Level Federations (CLFs)** into independent business hubs. Inspired by models like **Kudumbashree** (Kerala) and **Jeevika** (Bihar), these will act as “business clinics” providing legal and technical consultancy free from administrative interference.

- **Individual Financial Identity:** Shifting from group-based credit to **individual CIBIL scores**. This allows “**Lakhpatis**” to access personal business loans (up to ₹50 lakh) and innovative financing like **equity and venture capital** through partnerships with SIDBI.
- **Institutionalized Convergence:** Establishing a **Convergence Cell at NITI Aayog** to synchronize efforts across ministries (**Agriculture, MSME, Food Processing**), ensuring a “single-window” support system for rural startups.
- **Market and Digital Integration:** Establish **community-owned SHE Marts** and a **National Marketing Vertical** to aggregate SHG products under a unified “**Rural Brand**”, ensuring **standardised packaging and professional branding**, while onboarding enterprises onto **ONDC (Open Network for Digital Commerce)** to directly connect village products with urban markets.

Conclusion

The next phase of rural women’s entrepreneurship in India marks a transition from **micro-finance to micro-capitalism**. By empowering Cluster-Level Federations as independent economic engines and bridging the gap between group credit and individual enterprise, the DAY-NRLM can catalyze a “**Viksit Bharat**” (Developed India) where rural women are leaders of industrial growth. The success of this phase hinges on the institutionalization of convergence, robust social audits, and relentless market integration.

Q. India faces increasing global trade shocks and geoeconomic uncertainties. Critically examine how a calibrated approach involving fiscal prudence, public investment, and sectoral reforms can strengthen economic resilience and medium-term growth. (250 words)

3.1.6. INDIA’S NEXT INDUSTRIAL SHIFT: ELECTRONS OVER MOLECULES

Context

- As of early 2026, a **fundamental shift** is redefining global industrial competitiveness. For over a century, global manufacturing has relied on “**molecules**”—the **combustion of coal, oil, and gas**—to provide heat and motion.
- This paradigm is rapidly yielding to an “**electron-based**” model, where **clean and reliable electricity** delivered via the **electricity grid** becomes the **primary driver of production**.
- This transition is no longer driven only by climate concerns; it is becoming a decisive factor in **competitiveness, trade access, capital allocation, energy security, and job creation**.



Conceptual Framework — Molecules versus Electrons

The distinction between molecules and electrons provides a clear analytical lens for understanding **industrial decarbonisation**.

- **Molecules:** Coal, oil, gas, LPG, and biofuels.
 - Burned directly in **boilers, furnaces, engines, and kilns**.

- Characterised by **lower efficiency, local pollution, and carbon lock-in.**
- **Electrons:** Energy supplied through the **electricity grid.**
 - Power **electric motors, digitally controlled machinery, and automated systems**
 - Enable rapid **decarbonisation** as generation shifts to renewables
- **Key Advantages of Electrification**
 - **Higher efficiency:** Electric motors convert over **90%** of input energy into useful work, compared to **30–35%** for internal combustion systems.
 - **Automation and precision:** Electrified processes allow better control, digital monitoring, and reduced waste.
 - **Decarbonisation readiness:** As power generation shifts toward renewables, electrified industry decarbonises automatically.
 - **Fuel displacement effect:** Each incremental rise in electrification displaces a disproportionately large amount of fossil fuel use.

Current Status: India vs. Global Leaders

Metric	India	China	USA/EU
Industrial Electrification	~25%	~50%	U.S.-32%; EU-34%
Green Electron Share	7-8%	Leading	~12%
Strategy Focus	Generation Capacity	Grid + Electron-First Industry	Consumer/Service Led

Note: At the aggregate economic level, however, **China, the United States, and the European Union exhibit similar electrification levels of around one-third**, indicating that China’s advantage stems from **targeted industrial electrification rather than overall energy structure.**

About Electricity-Led Industrial Strategy

China’s experience illustrates how **electrification can be consciously deployed as an industrial policy instrument**, rather than emerging incidentally from energy transition.

- **Industrial Energy Composition:** Nearly **half of industrial energy demand** is met through electricity, placing China well ahead of other major economies.
- **Quality of Power Supply:** High electrification is complemented by the **largest share of green electricity**, reinforcing low-carbon manufacturing capability.
- **Enabling Infrastructure:** Long-term investment in **generation capacity, ultra-high-voltage transmission, grid-scale storage, and flexible substations** ensures stable and reliable industrial power.
- **Steel Sector Reorientation:** Expansion of **electric arc furnaces** has been supported through **scrap recycling policies and preferential electricity pricing.**
- **Cement Sector Upgradation:** Electrified grinding, digital process controls, and **waste-heat recovery systems** have reduced fuel intensity, with **Carbon Capture, Utilisation and Storage-CCUS pilots** addressing unavoidable emissions.

Strategic Significance: The Paradigm Shift to Electrons

The transition from a “molecule-based” industrial core to an **electron-driven economy** represents a fundamental restructuring of India’s economic and sovereign landscape.

- **Global Export Dominance:** As trade regimes like the EU’s **CBAM** go live, “**green electrons**” become the new **currency of trade**. Low-carbon manufacturing ensures Indian goods avoid **heavy carbon taxes** and secure “**preferred supplier**” status in high-value international markets.
- **Energy Independence:** Shifting industrial heat and motion to the **power grid** reduces reliance on **volatile, imported oil and gas**. By utilizing **domestic solar, wind, and nuclear electrons**, India can slash its annual **energy import bill** and shield the economy from **geopolitical shocks**.
- **Industrial Decentralization:** Electrification **decouples** industrial growth from **fuel logistics**. Unlike coal-heavy industries tethered to mines or pipelines, “**electron-first**” factories can be located near **skilled talent pools** and **major ports**, optimizing for **human capital** rather than resource proximity.
- **Macroeconomic Resilience:** **Grid-based power**, particularly from renewables with **fixed long-term costs**, provides a stable **buffer** against erratic **commodity market swings**. This predictability fosters robust **long-term corporate planning** and **financial stability**.
- **The Efficiency Dividend:** Electric systems are inherently superior. With **electric motors** converting **over 90%** of energy into work (versus **<35%** for combustion), the economy requires **less total energy** for higher output, driving a natural increase in **GDP per unit of energy**.

India’s Industrial Electrification: Structural Constraints

India has expanded electricity capacity rapidly and has emerged as a global leader in **annual solar power additions**, yet industrial electrification remains limited.

- **Current Industrial Energy Profile:** Electricity accounts for only **about one-fourth of industrial energy use**, while **green electricity forms a small share** of final demand.
- **Legacy Infrastructure Constraint:** Continued reliance on **on-site fossil-fuel combustion** locks firms into molecule-based production systems.
- **Power Quality Constraint:** **Inconsistent electricity reliability** discourages adoption of all-electric industrial processes.
- **Policy Orientation Constraint:** Policy focus has remained stronger on **generation expansion** than on **industrial electrification**.
- **Emerging Risk:** Without corrective action, Indian industry faces the risk of **reduced competitiveness** as global carbon standards tighten.

Green Steel: Shaping India’s Climate Trajectory

Steel is a critical “hard-to-abate” sector where the electron-molecule shift is most visible.

- **Pathway to Decarbonization:** India currently produces approximately **30%** of its steel via the **Electric Arc Furnace (EAF)** route. In comparison, the U.S. produces **70%** through EAFs.
- **Green Steel Taxonomy:** India has introduced star-rating systems to classify steel based on emission intensity (tCO₂/tcs), aiming to align with global standards like the EU’s **Carbon Border Adjustment Mechanism (CBAM)**.

- **Key Drivers:** Transitioning to green steel requires replacing coal-based **Direct Reduced Iron (DRI)** with hydrogen-based DRI or scrap-based EAFs powered by renewable “green electrons.”

Sectoral Pathways for India’s Industrial Electrification Transition

Despite constraints, India possesses viable entry points to accelerate industrial electrification.

- **Steel Sector Opportunity:** Nearly **one-third of steel output** already uses **electric arc furnaces**, offering a strong base for expansion through improved **scrap collection and clean power-linked incentives**, especially under **Carbon Border Adjustment Mechanism (CBAM)** pressures.
- **Cement Sector Opportunity:** Support for **electrified kilns, large-scale waste heat recovery, and carbon capture hubs** can substantially reduce fuel use per tonne over the next decade. Waste-heat recovery (WHR) can contribute **30-35 kWh per tonne**, though calcination requires future **Carbon Capture, Utilisation, and Storage (CCUS)** hubs
- **MSME Transition Challenge:** For MSMEs, the principal barrier is **access**, not technology, given their dependence on coal boilers and diesel generators.
- **Financial and Technical Support Needs:** **Concessional finance, pooled renewable power procurement, and technical assistance** are essential to enable MSME electrification.
- **Role of Digitalisation:** Integrating **digital controls in new industrial clusters** can cut energy waste, enable demand response, and produce **verifiable emissions data** required by global buyers.

Government Initiatives

The Indian government has launched several strategic interventions to bridge the “electron gap”:

- **Green Steel Taxonomy (2024):** Categorizes steel based on carbon intensity. A **5-star rating** is awarded for steel with emissions.
- **Draft National Electricity Policy (NEP) 2026:** Targets a per capita consumption of **2,000 kWh by 2030** and focuses on **grid digitalization** and SCADA systems.
- **Indian Carbon Market (ICM):** Notified in early 2026, the **Carbon Credit Trading Scheme (CCTS)** now covers 490 entities across cement, steel, refineries, and textiles.
- **National Green Hydrogen Mission (NGHM):** Five pilot projects have been awarded to test hydrogen injection in blast furnaces and DRI production.

Way Forward: A Strategic Roadmap

- **National Mission on Industrial Electrification:** Launch a dedicated mission to shift industry away from on-site combustion toward the grid.
- **Grid Modernization:** Prioritize investment in **Ultra-High-Voltage (UHV)** transmission and **grid-scale storage** (e.g., Pumped Storage Projects) to handle renewable intermittent loads.
- **Electrification of New Clusters:** Mandate that all new industrial parks and SEZs be “electron-first,” with infrastructure designed for electric heating and processing.
- **MSME Transition Finance:** Create a “Transition Fund” specifically for MSMEs to swap coal boilers for electric induction furnaces and access pooled renewable power.
- **Green Public Procurement (GPP):** Mandate that a minimum percentage (e.g., 25%) of steel and cement for government infrastructure must meet “Green Star” taxonomy ratings by 2028.

- **Scrap Policy Formalization:** Enhance the **Vehicle Scrapping Policy** to ensure a steady supply of steel scrap, fueling the growth of Electric Arc Furnaces (EAF).

Conclusion

The transition to an “**electron-first**” model is the definitive pivot for India’s industrial sovereignty, requiring a shift from mere power generation to the **deep electrification** of its manufacturing core. By replacing imported, carbon-intensive **molecules** with domestic **green electrons**, India will secure a **globally competitive** and resilient industrial base, turning the vision of **Viksit Bharat @ 2047** into a tangible reality.

Q. How does the shift toward an electricity-led industrial strategy contribute to energy security, macroeconomic stability, and industrial decentralisation in India? (250 Words)

3.1.7. FOOD SECURITY IN INDIA

Context:

Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

- **Global Hunger Index (GHI) 2025-26:** India ranks **105th out of 127** countries, with a score of **27.3** (Serious category).
- **Economic Transition:** India has moved from being a food-aid recipient (PL-480 era) to the world's largest rice exporter (**20.2 million tonnes** in FY25).



The FAO defines food security through four pillars:

1. **Availability:** The "supply side" of food security. It refers to the **physical existence** of food in a country or area through:
 - Domestic agricultural production.
 - Commercial imports.
 - Food aid and national buffer stocks (e.g., FCI godowns in India).
2. **Accessibility:** The ability of individuals to actually **reach and acquire** food. It is not enough for food to be in the market; people must have:
 - **Economic Access:** Adequate income or purchasing power to buy food.
 - **Physical Access:** Adequate infrastructure (roads, PDS shops) to reach the food.
3. **Affordability / Utilization:** Often termed "utilization," this focuses on the **nutritional quality** and the body's ability to use it.
 - **Nutritional Value:** Access to clean water, sanitation, and healthcare to ensure the body absorbs nutrients.
 - **Food Safety:** Proper food preparation and dietary diversity to prevent "hidden hunger."

4. **Stability:** The **consistency** of the other three pillars over time. Food security must **not be threatened by:**

- **Seasonal shocks** (e.g., crop failure or lean seasons).
- **Economic shocks** (e.g., sudden price hikes or unemployment).
- **Political/Climatic shocks** (e.g., wars, floods, or droughts).

Why India Needs Food Security?

1. High Malnutrition & "Hidden Hunger"

- Despite being a food-surplus nation, India faces a "**Nutrition Paradox.**"
- **Stunting & Wasting:** NFHS-5 data shows ~35% of children are stunted.
- **Anemia:** Over 50% of women and children suffer from iron deficiency. Food security ensures access to **fortified foods** to combat these micronutrient gaps.

2. Demographic Pressure

- With a population exceeding **1.4 billion**, India must ensure a consistent supply chain. Any disruption in food availability can lead to massive **social unrest** and inflation, as seen during global supply chain shocks in 2024-25.

3. Climate Vulnerability

- Indian agriculture is a "**gamble on the monsoons.**"
- **Extreme Weather:** Heatwaves and unseasonal rains threaten crop yields.
- **Resilience:** Food security systems (like buffer stocks) act as a shock absorber against climate-induced crop failures.

4. Economic Stability (Inflation Control)

- Food occupies a large weight in the **Consumer Price Index (CPI)**. Food price volatility directly impacts the disposable income of the poor.
- Securing the food supply prevents "Agflation" (Agricultural Inflation), which can destabilize the national economy.

5. Poverty-Hunger Trap

- Food security is a prerequisite for **Human Capital Development**. A hungry child cannot learn (impacts Education/SDG 4).
- A malnourished worker is less productive (impacts GDP/SDG 8).

6. Ethical & Constitutional Obligation

- **Article 21:** The Supreme Court has interpreted the "**Right to Life**" to include the **Right to Food**.
- **SDG 2:** India is committed to the Global Goal of "**Zero Hunger**" by 2030.

Government Initiatives

Pillar 1: Farm-Level Resilience & Storage

- **PM Dhan-Dhaanya Krishi Yojana (PM-DDKY):** Launched in Oct 2025, this 6-year scheme targets **100 low-productivity districts** to enhance yield through sustainable practices and crop diversification.

- **World's Largest Grain Storage Plan in Co-operative Sector:** Utilizing Primary Agricultural Credit Societies (PACS) to create decentralized storage, reducing post-harvest losses and preventing distress sales by farmers.
- **Digital Agriculture Mission:** Creating a "Digital Public Infrastructure" for farmers, including the **AgriStack** (identity/land records) to ensure subsidies like PM-KISAN reach the right hands without leakages.

Pillar 2: Nutritional Security (Hidden Hunger)

- **Mission Saksham Anganwadi and Poshan 2.0:** Focuses on maternal and child nutrition.
 - **Rice Fortification:** Mandatory supply of fortified rice (enriched with Iron, Folic Acid, and Vitamin B12) through PDS, Mid-Day Meals (PM-POSHAN), and ICDS.
 - **Saksham Anganwadis:** Upgrading 2 lakh centres with better infrastructure (audio-visual aids, clean water) to improve early childhood nutrition.
- **National Food Security and Nutrition Mission (NFSNM):** Renamed from NFSM in 2025-26, adding a dedicated sub-mission for **Nutri-Cereals (Shree Anna/Milletts)**.

Pillar 3: Price & Stock Management

- **Wheat Stock Limits (2025-26):** Imposed on traders, wholesalers, and big chain retailers to prevent hoarding and unscrupulous speculation during the 2026 harvest season.
- **Mission for Aatmanirbharta in Pulses & Oilseeds:** Reducing import dependency to stabilize domestic prices of essential proteins and fats.

Pillar 4: Targeted Distribution & Subsidies

- **PM-Garib Kalyan Anna Yojana (PMGKAY):** Integrated with the National Food Security Act (NFSA), it provides **free foodgrains** to **81.35 crore** beneficiaries. In late 2025, it was extended for five years (until **December 2028**), with an outlay of **₹11.80 lakh crore**.
- **One Nation One Ration Card (ONORC):** Fully functional nationwide, allowing migrants to access their entitlements from any Fair Price Shop (FPS) using biometric authentication.
- **Open Market Sale Scheme (OMSS):** Used aggressively in early 2026 to offload wheat and rice stocks to curb retail inflation.

Global Initiatives

- **India-UAE Food Corridor:** Streamline supply chains and use India as a "**food bowl**" for **West Asia** while ensuring domestic price stability.
- **WFP Partnership:** India supplies **fortified rice** to global hunger hotspots, positioning itself as a "Solution Provider" rather than just a recipient.
- **International Year of Rangelands and Pastoralists (2026):** The UN has designated **2026** to highlight the role of **sustainable livestock and rangelands** in global food security, particularly for **indigenous communities and arid regions**.
- **G20 Global Alliance Against Hunger and Poverty (2025–2026):** Launched during Brazil's G20 Presidency. Aims to reach **500 million people** with cash transfers and empower **100 million smallholder farmers** by 2030.

Committees on Food Security in India

- **Shanta Kumar Committee (2015):** Recommended **restructuring FCI** to improve efficiency.
 - Suggested reducing NFSA coverage from 67% to 40%.

- Advocated for **Direct Benefit Transfer (DBT)** in PDS.
- **Ashok Dalwai Committee:** Focused on **Doubling Farmers' Income**; emphasized that food security is impossible without "income security" for producers.
- **NITI Aayog Task Force (2025):** Proposed the "**Nutrition Basket**" approach—moving PDS beyond just wheat/rice to include millets, pulses, and oilseeds.

Challenges to Food Security in India

1. Structural & Supply Chain Issues

- **Leakages in PDS:** Despite massive digitalization, estimates in early 2026 suggest a **~20-28% leakage** in the Public Distribution System (PDS).
- **Infrastructure Deficit:** India lacks adequate **cold chain storage**, leading to a loss of approximately **40% of fresh produce** (fruits and vegetables) post-harvest.
- **Fragmented Landholdings:** Over 86% of Indian farmers are "small and marginal," making it difficult to achieve economies of scale and adopt modern, yield-boosting technologies.

2. The "Hidden Hunger" Challenge

- **Monoculture Focus:** The MSP-driven system incentivizes wheat and rice, discouraging the production of nutrient-dense **pulses and millets**.
- **Micronutrient Deficiency:** While people may have enough calories, they lack essential vitamins and minerals. **NFHS-5** and subsequent 2025 updates highlight that **over 50% of women** and children remain anemic.
- **Soil Health Decay:** Over-reliance on chemical fertilizers (Urea) has led to Zinc and Boron deficiencies in the soil, which translates directly into nutrient-deficient crops.

3. Climate & Environmental Risks

- **Extreme Weather Events:** The "2024-25 Heatwaves" and erratic 2026 monsoons have demonstrated that climate change can wipe out **10–15% of wheat yields** in a single season.
- **Groundwater Depletion:** Water-intensive crops like paddy in Punjab/Haryana are pushing water tables to "danger zones," making future production unsustainable.
- **Land Degradation:** FAO's 2025 reports indicate that nearly **30% of India's land** is undergoing degradation, threatening long-term food availability.

4. Economic & Global Pressures

- **Inflationary Pressures:** Global conflicts (e.g., in the Middle East or Eastern Europe) drive up **fertilizer and fuel prices**, directly increasing the "Economic Cost" of food for the government and consumers.
- **The Subsidy Burden:** The food subsidy bill (PMGKAY) now accounts for nearly **4-5% of the total budget**, limiting the fiscal space for long-term agricultural investments like irrigation.

5. Socio-Demographic Barriers

- **Exclusion Errors:** The 2011 Census is still the basis for NFSA coverage in 2026; missing a fresh census means nearly **10 crore needy people** remain outside the safety net.
- **Gender Bias:** Intra-household food distribution often favors men, leaving women and girls with lower nutritional intake even in food-secure households.

Way Forward

- **From Calories to Nutrition:** Shift PDS focus from a "Wheat-Rice" duopoly to a "**Nutrition Basket**" including pulses, oilseeds, and **Shree Anna (Millets)** to combat hidden hunger.
- **Update Beneficiary Data:** Fast-track the link between the **e-Shram portal** and NFSA to include nearly 10 crore citizens currently excluded due to the use of outdated 2011 Census data.
- **Digital Public Infrastructure (DPI):** Fully implement the "**AgriStack**" to provide farmers with end-to-end services, from soil testing to direct market access via **e-NAM**.
- **Reducing Post-Harvest Losses:** Execute the "**World's Largest Grain Storage Plan**" at the PACS (Primary Agricultural Credit Societies) level to create decentralized, modern silos and cold chains.
- **Precision Farming:** Use **AI-enabled monitoring** and drone technology for targeted fertilizer application (Nano-Urea) to restore soil health and optimize input costs.
- **Climate-Smart Agriculture:** Invest in **multi-stress tolerant crop varieties** (heat and flood-resistant) as a primary defense against the erratic weather patterns observed in early 2026.
- **Water Governance:** Expand "**Per Drop More Crop**" initiatives, specifically targeting "water-guilt" crops like sugarcane and paddy in arid regions through micro-irrigation.

Conclusion

Food security in 2026 is no longer a question of "production" but of "**management and nutrition.**" By transitioning from a cereal-centric PDS to a diversified "Nutrition Basket," and leveraging agritech, India can achieve **SDG 2 (Zero Hunger)** by 2030 while becoming a global reliable supplier.

Q. What are the salient features of the National Food Security Act, 2013? How has the Food Security Bill helped in eliminating hunger and malnutrition in India? 250 Words

3.1.8. REVISED LABOUR CODES REFORM WAGE STRUCTURES AND EMPOWER WORKERS

Context:

- The implementation of the **Four Labour Codes** in India represents a paradigm shift from a **fragmented, colonial-era regulatory framework** to a **cohesive, digitally-driven ecosystem**.
- By consolidating **29 central labour laws**, the reforms aim to balance the "**ease of doing business**" with a "**universalization of social security.**"
- At the heart of this transition is a structural intervention designed to foster **financial inclusion**, redefine the **employer-employee relationship**, and ensure that the fruits of economic growth are equitably distributed among the workforce.



Background: The Need for Reforming Labour Codes

Historically, India's labour market was governed by a complex web of overlapping statutes that created compliance burdens for employers and left nearly **90% of the workforce (unorganized sector)** without formal protection. The **Second National Commission on Labour (2002)** recommended consolidation to resolve:

- **Systemic Complexity:** Over 40 central and 100 state laws fostered an inefficient "Inspector Raj."

- **Legal Fragmentation:** Inconsistent definitions of "**wages,**" "**worker,**" and "**factory**" led to endless litigation.
- **Modern Exclusions:** A total lack of recognition for the burgeoning **gig and platform economy.**

Key Provisions of Labour Codes Redefining Wages and Empowering Workers

The reform is built upon four pillars: the **Code on Wages (2019)**, the **Industrial Relations Code (2020)**, the **Social Security Code (2020)**, and the **Occupational Safety, Health and Working Conditions Code (2020)**.

1. Uniform Definition of Wages

- The **Code on Wages, 2019** introduces a single, universal definition of "**wages**" applicable across all four labour codes, replacing the earlier fragmented and sector specific definitions used under precode laws.
- Under the **earlier regime**, 'wages' were defined inconsistently across statutes such as the **Payment of Wages Act, 1936, Minimum Wages Act, 1948, Payment of Gratuity Act, 1972,** and **Employees' Provident Funds and Miscellaneous Provisions Act, 1952.** These definitions often excluded various allowances, leading to a **lower wage-base for social security calculations.**
- Now, **wages** explicitly include **basic pay, dearness allowance and retaining allowance**, while certain components such as **house rent allowance, conveyance allowance, employer's contribution to PF/NPS and statutory bonus** are treated as **exclusions**, subject to a cap.-**rent allowance, conveyance allowance, employer's contribution to PF/NPS and statutory bonus**
- A "**50% rule**" is embedded: **wages must constitute at least 50% of total remuneration**; if allowances exceed 50%, the **excess is added back to wages** for statutory calculations, thereby **raising the wage share and expanding social security contributions.-share and expanding social-security contributions**

2. Universal Minimum Wages and Timely Payment

- The Code mandates a **floor wage** (a **national baseline** set by the **Central Government based on minimum living standards**, below which no State Government can set wages) and **statutory minimum wages** (the **legally lowest remuneration** fixed by the appropriate government for specific regions or occupations, which must be equal to or higher than the floor wage) applicable to all workers, including permanent, fixed-term, contract, part-time, and gig workers, thereby eliminating earlier sectoral exclusions and wage ceiling thresholds.
- It also **prohibits arbitrary deductions**, requires **timely payment of wages** (often into bank accounts), and removes the earlier wage ceiling threshold that limited coverage, thus **enhancing income security and financial inclusion.-ceiling threshold that limited coverage, thus**

3. Gratuity and Fixed Term Employment Term Employment-Term Employment

- Under the **revised gratuity provisions, fixed term employees** become eligible for **gratuity after completing one year of continuous service**, instead of the earlier **five year requirement** under the **Payment of Gratuity Act, 1972.-term employees-year requirement**

- This change recognises the growing share of **fixed-term and project-based employment** and converts **short-term work** into a mechanism for **terminal financial benefits** and **asset creation**, thereby strengthening long-term income security.

4. Coverage of Gig and Platform Workers

- The **Social Security Code** formally recognises **gig and platform workers**, bringing them under the ambit of **social security schemes, insurance and welfare funds** for the first time, unlike the **earlier framework** which largely excluded them from statutory protections.
- It also provides **portability of benefits** across states and employers, which is particularly significant for **migrant and informal workers**, enabling **continuous access to social security entitlements** despite job or location changes. -**security entitlements**

Significance of the Labour Reforms: Empowering the Modern Workforce

The consolidation of labour laws into four comprehensive codes is not merely an administrative exercise; it is a **structural intervention** aimed at aligning India's economic growth with **social justice** and **financial dignity**.

- **Enhanced Financial Inclusion and Social Security:** By **raising the wage share** in total remuneration, the codes increase **employer contributions to provident fund (PF), pension and gratuity**, leading to **higher long term savings and retirement security** for workers. -**share-term savings and retirement security**
 - **Furthermore, gratuity after one year** for **fixed term employees** transforms **short term contracts** into **structured income security mechanisms**, reducing vulnerability during job transitions. -**term employees-term contracts-security mechanisms**
- **Formalisation of Informal and Gig Work:** Extending **minimum wages, social security and welfare benefits** to **gig, platform and unorganised workers** helps **formalise large segments of the informal economy** and integrate them into the **formal financial and social security architecture**. -**security architecture**
 - Additionally, **portability of benefits** reduces the risk of exclusion when workers migrate across states or switch between formal and informal engagements.
- **Income Redistribution and Inclusive Growth:** The **redistribution of economic value from capital to labour** through higher wages and contributions strengthens **workers' purchasing power**, which in turn stimulates **domestic demand and consumption led growth**. -**security contributions strengthens -led growth**
 - Unlike capital income that may flow into financial markets or external assets, **labour income tends to circulate within the domestic economy**, generating **multiplier effects** on employment and local demand. -**income that may flow into financial markets or external assets,**
- **Regulatory Simplification and Transparency:** Consolidating 29 laws into **four codes** reduces **compliance complexity**, improves **transparency**, and creates a **more predictable regulatory environment** for both workers and employers.
 - The introduction of **single registration, single licence, and single return** mechanisms streamlines administration and reduces opportunities for **regulatory arbitrage and non-compliance**.

Multidimensional Impact of Labour Reforms: Workers, Employers, and the Economy

The transition to the unified labour codes generates a cascading effect across different stakeholders, shifting the focus from mere regulation to a **sustainable economic partnership**.

- **Impact on Workers: Higher wage share and gratuity eligibility** directly enhance **income security, savings and long term social protection**, especially for **fixed term, contract and informal workers**.
- By establishing **universal minimum wages and timely payment**, the codes reduce wage-arbitrariness and **protect vulnerable workers** from exploitation and delayed remuneration. This formal recognition of the **gig economy** ensures that even non-traditional workers have a stake in the formal social safety net.
- **Impact on Employers: The 50% wage rule and expanded gratuity coverage** increase **statutory liabilities** for large firms, particularly those with **high reliance on fixed term and contract workers** (e.g., IT services, construction, manufacturing).
- However, this increase in cost is balanced by **simplified compliance and digital-first processes**, which reduce administrative friction, minimize "Inspector Raj" interference, and improve **labour-management predictability rule**.
- **Macroeconomic and Structural Impact: Greater financial inclusion of workers** expands the **formal savings base**, deepens **financial markets**, and supports **long-term investment** in infrastructure and human capital.
- By **reducing labour-market segmentation** and integrating gig and informal workers into social-security nets, the codes contribute to **social stability and resilience** against economic shocks.
- The resulting boost in **purchasing power** creates a self-sustaining cycle of **consumption-led growth**, ensuring that economic progress is broad-based and inclusive.

Key Limitations of the New Labour Codes

Despite the transformative potential of the reforms, several structural and operational hurdles persist that could undermine the goal of universal worker empowerment.

1. Implementation and Enforcement Bottlenecks

- **Uneven Adoption:** While the Central Government has notified the codes, effective implementation remains inconsistent across **Small and Medium Enterprises (SMEs)**, the informal sector, and remote geographical regions.
- **Capacity Constraints:** Weak **inspection capacity** and a lack of awareness among the grassroots workforce often lead to non-compliance.
- **Diluted Oversight:** The transition from "Inspectors" to "**Inspector-cum-Facilitators**" and the shift toward web-based inspections are perceived by some as a softening of enforcement, potentially allowing safety and wage violations to go unchecked.

2. Ambiguities in the Wage Definition and Legal Friction

- **Calculation Uncertainty:** The absence of a clear statutory definition for "**total remuneration**" makes applying the **50% wage-rule** technically complex, leading to compliance uncertainty and high **litigation risks**.
- **Interpretive Disputes:** Ongoing disputes over which specific allowances fall under "exclusions" versus "wages" may lead to **delayed benefit accrual** for workers as companies await judicial clarifications.

3. Trade-Union Resistance and the Political Economy

- **Perception of Bias:** Major **trade unions** have launched nationwide strikes (such as the **Bharat Bandh in February 2026**), arguing that the codes favor **corporate flexibility** (e.g., easing hiring and firing norms) over long-term job security.
- **Erosion of Bargaining Power:** Restrictions on the **right to strike** and the requirement for extended notice periods are viewed as a dilution of collective bargaining rights, overshadowing the pro-worker social security gains.

4. Coverage Gaps and Operational Challenges

- **Gig Economy Hurdles:** While **gig and platform workers** are formally recognized, operationalizing their inclusion remains a logistical challenge. Current rules requiring a minimum of **90 days of engagement** to qualify for benefits may exclude a significant portion of the transient workforce.
- **Exclusion Thresholds:** Raising the employee threshold for **standing orders** and **retrenchment permission** (from **100 to 300 workers**) leaves employees in smaller establishments more vulnerable to arbitrary dismissals.
- **Digital Divide:** Registration for benefits via the **e-Shram portal** requires **Aadhaar-linked documentation**, which often excludes the most marginalized migrant workers who lack stable digital identities.

Way Forward: The Path to 'Viksit Bharat'

To ensure that the transition to the new labour codes results in genuine empowerment rather than administrative friction, a multi-pronged strategy is required:

- **Harmonized Federal Implementation:** As "Labour" is a subject on the **Concurrent List**, there is an urgent need for the **rapid notification of rules** by all State Governments. This uniformity is essential to prevent **regulatory arbitrage**, where businesses might migrate to states with more relaxed enforcement, thereby creating a "race to the bottom" in worker protection.
- **Leveraging Digital Public Infrastructure (DPI):** The success of these reforms hinges on **strengthening the e-Shram and EPFO portals**. Enhancing **digital literacy** among the workforce will ensure that workers—especially migrant and informal labourers—can directly track their contributions and claim benefits via **Aadhaar-seeded accounts**, effectively eliminating exploitative middlemen.
- **Institutionalizing a "Just Transition":** To mitigate the impact of automation and the gig economy's volatility, the government must prioritize the **establishment of a National Re-skilling Fund**. This fund should facilitate **continuous skill development**, allowing workers to transition smoothly within a rapidly evolving, tech-driven job market without facing income loss.
- **Support Ecosystem for MSMEs:** Recognizing that Small and Medium Enterprises are the largest employers, the government should consider **providing temporary subsidies or tax breaks**. These fiscal incentives would help small businesses absorb the **increased statutory liabilities** of the new wage structure without compromising their financial viability or reducing their workforce.
- **Strengthening Social Dialogue:** To resolve the deadlock with trade unions, a **continuous tripartite dialogue** between the government, employers, and labour representatives is necessary. **Transparent communication** can help bridge the trust gap, ensuring that the codes are viewed not as a threat to rights, but as a modern tool for **inclusive prosperity**.

Conclusion

India's labour codes are not merely a regulatory cleanup; they are a **social contract for the 21st century**. By prioritizing **income security** and **dignity of labour**, the reforms transition the Indian worker from a "**variable cost**" to a "**valued stakeholder**." The long-term success of this framework will lie in its **effective enforcement**, ensuring that the "last mile" worker is the primary beneficiary of India's growth story.

Q. Discuss the merits and demerits of the four 'Labour Codes' in the context of labour market reform reforms in India. What has been the progress so far in this regard? (Answer in 250 words)

3.1.9. INDIA'S GLOBAL CAPABILITY CENTERS (GCCS)

Context: The **Union Budget 2026-27** and the **India AI Impact Summit** (held at Bharat Mandapam) have signaled a shift toward "**Tech Sovereignty**." GCCs are no longer just supporting global HQs; they are where the world's most complex Engineering Research & Development (ER&D) and Generative AI (GenAI) models are being built.

About India's Global Capability Centers (GCCs)

Definition: A Global Capability Center is a captive, fully owned offshore unit of a multinational corporation (MNC) that handles specialized functions like IT, Finance, R&D, and Analytics.



Current Landscape

- **Scale:** India hosts **1,800+ GCCs**, accounting for nearly **50% of the world's total**.
- **Employment:** Employs over **1.9 million professionals** directly; supporting a total ecosystem of **10.4 million jobs**.
- **Specialization:** Over **500 GCCs** are now exclusively focused on **Artificial Intelligence (AI)** and Advanced Analytics.

Significance of Global Capability Centers (GCCs) for India

1. Economic Engine

- **GDP Contribution:** Adds **\$68 billion** to the economy; projected to reach **\$105 billion by 2030**.
- **Service Exports:** Accounts for **~20% of India's total service exports**, providing a critical cushion against the Current Account Deficit (CAD).
- **Direct Investment:** Moving from "Foreign Direct Investment" (FDI) to "**Human Capital Investment**," where MNCs invest in Indian high-end talent.

2. The 'Brain-Gain' Shift

- **End-to-End Ownership:** Indian GCCs now own global products from ideation to delivery, shedding the "back-office" tag.
- **Innovation Hubs:** Over **1,800 GCCs** nearly **50% of the world's total**. Make India the world's largest laboratory for **Generative AI, Semiconductors, and Cybersecurity**.
- **IP Creation:** Increasing share of global patents being filed from Indian soil by MNC units.

3. Employment & Urbanization

- **High-Value Jobs:** Employs **1.9 million** highly skilled professionals with salaries significantly higher than the IT services average.
- **Tier-II/III Expansion:** The "**Hub-and-Spoke**" model is decentralizing growth, creating "Mini-Silicon Valleys" in cities like Ahmedabad, Indore, and Kochi.
- **Ecosystem Multiplier:** Every 1 job in a GCC creates roughly **3-4 indirect jobs** in hospitality, real estate, and transport.

4. Strategic & Diplomatic Leverage

- **Tech-Sovereignty:** Hosting the core tech of Fortune 500 companies integrates India deeply into the global supply chain, making the world "dependent" on India's stability.
- **Standard Setting:** As GCCs build AI models (like BharatGen) on Indian data, India helps set global benchmarks for **Responsible AI**.

Key Challenges for India's Global Capability Centers (GCCs)

1. The Talent & Skill Paradox

- **Skill Gaps:** High volume of engineers but a shortage of "Super-Specialists" in **Quantum Computing, Cybersecurity-by-Design, and VLSI Design**.
- **Wage Inflation:** Fierce "Poaching Wars" between GCCs and well-funded Deep-Tech startups are driving up operational costs, threatening the traditional cost-advantage.
- **Employability:** Only **~45-50%** of Indian engineering graduates are considered "industry-ready" for high-end R&D roles without significant retraining.

2. Regulatory & Legal Hurdles

- **Data Sovereignty:** Navigating the **Digital Personal Data Protection (DPDP) Act** while maintaining seamless global data flows remains a compliance challenge.
- **Tax Litigation:** Complexity in **Transfer Pricing** (how MNCs charge their Indian units) often leads to long-drawn legal battles with tax authorities.
- **IP Ownership:** Ambiguity in Intellectual Property (IP) laws regarding "Inventions made in India for Global Parents" can deter high-stakes R&D investments.

3. Infrastructure & Concentration Risks

- **Tier-I Saturation:** Over-reliance on **Bengaluru, Hyderabad, and Pune** has led to crumbling urban infrastructure, high rentals, and extreme traffic congestion.
- **Tier-II Readiness:** While "Hub-and-Spoke" is the goal, smaller cities often lack **consistent high-speed power, Grade-A office spaces, and international air connectivity**.

4. Geopolitical & Macro Risks

- **Protectionism:** Increasing "Onshoring" sentiments in the US and Europe (e.g., US AI Executive Orders) could pressure MNCs to move critical R&D back to their home countries.
- **Cyber Vulnerability:** As GCCs become "Nerve Centers," they become prime targets for **State-sponsored cyber-espionage**, necessitating massive investments in sovereign cloud security.

Government Initiatives for Global Capability Centers (GCCs)

1. Fiscal & Tax Reforms (The "Ease of Business" Pillar)

- **Tax Holiday 2047:** Zero tax for foreign firms using Indian Data Centers for AI/Cloud workloads (promotes "Data Residency").
- **Advance Pricing Agreements (APA):** Up to **9 years** of tax certainty through fast-tracked Advance Pricing Agreements.

2. Infrastructure & Digital Sovereignty

- **IndiaAI Mission (GPU-on-Tap):** The government is deploying **38,000+ GPUs** of compute capacity. This allows GCCs to build Large Language Models (LLMs) like **BharatGen** using local infrastructure rather than relying on US-based cloud clusters.
- **City Economic Regions (CERs):** A ₹5,000 crore allocation to develop cities like Patna, Kochi, and Chandigarh into specialized GCC hubs under a "challenge mode," providing plug-and-play office spaces.
- **India Semiconductor Mission (ISM 2.0):** An allocation of ₹1,000 crore for FY 2026-27 to support **ER&D GCCs** in chip design and semiconductor equipment manufacturing.

3. Skill & Talent Development

- **FutureSkills Prime (MeitY & NASSCOM):** A digital platform that has certified over **1.9 million** professionals in "GCC-critical" skills like Cybersecurity, AI Engineering, and Cloud Architecture.
- **GENESIS (Gen-Next Support for Innovative Startups):** A ₹490 crore scheme to build a "feeder ecosystem," where local startups act as vendors or innovation partners for larger GCCs.
- **YUVAi & AI Tinkerpreneur:** Programs launched at the **AI Impact Summit 2026** to build a talent pipeline starting from schools, ensuring long-term human capital for the sector.

4. Policy Frameworks

- **National GCC Framework:** MeitY is formulating a guidance framework for States to create their own **GCC Policies** (similar to Bihar's 2026 IT/GCC policy) to attract investments into non-metro regions.
- **DPDP Rules 2025:** Providing clear "Explanatory Notes" for data processing, giving MNCs the confidence to move global datasets to India for AI training.

Way Forward

1. Human Capital Transformation

- **Curriculum Reboot:** Shift academic focus from "Service-based coding" to "**Product Engineering**" and "**Systems Thinking**" through Industry-Academia partnerships.
- **Finishing Schools:** Scale **FutureSkills Prime** to create "Ready-to-Deploy" specialists in niche areas like **GenAI, Quantum, and Space-tech**.

2. Regional Diversification (Beyond Metros)

- **The 100-City Plan:** Leverage **City Economic Regions (CERs)** to move GCCs into Tier-II/III cities. This reduces urban congestion and lowers operational costs by **25-30%**.
- **Infrastructure Parity:** Ensure high-speed 6G/Satellite-link connectivity and 24/7 green power in emerging hubs like Kochi, Indore, and Jaipur.

3. Intellectual Property (IP) & Sovereignty

- **"In-India for Global" IP:** Incentivize MNCs to file patents in India by streamlining the **Indian Patent Office** and offering "IP-linked" tax credits.
- **Data-Compute Independence:** Utilize the **IndiaAI Mission's GPU clusters** to ensure GCCs train AI on Indian soil, preventing "Data Colonization."

4. Regulatory Agility

- **Stable Tax Regime:** Avoid "Tax Terrorism" by sticking to the **15.5% Safe Harbour** margin and fast-tracking **Advance Pricing Agreements (APAs)**.
- **Green GCCs:** Link future incentives to **ESG goals**, encouraging GCCs to run on renewable energy and contribute to India's **Net-Zero 2070** target.

Conclusion

The evolution of GCCs from "Cost Centers" to **"Global Innovation Engines"** is central to India's **\$5 Trillion economy** goal. By bridging the skill gap and ensuring regulatory stability, India can transition from the world's "Back Office" to its **"Front Office of Innovation,"** fulfilling the vision of Viksit Bharat @ 2047.

Q. India's Global Capability Centres (GCCs) have transitioned from cost-arbitrage units to strategic innovation hubs. Discuss the factors responsible for this transformation and examine their implications for India's economic growth. (250 words)

3.1.10. INDIA'S CRITICAL MINERALS STRATEGY

Context:

- The **Union Budget 2026-27** marks a decisive paradigm shift: **critical minerals** are now positioned as a **core pillar** of India's **industrial, energy transition, defence, and geopolitical strategy**.
- Just **three years ago**, during India's **G20 Presidency (2023)**, **critical minerals** were peripheral in policy discourse. Minerals such as **lithium** were still classified as **atomic minerals**, restricting private sector participation.
- This Budget speech's emphasis signals that India has moved from **"whether to have a policy" to "how to execute at scale, speed, and depth"**. This aligns with **Atmanirbhar Bharat, Viksit Bharat @2047**, and **Net Zero 2070** goals.



Understanding Critical Minerals

Critical minerals refer to **non-fuel, non-ferrous metals** and their compounds that are vital for the **clean energy transition, advanced manufacturing, defence technologies**, and **digital economy**. These minerals underpin essential technologies such as **electric vehicles (EVs), batteries, solar panels, wind turbines, semiconductors**, and **rare earth magnets**.

- **India's Official List (30 Minerals):** Notified under the **Mines and Minerals (Development and Regulation) [MMDR] Amendment Act, 2023** (a law streamlining mining auctions and private

participation)-includes **lithium, cobalt, nickel, graphite, rare earth elements (REEs)** (a group of 17

elements like **neodymium** and **dysprosium**), **beryllium, tantalum, niobium, tungsten, phosphorus**, and others.

- **Global Context: China dominates 60-90%** of mining and processing capacity for over **20 critical minerals** (per **US Geological Survey [USGS] 2025 data**); this exposes vulnerabilities, as seen in the **2025 rare earth magnet embargo** and global battery shortages.
- **Key Risks:** Extreme **price volatility, supply chain weaponization** by dominant players, and escalating **geopolitical tensions** amid India's **net-zero by 2070** pledge and global decarbonization goals.

Why Critical Mineral Matters for India

The pursuit of **critical minerals** represents a **strategic imperative** for India, securing **mineral security** to bolster **Atmanirbhar Bharat**.

- **Economic Security:**
 - Reduces **100% import dependence** on key battery metals like **lithium** (sourced from Australia/Chile), **nickel**, and **cobalt** (from DRC/Indonesia).
 - Boosts **Production Linked Incentive (PLI) schemes**, including **₹18,100 crore** for advanced chemistry cells (batteries) and **₹24,000 crore** for solar PV modules.
- **Energy Transition:**
 - Enables achievement of **500 GW non-fossil energy capacity** by 2030, as per India's **Nationally Determined Contributions (NDCs)** under Paris Agreement.
 - Powers flagship initiatives like **PM Surya Ghar** (rooftop solar for 1 crore households) and **FAME-III** (targeting **30% EV penetration** in vehicle sales by 2030).
- **Geopolitical Edge:**
 - Counters **China's 60-90% global monopoly** in processing; strengthens **QUAD Critical Minerals Initiative (Quadrilateral Security Dialogue: India, US, Japan, Australia for Indo-Pacific resilience)**.
 - Enhances **IPEF Supply Chain Pillar (Indo-Pacific Economic Framework: 14 nations for resilient trade)** and aligns with **India-Middle East-Europe Economic Corridor (IMEC)** for diversified, secure sourcing.

Evolution of India's Critical Minerals Policy

India's approach to **critical minerals** has evolved rapidly from regulatory constraints to proactive strategy, driven by global supply risks and domestic ambitions.

- **Pre-2023:** Policy focus was limited, with many minerals like **lithium** under strict restrictions by the **Atomic Minerals Directorate (AMD)**, barring private exploration and mining.
- **2023 Milestone:** The **Mines and Minerals (Development and Regulation) [MMDR] Amendment Act** formally identified **30 critical minerals** and opened doors for private sector exploration through competitive auctions.
- **2024-25:** Government rationalized **royalty rates** to make mining viable and eased entry barriers for **junior miners**, encouraging early-stage investments.

- **January 2025:** Launched the **National Critical Mineral Mission (NCMM)** with a robust ~₹16,300 crore outlay to build end-to-end capabilities.
- **2026 Shift: Union Budget** marks a pivot from policy ambition to **implementation focus**, emphasizing execution at scale, speed, and depth.

National Critical Mineral Mission (NCMM)

Launched in **January 2025**, the **NCMM** serves as India's comprehensive, ambitious framework to achieve **mineral self-reliance**, placing the country alongside global leaders.

- **Financial Outlay:** ₹16,300 crore dedicated to exploration, processing, and R&D.
- **Core Targets:** Complete **1,200 exploration projects** by FY2031; intensify surveys for deep-seated and hard-to-access minerals using advanced tech.
- **Key Focus Areas:** Auctioning **Critical Mineral Blocks** nationwide; funding R&D for mineral **beneficiation** (value addition) and **recycling** to minimize waste.
- **Global Standing:** Aligns India with elite policies like the US's **Inflation Reduction Act (IRA)** (subsidies for clean tech minerals) and Australia's **Critical Minerals Strategy** (export-focused partnerships).

Key Institutions Driving Mineral Scale-Up

These institutions form the **backbone of India's mineral ecosystem**, enabling exploration, funding, acquisition, and tech integration for critical minerals.

Institution	Role & Full Form
GSI	Geological Survey of India — national mapping, surveying, and primary exploration agency.
NMET	National Mineral Exploration Trust — funds regional/detailed surveys for non-fuel, non-atomic minerals.
KABIL	Khanij Bidesh India Ltd (JV of NALCO, HCL, MECL)—secures overseas mineral assets and equity stakes.
Mission Anveshan	AI-powered seismic tools for hydrocarbon discovery ; expandable to critical minerals via National Geoscience Data Repository (NGDR) —centralized geological data hub.

The Core Bottlenecks: Why Is India Vulnerable?

India faces severe challenges in securing these minerals:

- **Extreme Import Dependency:** India is **100% dependent on imports for 10** out of 30 critical minerals, including lithium, cobalt, and nickel.
- **China's Processing Monopoly:** Mining is *not* the main bottleneck; **processing** is. While India has some mining capabilities, China controls roughly 58% of global lithium refining, 65% of cobalt processing, and a staggering 87% of rare earth processing.
- **Weak Domestic Demand:** Investors hesitate to build expensive processing plants in India because there are no guaranteed domestic buyers yet. The local manufacturing of batteries, EVs, and solar equipment is simply not expanding fast enough to absorb the processed materials.
- **Technology Gaps:** Deep mineral exploration is **risky and expensive**. India has been slow to adopt **Artificial Intelligence (AI)** and advanced geospatial tools for discovering new deposits.

India's Master Plan for Critical Minerals Security: Integrated Strategy and Solutions

To secure these minerals, India is moving from **policy announcements to integrated action** across six key pillars:

A. Smarter Exploration (The NCMM)

- **The Strategy:** The government launched the National Critical Mineral Mission (NCMM) in 2025. Under this, the Geological Survey of India will conduct 1,200 targeted exploration projects by 2030-31.
- **How it helps:** By integrating AI and advanced data, India can speed up the discovery of local reserves, directly reducing reliance on imports.

B. Shifting Focus to Processing and Refining

- **The Strategy:** Shift from raw extraction to **high-purity processing by removing import duties on capital goods for critical mineral processing** (as per **Union Budget 2026-27**). Leverage existing capabilities in chemicals, pharmaceuticals, and textiles sectors for upgrading to battery-grade and defence-grade materials.
- **How it helps:** This directly attacks **China's monopoly**, allowing India to refine its own battery-grade materials locally.

C. Building the Rare Earth Ecosystem (Corridors & Magnets)

- **The Strategy:** The 2026-27 Union Budget announced "**Dedicated Rare Earth Corridors**" in **Odisha, Kerala, Andhra Pradesh, and Tamil Nadu**. These coastal states are rich in monazite sand, which contains rare earths. Alongside this, a ₹7,280 crore scheme will fund the manufacturing of 6,000 tonnes of permanent magnets.
- **How it helps:** Instead of **exporting raw sand**, these corridors will **centralize mining, processing, and manufacturing** in one place, creating an **end-to-end domestic supply chain**.

D. Creating Assured Domestic Demand

- **The Strategy:** Public policy must speed up the nationwide deployment of **EVs, battery storage, and wind projects**.
- **How it helps:** Creates **predictable offtake** for processed minerals, providing investor confidence to build midstream refineries and processing plants.

E. Forging Global Partnerships

- **The Strategy:** To break reliance on single suppliers, India is aggressively partnering with resource-rich nations:
 - **Russia:** Moving beyond traditional oil and weapons, India and Russia are now collaborating on critical minerals. **Russia has vast reserves of lithium and rare earths**. They are sharing processing technology and building logistics networks like the **Chennai-Vladivostok corridor**.
 - **Brazil:** Recently, **India and Brazil** signed an MoU focusing on rare earths. Crucially, this covers the entire "value chain"—from exploration and mining to recycling and refining.
 - **Global Assets:** India's state-owned joint venture, **KABIL (Khanij Bidesh India Limited)**, is actively acquiring overseas mines, including securing lithium exploration blocks in **Argentina and Australia**.
 - **Use platforms like:**
 - UK-India Critical Minerals Supply Chain Observatory
 - India-EU Free Trade Agreement

F. AI-First Approach to Mineral Exploration

- To accelerate discoveries and cut **decades-long timelines**, India must adopt a **mandatory AI-first strategy** for mineral exploration, integrating key national missions for seamless synergy. Aligns with **NCCM's 1,200 projects target** by FY2031.
- **Core Integration:**
- **IndiaAI Mission** (national AI compute and talent hub for data-driven analytics).
- **National Geospatial Policy** (2022; enables high-res satellite/drone data for terrain mapping).
- **Mission Anveshan** (AI-powered seismic tools currently for **hydrocarbon discovery**; extend to critical minerals by linking with **National Geoscience Data Repository [NGDR]**—centralized geological database).

Conclusion

India has successfully moved critical minerals to the **strategic center** of its economic and defense planning. However, simply mining these materials will not secure our future. True success depends on building **large-scale processing plants**, rapidly growing our **domestic manufacturing** demand, adopting **AI for exploration**, and maintaining strong, **diversified global partnerships**.

Q. Critical minerals are the new oil of the 21st century. Examine India's evolving critical minerals strategy in the context of energy transition, industrial policy, and geopolitical competition.

(250 Words)

3.2. ENVIRONMENT

3.2.1. WETLANDS AS A NATIONAL PUBLIC GOOD

Context:

World Wetlands Day 2026 (2 February) was observed under the theme: **"Wetlands and Traditional Knowledge: Celebrating Cultural Heritage."** Wetlands are "multiple-use" systems and "nature-based infrastructure" sitting at the intersection of land and water.

Traditional Wetland & Water Management Systems

- **Tamil Nadu: Kulams** (human-made tanks) forming cascading irrigation networks for **paddy**.
- **Kerala (Wayanad): Kenis** (shallow wells) used for drinking water and rituals for over 200 years.
- **Andhra Pradesh (Srikakulam):** Traditional **fishing** practices sustaining local livelihoods.
- **Rajasthan (Baoris / Jhalaras): Ornate stepwells** used for community water storage and social gatherings.
- **North-East:**
 - **Zabo System (Nagaland)** Combines water conservation with forestry, agriculture, and animal husbandry.
 - **Bamboo Drip (Meghalaya)** Using bamboo pipes to tap stream water for black pepper cultivation.



Status of Wetlands in India

- **Ramsar Sites:** India has **98 designated Ramsar sites**, the highest in South Asia, covering over **1.3 million hectares**.
- **Total Count:** India has over **7.5 lakh wetlands** (mapping by ISRO's National Wetland Inventory and Assessment).
- **Geographical Spread:** They cover approximately **4.63%** of India's total geographical area.

Alarming Trends: The "Red Flags"

- **Massive Attrition:** **40% of natural wetlands** have been lost in the last 30 years—primarily due to urban conversion.
- **Ecological Decay:** **50% of remaining wetlands** are considered "ecologically degraded," meaning they no longer provide full ecosystem services (flood control, water purification).
- **The "Double Bind" (Coastal Specific):** Mangroves and lagoons are being "squeezed" between **rising sea levels** on the seaward side and **infrastructure development** on the landward side.

National & International Existing Regulatory Framework

1. National Regulatory Framework

- **Wetlands (Conservation and Management) Rules, 2017:**
 - **Legal Backbone:** Notified under the Environment (Protection) Act, 1986.
 - **Decentralization:** Established **State Wetland Authorities (SWA)** to identify and monitor wetlands.
 - **Prohibitions:** Strictly bans activities like land reclamation, solid waste dumping, and discharge of untreated effluents.
- **NPCA (National Plan for Conservation of Aquatic Ecosystems):**
 - **Integration:** Merged the National Lake Conservation Plan and National Wetlands Conservation Programme.
 - **Focus:** Provides financial assistance for "outcome-oriented" management and conservation of both lakes and wetlands.
- **Coastal Regulation Zone (CRZ) Notification:**
 - **Coastal Protection:** Specifically protects coastal wetlands like mangroves, mudflats, and salt marshes (CRZ-I areas).
- **National Wildlife Action Plan (2017-2031):**
 - **Inland Protection:** Focuses on the conservation of inland wetlands as crucial habitats for migratory birds and aquatic fauna.
- **MISHTI (Mangrove Initiative for Shoreline Habitats & Tangible Incomes)**
 - **Focus:** Afforestation of mangroves along the coastline and on salt-pan lands.
 - **Data:** Covers approximately **540 sq. km** across 9 states and 4 UTs over 5 years.
- **Amrit Dharohar (Ramsar Site Focus)**
 - **Focus:** Ensuring "Wise Use" of Ramsar sites to balance conservation with economic development. India has increased its Ramsar sites to **98**.

2. International Regulatory Framework

- **Ramsar Convention (1971):**
 - **The "Wise Use" Principle:** Sustainable utilization of wetlands for the benefit of humankind in a way compatible with the maintenance of the natural properties of the ecosystem.

- **Commitment:** India's **98 Ramsar Sites** are designated as "Wetlands of International Importance," requiring rigorous management plans.
- **Montreux Record:**
 - **The "Red List":** A register of Ramsar sites where changes in ecological character have occurred, are occurring, or are likely to occur due to technological developments or pollution. (e.g., Keoladeo National Park, Loktak Lake).
- **CBD (Convention on Biological Diversity):**
 - **Synergy:** Wetlands are recognized as key biodiversity hotspots; their protection contributes to the **Kunming-Montreal Global Biodiversity Framework**.
- **Sustainable Development Goals (SDGs):**
 - **SDG 6 & 15:** Specifically target water management and life on land/wetlands.

Significance of wetlands

1. Ecological Significance

- **Biodiversity:** Though they cover only **6% of the Earth's surface**, they are home to **40% of all species**.
- **The "Central Asian Flyway":** India's wetlands (like **Chilika** or **Keoladeo**) are critical stopovers for over **270 species** of migratory birds.
- **Purification:** Often called the "**Kidneys of the Earth**," a single acre of wetland can filter **7.3 million gallons** of water annually.

2. Hydrological Significance

- **The "Sponge" Effect:** One acre of wetland can typically store about **1–1.5 million gallons** of floodwater.
- **Groundwater:** In India, wetlands are responsible for recharging aquifers that provide **80% of rural** and **50% of urban** water needs.

3. Climate & Disaster Risk Reduction

- **Blue Carbon:** Mangroves sequester carbon at a rate **2–4 times higher** than mature tropical forests.
- **Bio-Shields:** During the 1999 Odisha Super Cyclone, villages protected by wider mangrove belts (like **Bhitarkanika**) suffered significantly fewer deaths than those without.
- **Sea-Level Rise:** Coastal wetlands provide a buffer that saves an estimated **\$65 billion** in flood damages globally per year.

4. Economic & Livelihood Significance

- **Market Value:** The global economic value of wetland ecosystem services is estimated at **\$47.4 trillion** per year.
- **Inland Fisheries:** India is the **2nd largest** producer of inland fish, a sector almost entirely dependent on healthy wetland ecosystems.
- **Agriculture:** Systems like the **Kuttanad Above-Sea-Level Farming** (Kerala) demonstrate how wetlands sustain food security.

5. Social & Cultural Significance

- **Traditional Engineering:** The **Ahar-Pyne** system of Bihar and **Zing** of Ladakh are centuries-old examples of "social hydrology."

- **Urban Identity:** Wetlands like the **East Kolkata Wetlands** act as the city's free sewage treatment plant, saving the municipality millions while providing livelihoods for **30,000+ people**.

6. Urban Significance

- **Heat Island Mitigation:** Urban water bodies can reduce local temperatures by **2°C to 4°C**.
- **Economic Saving:** Replacing a natural wetland with a drainage pipe system costs **3–5 times more** in maintenance over its lifecycle.

Major Challenges to Wetlands

1. Structural & Anthropogenic Threats

- **Hydrological Fragmentation:** Dams, sand mining, and embankments disrupt the "timing and flow" of water, turning dynamic systems into stagnant pools.
- **Catchment Erosion:** Degradation of the surrounding basin leads to heavy siltation and the blockage of feeder channels.

2. Pollution & Ecological Decay

- **The Eutrophication Crisis:** Runoff from agriculture (nitrates/phosphates) and raw sewage leads to oxygen-depleted "dead zones" and algal blooms.
- **Dumping Grounds:** Urban wetlands are often used as de facto primary treatment plants and solid waste sites.

3. Climate & Coastal Dynamics

- **The "Double Squeeze":** Coastal wetlands (mangroves/lagoons) are trapped between **Sea-Level Rise** (seaward) and **Infrastructure** (landward), leaving no space for migration.
- **Extreme Events:** Increased cyclonic intensity and shoreline erosion are overwhelming the natural buffering capacity of coastal ecosystems.

4. Governance & Institutional Gaps

- **Departmental Silos:** Land, water, and forests are managed by different agencies, preventing a "**Watershed-scale**" approach.
- **Capacity Deficit:** State authorities lack specialized skills in **Hydrology, GIS, and Remote Sensing**, leading to weak management plans.

5. Socio-Cultural Erosion

- **Erosion of Stewardship:** Modern management often ignores traditional knowledge (like Kulams or Ahar-Pynes), disconnecting local livelihoods from conservation.

Way forward

1. **Boundary Security:** Use satellite remote sensing and drones for participatory "ground-truthing." Creating publicly accessible digital maps with clear demarcations to prevent "paper-dry" encroachments.
2. **Integrated Watershed Governance:** Establish a unified operational rhythm between urban planning, irrigation, and environment departments.

3. **Nature-Based Infrastructure (NbS):** Incorporate wetlands into **Disaster Risk Reduction (DRR)** frameworks. Treat mangroves, floodplains, and urban lakes as "green/blue infrastructure" equivalent to "grey" infrastructure (dams/seawalls).
4. **Institutional Capacity Mission:** Accredited training in **restoration of ecology, GIS, environmental law, and hydrology.**
5. **Mainstreaming Traditional Knowledge:** Integrate community-led stewardship (like Kulams and Kenis) into modern conservation plans. The **"Sahbhagita" model**—engaging local "Wetland Mitras" to ensure "wise use" and livelihood-linked conservation.

Case Study on Wetlands

1. **East Kolkata Wetlands (EKW) (West Bengal)- "Living Laboratory":** Uses the city's sewage to feed fish ponds (bheris). It is the **world's largest wastewater-fed aquaculture system.**
2. **Loktak Lake (Manipur)- "The Phumdi Management":** Use of traditional knowledge to manage **floating islands (Phumdís)** while balancing the needs of the **Ethai Dam.**
3. **Pallikaranai Marsh (Tamil Nadu)- Adaptive Restoration:** Efforts to reclaim the marsh from a massive garbage dump, highlighting the **"Urban Significance"** of wetlands.

Landmark Judgments

1. **M.K. Balakrishnan vs. Union of India (2017):** Mandated the geo-mapping of 2 lakh+ wetlands, extending legal protection to all wetlands regardless of their notification status.
2. **H.N. Mehal vs. Union of India (2020):** Invoked the "Public Trust Doctrine," affirming the State as a trustee of water bodies, prohibiting their conversion for private or real estate use.

Conclusion

By 2030, India must transition from treating wetlands as "wastelands" to vital **natural capital**. By integrating **AI-driven remote sensing** with ancient **ethno-hydrological wisdom**, we can secure water resilience. Evolving wetlands into "Climate-smart Bio-shields" will ensure they remain functional ecosystems, safeguarding India's biodiversity and economic future against the escalating climate crisis.

Q. Discuss the major challenges and threats to wetlands in India and suggest context-specific measures to ensure their sustainable conservation and management. (250 words)

3.2.2. PERSISTENCE OF RAT-HOLE MINING: SOCIO-LEGAL AND ENVIRONMENTAL CHALLENGES

Context

The recent tragic explosion in an **illegal rat-hole mine in Meghalaya**, which claimed **18 lives**, serves as a grim indicator of the systemic failure to curb clandestine mining operations. Despite a decade-long judicial ban, the persistence of these **"death traps"** highlights the complex intersection of **tribal land rights, economic desperation,** and **regulatory paralysis.**



About Rat-Hole Mining

- **Concept: Rat-hole mining** is characterized as a primitive, hazardous, and labor-intensive extraction technique. It involves excavating extremely narrow tunnels—typically **3 to 4 feet high and 2 to 3 feet wide**—resembling the burrows of rodents.
 - Due to these restrictive dimensions, miners (**often including children**) must crawl through the shafts to **manually extract coal** using basic tools.
 - **Practiced:** This form of mining is predominantly practiced in **Northeastern India**, especially in the states of **Meghalaya** and **Assam**, where coal seams are thin and scattered.
- **Techniques of Extraction**
 - **Side-Cutting Procedure:** Used primarily in **hilly terrains**, miners dig **horizontal tunnels** directly into the slopes to reach thin coal seams, which generally measure less than 2 meters in thickness.
 - **Box-Cutting Method:** This involves excavating a **large rectangular pit** (ranging from 10 to 100 square meters) to a depth of **100 to 400 feet**. Once the coal seam is exposed, horizontal **“rat-holes”** are branched out from the vertical shaft for extraction.

Drivers Behind the Persistence of Rat-Hole Mining

- **Poverty and Livelihood Insecurity: Limited employment opportunities** compel local tribal populations to rely on rat-hole mining for survival.
 - The prospect of **quick and assured cash income** from coal sales, despite serious health and safety risks, makes this activity economically attractive to vulnerable households.
- **Land Ownership and Regulatory Gaps: Unclear land titles** and weak enforcement mechanisms allow illegal mining to flourish.
 - These **governance loopholes** are routinely exploited, enabling operations to continue with little oversight or accountability.
 - In some instances, the overlap between political interests and coal ownership prevents the rigorous implementation of the **National Green Tribunal (NGT) ban**.
- **Sustained Demand for Coal:** Ongoing demand for coal in both **formal and informal markets** keeps the practice economically viable.
 - The involvement of **middlemen and illegal traders** strengthens underground supply chains, ensuring a steady market for illegally extracted coal.
- **Geological Suitability and Low Overhead:** The coal seams in the **North Eastern** region are often **extremely thin (less than 2 meters)**, making **large-scale mechanical mining economically unviable** for **small-scale owners**. The **primitive, labor-intensive** nature of rat-hole mining requires negligible capital investment, making it an “easy-entry” business for local contractors.

Critical Challenges Associated with Rat-Hole Mining

The unscientific extraction of coal through rat-hole mining creates a multifaceted crisis involving human safety, ecological health, and social ethics.

- **Severe Occupational Safety Hazards:** Due to the absence of structural reinforcements, these narrow shafts are chronically **prone to collapses and flooding**, trapping miners deep underground. **Poor ventilation** systems further lead to fatal asphyxiation and the buildup of explosive gases.

- **Instances:** The **2018 Ksan flooding** (17 deaths) and the **2024 Wokha explosion** (6 deaths) exemplify these risks.
- **Ecological Degradation and Toxicity:** Operations trigger large-scale **deforestation and soil erosion**. The most significant impact is **Acid Mine Drainage (AMD)**, where **sulfur-rich runoff** contaminates water bodies, turning **rivers** like the **Lukha** acidic and destroying aquatic biodiversity.
 - **Impact:** Productive agricultural lands in Nagaland's **Wokha and Mon districts** have suffered severe degradation and water pollution.
- **Systemic Social Exploitation:** The industry thrives on the **exploitation of child labor**, as their small size is utilized to navigate narrow tunnels. This practice involves approximately **70,000 children (largely from Bangladesh and Nepal)**, as reported by **NGO Impulse**, and leads to the displacement of local communities and hazardous working conditions.

Regulatory Framework Governing Rat-Hole Mining

The governance of rat-hole mining in India involves a complex interplay between judicial bans, central legislation, and the unique constitutional protections granted to Northeastern states.

I. Regulatory Status in India

- **Legal Standing:** Currently, rat-hole mining is classified as an **illegal activity**. Its enforcement is primarily the responsibility of the **State and District administrations**, who treat the persistence of such mines as a significant **law and order challenge**.
- **The National Green Tribunal (NGT) Ban:** In **2014**, the NGT imposed a **comprehensive ban** on this practice. The tribunal cited the **unscientific nature of the mines** and the alarming frequency of worker fatalities, especially during the **monsoon flooding**, as the primary reasons for the prohibition.
- **Supreme Court Intervention (2019):** In July 2019, the **Supreme Court of India** upheld the **NGT's ban in Meghalaya**. The apex court explicitly ruled that rat-hole mining is prohibited under the **Mines and Minerals (Development and Regulation) Act, 1957**, and cannot proceed without approved scientific mining plans and environmental clearances.
- **Justice (Retd.) B.P. Katakey Committee:** Constituted by the **Meghalaya High Court in 2022** following a **suo motu PIL**, the committee was tasked with monitoring **illegal coal mining** in the state.
 - **Key Findings:** Found **widespread illegal mining**, especially in the **East Jaintia Hills** district, despite existing judicial bans. Highlighted serious **enforcement failures** and regulatory non-compliance.
 - The **Meghalaya High Court** sharply noted that *"no authority in the state, except the High Court, appears to be taking the issue seriously,"* pointing to deep **administrative apathy and lack of accountability**.

II. State-Specific and Constitutional Provisions

- **Nagaland Coal Policy, 2006:** In Nagaland, the state attempted to bring small-scale operations under a regulatory umbrella by issuing **Small Pocket Deposit Licences (SPDLs)** to individual landowners. These licenses are subject to stringent conditions intended to ensure safety.

- **Meghalaya Environment Protection and Restoration Fund (MEPRF):** Established following NGT orders, this fund utilizes a **10% royalty on coal** to restore areas affected by mining.
- **Article 371A (Nagaland):** This constitutional provision grants Nagaland significant **autonomy** regarding land ownership, resources, and customary laws. These special protections often create legal friction when trying to enforce uniform federal mining regulations.
- **The Sixth Schedule (Meghalaya, Mizoram, Tripura, and Assam):** Under the Sixth Schedule, **Autonomous District Councils (ADCs)** possess the authority to manage tribal lands.
 - Since **local tribal communities** traditionally own both the surface land and the minerals beneath it, **central oversight** is severely restricted.
 - Conflicts frequently arise between ADC legislation and the **MMDR Act, 1957**, leading to regulatory gaps and ambiguities that illegal operators exploit.

III. International Regulatory Context

- **Global Standards:** No specific international law targets rat-hole mining directly; however, global protocols advocate for **sustainable mining** and **worker safety**.
- **Indirect Influence:** International labor and environmental standards pressure member states to transition from primitive methods toward regulated, scientific extraction.

Way Forward: A Strategic Roadmap to Resolve Illegal Rat-Hole Mining Practice

To resolve the crisis of illegal rat-hole mining, a multi-dimensional approach is required that balances **strict enforcement**, **technological innovation**, and a transition toward a **Green Steel economy**.

- **Deployment of Technological Surveillance:** States must integrate **Satellite Remote Sensing** and **Drone Patrols** with centralized control rooms to monitor remote terrains. This allows for the **real-time detection** of new illegal pit openings and unscientific excavations, effectively bypassing the limitations of physical inspections in difficult landscapes.
- **Transitioning to a Green Steel Trajectory:** India should accelerate the shift toward **Green Steel** by incentivizing industries to replace **coking coal** with **Green Hydrogen-based Direct Reduced Iron (DRI)**. By reducing the national industrial demand **for low-grade, high-sulfur coal** at the source, the economic incentive for illegal rat-hole mining can be structurally dismantled.
- **Mandatory Logistics and Supply Chain Tracking:** Implementing **GPS-enabled tracking** and digital transit passes for all coal carriers is essential to prevent the **"laundering"** of illegally mined coal into the formal market. Dedicated check-posts and CCTV monitoring at industrial hubs (**cement and coke plants**) ensure only legally sourced coal is utilized.
- **Economic Diversification and Livelihood Support:** The state must displace mining as a primary income source by facilitating **credit linkages** and market access for **Horticulture, Ecotourism, and Sustainable Manufacturing**. Providing viable economic alternatives is the only long-term solution to the **poverty-driven** participation in hazardous mining.
- **Social Accountability and Community Monitoring:** Empowering **Village Councils (Durbars)** and **Autonomous District Councils** to act as environmental stewards is critical. By

providing a portion of recovered penalties to local bodies, the government can incentivize **community-led surveillance** and foster local ownership of environmental protection.

- **Formalization and Worker Rehabilitation:** A comprehensive **registry for migrant laborers** should be created to pull workers out of the informal "shadow" economy. These individuals should be prioritized for **re-skilling programs** and absorbed into public works, such as the ecological restoration of abandoned mine sites or emerging green energy projects.
- **Strict Adherence to Scientific Mining Standards:** The transition from illegal pits to **Scientific Mining** must be accelerated. This involves granting leases only to operators who provide **Environmental Impact Assessments (EIA)**, ensure structural safety (engineered supports), and implement proper **Acid Mine Drainage (AMD)** treatment protocols.

Conclusion

The "**distressing regularity**" of mine tragedies in Meghalaya proves that a ban is a tool, not a solution. Real change requires a dual approach: **ruthless enforcement** against the coal mafia and a **compassionate transition** for the labor force. Aligning Meghalaya's mineral economy with India's **Green Steel trajectory** is not just an environmental necessity but a moral imperative to ensure that "development" does not come at the cost of human lives in dark, narrow holes.

Q. Despite a judicial ban, rat-hole mining continues in Meghalaya, causing recurring human and environmental disasters. Analyse the factors sustaining this illegal practice and suggest measures to eliminate it. (250 Words)

3.2.3. GREAT NICOBAR PROJECT: DEVELOPMENT VS. ENVIRONMENT

Context: Recently a special bench of the **National Green Tribunal (NGT)** cleared Great Nicobar Project, citing its "strategic importance" despite ongoing ecological and tribal rights litigation.

Origin of the Great Nicobar Project:

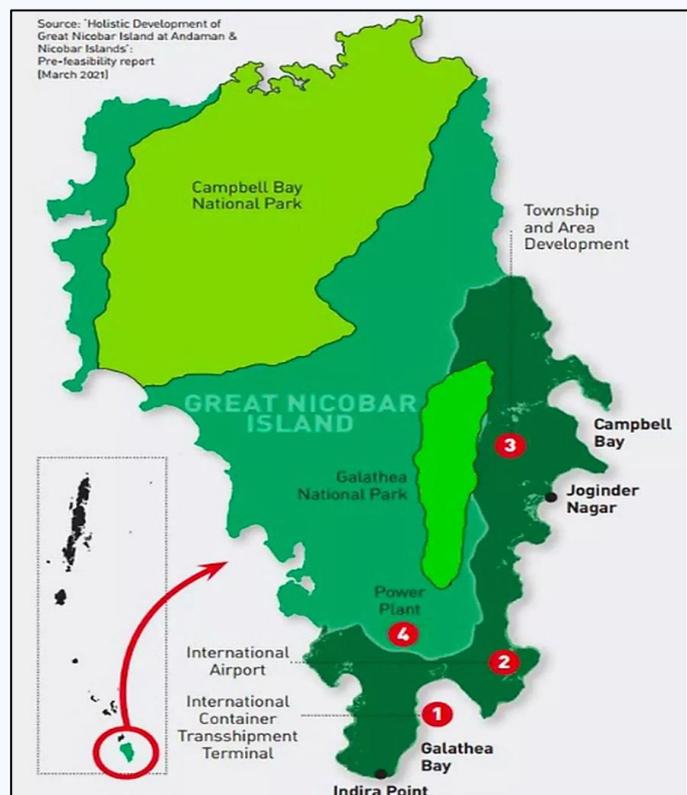
- **Conceived by:** NITI Aayog in 2021.
- **Implementing Agency:** Andaman and Nicobar Islands Integrated Development Corporation (**ANIIDCO**).
- **Scale:** Covers ~166 sq. km (~18% of the island's 910 sq. km area).

Key Components of the Great Nicobar Project:

The project is built on four major pillars designed to create a self-sustaining economic ecosystem:

I. International Container Transshipment Terminal (ICTT)

1. **Location:** Strategically sited at **Galathea Bay** on the island's southeastern coast.



2. **Capacity:** Planned to handle **16 million TEUs** (Twenty-foot Equivalent Units) at full capacity, with Phase-I (4 million TEUs) expected by 2028.
3. **Advantage:** Features a natural water depth of over **20 meters**, allowing it to host "Ultra Large Container Vessels" without the need for extensive, expensive dredging.

II. Greenfield International Airport

1. **Dual-Use Facility:** Designed for both civilian tourism and defense/military logistics.
2. **Capacity:** Capable of handling a peak hour traffic of **4,000 passengers**. It will bolster the Andaman and Nicobar Command (ANC) for rapid deployment in the Indo-Pacific.

III. Gas and Solar-Based Power Plant

1. **Capacity:** A **450-MVA** hybrid power plant.
2. **Function:** Intended to provide uninterrupted, "de-dieselized" energy to the terminal, airport, and new township using a mix of conventional gas and renewable solar energy.

IV. Greenfield Smart City / Township

1. **Vision:** A modern township spread over 160 sq. km to support a projected population of **3.5 lakh residents** (currently ~8,000).
2. **Infrastructure:** Includes residential zones, luxury tourism resorts, a cruise ship terminal, and industrial hubs to attract global investment.

Significance of the Great Nicobar Project:

Great Nicobar is often referred to as India's "**unsinkable aircraft carrier**" in the Bay of Bengal.

1. Geostrategic & Security

- **Maritime Chokepoint Control:** Located approx 90 nautical miles from the **Strait of Malacca**; provides a "vantage point" to monitor 40% of global trade.
- **Counter-Balancing China:** Acts as a strategic bulwark against the "**String of Pearls**" (e.g., Gwadar, Hambantota) and presence in the Coco Islands.
- **Tri-Service Command (ANC):** The project enhances the operational reach of the **Andaman and Nicobar Command (ANC)**—India's only integrated tri-service command, facilitating rapid deployment of air and naval assets.

2. Economic & "Blue Economy"

- **Transshipment Sovereignty:** Aims to capture the **75% of Indian cargo** currently transshipped at Colombo or Singapore, saving approx. **200–220 million** annually in forex.
- **Natural Advantage: Galathea Bay** offers a depth of >20m, accommodating "Ultra Large Container Vessels" without heavy dredging.
- **Blue Economy Growth:** It aligns with the **Maritime India Vision 2030**, fostering ancillary industries like ship repair, bunkering (refueling), and duty-free trade zones.
- **Tourism Potential:** Aim to position the Andaman and Nicobar Islands as a global tourism destination, competing with the Maldives and Mauritius.

3. Diplomatic & Regional Leadership

- **"Act East" Policy:** Serves as a physical and economic bridge to **ASEAN** nations.
- **Net Security Provider:** Enhances India's capacity for **HADR** (Humanitarian Assistance and Disaster Relief) and anti-piracy operations in the Bay of Bengal.

- **Multilateral Influence:** Strengthens India's central role in **BIMSTEC** and the Indian Ocean Rim Association (**IORA**).

4. Socio-Economic Impact

- **Employment:** Projected creation of **1 lakh jobs** (direct and indirect).
- **Infrastructure Frontier:** Introduces a dual-use airport and a 450-MVA power plant, providing modern amenities to India's southernmost remote frontier, potentially improving the quality of life for the local populace (if balanced with tribal rights).

Key Concerns of the Great Nicobar Project:

1. Ecological & Environmental Risks

- **Massive Deforestation:** Diversion of **130 sq. km** of primary tropical rainforest. Official estimates state **9.64 lakh trees** will be felled, though independent experts suggest the number could exceed **30 lakhs**.
- **Endangered Flagship Species:**
 - **Giant Leatherback Turtle:** Galathea Bay is India's largest nesting site; construction threatens this globally unique habitat.
 - **Nicobar Megapode:** An endemic mound-building bird whose habitat is directly in the project zone.
 - **Nicobar Macaque:** Habitat fragmentation will lead to increased human-animal conflict.
- **Coral Reefs & Mangroves:** Dredging for the port will lead to siltation, choking **20,000+ coral colonies** and destroying mangroves that act as natural tsunami buffers.

2. Tribal Rights and Social Concerns

- **Threat to PVTGs:** The island is home to the **Shompen** (a Particularly Vulnerable Tribal Group) and the **Nicobarese**.
- **Constitutional & Legal Violations:**
 - **Forest Rights Act (FRA), 2006:** Allegations that the "Free, Prior, and Informed Consent" (FPIC) of the Tribal Council was coerced or bypassed.
 - **Article 338-A:** The National Commission for Scheduled Tribes (NCST) was reportedly not consulted as mandated.
- **Cultural Genocide:** Genocide experts have warned that the influx of 3.5 lakh people (compared to the current ~8,000) could expose isolated tribes to "outside" diseases and lead to the loss of their nomadic hunter-gatherer lifestyle.

3. Geological and Disaster Vulnerability

- **Seismic Zone V:** The island lies in the highest earthquake-risk zone. It is situated on the **Andaman-Sumatra subduction zone**, the same fault line that triggered the 2004 Tsunami.
- **Tectonic Subsidence:** During the 2004 event, Great Nicobar underwent a permanent **15-foot subsidence** (sinking).

4. Regulatory and Institutional Gaps

- **"Opaque" Clearances:** Many environmental clearance details were withheld under the "national security" clause, hindering public and scientific scrutiny.
- **Flawed Impact Assessment:** The Environmental Impact Assessment (EIA) was criticized for being based on **single-season data** and downplaying the likelihood of future mega-earthquakes.

- **Denotification:** The government denotified the **Galathea Bay Wildlife Sanctuary** and parts of the **Tribal Reserve** specifically to facilitate the port construction.

Way Forward

- **Effective Coral Translocation:** Instead of mere "scattered" translocation, adopt international best practices (like the **Biorock technology**) for coral regeneration and monitor the survival rate of the 20,000+ colonies through third-party audits.
- **Nature-Based Coastal Defense:** Prioritize "Green-Gray" infrastructure—using mangrove restoration and artificial reefs alongside sea walls to mitigate tsunami and erosion risks.
- **Health Safeguards:** Establish a "**Biosecurity Protocol**" to prevent the transmission of outside diseases to the Shompen, maintaining their "limited contact" status even as the island's population grows.
- **Independent Oversight Authority:** Create a multi-stakeholder body comprising environmentalists, tribal representatives, and security experts to oversee compliance with the **Environment Clearance (EC)** conditions.
- **Public Disclosure:** As per the NGT's latest deliberations, the government should release non-sensitive portions of the **High-Powered Committee (HPC)** reports to build public trust.
- **Climate-Resilient Engineering:** Given the Seismic Zone V status, all infrastructure must adhere to the highest **Eurocode 8** or equivalent earthquake-resistant standards, with mandatory periodic "Seismic Audit."

Conclusion

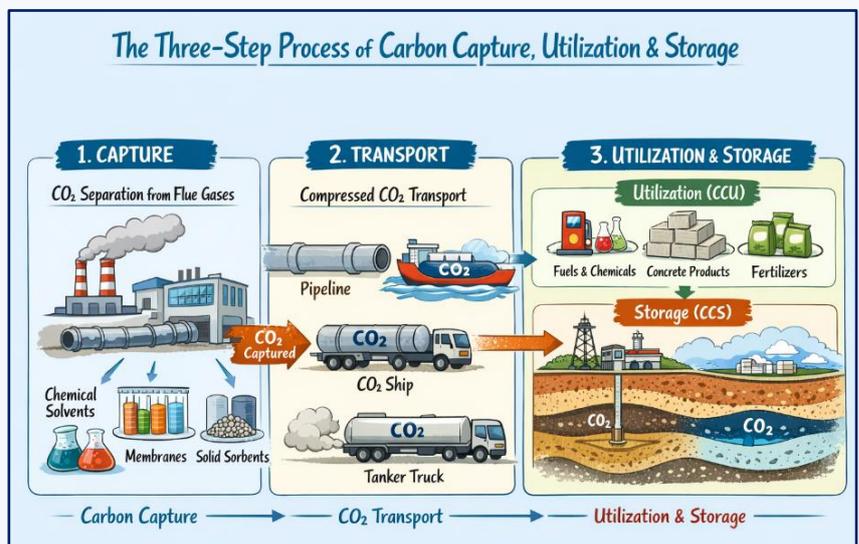
Integrating strategic depth with ecological sanctity, the project must evolve as a "**Green Maritime Hub.**" By leveraging sustainable engineering and tribal-inclusive governance, India can transform Great Nicobar into a futuristic frontier that balances Indo-Pacific leadership with high-value biodiversity conservation.

Q. The Great Nicobar Project has triggered debates over development versus ecological sustainability. Critically examine. (250 Words)

3.2.4. CARBON CAPTURE AND UTILISATION (CCU) TECHNOLOGIES

Context: In the 2026 Union Budget, India prioritized "**Hard-to-Abate**" sectors (Steel and Cement), providing **Viability Gap Funding (VGF)** for CCU pilot plants to counter the EU's **Carbon Border Adjustment Mechanism (CBAM)**.

About the Carbon Capture and Utilisation (CCU) Technologies
Carbon Capture and Utilisation (CCU) refers to technologies that



capture CO₂ emissions from industrial sources (thermal power plants, cement, steel, refineries) and either **utilise** them in value-added products (chemicals, fuels, building materials) or store them (CCS – Carbon Capture and Storage).

The Three-Step Process

- These diagrams visually explain the **three-step CCUS process**:
- **Capture** – CO₂ separated from industrial flue gases.
- **Transport** – Compressed CO₂ moved via pipelines/ships/tankers.
- **Utilisation or Storage** –
- **Carbon Capture and Utilisation (CCU)**: Converted into fuels, chemicals, concrete and fertilizers.
- **Carbon Capture and Storage (CCS)**: Injected into deep geological formations for permanent storage.

Why India Needs Carbon Capture and Utilisation (CCU)

1. Decarbonizing "Hard-to-Abate" Sectors

- **Chemical Necessity**: Sectors like **Cement and Steel** produce CO₂ as a direct chemical byproduct (calcination) that renewables cannot eliminate.
- **Economic Backbone**: These industries are essential for "**Viksit Bharat @ 2047**"; CCU allows growth without high carbon penalties.

2. Protecting "Young" Industrial Assets

- **Avoiding Stranded Assets**: India's industrial plants are relatively new. CCU allows for **retrofitting** existing coal and gas plants instead of costly, premature shutdowns.
- **Resource Security**: Extends the utility of domestic coal reserves while aligning with Net Zero 2070 targets.

3. Circular Carbon Economy (Waste-to-Wealth)

- **Import Substitution**: Converts captured CO₂ into **Urea (fertilizer)** and **Methanol**, reducing India's dependence on expensive chemical imports.
- **Sustainable Infrastructure**: Supports "green" construction by mineralizing CO₂ into **bricks and concrete**.

4. Economic & Global Competitiveness

- **Trade Resilience**: Helps Indian exports bypass international carbon taxes like the EU's **CBAM (Carbon Border Adjustment Mechanism)**.
- **Green Growth**: Leverages the **₹20,000 crore CCUS allocation** (Budget 2026) to foster start-ups and create specialized "Green Value Chain" jobs.

India's Carbon Capture and Utilisation (CCU) Status

- **Financial Commitment**: A landmark **₹20,000 crore outlay** in the Union Budget 2026-27 to de-risk private investment and scale up CCUS from pilots to commercial industrial plants.
- **Operational Milestones**: Launch of **five integrated CCU Testbeds** in the cement sector via Public-Private Partnerships (PPP) between top institutes like IITs/IISc and major firms (JSW, Dalmia).
- **Market Mechanisms**: Activation of the **Indian Carbon Credit Trading Scheme (CCTS)**, with the first Carbon Credit Certificates (CCC) expected by **October 2026** for 490 obligated entities.

- **Strategic Roadmap:** NITI Aayog's 2026 reports identify CCUS as the **only viable path** for deep decarbonization in sectors like Cement and Aluminium, where demand is projected to grow 7x by 2070.
- **Targeted Sectors:** Strategic focus on **five "hard-to-abate" sectors**—Power, Steel, Cement, Refineries, and Chemicals to ensure "Viksit Bharat @ 2047" goals align with Net Zero 2070.

Global Carbon Capture and Utilisation (CCU) Initiatives

- **COP30 "Belém to Baku" Roadmap:** The official launch of the **Paris Agreement Crediting Mechanism (PACM)** under Article 6.4, allowing international trade of carbon credits from engineered removals like DAC and CCU.
- **EU Industrial Carbon Strategy:** Implementation of the **Net-Zero Industry Act (NZIA)**, which mandates 50 million tonnes of annual CO₂ storage by 2030 and establishes cross-border "open-access" hubs like **Northern Lights**.
- **Mission Innovation (MI):** A 23-country coalition (including India) pushing the **CDR Mission** to remove 100 Mt of CO₂ annually by 2030, supported by global competitions at the 2026 World Energy Congress.
- **Global Capacity Expansion:** Reports from IEA and GCCSI show a **30% annual growth** in the project pipeline, with global capture capacity on track to double by 2030 through shared industrial "hubs."
- **US 45Q Tax Credits:** The Inflation Reduction Act provides up to **\$180/tonne** for CO₂ captured via Direct Air Capture, transforming carbon removal into a profitable business model and scaling DAC hubs in Texas and Louisiana.

Key Challenges of Carbon Capture and Utilisation (CCU)

- **The Energy Penalty:** Capturing CO₂ is highly energy-intensive, requiring industrial plants to divert **15–25%** of their power to run capture units, which can lead to higher overall fuel consumption.
- **Techno-Economic Gap:** High operational costs (up to **₹5,000/tonne**) make CCU-derived products like green urea or concrete struggle to compete with cheaper fossil-based alternatives.
- **Green Hydrogen Scarcity:** Production of high-value CCU products, such as **synthetic aviation fuel**, depends on an affordable and steady supply of Green Hydrogen, which remains limited.
- **Non-Permanence Issues:** Unlike deep storage, many CCU pathways (like fuels or plastics) only **delay emissions**, as the CO₂ is eventually released when the product is consumed or incinerated.
- **Infrastructure Bottlenecks:** India lacks a dedicated **national CO₂ pipeline network**, making the transport of compressed carbon by road or sea expensive and carbon-heavy.
- **Regulatory & Liability Gaps:** Uncertainties regarding legal responsibility for CO₂ leakage and the lack of global standards for **"Carbon-Neutral" labeling** hinder large-scale investor confidence.

Way Forward

- **Hub and Cluster Model:** Developing regional industrial clusters (e.g., Gujarat, Odisha) to share CO₂ pipeline and storage infrastructure, drastically reducing the per-tonne cost for individual factories.
- **Carbon Market Activation:** Implementing the **Indian Carbon Credit Trading Scheme (CCTS)** by October 2026 to allow companies to monetize captured carbon through tradeable certificates.
- **Viability Gap Funding (VGF):** Utilizing the **₹20,000 crore** budget to provide direct financial support for the first 10–15 commercial-scale projects to bridge the techno-economic gap.

- **High-Value Pathways:** Prioritizing utilization in "**Green Concrete**" (mineralization) and **Sustainable Aviation Fuel (SAF)** by integrating with the National Green Hydrogen Mission.
- **Policy Standardization:** Establishing a clear national framework for CO₂ transport safety, environmental standards, and long-term legal liability to encourage private investment.
- **Indigenous R&D:** Focusing on the development of low-cost, **locally-made chemical solvents** and a specialized workforce trained in carbon auditing and conversion technologies.

Conclusion

Integrating **CCUS** is vital for India's **Net-Zero 2070** goal. By 2026, shifting from pilots to **industrial clusters** will turn CO₂ into a strategic asset, ensuring sustainable, competitive, and circular economic growth.

3.2.5. DEBUNKING THE PERCEPTION OF SAFETY IN BOTTLED WATER IN INDIA

Context:

- In contemporary India, **packaged drinking water** has transitioned from an **occasional luxury to an indispensable everyday commodity**. This shift is primarily driven by a **systemic decline** in **public trust** regarding **municipal water supplies** and a prevailing perception that **plastic-sealed water is inherently safer**.
- However, emerging scientific evidence suggests that while **bottled water** may meet **basic microbiological standards**, it introduces a suite of **invisible chemical and physical contaminants** that pose significant long-term risks to human health and ecological stability.



Background: Structural Rise of Bottled Water Consumption

The Indian packaged drinking water market is one of the fastest-growing in the world, projected to expand at a **CAGR of 6.5% (2025–2035)**.

A. Expansion of Packaged Drinking Water Usage

- **Bottled water consumption** has increased due to **urbanisation, ageing public water infrastructure, intermittent municipal supply, and groundwater contamination**.
- Packaged water has become embedded in routine daily consumption across railway stations, offices, hospitals, and restaurants.
- A perception has been reinforced that "sealed" water implies "safe" water, without adequate consideration of invisible contaminants.

B. Institutional and Regulatory Framework

- Regulation is undertaken by the **Food Safety and Standards Authority of India (FSSAI)** under the Food Safety and Standards Act, 2006.
- Technical specifications are prescribed by the **Bureau of Indian Standards (BIS)**.
- Regulatory emphasis has historically focused on:
 - **Microbial contamination control**.

- Specified heavy metals and chemical residues.
- However, standards do not currently mandate routine testing or limits for **microplastics and nanoplastics**, revealing an evolving regulatory gap.

Microplastics: The Invisible Threat

Microplastics (less than 5 millimetres) and their even smaller counterparts, **nanoplastics (<1 micrometer)**, represent a new frontier of environmental and health challenges.

- **Pervasiveness in Indian Markets:** Research conducted in major Indian hubs like **Nagpur, Mumbai, and coastal Andhra Pradesh** has detected microplastics in **100% of tested samples**, with concentrations ranging from **72 to 212 particles per litre**.
- **Quality Control Disparity:** Studies indicate that locally bottled water frequently contains higher plastic concentrations than national brands, highlighting critical gaps in bottling hygiene and quality control.
- **The Nanoplastic "Barrier Breach":** **Nanoplastics** are particularly dangerous as they can cross **biological barriers** (cell membranes, blood-brain barrier, and placenta), entering the human circulatory system and vital organs.
- **Pathophysiological Impact:** These particles trigger **oxidative stress, chronic inflammation, and cellular damage**. Furthermore, they act as **"Trojan Horses"** by absorbing and transporting heavy metals and pathogens into the body..
- **Chemical Leaching Agents:** Common plasticizers like **Phthalates, Bisphenol A (BPA), and Antimony (used in PET production)** can migrate from the bottle into the water.
- **Environmental Triggers:** Exposure to **direct sunlight (UV radiation)** and the high ambient temperatures of Indian summers accelerate the chemical breakdown of plastic, increasing leaching rates.
- **Chronic Toxicity:** Unlike **acute bacterial poisoning**, chemical leaching causes **cumulative toxicity**. Many leached chemicals are known **endocrine disruptors**, which can interfere with hormonal signaling and lead to reproductive or developmental issues over time.
- **Regulatory Blindspot:** Current standards typically test for chemicals in isolation under controlled settings, failing to account for the **"cocktail effect"** of multiple chemicals interacting with microplastics over long durations.

Key Issues and Challenges in the Packaged Water Industry

The packaged water sector in India grapples with profound sustainability and health challenges, exacerbating groundwater stress, environmental degradation, and consumer vulnerabilities.

- **Groundwater Overexploitation:** The industry heavily depends on aquifers already under severe strain, with **minimal investments in recharge mechanisms** like **rainwater harvesting or artificial replenishment**. This intensifies water scarcity in regions like Punjab and Rajasthan, where extraction rates exceed sustainable yields.
- **Mineral Depletion Risks:** Processes such as **Reverse Osmosis (RO) filtration** remove vital minerals like **calcium and magnesium**, potentially leading to deficiencies and long-term cardiovascular issues, as evidenced by WHO concerns over demineralized water.

- **Environmental Footprint:** Single-use PET bottles fuel India's plastic waste crisis, where **less than 13%** undergoes effective recycling. The remainder fragments into microplastics, infiltrating soil, rivers, and food chains, amplifying ecological harm.
- **Information Asymmetry:** Consumers struggle to differentiate "**Natural Mineral Water**" (sourced from protected springs with stringent standards) from "**Packaged Drinking Water**" (**often purified municipal supplies**), undermining informed choices amid opaque labeling.

The Regulatory Landscape and Critical Gaps

India's regulatory framework for packaged water is currently undergoing a significant transition under the **Food Safety and Standards Authority of India (FSSAI)**.

- **The 2024 Regulatory Shift:** In late 2024, FSSAI removed the mandatory **BIS (Bureau of Indian Standards)** certification requirement to streamline licensing. Bottled water is now classified as a "**High-Risk Food Category**", requiring **mandatory annual third-party audits**.
- **Testing Limitations (IS 14543):** While the **IS 14543** standard covers minerals, heavy metals, and microbes, it currently **does not include limits or testing protocols** for **microplastics** or **nanoplastics**.
- **Enforcement Deficit:** With thousands of **small-scale units, state-level monitoring** (as seen in **Karnataka surveys**) reveals frequent contamination by **pesticide residues** and **fluoride**, highlighting a gap between regulation and ground-level compliance.

Government Initiatives for Safe Water and Plastic Management

1. Infrastructure and Access: Jal Jeevan Mission (JJM)

Launched in 2019, the mission aims to provide **Functional Household Tap Connections (FHTC)** to every rural household by 2024 (now extended with revised targets for 2026).

- **Progress as of 2026:** Out of 19.36 crore rural households, over **15.8 crore (81.6%)** have been provided with tap water supply.
- **Water Quality Monitoring:** The mission has established over **2,800 Water Quality Testing Laboratories** and trained over **24 lakh women** at the village level to use **Field Testing Kits (FTKs)** for regular surveillance.
- **Source Sustainability:** Integrates mandatory groundwater recharge, rainwater harvesting, and greywater management to ensure the long-term viability of water sources.

2. Urban Water Security: AMRUT 2.0

The **Atal Mission for Rejuvenation and Urban Transformation (AMRUT) 2.0** focuses on making cities "water secure."

- **Universal Coverage:** Aims for 100% water supply coverage in all **4,700+ statutory towns**.
- **Circular Economy of Water:** Focuses on the rejuvenation of water bodies and the recycling/reuse of treated used water to reduce the burden on fresh groundwater.
- **Technological Integration:** Promotes "**Pey Jal Survekshan**" to foster healthy competition among cities regarding water quality and conservation.

3. Regulatory Reforms: FSSAI's New Testing Scheme (2026)

Following the removal of mandatory BIS certification in late 2024, the **FSSAI** introduced a new, more stringent oversight mechanism.

- **High-Risk Classification:** Packaged water is now a "**High-Risk**" food category, mandating **third-party audits** and stricter compliance.
- **Compulsory Testing Scheme (Effective Jan 1, 2026):** Manufacturers must now conduct **monthly microbiological tests** and **quarterly chemical tests** (for heavy metals, minerals, and radioactive residues) through NABL-accredited labs.
- **Outcome-Based Regulation:** Shifts accountability directly to the Food Business Operators (FBOs), requiring them to maintain inspection-ready digital records for five years.

4. Addressing Microplastics: Plastic Waste Management Rules

The **Plastic Waste Management (Amendment) Rules (2024 & 2025)** have evolved to specifically target microplastic pollution.

- **Definition of Microplastics:** For the first time, the 2024 rules defined microplastics as any solid plastic particle (1 micron to 1,000 microns) that is insoluble in water.
- **Extended Producer Responsibility (EPR):** Producers and brand owners are legally responsible for the collection and recycling of the plastic packaging they introduce to the market.
- **Digital Traceability (2025):** Mandatory **QR codes or barcodes** on all plastic packaging to enable real-time tracking from production to disposal, reducing leakages into water bodies.
- **Ban on Single-Use Plastic (SUP):** A continued nationwide ban on low-utility, high-littering plastic items to prevent their fragmentation into secondary microplastics.

Way Forward: A Multi-Pronged Strategy

Addressing this "silent crisis" demands integrated policy reforms, technological innovation, and behavioral shifts, aligning with India's sustainable development goals.

- **Update Safety Standards:** Mandate FSSAI protocols for routine testing of microplastics, plasticizers (e.g., **phthalates**), and heavy metals, with real-time public dashboards for transparency.
- **Strengthen Municipal Supply:** Restore faith in tap water via initiatives like **Jal Jeevan Mission**, emphasizing infrastructure upgrades, third-party audits, and apps for quality disclosures to reduce packaged water reliance.
- **Promote Sustainable Alternatives:** Incentivize household point-of-use filters (e.g., **UF+UV systems**) and reusable containers like glass or stainless steel through subsidies and awareness campaigns.
- **Foster Circular Economy:** Rigorous enforcement of **Extended Producer Responsibility (EPR)** under the **Plastic Waste Management Rules, 2022**, to achieve 100% PET bottle collection, sorting, and high-grade recycling.

Conclusion

The reliance on bottled water in India is a complex symptom of a public utility deficit. While it provides a **temporary solution** for water access, the hidden costs—ranging from microplastic ingestion to groundwater depletion—suggest that the current model is unsustainable. For India to achieve **Sustainable Development Goal 6 (Clean Water and Sanitation)**, the focus must shift from **commercial convenience to a transparent, scientifically-backed regulatory framework** that prioritizes the long-term health of both the citizens and the environment.

Q. The rapid growth of bottled water consumption in India highlights a trade-off between perceived safety and emerging health and environmental risks. Critically analyse challenges posed by the packaged drinking water industry and suggest a multi-sectoral strategy to ensure sustainable and equitable access to safe drinking water. (250 Words)

3.3. SCIENCE & TECHNOLOGY

3.3.1. INDIA AI STACK

Context:

India's AI strategy is anchored in **AI for Humanity**, aiming to **democratise access** to artificial intelligence so that benefits are not concentrated among a few firms or countries. The focus is on **population-scale deployment**, integrating AI into **healthcare, agriculture, education, governance, disaster management, and justice delivery**.

What is the AI Stack?

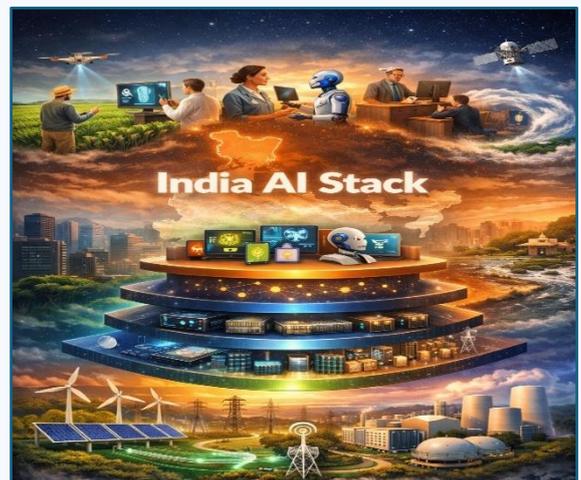
The **AI Stack** refers to the **complete, end-to-end ecosystem of technologies, infrastructure, and systems** that work together to **build, train, deploy, and scale Artificial Intelligence applications** in the real world. An **AI stack** is an integrated system of **five interlinked layers** that together enable AI to move from experimentation to real-world impact:

1. Application Layer
2. AI Model Layer
3. Compute Layer
4. Data Centres & Network Infrastructure Layer
5. Energy Layer

The 5 Layers of the AI Stack

1. The Application Layer (The "Face")- This is what the end-user interacts with. It translates complex code into user-friendly services.

- **High-Impact Adoption in India**
 - **Agriculture:** AI advisories improving sowing, yield, and input efficiency; **30–50% productivity gains** reported in states like **Andhra Pradesh & Maharashtra**.



- **Healthcare:** Early detection of **TB, cancer, neurological disorders**, strengthening preventive care.
 - **Education:** AI integrated via **NEP 2020**, CBSE curricula, DIKSHA, YUVAi for future-ready skills.
 - **Justice Delivery: e-Courts Phase III** uses AI/ML for translation, scheduling, and case management with vernacular access.
 - **Weather & Disaster Management: India Meteorological Department** uses AI for rainfall, cyclone, lightning forecasting; **Mausam GPT** aids farmers and disaster response
- 2. The AI Model Layer (The "Brain")-** This layer consists of algorithms trained on data to recognize patterns and make decisions.
- **India's Focus:** Developing indigenous models like **BharatGen** and **Bhashini** (for Indian languages) to ensure "sovereign" AI that understands local contexts.
- 3. The Compute Layer (The "Muscle")-** This provides the raw processing power (GPUs and TPUs) required to train and run the "Brain."
- **Key Fact:** The **IndiaAI** Compute Portal provides high-end processing at **subsidized rates (under ₹100/hour)**, making it affordable for startups to compete globally.
- 4. Data Centres & Network Layer (The "Highways")-** This is the physical infrastructure—the fiber cables and server warehouses—where AI is stored and transmitted.
- **Status:** India holds **~3% of global data centre capacity** (~960 MW); India's 5G network now covers **99.9% of districts**, and data center capacity is projected to grow to **9.2 GW by 2030**.
 - Major hubs: **Mumbai–Navi Mumbai (25%)**, Bengaluru, Hyderabad, Chennai, Delhi NCR, Pune, Kolkata.
- 5. The Energy Layer (The "Fuel")-** AI is power-hungry. This layer ensures a steady, sustainable electricity supply to keep the servers running.
- **Sustainability:** Over **51%** of India's power capacity now comes from non-fossil fuel sources, ensuring AI growth doesn't come at a massive environmental cost.
 - Future plans:
 - **100 GW nuclear by 2047**
 - **57 GW pumped storage by 2031–32**
 - **43,220 MWh battery storage**

Significance of the India AI Stack Mission

- 1. Democratisation of AI-** Makes AI accessible beyond big tech by providing shared compute, datasets, and models. Example- IndiaAI Compute Portal offers 38,000 GPUs + 1,050 TPUs at < ₹100/hour,
- 2. Population-Scale Public Service Delivery-** Enables AI deployment across **agriculture, healthcare, education, justice, and disaster management**. Example: **e-Courts Phase III** uses AI for translation and case management, improving access in Indian languages.
- 3. Sovereign & India-Centric AI Models-** Reduces dependence on foreign AI models and aligns AI with **Indian languages, laws, and socio-economic needs**. Example- **12 indigenous AI models** under the **IndiaAI Mission**;

- 4. Boost to Startups & Innovation Ecosystem-** Lowers entry barriers through **subsidised compute (up to 25%)**, open datasets, and shared infrastructure.
- 5. Technological Self-Reliance (Atmanirbhar Bharat)-** Integrates AI with **semiconductor manufacturing, chip design, and supercomputing**. Example- **40+ petaflops** under the National Supercomputing Mission (PARAM Siddhi-AI, AIRAWAT).
- 6. Cost-Efficient & Scalable AI Growth-** Shared infrastructure avoids duplication and reduces national AI costs.
- 7. Inclusive Digital Governance-** Supports **vernacular, citizen-centric AI services**, strengthening transparency and trust.
- 8. Sustainable AI Development-** Aligns AI expansion with **clean and reliable energy**. Example- India has crossed **509 GW installed power capacity**.

Challenges the India AI Stack Mission

- 1. Hardware Monopoly:** Despite the IndiaAI Mission, India remains heavily dependent on foreign-designed chips (NVIDIA/Google). Domestic initiatives like SHAKTI are still in early stages compared to global benchmarks.
- 2. High Capital Expenditure:** Maintaining a GPU cluster is incredibly expensive; keeping costs under ₹100/hour requires massive, sustained government subsidies.
- 3. Fragmented Data:** While **IndiaAIKosh** hosts thousands of datasets, much of India's public sector data remains siloed, unorganized, or in non-digital formats.
- 4. Privacy Concerns:** Scaling AI in healthcare and justice requires a delicate balance between "data democratization" and protecting the sensitive personal information of citizens.
- 5. Skill Shortage:** There is a significant gap between the demand for high-level AI researchers and the current supply. Many of India's top AI talents are recruited by global tech giants abroad rather than domestic startups.
- 6. Cooling & Power:** AI data centers are "energy vampires." Even with 51% renewable energy, the sheer volume of water required for cooling and the 24/7 "always-on" power demand pose a challenge to local grids and sustainability goals.
- 7. Algorithmic Bias:** If models are trained on historical data that contains social biases (caste, gender, or regional), the "AI for Humanity" could inadvertently automate discrimination in justice or hiring.

Way Forward

- 1. Chip Autonomy:** Fast-track the **India Semiconductor Mission** to transition from chip design to domestic fabrication, reducing reliance on foreign GPU giants.
- 2. Edge AI:** Prioritize "Edge Computing" to allow AI to run locally on devices, reducing the burden on central data centers and the energy grid.
- 3. Data Standardisation:** Create unified protocols for public sector data to make it "AI-ready" for the **IndiaAIKosh** repository.
- 4. Privacy-First Frameworks:** Implement robust "Privacy Enhancing Technologies" (PETs) to allow data sharing for research without compromising individual citizen identity.
- 5. AI-Ready Workforce:** Integrate AI literacy into vocational training and higher education beyond just elite institutions (IITs/IISc).
- 6. Incentivizing Domestic R&D:** Offer "Innovation Credits" to startups that contribute back to the open-source **BharatGen** or **Bhashini** models.

7. **AI Audits:** Establish independent bodies to audit sovereign AI models for social bias (caste, gender, or linguistic) before population-scale rollout.
8. **Green AI Mandates:** Incentivize data centers that utilize 100% renewable energy or innovative liquid cooling systems to meet sustainability goals.

Conclusion

The **India AI Stack** transcends technology; it is a **digital public infrastructure** designed for 1.4 billion people. By integrating sovereign models with green energy, India is pioneering a "**Human-Centric AI**" model—transforming data into a democratic utility that powers inclusive growth and global technological leadership.

Q. Examine the significance of the India AI Stack Mission in enabling population-scale delivery of public services, technological self-reliance, and sustainable digital growth. (250 words)

3.3.2. AMCA AND INDIA'S DEFENCE INDUSTRIAL ECOSYSTEM

Context:

The government is diversifying India's aerospace ecosystem by proposing to award the **AMCA prototype contract** to private players, bypassing HAL. This shift aims to end HAL's monopoly, address production delays, and foster a competitive **private defense industrial complex**.



AMCA as a National Strategic Project

The **Advanced Medium Combat Aircraft (AMCA)** is not merely another fighter programme; it represents:

- India's entry into **5th-generation air combat**
- Mastery over **stealth design, sensor fusion, avionics, AI-assisted warfare**
- Strategic autonomy in **high-end aerospace manufacturing**

Significance of Private Sector Participation in Fighter Aircraft Development

1. Breaking the Public Sector Monopoly

The most immediate significance is the creation of a **Second Aircraft Manufacturing Line**.

- **Commercial Discipline:** Introducing private players like Tata, L&T, or Bharat Forge brings market-driven benchmarks for cost, quality, and delivery—concepts often sidelined in PSU environments.
- **Avoiding "Bottlenecking":** With HAL currently overburdened by orders for 180+ Tejas Mk-1A and Mk-2 aircraft, a private line ensures the AMCA timeline is not cannibalized by existing production loads.

2. Deepening the "Atmanirbhar" Ecosystem

Privatization is the key to building a robust **Military-Industrial Complex (MIC)**:

- **IP Ownership:** Under the new model, the government retains the Intellectual Property (IP), but the private sector masters the **Lead System Integration (LSI)**—the most complex part of aerospace manufacturing.
- **Tier-2/3 Growth:** Private lead integrators are structurally more agile at fostering a network of MSME suppliers, creating a pyramid of domestic aerospace expertise.

3. Global Competitiveness and Exports

- **Agility in Innovation:** Private firms can more easily form Joint Ventures (JVs) with global giants (like Safran for engines or Boeing for airframes) to absorb technology.
- **Export Mindset:** Unlike PSUs, private entities are incentivized to design for the global market, potentially turning the AMCA into an exportable 5th-gen alternative for nations wary of US or Russian restrictions.

4. Risk Mitigation through Diversification

- **Financial Hedging:** Conglomerates can spread the high R&D risks of fighter development across their civilian portfolios, whereas HAL is entirely dependent on government budgetary cycles.
- **Competitive Bidding:** A multi-vendor environment forces companies to innovate on manufacturing processes (e.g., using **3D printing** or **AI-driven assembly**) to stay cost-competitive.

Challenges of Private Sector Participation in Fighter Aircraft Development

1. The Experience & Expertise Gap

- **"Start-up" Status:** India's private giants (Tata, L&T, Bharat Forge) are globally competitive in component manufacturing but have **zero experience** as Lead Integrators for a complete fighter aircraft.
- **Complexity:** Building a 5th-generation stealth prototype is vastly more complex than the aerospace parts or airframes they currently produce.
- **Institutional Memory:** HAL possesses 80 years of "hard-won" expertise in flight testing, weapon integration, and life-cycle support that private entities must now acquire or "poach" rapidly.

2. Infrastructure & Capital Risk

- **Bengaluru Hub Dependency:** The entire design-test ecosystem (DRDO labs, ASTE, National Flight Test Centre) is concentrated in Bengaluru.
- **Sunk Costs:** Private players may be hesitant to invest the massive capital required for specialized rigs and hangars when the initial contract is limited to **only five prototypes** without an ironclad "series production" guarantee.
- **The SPV Model:** The initial Special Purpose Vehicle (SPV) model faced hurdles because private firms were wary of the high financial risks and the "black hole" of R&D costs.

3. Fragmentation of the Design-Build Chain

- **Loss of Singular Control:** Historically (e.g., HF-24 Marut), having design and production under one roof ensured seamless resolution of technical differences.

- **Ownership Ambiguity:** With **ADA (Government)** as the designer and a **Private Firm** as the builder, accountability for flight-test failures or design-to-manufacturing friction becomes a potential legal and operational bottleneck.

4. Human Resource Bottlenecks

- **Test Aircrew:** India has only one school for test pilots. A private developer will struggle to find and fund the specialized crew needed to test a futuristic, unstable stealth platform from day one.
- **Skilled Workforce:** Private firms will likely need to recruit heavily from retired HAL and ADA personnel to bridge the skill gap, potentially just shifting the same talent pool rather than expanding it.

Way Forward

1. Collaborative Infrastructure Model

India should adopt a **Plug-and-Play** model for infrastructure:

- **Shared National Assets:** Grant private consortia (like the shortlisted Tata, L&T, or Bharat Forge) access to **HAL's Bengaluru airfield**, ADA's National Flight Test Centre, and DRDO's specialized labs.
- **Co-location:** Private design and engineering teams should be co-located with the **Aircraft and Systems Testing Establishment (ASTE)** to ensure continuous user (IAF) feedback during the prototype phase.

2. Refining the Industry Partnership Model

The shift from the initial "Special Purpose Vehicle" (SPV) to a more competitive **Industry Partnership Model** requires clear financial de-risking:

- **Assured Production Commitment:** The Ministry of Defence should provide a clear "buy back" guarantee or a firm commitment for the first two squadrons (Mk-1) to ensure private firms can justify the high R&D and capital expenditure.
- **Tier-2/Tier-3 Integration:** The lead private integrator must be encouraged to decentralize work packages to a broader **domestic vendor network** (including MSMEs) to prevent a single point of failure in the supply chain.

3. Addressing the Engine Bottleneck

The "heart" of the 5th-Gen fighter remains its propulsion. The Way Forward involves a dual-track approach:

- **Mk-1 (Short-term):** Ensure smooth integration of the **GE F414 engines** for the initial prototypes.
- **Mk-2 (Strategic):** Fast-track the **Safran-GTRE 120kN engine** joint venture. True strategic autonomy is only achieved once India owns the Intellectual Property (IP) for the engine, allowing for future upgrades without foreign clearance.

4. Human Capital and "Pilot-in-the-Loop" Design

- **Test Pilot Expansion:** India must scale up its only test pilot school or allow private-sector pilots to train alongside the IAF to build a larger pool of expertise for futuristic flight testing.

- **AI and Sensor Fusion:** Since the private sector leads in software and AI, they should focus on the "**Digital Backbone**" of the AMCA, allowing the aircraft to function as a command node for unmanned systems (Loyal Wingman).

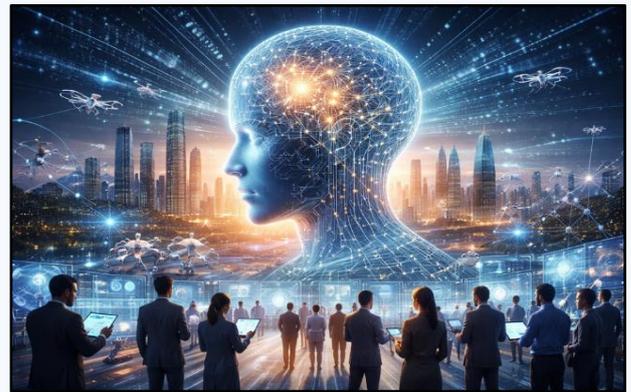
Conclusion

The AMCA project marks a definitive pivot toward **Atmanirbhar Bharat**, transitioning from public-sector dependence to a private-led industrial base. By fostering a competitive ecosystem, India secures technological sovereignty, ensuring its 5th-generation air superiority is developed, manufactured, and sustained entirely within its borders.

3.3.3. THE APPROACHING AI SURGE, ITS GLOBAL CONSEQUENCES

Context:

Artificial Intelligence (AI) is emerging as a transformative general-purpose technology comparable to the Industrial Revolution and the Internet revolution. The current AI surge—driven by generative AI, **machine learning**, **big data analytics**, and **advanced semiconductor capabilities**—is reshaping economic systems, governance structures, and global power equations. Its implications extend beyond technology into civilizational change.



Drivers of the AI Surge

1. Rapid Technological Breakthroughs

- Development of **Large Language Models (LLMs)** and generative AI capable of reasoning, coding, content creation, and decision support.
- Integration of AI with cloud computing, **Internet of Things (IoT)**, **robotics**, and **5G networks**.
- Declining cost of data storage and increased computational capacity enabling real-time processing.

2. Massive Public and Private Investments

- Strategic funding by major economies (**US, China, EU**) treating AI as a national priority.
- Tech giants investing in AI research, chip design, and global data infrastructure.
- Governments embedding AI in defense, urban planning, welfare delivery, and digital governance.

Significance and Implications:

1. Productivity Enhancement and Structural Growth

Significance:

- AI as a general-purpose technology transforming production across sectors.
- Automation **improves efficiency, reduces costs, and minimizes errors**.
- Predictive analytics strengthens supply chains, agriculture, finance, and manufacturing.

Implications:

- Higher economic growth and global competitiveness.
- Rise of new models (AI-as-a-Service, platform economies, hyper-personalization).
- Industrial restructuring and creative destruction.
- Pressure on developing nations to upgrade technological capacity.

2. Labour Market Transformation**Significance:**

- Automation of routine cognitive and clerical tasks.
- Growth in demand for high-skill AI-related jobs.

Implications:

- Short-term job displacement in low- and mid-skill sectors.
- Shift toward skill-based, digitally adaptive employment.
- Risk of structural unemployment without effective transition policies.

3. Rising Inequality Risks**Significance:**

- Concentration of AI infrastructure in few corporations and advanced nations.
- Unequal access to data, chips, and computing power.

Implications:

- Widening global digital divide.
- Technological dependency of developing nations.
- Income polarization and potential social unrest.

4. AI, Strategic Dominance and Digital Sovereignty**Significance:**

- AI as a strategic asset in defense, surveillance, and cyber operations.
- Nations asserting control over data and digital infrastructure for autonomy.

Implications:

- Intensified global power competition and techno-nationalism.
- Risk of AI arms race.
- Fragmentation of global digital order into regulatory blocs.
- Trade tensions over data and semiconductor supply chains.

5. Cybersecurity and Information Warfare**Significance:**

- AI strengthens cyber defense but also enables advanced cyberattacks.
- Use of **deepfakes** and misinformation tools.

Implications:

- Vulnerability of critical infrastructure.

- Threats to democratic institutions and elections.
- Expansion of hybrid warfare.
- Need for global cybersecurity cooperation and AI governance frameworks.

Challenges of Governing AI

1. Regulatory and Accountability Deficit

- Absence of clear legal frameworks for liability in autonomous failures (e.g., self-driving cars, AI diagnostics). Difficulty in fixing responsibility among developers, deployers, and users.
- Inadequacy of traditional legal principles to address AI-driven harms.

2. Ethical Concerns: Bias, Privacy, and Surveillance

- Algorithmic bias leading to discrimination in hiring, credit, policing, and welfare. Lack of standardized auditing and transparency mechanisms.
- Privacy risks from facial recognition and mass data analytics.
- Tension between data-driven governance and constitutional rights (**privacy, equality, due process**).

3. Societal and Cultural Disruptions

- AI-generated content raising intellectual property and authorship disputes.
- Transformation of work, creativity, and knowledge production.
- Over-reliance on algorithmic decisions reducing human agency and trust in institutions.

4. Social Stability and Public Perception

- Fear of job displacement and widening inequality. Leading to risk of social unrest if transitions are not inclusive.
- Digital literacy gaps across regions and generations.

5. National-Level Capacity Constraints

- Limited semiconductor manufacturing and advanced research capacity. Dependence on foreign AI platforms and technologies and need for effective data protection enforcement.
- Importance of indigenous innovation, AI skilling (**NEP 2020**), and public-private partnerships.

Way Forward

1. Human-Centric AI

- Prioritize human welfare, dignity, and autonomy in AI design. Ensure meaningful human oversight in critical sectors (**healthcare, judiciary, defense**).
- Embed fairness, accountability, and transparency to build public trust. Focus on augmenting—not fully replacing—human capabilities.

2. Inclusive Growth

- Translate AI-driven productivity gains into broad-based economic benefits. Invest in large-scale reskilling and upskilling initiatives.
- Strengthen social safety nets to address job displacement. Promote digital inclusion, with focus on vulnerable groups and developing regions.

3. Balanced Regulation

- Adopt a risk-based and adaptive regulatory framework.
- Ensure algorithmic transparency, data protection, and accountability.
- Avoid overregulation that stifles innovation and entrepreneurship.
- Introduce periodic review mechanisms to keep laws technologically relevant.

4. International Cooperation

- Develop harmonized global standards on AI ethics and governance. Strengthen cooperation on **data governance, cybersecurity**, and autonomous weapons.
- Use multilateral forums (**UN, G20, OECD**) for dialogue and norm-setting. Prevent regulatory fragmentation and an AI arms race.

5. Capacity Building

- Invest in R&D, semiconductor manufacturing, and digital infrastructure. Promote technological competitiveness and self-reliance.
- Strengthen higher education and industry–academia collaboration. Build a skilled AI talent pipeline through education reforms.

Conclusion

The AI surge marks a transformative era, promising unprecedented innovation and productivity while posing risks of inequality and geopolitical friction. Its future impact will hinge on visionary governance, global cooperation, and inclusive policies to ensure AI advances human

Q. The rapid advancement of Artificial Intelligence presents both unprecedented opportunities and complex governance challenges. Analyse the economic and geopolitical implications of the AI surge. Suggest measures to ensure its responsible and inclusive development, with special reference to India. 250 words

3.3.4. THE SHANTI ACT AND INDIA'S NUCLEAR TRANSITION

Context:

- Parliament has recently passed the **Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Act**, which allows **private companies to enter the nuclear power sector**. It repeals the **Atomic Energy Act, 1962** and the **Civil Liability for Nuclear Damage Act (CLNDA), 2010**, and establishes new regulatory and liability frameworks.
- The Shanti Act is aimed at accelerating **India's clean energy transition** and achieving a **100 GW nuclear capacity target by 2047**. However, it has raised concerns over **supplier indemnification, dilution of liability provisions, and possible moral hazard affecting public safety**.



Background: Rationale for the Reforms under the SHANTI Act

The SHANTI Act marks a structural shift from a **closed, state-led model** to a **liberalized, hybrid ecosystem**. The rationale for this overhaul is rooted in several critical factors:

- **Persistent Stagnation in Energy Share:** Despite being a priority for decades, **nuclear power has accounted for only about 3% of India's total electricity generation**. The present nuclear capacity stands at a modest **8.78 GW**, failing to become a primary energy pillar.
- **Historical Failure to Meet Targets:** The sector has a **legacy of missed milestones**; in the 1980s, a target of **10 GW by 2000** was set, but only **2.86 GW** was achieved. Similarly, the 2006 target of **20 GW by 2020** resulted in an actual capacity of only **6.78 GW**.
- **Systemic Bottlenecks and Delays:** These failures stem from **high capital costs, safety concerns, and chronic project delays**. A prime example is the **Prototype Fast Breeder Reactor (PFBR) at Kalpakkam**; originally scheduled for commissioning in **2010**, it has yet to become operational.
- **Need for Resource Mobilization:** Opening the sector enables **private participation** to expand **capital availability**, attracting the domestic and global investment required to scale operations beyond the limitations of public funding.
- **Access to Advanced Technology:** Private sector entry is intended to accelerate the adoption of **advanced technologies**, such as **Small Modular Reactors (SMRs)** and modern safety systems. However, it has been found that SMRs remain an **untested technology** with **potentially higher estimated capital costs** per unit of power.

Core Features of the SHANTI Act

The SHANTI Act represents a significant overhaul of India's nuclear energy policy, positioned as a critical reform to achieve the national target of **100 GW nuclear capacity by 2047** and support the long-term goal of **decarbonization by 2070**.

- **End of State Monopoly:** The Act terminates the **government's exclusive control** over nuclear power. It permits **private companies and joint ventures** to operate plants, generate power, manufacture specialized equipment, and engage in fuel fabrication.
- **Strategic Government Control:** Sensitive **"fuel-cycle"** activities—including **uranium enrichment, management of spent fuel, and thorium processing**—are reserved exclusively for the Central government.
- **Statutory Status for AERB:** The **Atomic Energy Regulatory Board (AERB)** is granted **statutory status** to strengthen its authority. It is now answerable to **Parliament** rather than solely to the executive.
- **Graded Liability System:** A clear, tiered financial liability cap is established for operators based on the size of the installation:
 - **Large Plants:** ₹3,000 crore.
 - **Medium Plants:** ₹1,500 crore.
 - **Small Modular Reactors (SMRs):** ₹100 crore.
- **Nuclear Liability Fund:** For damages exceeding the operator's cap, the Central Government provides coverage through a dedicated fund. The total liability for any single incident is capped at **300 million Special Drawing Rights (SDRs)**, approximately **₹3,900 crore**.

- **Complete Supplier Indemnity:** In a major shift from the **CLNDA 2010**, the "**right of recourse**" against suppliers is removed. Suppliers are now **exempt from civil or criminal liability**, even if an accident is caused by **defective equipment**; all legal liability is channeled solely to the **plant operator**.
- **Legal Consolidation:** The Act omits **Clause 46 of CLNDA**, preventing **victims from using other civil or criminal laws** to seek **additional remedies**. All claims must now be processed specifically through the mechanisms defined in this Act.
- **Oversight of Non-Power Uses:** Beyond energy, the Act provides a structured framework for the peaceful application of radiation in **healthcare (radiotherapy), agriculture, and industrial research**, including a licensing system for these activities.
- **Adjudication Mechanisms:** To manage disputes and ensure timely compensation, the Act establishes the **Atomic Energy Redressal Advisory Council** and a specialized **Nuclear Damage Claims Commission**. The **Appellate Tribunal for Electricity** serves as the **final appellate body**.
- **International Alignment:** The compensation scope is extended to **cover damage** caused in **foreign territories** by an incident in India, aligning domestic rules with global treaties like the **Convention on Supplementary Compensation (CSC)**.

Significance of the SHANTI Act

The **SHANTI Act** is designed to transform nuclear energy into a high-value commercial market, offering massive financial incentives for private industry.

- **Massive Market Scale:** Individual nuclear projects involve huge investments. For example, two **Westinghouse AP1000** reactors in the U.S. recently cost about **\$18 billion each**. The Act opens this **multi-billion dollar** market to private players in India.
- **Profit Without Liability:** The Act allows **private corporations** and **foreign suppliers** to earn significant profits from these projects. Crucially, it ensures they can do so without the risk of facing heavy financial consequences or lawsuits if an accident occurs.
- **Incentivizing Private Investment:** By removing the "**right of recourse**" (**the ability to sue suppliers for defective equipment**), the government has removed the biggest "**risk barrier**" for global companies, making India an attractive destination for **Foreign Direct Investment (FDI)**.
- **Business-Friendly Environment:** The Act aims to ensure that private ventures can proceed quickly. It balances regulatory oversight with the need for speed, ensuring that regulations do not become an obstacle to the **profitability** of nuclear power plants.

Critical Concerns: Accountability and Safety Risks

The transition to the **SHANTI Act** framework introduces significant concerns regarding the balance between industrial growth and public protection.

- **Gross Disparity in Compensation:** The total liability cap under the Act (approx. **₹3,900 crore**) is nearly a thousand times smaller than the actual costs of historical disasters. For instance, the **Fukushima accident** costs are projected to reach **₹46 lakh crore**, and the **Chernobyl disaster** cost Belarus alone **₹21 lakh crore**, leaving an area the size of Goa as a restricted "**Exclusion Zone**" for 40 years.
- **Financial Burden on Victims:** Even with international funds from the **Convention on Supplementary Compensation (CSC)**, total available money is unlikely to cover even **1% of**

potential damage. Under the Act, victims have **no legal right** to seek **compensation beyond this cap**, potentially forcing citizens to bear the loss of life and property on their own.

- **Issue of "Moral Hazard":** By shielding **private operators and suppliers** from the full financial weight of a catastrophe, the Act creates a **moral hazard**. This insulation from consequences may discourage the industry from maintaining the **highest safety standards** and encourage **greater risk-taking**.
- **Dilution of Absolute Liability:** The Act indemnifies operators for accidents caused by **"grave natural disasters."** This reverses India's established legal principle of **"absolute liability"** for hazardous industries. Since the Fukushima disaster was caused by a tsunami, this exemption is seen as a major loophole that reduces the incentive to build ultra-resilient plants.
- **Prioritizing Corporate Interests:** While the liability cap protects **private nuclear operators** from financial ruin and encourages investment, it effectively shifts the massive socio-economic risk of a nuclear accident away from the corporations and onto the **State and its citizens**.

Additional Initiatives to Promote Nuclear Energy

- **National Nuclear Energy Mission:** Established in the **Union Budget 2025-26** with a **₹20,000 crore** outlay, this mission focuses on the **design and deployment** of Small **Modular Reactors** (SMRs). The objective is to have **five indigenous SMRs** operational by **2033** to accelerate the **clean energy transition**.
- **Indigenous Innovation via BARC:** The **Bhabha Atomic Research Centre** is pioneering the **200 MWe Bharat Small Modular Reactor (BSMR-200)**. This initiative aims to establish a local supply chain and reduce **technological import dependency**.
- **Three-Stage Power Programme:** This long-term strategy ensures **fuel security** by progressing from **PHWRs** to **Fast Breeder Reactors**, eventually utilizing India's extensive **Thorium reserves** for near-infinite energy sovereignty.
- **International Nuclear Alliances:** Through agreements like the **123 Agreement** and partnerships with **Russia and France**, India secures **global fuel supplies** and **advanced reactor technology**, overcoming domestic uranium limitations.

Way Forward: Strengthening the SHANTI Act Framework

- **Strengthening Regulatory Independence:** The **AERB** must be granted full functional autonomy, moving away from the influence of the **Atomic Energy Commission**, to ensure safety is not compromised for commercial speed.
- **Revisiting Liability Caps:** To protect citizens, the **liability caps** should be indexed to inflation or linked to the potential scale of disasters, ensuring that compensation remains realistic in the event of a major accident.
- **Ensuring Contractual Recourse:** While the Act omits statutory recourse, operators must be encouraged to include **stringent indemnity clauses** in private contracts with suppliers to maintain a check on equipment quality.
- **Focusing on Indigenous R&D:** Reliance on high-cost foreign technology should be balanced by accelerating the **Three-Stage Nuclear Power Programme**, utilizing India's vast **thorium reserves** to ensure long-term energy sovereignty.

- **Public Awareness and Transparency:** Given the history of nuclear apprehensions, a robust **public communication framework** is required to build trust regarding the safety protocols of new private-sector-operated plants.

Conclusion

The **SHANTI Act** marks a significant step toward **liberalizing India's nuclear sector** and advancing its **Net Zero 2070 goals**. However, the provisions on **supplier indemnification** and **liability caps** raise serious concerns about **public safety and accountability**. Its success will depend on balancing **ease of doing business** with **strict safety standards and fair compensation mechanisms**.

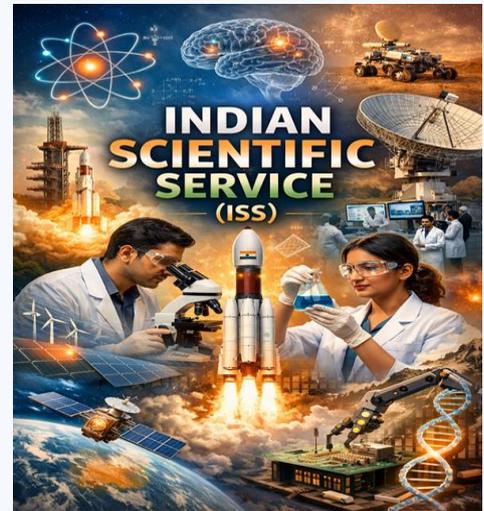
Q. The SHANTI Act seeks to accelerate India's clean energy transition and achieve 100 GW nuclear capacity by 2047. Critically examine whether the reform balances commercial viability with public safety. (250 words)

3.3.5. INDIAN SCIENTIFIC SERVICE (ISS)

Context: The **Indian Scientific Service (ISS)** is a proposed All-India Service designed to bridge the gap between technical expertise and governance. By institutionalizing "**Scientist-Administrators**," it aims to professionalize R&D management and ensure evidence-based policymaking for a technologically advanced India.

Reasons for Establishing the ISS

- **Technical Policy Expertise:** Provides deep domain knowledge for regulating complex emerging sectors like **AI, semiconductors, and genomics**, where generalist training is insufficient.
- **Evidence-Based Governance:** Ensures national policies are driven by **rigorous scientific data** and technical feasibility rather than mere administrative or political convenience.
- **Crossing the "Valley of Death":** Empowers **Techno-Managers** to bridge the gap between lab research (TRL 3) and commercial industrial products (TRL 9), enhancing India's innovation output.
- **Strategic Mission Leadership:** Prevents fragmented oversight and delays in large-scale national projects (e.g., **Green Hydrogen or Space missions**) through dedicated scientific continuity.
- **Scientific Integrity & Autonomy:** Creates a legal framework allowing scientists to offer **unbiased technical warnings** (e.g., climate or ecological risks) without the constraints of traditional bureaucratic conduct rules.
- **Global Tech-Diplomacy:** Develops a cadre of "**Scientist-Diplomats**" to negotiate international standards, IP rights, and strategic resource treaties (e.g., Rare Earths) from a position of technical strength.



Significance of Establishing an ISS

1. Unified Science Administration

- Currently, India's scientific departments (DST, DBT, CSIR, ISRO, DRDO) operate in silos. An ISS would:

- **Create a Centralized Pool:** Develop a dedicated cadre of “scientist-administrators” who understand both research nuances and bureaucratic processes.
- **Standardize Recruitment:** Streamline entry requirements, ensuring high-caliber talent enters the government’s scientific fold through a competitive process.

2. Evidence-Based Policy Making

- Science is increasingly at the heart of governance (e.g., climate change, pandemics, AI ethics).
- **Technical Literacy in Power:** ISS officers could provide specialized advice to ministries, reducing the “knowledge gap” often found in generalist-led departments.
- **Strategic Planning:** Enhance India’s ability to forecast technological trends and align them with national security and economic goals.

3. Career Progression and Retention

- **Brain Drain Mitigation:** By offering a prestigious, structured career path with clear promotions, the government can retain top-tier Indian researchers who might otherwise move abroad or to the private sector.
- **Leadership Stability:** It would provide a steady pipeline of experts ready to lead national laboratories and missions, reducing reliance on ad-hoc appointments.

4. Global Scientific Diplomacy

- **International Representation:** ISS officers would be better equipped to represent India in global forums like the IPCC, WHO, or CERN, blending diplomatic tact with technical expertise.
- **Tech Transfer:** Facilitate smoother negotiations for international technology transfers and collaborative research projects.

Government Initiatives Taken So Far

1. **STIP 2020 (Draft):** The latest **Science, Technology, and Innovation Policy** explicitly proposes the creation of a specialized “**Science Administration**” cadre. It aims to institutionalize “Science Policy Fellows” and “Scientist-Administrators” to manage R&D ecosystems.
2. **NITI Aayog’s 3-Year Action Agenda:** Recommended **Lateral Entry** at middle and senior management levels (Joint Secretary and Director) specifically for sectors requiring high technical expertise, like Biotechnology, Renewable Energy, and Aviation.
3. **Anusandhan National Research Foundation (ANRF):** Established under the ANRF Act (2023), this apex body aims to provide high-level strategic direction to scientific research. It is designed to be led by scientists, reflecting a shift toward “specialist-led” governance.
4. **Empowered Technology Group (ETG):** Formed to advise the government on technology trajectories and procurement, ensuring that technical expertise is integrated into the highest levels of cabinet decision-making.
5. **UPSC Lateral Entry:** Since 2018, the government has recruited domain experts from the private sector and academia into ministries like Civil Aviation, Environment, and Electronics. This serves as a “pilot” for what a permanent ISS might look like.
6. **Mission Karmayogi:** A national program for civil service capacity building that includes specialized modules for generalist officers to handle technical departments more effectively.

Global Practices and Lessons

1. **United States- (Senior Executive Service (SES) – Technical Track)**- A dual-career ladder system that allows scientists to rise to the highest administrative ranks without abandoning their technical expertise.
2. **United Kingdom- [Government Science & Engineering (GSE)]- Profession**A dedicated cadre of over 10,000 specialists. Every major ministry has a **Chief Scientific Adviser (CSA)** supported by this structured team.
3. **China- (“Technocratic” Cadre System)**- High emphasis on meritocratic recruitment of engineers and scientists into the civil service.
4. **Germany- (Research-Admin Hybrid)**- Deep integration between federal research institutes and ministries, where staff rotate between active research and policy-drafting roles.

Challenges in Establishing ISS

1. The “Generalist vs. Specialist” Friction

The Indian bureaucracy has historically followed the **Macaulayan model**, which favors “generalist” administrators (IAS) over “specialists” (scientists/engineers).

- **Power Dynamics:** There is significant resistance from the existing All-India Services to share top policy-making positions (Secretary level) with a new cadre.
- **Perceived Limitations:** Critics argue that scientists might have “tunnel vision” (high depth, low breadth), making them less effective at handling the multi-faceted political and social pressures of district or state administration.

2. Federal and Constitutional Hurdles

- **Article 312 Requirements:** Creating a new All-India Service requires a resolution in the **Rajya Sabha** supported by not less than **two-thirds** of the members present and voting.
- **State Autonomy:** States often view new All-India Services as a form of “Central overreach.” Since most states have their own scientific departments, they may resist a central cadre managing their local research ecosystems.

3. Administrative and Skill Gaps

- **Management Training:** Scientists are trained in “precision and inquiry,” while administration requires “tact, negotiation, and speed.” Transitioning a researcher into a bureaucrat requires a massive, currently non-existent training infrastructure.
- **Conflict of Interest:** In current setups, scientists often hold administrative power over the same institutions where they conduct research. Transitioning to a formal ISS would require a clean “separation of powers” that many senior scientist-administrators might resist.

4. Legal and Career Mobility

- **CCS Conduct Rules:** Existing Civil Service (Conduct) Rules can be restrictive for scientists. For example, official rules often penalize government employees for publicizing findings that contradict state policy—a direct conflict with the **Scientific Temper** and transparency required for research.

- **Brain Drain vs. Pay Parity:** To attract top scientists to the ISS, the government would need to offer pay and perks competitive with global R&D firms or top-tier universities, which could cause a “parity crisis” with other civil services.

Way Forward

1. **Mission-Mode Pilot:** Launch the ISS initially in high-tech departments like **MeitY and Biotechnology** to test the model before a pan-India rollout.
2. **Science-Policy Framework:** Integrate specialized modules into **Mission Karmayogi** to ensure generalist officers are “science-literate” while the dedicated ISS cadre is being built.
3. **Constitutional Pathway:** Use **Article 312** (Rajya Sabha resolution) to establish the ISS as an All-India Service, providing the legal prestige to operate across Central and State levels.
4. **Dual-Track Career Model:** Adopt a “fluid” system allowing officers to switch between **active research and policy management** without losing seniority or career progression.
5. **Formalized Lateral Entry:** Institutionalize fixed 3–5 year tenures for experts from academia and the private sector to keep the government updated on **frontier technologies** like AI and Quantum Computing.
6. **ANRF-Led Governance:** Designate the **Anusandhan National Research Foundation (ANRF)** as the cadre-controlling authority to ensure merit-based recruitment and implement **market-linked pay scales** for high-demand fields.

Conclusion

The **Indian Scientific Service (ISS)** is the essential bridge to a “**Viksit Bharat,**” transforming India into a global technocracy. By integrating specialized expertise into governance via **Article 312,** it ensures evidence-based policy-making and strategic leadership in frontier technologies.

Q. “The growing complexity of governance in the 21st century necessitates deeper integration of scientific expertise into policymaking. In this context, critically examine the need for establishing an Indian Scientific Service (ISS). Discuss its potential merits, challenges, and the way forward for institutionalizing science-based governance in India. (250 words)”

3.3.6. NEW DELHI DECLARATION ON AI IMPACT

Context: The **India-AI Impact Summit 2026** (held February 18–19, 2026, at Bharat Mandapam, New Delhi) was a landmark event where India positioned itself as a leader of the **Global South** in AI governance.

Background of AI Impact Summit

The Delhi Summit followed a sequence of global meetings that evolved in focus:

- **Bletchley Park, UK (2023):** Focused on **AI Safety** and existential risks (The Bletchley Declaration).
- **Seoul, South Korea (2024):** Focused on **AI Safety & Innovation** balance.



- **Paris, France (2025):** The **AI Action Summit**, emphasizing geopolitical competition and standards.
- **New Delhi, India (2026):** The **AI Impact Summit**, shifting the focus to **implementation, inclusion, and the Global South**.

Key Highlights of AI Impact Summit: The "Seven Chakras" (Pillars)

The Declaration is structured around seven thematic pillars that define the global roadmap for AI:

1. **Democratizing AI Resources:** Ensuring affordable access to compute, data, and models for all nations.
2. **Economic Growth & Social Good:** Leveraging AI to boost productivity and social welfare.
3. **Secure & Trusted AI:** Establishing ethical guardrails and voluntary safety benchmarks.
4. **AI for Science:** Using AI to accelerate research in healthcare, agriculture, and climate.
5. **Access for Social Empowerment:** Inclusion-by-design for underserved communities and local languages.
6. **Human Capital Development:** Focus on mass skilling, reskilling, and AI literacy.
7. **Resilient, Efficient & Innovative AI:** Promoting sustainable resource use and energy-efficient systems.

Key Outcomes of the New Delhi Declaration of AI Impact Summit

1. Global Participatory Frameworks

The headline outcome was a non-binding but significant declaration based on the "**Seven Chakras**" (Pillars).

- **Charter for the Democratic Diffusion of AI:** A voluntary framework to expand access to foundational AI resources (compute, datasets, and algorithms) to prevent technology concentration in a few nations.
- **Global AI Impact Commons:** A digital platform to share and replicate successful AI use cases in sectors like healthcare and agriculture across borders.
- **Trusted AI Commons:** A collaborative repository for benchmarks, safety tools, and ethical best practices to ensure responsible development.

2. Geopolitical and Strategic Shifts

- **Pax Silica Initiative:** India formally joined this US-led framework to secure supply chains for semiconductors, advanced computing hardware, and critical minerals.
- **Vishwa Bandhu Role:** India positioned itself as a "Global Friend," bridging the technological standards of the Global North with the socio-economic aspirations of the Global South.
- **GPAI Expansion:** The summit hosted the Global Partnership on AI (GPAI) Ministerial Meeting, welcoming new members like **Saudi Arabia** and **Malta**.

3. Economic and Infrastructure Commitments

- **Massive Investment Pledges:** The summit secured over **\$250 billion** in infrastructure investment commitments (data centers, fab plants) and roughly **\$20 billion** for deep-tech venture funding.
- **Compute Power (GPU) Expansion:** India announced a ramp-up to **100,000 GPUs** by the end of 2026 under the IndiaAI Mission 2.0 to provide affordable compute to startups and researchers.

- **MSME AI Stack:** Plans to launch an "AI Playbook" for small businesses, modeled after the success of UPI, to democratize productivity tools.

4. Indigenous Technological Breakthroughs

- **Sovereign LLMs:** Launch of Indian-trained frontier models by **Sarvam AI** (Sarvam-30B and Sarvam-105B) and **BharatGen** (17B parameter Indic-language model).
- **Hardware Innovation:** Unveiling of **Sarvam Kaze**, a made-in-India AI smart glass initiative.
- **MANAV Vision:** Prime Minister Modi unveiled the **MANAV** framework (**M**oral, **A**ccountable, **N**ational Sovereignty, **A**ccessible, **V**alid) as India's ethical compass for AI.

5. Human Capital & Social Impact

- **AI Workforce Development Playbook:** Guidelines for nations to prepare for an AI-driven economy through skilling and reskilling.
- **Flagship Challenges:** Recognition of innovators through **AI for ALL** (inclusion), **AI by HER** (women-led), and **YUVAi** (youth-led) awards.
- **Judicial Integrity:** Launch of "AI Essentials for Judges" to prevent "Black-Box Justice" and ensure algorithmic tools remain subordinate to human reasoning.

Concerns Regarding the AI Impact Summit

1. Lack of Binding Enforcement

- **Aspirations vs. Actions:** There is no international body or verification mechanism to ensure countries actually follow the principles of "Democratic Diffusion."
- **Voluntary Framework:** Unlike the **European Union (EU) AI Act**, this declaration lacks strict penalties, risking becoming a "spectacle" without real accountability.

2. The "Silent" Labor Crisis

- **Job Displacement:** Significant threat to India's **5.8 million Information Technology (IT)** workforce despite the summit's focus on reskilling.
- **Vulnerable Roles:** High risk of mass unemployment in entry-level coding, data entry, and administration due to **Generative Artificial Intelligence (GenAI)**.

3. Human Rights and "Redlines"

- **Absence of Prohibitions:** No explicit bans on high-risk practices like **Predictive Policing** or **Biometric Surveillance**, which often harm marginalized groups.
- **Safeguard Gaps:** Organizations like **Amnesty International** criticized the lack of concrete commitments to stop "destructive practices" by tech giants.

4. Geopolitics and "Data Colonialism"

- **Data Colony Risk:** Fear that the Global South will supply raw data and talent while **United States (US)** and **China** firms retain ownership of high-value models.
- **Geopolitical Exclusion:** The absence of **Taiwan**—the global semiconductor hub—due to diplomatic sensitivities was seen as a major strategic gap.

5. Environmental and Sustainability Issues

- **Resource Intensity:** Training massive models leads to exponential growth in energy consumption.
- **Water Stress:** Data centers require roughly **11 lakh liters of water per day** for cooling, threatening water-scarce regions.

6. Implementation and Logistics

- **The "Spectacle" Critique:** Some observers felt the event functioned more like an **AI trade expo** (focusing on investment deals) rather than a governance forum.
- **Domestic Credibility:** Incidents of "rebranding" foreign technology as indigenous (e.g., Chinese robot dogs) raised concerns about the vetting of domestic AI claims.

Measures for Inclusive AI Growth in India

1. Democratizing Access through DPI (Digital Public Infrastructure)

- **AI-DPI Convergence:** Utilizing the **"India Stack"** (UPI/Aadhaar) model to treat AI as a public good. Building "common digital rails" allows MSMEs to access high-quality data and models independently of Big Tech.
- **Bhashini & Language Inclusion:** Leveraging the **BHASHINI** platform to provide voice-based services in local dialects, ensuring the non-literate population can access banking and governance.

2. Strengthening Sovereign AI & Infrastructure

- **IndiaAI Mission 2.0:** Expanding national compute to **100,000 GPUs** and subsidizing costs (approx. **₹65/hour**) to democratize innovation beyond wealthy corporations.
- **Indigenous LLMs (BharatGen):** Developing **Foundational Models** trained on domestic data to ensure cultural, social, and linguistic relevance.

3. Sector-Specific Measures for Last-Mile Impact

- **Agriculture (Kisan e-Mitra):** Deploying AI for personalized crop advisories, pest detection via mobile images, and climate-resilient farming.
- **Healthcare (Suman Sakhi):** Supporting **ASHA** workers with AI chatbots and diagnostic tools for maternal and child health tracking in rural centers.
- **Education (DIKSHA AI):** Utilizing AI for personalized regional language content and identifying potential student dropouts.

4. Protecting the Workforce (The "Human Capital" Pillar)

- **Digital ShramSetu:** An AI platform for **490 million informal workers** that matches skills to jobs and provides micro-credentials for on-the-job learning.
- **AI Workforce Playbook:** Setting global standards for "mass reskilling" to transition workers from data entry to **AI-augmented** roles.

5. Ethical and Safe Governance

- **MANAV Framework:** Ensuring AI is **Moral, Accountable, National (Sovereign), Accessible, and Valid**.
- **"Glass Box" Accountability:** Requiring transparency in AI used for public welfare. If a citizen is denied a benefit by an AI algorithm, they must have a "Right to Explanation" to understand why.

Conclusion

The New Delhi Declaration marks a shift toward **Sovereign AI** and **Democratic Diffusion**. By integrating AI with **Digital Public Infrastructure (DPI)**, India is pioneering a human-centric model that ensures frontier technology bridges global divides, fostering an inclusive, sustainable, and equitable digital future.

Q. Artificial Intelligence is increasingly becoming central to economic competitiveness and strategic autonomy. In this context, analyse the objectives of the New Delhi Declaration on AI Impact. How can India balance innovation with ethical and regulatory safeguards? (250 Words)

Scan to attempt more questions...

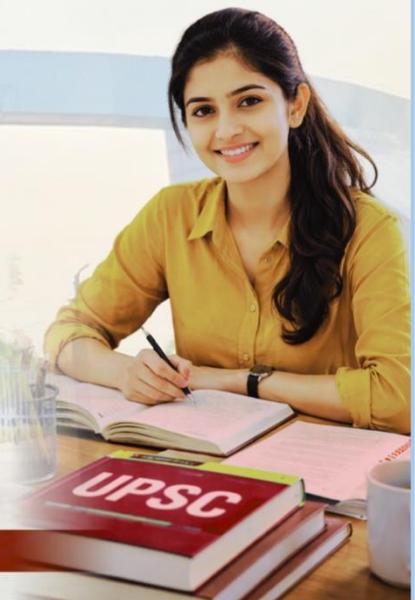


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GENERAL STUDIES 4

4.1. ETHICS

4.1.1. THE MINEABLE SELF – HUMAN LIFE AS THE NEXT BIG COMMODITY

Context:

Recently, a conceptual shift in global capitalism has been highlighted through a detailed analysis of how **human selves, stories, and social relations** are being transformed into a **new global commodity**, cutting across **media, technology, finance, identity politics, and artificial intelligence ecosystems**.



Evolution from Industrial Capitalism to Sociality Extraction

Historical transition from traditional **industrial capitalism** to contemporary era is marked by profound shift in focus of value extraction.

- **Marxist Surplus Value Theory: Industrial capitalism** is noted for **marked predilection** for **creation and exploitation** of **surplus value**. As theorized by **Marx**, **surplus value** is value generated beyond **value of labour** required to produce **commodities**, which floats into mysterious form of **profit** for **owners and managers of capital**.
- **Shift in Horizon of Extraction:** Today, **human beings** have become new object and horizon of capitalist extraction. New object is identified as **sociality itself**, shifting focus from **physical labour to core of human relationships**.
- **Exhaustive Extraction of Social Bonds:** This new form of mining targets every domain of human connection, including **friendships, love lives, family connections, classmates, children, fellow workers, and neighbours**.
- **Functional and Digital Networks:** Extraction extends to **digital lives, political allies, and even food and drug suppliers**, rendering all sociality resource for profit.
- **Creative Destruction of Social Guardrails:** This process represents new feat of **creative destruction**, where traditional ideas of **privacy, intimacy, and trust** are rendered obsolete to facilitate extraction without permission or limit.

Mineable Self and Major Drivers of the Mineable Self

The **mineable self** refers to the **self treated as a commodity** that can be **mined, packaged and monetised** through stories, sociality and digital identities. Transformation of **self into newest form of raw material** is driven by **three fundamental structural changes** in global market:

- **Global Hunt for Portability and Characters:** Allure of global market has captured market in characters, leading to global hunt for stories from **Mexico to Nepal and Spain to Indonesia**.
 - Every form of **local mythology and folklore** is trolled by publishers and prize committees in search of **portability** and "**vaguely universal themes**."
 - New character types such as **aliens, cyber-monsters, and post-blobs** are sought to fulfill global appetites.

- **Redefinition of Locality:** Locality is no longer bound by **parochial or proximate** but acts as **prismatic refraction of global issues**.
- **Narrative First Responders** (persons with cameras in war zones act as photojournalists) put global narrative system on alert.
- **Syndicated news services** perform **triage on local incidents**, stoking furnace of global media and creating new geography that transcends **global-local antonyms**.
- **Multiplication of the "I" and the "Me":** Right to have story is extended to **ordinary humans, banks, nations, and corporations**.
- In **twilight zone of AI**, bots like **Siri and ChatGPT** compete to display human-like emotions and vulnerabilities, challenging human monopolies over **affect, judgement, and intuition**.

The Great Chain of Storytelling

Mining of self is optimized through systematic narration and audience acquisition:

- **Right to Story:** Every individual is encouraged to claim narrative of **heroism, victimhood, or redemption**. Professional assistance is provided by **influencers, coaches, and writing apps** to refine these narrations for market consumption.
- **Monetization of Virality:** Lucky virality of trivial self-narrations has powered careers of numerous **YouTube stars**.
- **Convergence of Slogans:** Current market operates on twin beliefs that **every self has story** and **every story deserves audience**, leading to drilling of every living "mineshaft" for extractable data.

Technological Catalyst: OTT Streaming and Deconstruction

Over-the-Top (OTT) streaming (Netflix, Amazon Prime, Disney) is identified as single biggest force in story market.

- **Infrastructure Disruption:** OTT technologies rely solely on Internet, colonizing markets previously held by **big studios** and bypassing traditional distribution models.
- **Rise of the Ordinary:** Story economy is powered by rise of "**unknowns**"—mid-market actors appearing extraordinarily ordinary—highlights global trend toward **democratization of self**, though phenomenon is not entirely positive.
- **The Unstable Composite:** Classical individual is replaced by **unstable composite** of **credit scores, actuarial charts, algorithmic storehouses, and consumer profiles**. Unified or continuous anchor in singular person is no longer required.
- **Sources of the Selfie:** Shift is noted from **Charles Taylor's "Sources of the Self"** to "**sources of the selfie**," where **photobombing celebrities** signifies **democratization** through lens-based equality.

Case Study: The Streaming Market in India

Netflix CEO Reed Hastings claimed in 2018 that Indian market would bring **100 million subscribers**. This case highlights scale of **narrative colonization** where ordinary life is woven into streaming content to drive global subscription models.

Ethical Implications of the Mineable Self

Mining of human essence for commercial profit raises profound ethical concerns regarding dignity and autonomy:

- **Dehumanization through Commodification:** Transformation of sacred human bonds—such as friendships and family connections—into **marketable raw material** reduces human existence to economic utility.

- **Erosion of Moral Agency:** Replacement of unified personhood with **unstable composite of algorithmic storehouses** and **credit scores** diminishes capacity of individuals to act as independent moral agents.
- **Informed Consent Deficit:** Systematic mining of **deepest affinities** and ephemeral social ties is often conducted without permission, violating fundamental principles of **autonomy and digital consent**.
- **Exploitation of Human Vulnerability:** Active search for narratives of **heroism, victimhood, or martyrdom** incentivizes commodification of trauma and suffering for global entertainment.
- **Artificial Displacement of Human Affect:** AI mimicry of human intuition and vulnerability creates **ethical crisis** where artificial bots potentially manipulate human emotions for profit-driven outcomes.

Way Forward: Strategies for Digital Sovereignty

- **Institutionalizing Sociality Sovereignty:** Robust legislative frameworks must be formulated to ensure that **deepest affinities and social ties** cannot be mined as resource without explicit permission or limit.
- **Regulating Narrative Extraction Markets:** Strict oversight of **OTT platforms and news syndicates** is required to prevent exploitation of local volatility and trauma for global commercial gain.
- **Protecting Identity and Personhood:** Measures should be taken to prevent reduction of individuals to **unstable composites** of algorithmic storehouses, ensuring legal right to unified and continuous identity.
- **Governing AI Emotional Mimicry:** Global ethics standards must be developed to govern **AI emotional mimicry**, preventing artificial entities from monopolizing human affect and intuition for profit.
- **Restoring Values of Privacy:** Cultural and legal shifts are needed to re-evaluate **creative destruction**, restoring social value of **privacy, intimacy, and trust** against encroaching digital commodification.

Conclusion

Emergence of **mineable self** signals profound transformation where human stories and social ties serve as primary **access codes** for capitalist extraction. While technology offers tools for **self-narration**, it simultaneously facilitates deconstruction of individual into **marketable raw material**. Preservation of **human-centric sociality** and unified identity against **unbounded mining** remains defining challenge for contemporary digital civilization.

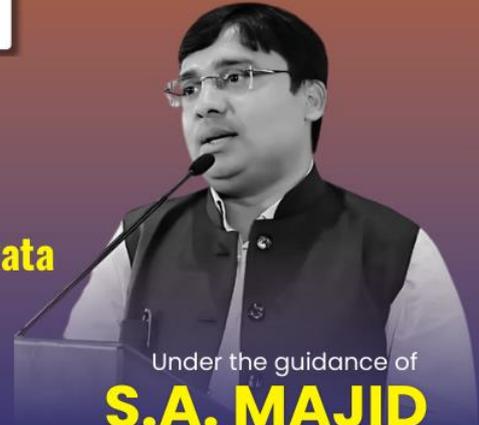
Q. The commodification of human stories raises serious ethical concerns regarding exploitation of trauma, emotional labour, and intimacy. Discuss the ethical implications of treating human life as a mineable commodity. 250 Words

Scan to attempt more questions...





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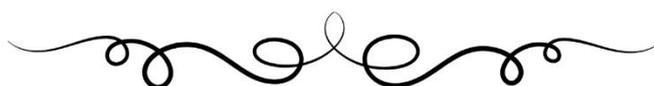
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