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FOR UPSC EXAM

COMPREHENSIVE | ANALYTICAL  
EXAM-FOCUSED

# VIDHVATH VIMARSHA



MONTHLY CURRENT AFFAIRS

- Prelims Facts
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- Essay Themes
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# POLITY & CONSTITUTION

## 1. Resolution Against VB-GRAM G: Federal and Social Implications

The Karnataka Legislative Assembly recently passed a resolution opposing the Union Government's new employment scheme, highlighting a deepening friction between the Centre and States regarding social security and federal autonomy.

### Summary of Key Developments

- **Rejection of VB-GRAM G:** The Karnataka Assembly has formally expressed "serious opposition" to the Viksit Bharat-Guarantee for Rozgar and Aajeevika Mission (Gramin) Act, 2025, calling for its immediate annulment.
- **Demand for MGNREGA Restoration:** The resolution urges the Central Government to fully restore the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), 2005, which it claims has been effectively dismantled by the new legislation.
- **Concerns Over Decentralization:** A primary grievance is that the new Act allegedly snatches the powers and rights of Village Panchayats, undermining the 73rd Constitutional Amendment's vision of local self-governance.
- **Fiscal Burden on States:** The state government argues that the VB-GRAM G framework shifts a "serious burden" onto the State exchequer, potentially altering the traditional 60:40 or 90:10 funding patterns of centrally sponsored schemes.
- **Right to Life and Livelihood:** The resolution frames the issue as a violation of the "right to life" for the rural poor, viewing the previous MGNREGA as a critical safety net or "elixir of life" for those in distress.
- **Federal Friction:** The move underscores a growing trend of states using legislative resolutions to challenge central laws that overlap with subjects in the Concurrent List or affect state finances.

### Key Definitions

- **VB-GRAM G Act:** The Viksit Bharat-Guarantee for Rozgar and Aajeevika Mission (Gramin), a 2025 legislation aimed at restructuring rural employment schemes.
- **Legislative Resolution:** A formal expression of the opinion or will of a legislative body, which, while not always legally binding on the Centre, carries significant political and moral weight.
- **Decentralization:** The transfer of authority and responsibility for public functions from the central government to subordinate or quasi-independent government organizations or local authorities.

### Constitutional and Legal Provisions

- **Article 21:** The Right to Life and Personal Liberty. The judiciary has often interpreted the "right to work" (as seen in MGNREGA) as an essential component of a dignified life under this Article.
- **Article 246 & Seventh Schedule:** Addresses the distribution of legislative powers. While "Social Security" is in the Concurrent List (Entry 23), "Local Government" is a State Subject (Entry 5).
- **73rd Constitutional Amendment Act, 1992:** Mandates the devolution of powers to Gram Panchayats. The resolution argues that VB-GRAM G bypasses these local bodies.
- **Article 252:** Relates to the power of Parliament to legislate for two or more States by consent, though centrally sponsored schemes often operate under the Union's spending power.



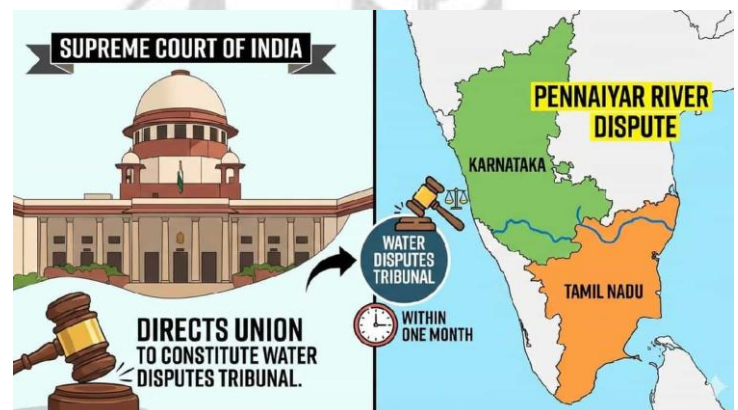
## Conclusion

The standoff in the Karnataka Assembly is a classic example of the "Executive Federalism" vs. "Cooperative Federalism" debate in India. While the Centre seeks to modernize rural employment through the VB-GRAM G Act, states argue that such top-down restructuring erodes the autonomy of Panchayati Raj Institutions and imposes unfair financial liabilities. The resolution signals that the transition from the rights-based MGNREGA framework to new missions will likely face rigorous legal and political scrutiny regarding its impact on the grassroots democratic fabric.

## 2. PENNAIYAR RIVER DISPUTE: Mandatory Tribunal Constitution

The Supreme Court has directed the Union Government to constitute an Inter-State River Water Disputes Tribunal within one month to adjudicate the long-standing conflict between Tamil Nadu and Karnataka. The dispute centers on the construction of check dams and diversion structures by Karnataka on the Pennaiyar River (also known as South Pennar or Ponnaiyar), which Tamil Nadu claims violates historical agreements and riparian rights.

- **Judicial Mandate:** Exercising its powers, the Supreme Court invoked **Section 5 of the Inter-State River Water Disputes (ISRWD) Act, 1956**, to compel the Centre to notify a tribunal after prior mediation attempts failed to yield a resolution.
- **Riparian Rights & National Assets:** Tamil Nadu's legal stance is that inter-state river water is a "national asset," and no single upper-riparian state can claim exclusive ownership or divert water to the detriment of lower-riparian residents.
- **Contention over 1892 Agreement:** A pivotal point of the dispute is the **1892 Water Agreement** (signed between the erstwhile Mysore Princely State and Madras Presidency), which Tamil Nadu asserts is "valid and binding," requiring Karnataka to seek prior consent before initiating new irrigation or diversion projects.
- **Karnataka's Infrastructure Projects:** The conflict escalated in 2018 when Karnataka initiated work on dams and diversion structures on the river basin, prompting Tamil Nadu to seek a permanent prohibition on any new schemes until a formal adjudication is completed.
- **Adjudicatory Delay:** The Centre's hesitation to form the tribunal earlier led to the current apex court intervention, highlighting the friction between executive discretion and the mandatory requirements of the 1956 Act when a "complaint" is filed by a state.



## GEOGRAPHICAL PROFILE: THE PENNAIYAR RIVER

- **Origin:** The river rises in the **Nandi Hills** in the Chikkaballapura district of Karnataka.
- **Course:** It flows through Karnataka and enters Tamil Nadu (passing through Krishnagiri, Dharmapuri, Tiruvannamalai, and Cuddalore) before emptying into the **Bay of Bengal**.
- **Basin:** It is the second-largest interstate river basin in Tamil Nadu after the Cauvery.



## CONSTITUTIONAL AND LEGAL FRAMEWORK

- **Article 262:** This is the specific constitutional provision dealing with the adjudication of disputes relating to waters of inter-state rivers or river valleys. It allows Parliament to enact laws that bar the jurisdiction of the Supreme Court and other courts in such disputes.
- **Inter-State River Water Disputes (ISRWD) Act, 1956:** Enacted under Article 262, it provides for the constitution of a Tribunal. The decision of the Tribunal is final and binding on the parties.
- **Seventh Schedule:** "Water" is a State subject (Entry 17, List II), but "Regulation and development of inter-state rivers" is a Union subject (Entry 56, List I).
- **Doctrine of Equitable Apportionment:** A principle of international and domestic law often used by Tribunals to ensure that all riparian states get a fair and reasonable share of the water based on their needs and geography.

## KEY DEFINITIONS

- **Upper Riparian State:** The state located closer to the source of the river (e.g., Karnataka in this dispute).
- **Lower Riparian State:** The state located further downstream, closer to the mouth of the river (e.g., Tamil Nadu).
- **Adjudication:** The formal legal process of resolving a dispute through a neutral third party (in this case, the Tribunal).

## CONCLUSION

The direction to form a tribunal for the Pennaiyar River underscores the recurring challenges in India's federal water management. While judicial intervention ensures that legal processes move forward, the long-term solution lies in a collaborative basin-management approach. This case reinforces the sanctity of pre-independence water treaties and the necessity of upholding the "Riparian Doctrine" to ensure equitable distribution among states sharing common natural resources.

## 3. End of President's Rule in Manipur and Formation of New Government

### Background

President's Rule was imposed in **Manipur** following prolonged ethnic violence between Meitei and Kuki-Zo communities since May 2023, leading to a breakdown of constitutional machinery.

### Key Developments

- President's Rule was revoked after nearly **one year**, restoring an elected government.
- A **BJP-led NDA government** was sworn in.
- **Yumnam Khemchand Singh** assumed office as Chief Minister, representing the **Meitei community**.
- Two **Deputy Chief Ministers** were appointed from **Kuki-Zo** and **Naga** communities, reflecting an **inclusive power-sharing arrangement**.
- The violence resulted in **over 260 deaths** and **large-scale internal displacement**, highlighting deep societal fractures.

### Constitutional & Legal Framework

- **Article 356:** Imposition of President's Rule in case of failure of constitutional machinery.



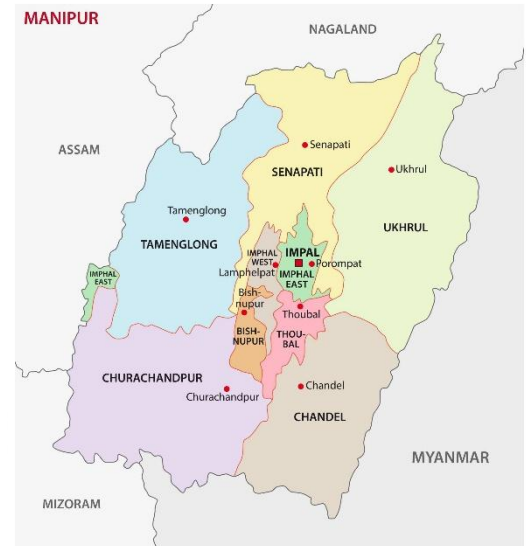
- **Article 355:** Duty of the Union to protect States against internal disturbance.
- Reinforces debates on **Centre–State relations** and **cooperative federalism**.

#### Value Addition (UPSC Angle)

- Frequent or prolonged use of Article 356 raises concerns of **federal overreach** (S.R. Bommai case principles).
- Inclusive governance is essential in **ethnically diverse border States**, especially those with **internal security sensitivities**.

#### Conclusion

The revocation marks **constitutional restoration and federal normalcy**, but **durable peace** depends on reconciliation, rehabilitation of displaced persons, and confidence-building between communities.



## 4. Supreme Court Stay on UGC Equity Regulations, 2026

### Background

The **Supreme Court of India** stayed the **UGC Equity Regulations, 2026**, citing ambiguity and potential for misuse.

### Key Issues

- Earlier **2012 UGC regulations** on campus equity will continue temporarily.
- Dispute over the **definition of caste-based discrimination** and lack of procedural safeguards.
- Court framed key questions on the scope of **equality jurisprudence**.

### Context & Value Addition

- Regulations were introduced after incidents, including **student suicides**, allegedly linked to caste discrimination.
- Highlights tension between **formal equality** (equal treatment) and **substantive equality** (addressing historical disadvantage).

### Constitutional Provisions

- **Article 14:** Equality before law.
- **Article 15:** Prohibition of discrimination and scope for affirmative action.

### Conclusion

The case underscores the need for **clear, precise, and balanced regulatory drafting** to protect vulnerable groups while preventing arbitrariness.

## 5. Denotified Tribes (DNTs) Seeking Constitutional Recognition

### Background

Denotified Tribes (DNTs) are communities historically labelled as “criminal” under the **Criminal Tribes Act, 1871**, and denotified after Independence.

### Current Demands

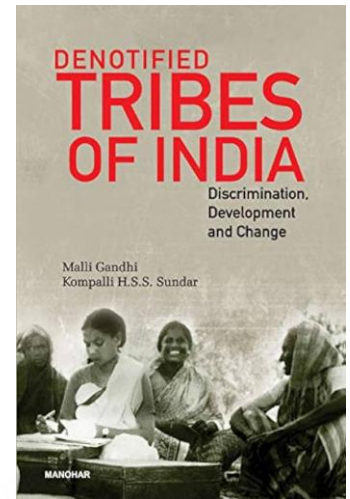
- Separate **Census column in 2027** for accurate enumeration.



- **Constitutional recognition** similar to SC/ST categories.
- **Sub-classification** to address graded levels of backwardness.
- Correction of misclassification that leads to **exclusion from welfare benefits**.

#### Value Addition (Social Justice Angle)

- The **SEED scheme** for DNTs remains underutilised due to lack of certification and identification.
- The Supreme Court has permitted **sub-classification within SC/ST**, strengthening DNT demands.
- Raises debate on a **potential new constitutional schedule** or refined classification mechanism.



#### Constitutional Framework

- **Articles 15 & 16:** Affirmative action and equality of opportunity.

#### Key Definition

- **Denotified Tribes:** Communities decriminalised after colonial rule but continuing to face stigma and exclusion.

#### Conclusion

Targeted constitutional recognition is essential to **address historical injustice and ensure effective inclusion** of DNTs in India's social justice framework.



## 6. Role of Governors and Constitutional Crisis

### Background

Recent confrontations between **State governments and Governors** have reignited debates on federal balance and constitutional propriety.

### Key Issues

- Governors in several States **refused or altered Cabinet-approved addresses**.
- **Article 176** mandates the Governor to address the State Legislature.
- Supreme Court rulings clarify that **content of the address is not discretionary**.
- Allegations of **partisan conduct** intensify **Centre-State tensions**.
- Growing calls for reform in:
  - Appointment process
  - Security of tenure
  - Removal procedure

### Value Addition

- Governor holds office at the **pleasure of the President**, creating structural imbalance.



- Misuse of gubernatorial office undermines **cooperative federalism**.
- Punchhi and Sarkaria Commissions recommended **neutral constitutional conduct**.

### Key Definition

- **Aid and Advice:**  
Binding advice of the **Council of Ministers**, except in limited constitutional exceptions.

### Constitutional Provisions

- **Article 168:** State Legislature
- **Article 176:** Governor's address
- **Article 355:** Union's duty to protect States
- **Article 160:** President's power to make provisions in contingencies

### Conclusion

Design flaws and political misuse of the Governor's office contribute to **recurring constitutional crises**.

## 7. Challenges of SIR Parent Mapping for Institutionalized Individuals

The Special Intensive Revision (SIR) of electoral rolls has inadvertently created a documentation bottleneck for individuals raised in state-run orphanages and charity homes. While the Election Commission of India (ECI) suggests using the institution's name in place of parental details, the absence of standardized field-level guidelines has left many "unmapped" and at risk of disenfranchisement.

- **The Documentation Gap:** Individuals like Md. Palash Shekh, who aged out of state care, possess personal ID (Aadhaar/Voter ID) but cannot fulfill the SIR requirement of "parent mapping" to the 2002 electoral rolls due to a lack of lineage proof.
- **Institutional Identity vs. Lineage:** Although ECI officials permit using an orphanage's name in the parent/guardian column, the lack of formal SOPs leads to inconsistent implementation, resulting in "hearing notices" for those in the "unmapped" category.
- **The 2002 Benchmark:** The SIR process relies heavily on tracing roots back to the 2002 rolls to verify long-term residency and citizenship, a metric that is structurally impossible for abandoned or rescued children to meet.
- **State Responsibility:** Since these individuals were wards of the State, the onus lies on the government to provide the necessary documentation or legal waivers to ensure their constitutional right to vote is not compromised.
- **Risk of Disenfranchisement:** The current "chaos on the ground" suggests that without specific guidelines for "unmapped" institutionalized persons, a significant vulnerable population could be excluded from the updated electoral rolls.



### Key Definitions

- **Special Intensive Revision (SIR):** A rigorous process to clean and update electoral rolls, often involving door-to-door verification and mapping voters to historical data (e.g., the 2002 list) to ensure accuracy and prevent fraud.



- **Parent Mapping:** The process of linking a voter's entry to their parents' records in previous electoral rolls to establish lineage and residency.

### Constitutional & Legal Provisions

- **Article 326:** Grants the right to be registered as a voter to every citizen of India who is not less than 18 years of age, subject to certain disqualifications.
- **Representation of the People Act, 1950:** Sections 14 to 25 govern the preparation and revision of electoral rolls.
- **Right to Identity:** Implicit under **Article 21**, ensuring that the lack of biological lineage does not strip a citizen of their legal and political identity.
- **Juvenile Justice (Care and Protection of Children) Act, 2015:** Establishes the State as the *parens patriae* (legal guardian) of children in need of care, implying the State must facilitate their transition into adult citizenship.

### Additional Key Points

- **Vulnerability of "Aged-out" Youth:** Youth leaving care homes at 18 often lack the social capital and legal literacy to navigate complex bureaucratic revisions.
- **Standard Operating Procedures (SOPs):** There is an urgent need for the ECI to issue a uniform circular clarifying that for institutionalized persons, the "Head of the Institution" or the institution's name serves as a valid legal substitute for parental mapping.

### Conclusion

The SIR process, while essential for electoral integrity, must be inclusive of those without traditional family structures. For individuals raised in state custody, the State cannot demand proof of lineage that it knows does not exist. Bridging this administrative gap is vital to upholding the democratic principle of "no voter left behind."

## 8. Judicial Directive on Inclusivity in Temple Entry: Kerala HC

The Kerala High Court recently dismissed a petition challenging the entry of Christian priests into the Adoor Sree Parthasarathy Temple. The ruling underscores that statutes and rules should serve as instruments of social harmony rather than discord, emphasizing the primacy of parent legislation over inconsistent subordinate rules.

- **Permissive vs. Rightful Entry:** The Court distinguished between "entry as a matter of right" and "permissive entry" as invited guests. It upheld the temple *Tantri's* (chief priest) authority to invite non-Hindus, noting that respecting guests is an integral part of temple culture (*Atithi Devo Bhava*).
- **Inconsistency in Legislation:** The Bench found a conflict between the **Kerala Hindu Places of Public Worship (Authorisation of Entry) Act, 1965**, and its subordinate **Rules**. While the parent Act aims to prevent discrimination among Hindus, it contains no explicit bar on non-Hindus. However, **Rule 3(a)** introduced a prohibition not found in the Act.
- **Subordinate Legislation Limits:** The Court reaffirmed the settled legal principle that subordinate legislation (Rules) cannot exceed the scope of the parent Act. In cases of inconsistency, the provisions of the parent Act shall prevail.
- **Dynamic Nature of Law:** The judgment highlighted that law is not static but must evolve to reflect an increasingly inclusive society. It cautioned that legal frameworks must function as a unifying force fostering mutual respect and coexistence.



- **Essential Religious Practice:** Referring to the *Amicus Curiae*, the Court noted that while restricting non-Hindus might be a "religious practice," it is not an "essential religious practice" (ERP) that would alter the core of the Hindu religion if relaxed.
- **Directive to the State:** The Court urged the Kerala government to consult stakeholders—including the Devaswom Board, *tantris*, and religious scholars—to decide whether Rule 3(a) should be amended to align with constitutional values.



### Key Definitions

- **Subordinate Legislation:** Laws, rules, or regulations made by an executive authority (like a government department) under the powers delegated to them by a primary piece of legislation (the Parent Act) passed by the legislature.
- **Essential Religious Practice (ERP):** A judicial doctrine used in India to determine which religious practices are central to a faith and thus protected under Article 25, versus those that are peripheral and subject to state regulation.
- **Tantri:** The high priest or the final authority on ritualistic and spiritual matters in a Kerala temple.

### Constitutional & Legal Provisions

- **Article 25:** Guarantees freedom of conscience and the right to freely profess, practice, and propagate religion, subject to public order, morality, and health.
- **Article 26:** Grants religious denominations the right to manage their own affairs in matters of religion.
- **Article 13:** Mandates that all laws (including rules and notifications) inconsistent with fundamental rights shall be void to the extent of the inconsistency.
- **Kerala Hindu Places of Public Worship (Authorisation of Entry) Act, 1965:** A social reform legislation intended to ensure all classes of Hindus have access to public temples, removing caste-based disabilities.

### Additional Key Points

- **Judicial Review of Rules:** The ruling reinforces the power of the Judiciary to scrutinize "delegated legislation" to ensure the Executive does not bypass the intent of the Legislature.
- **Social Cohesion:** The Bench quoted the *Taittiriya Upanishad*, emphasizing that universal values of hospitality should inform the interpretation of modern administrative rules.

### Conclusion

The Kerala High Court's decision marks a significant step toward "constitutional morality" by prioritizing social harmony over rigid, inconsistent administrative rules. By directing the State to review Rule 3(a), the judiciary has opened a path for a more inclusive interpretation of religious spaces, provided such entry is ceremonial and permitted by traditional authorities.



## 9. Centre-State Friction: Kerala's Halt on National Population Register (NPR)

The Kerala government has reaffirmed its decision to block the implementation of the National Population Register (NPR) within the state. This move follows the Union Budget 2026-27 allocation of ₹6,000 crore for Census 2027 and NPR, signaling a renewed intent by the Centre to proceed with the population database alongside the decadal census.

- **Reiteration of 2019 Stance:** Through an extraordinary gazette on February 5, 2026, the Kerala government declared that all NPR activities remain suspended, a policy in effect since December 20, 2019.
- **Budgetary Trigger:** The state's move is a direct response to the Union Budget 2026-27, which earmarked ₹6,000 crore for the "Registrar General of India" specifically mentioning Census 2027 and NPR.
- **Federal Discord over CAA-NRC:** Kerala's opposition is rooted in the "chronology" concerns where the NPR is viewed as a precursor to the National Register of Citizens (NRC). The state was the first to pass an Assembly resolution against the Citizenship (Amendment) Act (CAA).
- **Census vs. NPR Separation:** While the state supports the decennial Census—essential for planning and resource allocation—it seeks to decouple it from the NPR to prevent the collection of specific demographic data that could be used for citizenship verification.
- **Judicial Challenge:** Kerala has previously filed an original suit in the Supreme Court under Article 131, challenging the constitutionality of the CAA/NPR framework, asserting that it violates the secular fabric of the Constitution.
- **Administrative Impact:** As the Census 2027 house-listing phase is slated to begin in mid-2026, the refusal of a state to cooperate in the NPR component creates a significant data gap and a potential constitutional stalemate regarding the Centre's power to issue directions.

### Key Definitions

- **National Population Register (NPR):** A database of "usual residents" of the country (residing for 6+ months). It is prepared under the Citizenship Act 1955 and Citizenship Rules 2003. It contains both demographic and biometric data.
- **Usual Resident:** For NPR, a person who has resided in a local area for the past 6 months or more or a person who intends to reside in that area for the next 6 months or more.
- **Census:** A statutory exercise conducted every 10 years under the **Census Act, 1948** to collect statistical data on demography, economy, and literacy. Unlike NPR, Census data is strictly confidential.

### Constitutional & Legal Provisions

- **Article 131:** Grants the Supreme Court original jurisdiction in disputes between the Government of India and one or more States. Kerala utilized this to challenge the CAA.
- **Seventh Schedule (Entry 69, Union List):** "Census" is a subject exclusively under the Union List, meaning the Central Government has the primary power to legislate and conduct it.
- **Article 256:** Mandates that the executive power of every State shall be so exercised as to ensure compliance with the laws made by Parliament. This is the core of the potential "Constitutional Crisis" if a state refuses to implement a Central law.



- **Citizenship Rules, 2003:** Rule 3(4) allows the Central Government to decide the date for preparing the Population Register.

### Additional Key Points

- **Digital Census 2027:** The upcoming census will be India's first fully digital census, utilizing mobile apps and offering a self-enumeration option.
- **Financial Stakes:** The ₹6,000 crore budget allocation represents a six-fold increase over previous revised estimates, indicating the massive scale of the upcoming 16th Census.

### Conclusion

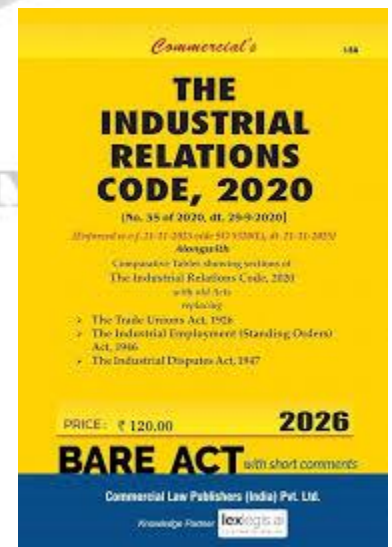
The friction between Kerala and the Centre highlights a growing trend of "competitive federalism" turning into "confrontational federalism" over identity-based data collection. While the Centre maintains that NPR is a "normal administrative activity" for better targeting of welfare, the lack of trust at the state level poses a challenge to the integrity of national databases.

## 10. Industrial Relations Code (Amendment) Bill, 2026: Strengthening Legal Certainty

The Union Government recently introduced the Industrial Relations Code (Amendment) Bill, 2026 in the Lok Sabha. The primary objective of this legislative move is to provide absolute legal clarity regarding the repeal of older labor laws and to ensure a seamless transition to the new unified labor regime, thereby preventing potential judicial or administrative complications.

### Core Summary of the Development

- **Legislative Intent:** The Bill seeks to amend the **Industrial Relations Code (IRC), 2020**, specifically clarifying the process through which earlier labor laws were repealed to avoid any "future unwarranted complications."
- **Laws Subsumed:** The IRC 2020 consolidates and replaces three major historical enactments: **The Trade Unions Act, 1926; The Industrial Employment (Standing Orders) Act, 1946; and The Industrial Disputes Act, 1947.**
- **Automatic Repeal:** While Section 104 of the 2020 Code already provides for the repeal of these laws, the amendment explicitly reinforces that this repeal occurs by **statutory operation** (the law itself) rather than through executive discretion.
- **Legal Certainty:** The amendment addresses concerns that the repeal could be misconstrued as a power delegated to the executive, which could lead to legal challenges in courts.
- **Savings Provisions:** By refining **Section 104**, the government ensures that all actions, registrations, and proceedings initiated under the old laws remain valid and transition smoothly under the new Code without a legal void.
- **Operational Context:** This Bill comes as the four Labor Codes, notified nationwide in late 2025, are being fully operationalized across all States and Union Territories.



### Key Definitions

- **Savings Provision:** A clause in a new statute that preserves (saves) rights, duties, or legal proceedings that existed under the law being repealed.



- **Industrial Relations Code (IRC):** One of the four labor codes aimed at simplifying labor laws, focusing on industrial peace, dispute resolution, and trade union recognition.
- **Statutory Operation:** A legal effect that happens automatically by the force of the written law passed by the legislature, requiring no further action by the government.

### Constitutional and Legal Context

- **Entry 22, Concurrent List (Schedule VII):** "Trade unions; industrial and labour disputes" are in the Concurrent List, allowing both Centre and States to legislate, though Central law prevails in case of conflict (Article 254).
- **Article 239:** Recently utilized to authorize Lieutenant Governors of Union Territories to exercise powers of the "appropriate government" under the IRC 2020, ensuring uniform implementation.
- **Doctrine of Delegated Legislation:** The amendment ensures that the core legislative function (repealing an Act) is seen as performed by Parliament and not delegated to the executive, which would violate constitutional norms.

### Additional Key Points

- **Threshold for Retrenchment:** The IRC 2020 increased the employee threshold from 100 to **300 workers** for establishments to seek prior government permission before layoffs or closures.
- **Negotiating Union:** For the first time, the Code provides for a "sole negotiating union" (requiring 51% support) to streamline collective bargaining.
- **Decriminalization:** The Codes shift the focus from imprisonment to monetary penalties for minor procedural lapses, enhancing the "Ease of Doing Business."
- **Fixed-Term Employment:** The framework now provides statutory recognition to fixed-term workers, ensuring they receive the same social security benefits as permanent employees.

### Conclusion

The 2026 Amendment is a proactive "clean-up" legislation designed to bulletproof the new labor regime against technical legal challenges. By shifting the repeal mechanism from an executive notification to a clear statutory mandate, the government is signaling its commitment to a stable and predictable industrial environment. This is a crucial step in finalizing India's largest labor reform exercise since independence, balancing worker protection with administrative efficiency.



## ECONOMY

### 1. Dismantling 'Inspector Raj' at Ports: Trade Facilitation and Budgetary Reforms

The Union Budget 2026 has introduced a paradigm shift in India's trade ecosystem, prioritizing the removal of procedural bottlenecks and "Inspector Raj" at ports to integrate India into Global Value Chains (GVCs).

- **Customs Process Liberalization:** The core of the reform lies in replacing intrusive physical inspections with technology-driven solutions. High-resolution scanners and automated registration systems are set to replace manual "peeks" into containers, significantly reducing dwell time at ports.
- **SEZ Flexibility and Domestic Access:** A crucial "one-off relief" allows export-oriented manufacturers in Special Economic Zones (SEZs) to sell a portion of their output in the Domestic Tariff Area (DTA) at concessional duty rates, improving capacity utilization during global trade volatility.
- **Input Cost Optimization:** To boost export competitiveness, the budget enlarges duty-free import quotas for essential inputs in high-potential sectors like leatherwear and seafood. This "duty-free" approach ensures that Indian exporters are not "exporting taxes."
- **Strategic Tariff Exemptions:** Tariff barriers have been eliminated for critical capital goods and components. Key beneficiaries include the aircraft manufacturing sector, nuclear power projects, and the processing of critical minerals, aligning trade policy with national energy and security goals.
- **Integration into Global Value Chains (GVCs):** By automating clearances, India aims to meet the "just-in-time" requirements of modern GVCs. Easing customs friction is viewed as a prerequisite for Indian firms to compete with regional rivals like Vietnam and Thailand.
- **The Tariff Reduction Debate:** While procedural easing is lauded, the budget maintains a cautious stance on broad-based tariff reductions. Trade economists argue that sustained export success is historically correlated with lower across-the-board import tariffs, a gap that remains in the current policy.



#### Key Definitions

- **Inspector Raj:** A term describing an over-regulated environment where bureaucratic hurdles and manual inspections by officials (inspectors) lead to corruption, delays, and high compliance costs.
- **Global Value Chains (GVCs):** The international fragmented production process where different stages of production occur in different countries.
- **Domestic Tariff Area (DTA):** An area within India that is outside the SEZs; selling from SEZ to DTA usually attracts full import duties unless concessions are granted.

#### Constitutional and Legal Framework

- **Article 301-307:** Deal with freedom of trade, commerce, and intercourse within the territory of India.



- **Customs Act, 1962:** The primary legislation governing the entry and exit of goods, recently amended to accommodate "faceless assessment" and "contactless customs."
- **Special Economic Zones (SEZ) Act, 2005:** Provides the legal framework for the establishment and management of SEZs, focusing on export promotion.
- **Foreign Trade (Development and Regulation) Act, 1992:** Empowers the government to formulate the Foreign Trade Policy (FTP).

#### Additional Keypoints for Analysis

- **Trade Facilitation Agreement (TFA):** These reforms align with India's commitments under the WTO's TFA, specifically regarding the "Single Window Interface for Facilitating Trade" (SWIFT).
- **Critical Minerals Focus:** Exemption of duties on capital goods for critical minerals is vital for the semiconductor and EV battery ecosystem.
- **Logistics Cost:** India's logistics cost is approximately 13-14% of GDP; the budget aims to bring this down to a single digit via port-side automation.

#### Conclusion

While the Union Budget takes a decisive leap toward "Trust-based Governance" by leveraging technology to end port-level harassment, the strategy remains focused on targeted sectoral relief rather than a wholesale shift toward a low-tariff regime. For India to become a global manufacturing hub, procedural ease must eventually be coupled with a simplified and competitive tariff structure.

## 2. Steep STT Hike: Reining in Derivatives Speculation and Its Market Impact

The Union Budget 2026 has introduced a substantial increase in the Securities Transaction Tax (STT) on derivatives, aiming to curb excessive speculation in the Futures and Options (F&O) segment. This move has significant implications for market intermediaries, particularly discount brokers and stock exchanges.

- **Significant Rate Hike:** The budget proposes to more than double the STT on futures from 0.02% to 0.05% of the sales turnover. Additionally, the STT on the premium value of options is set to rise from 0.10% to 0.15%, representing a 50% increase in the tax burden for options traders.
- **Impact on Discount Brokers:** Discount brokers like Angel One and Groww, which derive a massive portion of their revenue (75% to 85%) from high-volume F&O trading, face a severe threat to their earnings. Unlike full-service brokers, they rely on flat execution fees rather than advisory-linked cash market brokerage, making them highly sensitive to a drop in trading volumes.
- **Resilience of Stock Exchanges:** While the National Stock Exchange (NSE) faces valuation concerns for its upcoming IPO due to its dominance in derivatives, the BSE Ltd appears more resilient. BSE's revenue model, based on a percentage of transaction value, and its recent market-share gains provide a "dual airbag" against falling volumes.
- **Rationale of "Speculation Control":** The government's primary stated objective is to disincentivize retail investors from risky F&O trading. This follows a SEBI study revealing that nearly 93% of individual traders in the F&O segment incur significant losses, totaling over ₹1.8 lakh crore in recent years.





- **Systemic Risk and Revenue Outlook:** The Revenue Secretary has framed the hike as a tool to handle systemic risk rather than a pure revenue-maximizing measure. While the government aims to collect ₹73,700 crore from STT in FY27, analysts warn that the resulting contraction in trading activity might offset the gains from higher tax rates.
- **Shift in Market Dynamics:** The hike increases the "breakeven" point for traders; for instance, a Nifty futures trade now requires a significantly larger index move just to cover the tax cost. This could lead to a migration of capital toward the cash equity market or even rival Asian markets if liquidity dries up excessively.

### Key Definitions

- **Securities Transaction Tax (STT):** A direct tax levied on every purchase and sale of securities listed on recognized stock exchanges in India.
- **Derivatives (F&O):** Financial contracts (Futures and Options) whose value is derived from an underlying asset like a stock or index, often used for hedging or speculation.
- **Discount Broker:** A brokerage firm that executes buy and sell orders at a low commission rate (often a flat fee) but does not provide investment advice or research.
- **Premium Value:** The price an options buyer pays to the seller for the right to buy/sell the underlying asset; STT on options is calculated on this premium.

### Constitutional and Legal Provisions

- **Finance Act, 2004:** The original legislation that introduced STT in India to replace the long-term capital gains tax at that time and streamline tax collection.
- **Article 270:** Deals with taxes levied and distributed between the Union and the States; STT is a Union tax, and its proceeds are part of the divisible pool.
- **SEBI Act, 1992:** Provides the legal backing for the Securities and Exchange Board of India to regulate the market and protect investor interests, often through recommendations on taxation and margin rules.

### Additional Keypoints for Analysis

- **Retail Loss Concentration:** SEBI's data indicates that the "gambling" nature of F&O has drained retail wealth, prompting a "course correction" through fiscal measures.
- **HFT and Arbitrageurs:** High-frequency traders (HFTs) and arbitrageurs, who operate on razor-thin margins, are the hardest hit as the tax increase makes many of their automated strategies unviable.
- **NSE IPO Valuation:** As the dominant player in the derivatives market, the potential reduction in F&O volumes casts a shadow over the NSE's pre-IPO valuation and investor appetite.

### Conclusion

The STT hike represents a decisive regulatory "nudge" to shift the focus of Indian retail investors from speculative "satta" to long-term wealth creation in the cash market. While it protects the retail segment from systemic losses, it simultaneously challenges the business models of tech-first discount brokers and poses a short-term liquidity risk to the Indian capital market ecosystem.



### 3. Exports and Manufacturing in Union Budget 2026-27: Building Global Trade Resilience

The Union Budget 2026-27 positions exports as the primary engine for 'Viksit Bharat,' focusing on high-tech manufacturing, MSME scaling, and structural reforms to integrate India into Global Value Chains (GVCs).

- **Strategic Manufacturing Push:** The budget launches flagship missions like **Biopharma SHAKTI** (outlay of ₹10,000 crore) and **India Semiconductor Mission (ISM) 2.0**. These initiatives aim to move India up the value chain from mere assembly to indigenous IP creation and full-stack manufacturing in strategic sectors.
- **Special Economic Zone (SEZ) Reforms:** To improve capacity utilization, a one-time relief allows SEZ units to sell a portion of their output in the **Domestic Tariff Area (DTA)** at concessional duty rates. This measure addresses global trade disruptions while maintaining the export-oriented character of these zones.
- **Empowering MSME Exports:** A **₹10,000 crore SME Growth Fund** has been unveiled to provide equity support to potential "champion" MSMEs. Additionally, the mandatory use of the **TReDS** platform by Central Public Sector Enterprises (CPSEs) aims to solve the chronic issue of delayed payments and liquidity crunch.
- **Services Sector Leadership:** The budget sets an ambitious target of capturing 10% of global services exports by 2047. Key reforms include a unified classification for IT services, tax holidays for foreign cloud service providers using Indian data centers, and the creation of **Global Capability Centres (GCCs)**.
- **Logistics and Infrastructure Decoupling:** To reduce high logistics costs, the budget emphasizes Dedicated Freight Corridors (DFCs), National Waterways, and coastal shipping. Digital interventions like **electronic sealing** of export cargo and non-intrusive scanning are set to replace the traditional "Inspector Raj" at ports.
- **Trade Facilitation for Small Exporters:** The removal of the ₹10 lakh value cap on **courier exports** is a landmark move for e-commerce, enabling small artisans and MSMEs to access global markets directly with minimal bureaucratic friction.

#### Key Definitions

- **Biopharma SHAKTI:** A new scheme focused on the domestic production of biologics and biosimilars to make India a global pharmaceutical R&D hub.
- **Safe Harbour Rules:** Provisions that provide tax certainty to foreign investors by specifying certain price limits or profit margins that the tax authorities will accept without further audit.
- **TReDS (Trade Receivables Discounting System):** An electronic platform for facilitating the discounting of trade receivables of MSMEs from corporate and other buyers through multiple financiers.
- **Global Value Chains (GVCs):** International production networks where different stages of the production process are located across different countries.

#### Constitutional and Legal Provisions

- **Article 246 (Seventh Schedule):** Trade and commerce with foreign countries; import and export across customs frontiers fall under the **Union List** (Entry 41).



- **SEZ Act, 2005:** Provides the legal framework for SEZs; recent budget proposals suggest a shift toward the "DESH" (Development of Enterprise and Service Hubs) model for better domestic integration.
- **MSME Development Act, 2006:** Governs the classification and promotion of MSMEs; budget reforms strengthen the "delayed payments" protection under this Act.
- **Customs Act, 1962:** Provides the legal basis for duty exemptions and trade facilitation measures like the **Authorized Economic Operator (AEO)** program.

#### Additional Keypoints for Analysis

- **Rare Earth Corridors:** Establishment of corridors in Odisha, Kerala, Andhra Pradesh, and Tamil Nadu to secure the supply of critical minerals for EV and defense manufacturing.
- **Corporate Mitras:** A new cadre of professionals (CAs, CSs) to be trained to assist MSMEs in Tier-II and Tier-III cities with complex compliance requirements.
- **Container Manufacturing:** A ₹10,000 crore program to reduce dependency on foreign shipping containers and build a domestic ecosystem for maritime trade.

#### Conclusion

The Union Budget 2026-27 marks a shift from "protective" trade policies to "competitive" integration. By addressing the triple challenges of high logistics costs, credit gaps for MSMEs, and technological gaps in strategic manufacturing, the government aims to transform India into a reliable alternative to global supply chains. However, the long-term success will depend on the ground-level implementation of SEZ-DTA parity and the speed of infrastructure execution.

## 4. Viksit Bharat and the 3 Kartavyas: Roadmap for Union Budget 2026-27

The Union Budget 2026-27, the first to be prepared in **Kartavya Bhawan**, signals a transformative shift by anchoring India's development on three "Kartavyas" (Duties). This **Yuva Shakti-driven** budget focuses on productivity-led growth, capacity building, and inclusive development to realize the vision of a developed India by 2047.

- **The 3 Kartavyas Framework:** The budget is structured around three core pillars: **(i)** Accelerating and sustaining economic growth through productivity and global resilience; **(ii)** Fulfilling people's aspirations by building capacity and human capital; and **(iii)** Ensuring **Sabka Sath, Sabka Vikas** by providing equitable resource access to every community and region.
- **Manufacturing and Industrial Scaling:** Under the first Kartavya, the government has proposed a six-pronged intervention. This includes scaling manufacturing in **7 strategic sectors** (notably through **Biopharma SHAKTI** and **ISM 2.0**), rejuvenating 200 legacy industrial clusters, and establishing **City Economic Regions (CERs)** with a results-based financing mechanism of ₹5,000 crore per CER.
- **Services Sector as a Growth Engine:** To achieve a **10% share in global services exports by 2047**, a High-Powered 'Education to Employment and Enterprise' Standing Committee will be established. This body will bridge the gap between academia and industry while assessing the impact of AI on job skill requirements.
- **Infrastructure and Energy Continuity:** Public capital expenditure has been raised to **₹12.2 lakh crore** (compared to ₹2 lakh crore in FY 2014-15). Key projects include **7 High-Speed Rail**



corridors as 'growth connectors' and an **Infrastructure Risk Guarantee Fund** to de-risk private investments in the construction phase.

- **Agricultural Productivity and Farmer Income:** Shifting from subsidies to productivity, the budget introduces **Bharat-VISTAAR**, a multilingual AI tool to assist farmers. It also focuses on high-value crops (coconut, cocoa, cashew) and the integrated development of 500 reservoirs to boost fisheries and animal husbandry.
- **Inclusion and Human Development:** Targeted efforts include the **Divyangjan Kaushal Yojana** for IT and hospitality training, the establishment of **NIMHANS-2** in North India for mental health, and a **'girls' hostel in every district'** mandate to support women in STEM (Science, Technology, Engineering, and Mathematics) education.



### Key Definitions

- **Viksit Bharat:** The vision of the Government of India to make India a developed nation by 2047, the 100th year of its independence.
- **Yuva Shakti:** A term referring to the "Power of Youth," emphasizing the role of India's young population in driving innovation and economic growth.
- **Biopharma SHAKTI:** A strategy aimed at advancing healthcare through knowledge and technology, focusing on the domestic production of biologics and biosimilars.
- **City Economic Regions (CERs):** Specialized urban zones mapped based on their specific growth drivers to leverage the economic power of urban agglomerations.

### Constitutional and Legal Provisions

- **Article 112:** Mandates the presentation of the "Annual Financial Statement" (Budget) before Parliament.
- **Article 246 (Seventh Schedule):** Most manufacturing, infrastructure, and strategic sectors discussed fall under the Union List (Entry 41 - Trade; Entry 52 - Industries).
- **New Income Tax Act, 2025:** Proposed to come into effect from April 2026, aiming to simplify compliance and reduce litigation for taxpayers.
- **Fiscal Responsibility and Budget Management (FRBM) Act:** The budget reinforces fiscal prudence with a target fiscal deficit of **4.3% of GDP** for BE 2026-27.

### Additional Keypoints for Analysis

- **Reform Express:** Over 350 reforms have been rolled out since August 2025, including GST simplification and the notification of new **Labour Codes**.
- **Rare Earth Corridors:** To reduce critical import dependency, dedicated corridors will be established in mineral-rich states like Odisha and Kerala.
- **Orange Economy:** Significant focus on the AVGC (Animation, Visual Effects, Gaming, and Comics) sector with content creator labs in 15,000 schools.



## Conclusion

The Budget 2026-27 marks a paradigm shift from a scheme-based approach to a structural "Duty-based" (Kartavya) model. By balancing high-tech manufacturing (Semiconductors, Biopharma) with grassroots inclusion (MSME Growth Fund, Farmer AI tools), the government seeks to build a resilient economy that can navigate global supply chain disruptions while empowering its youngest citizens.

## 5. Fiscal Strategy 2026-27: Transitioning to a Debt-to-GDP Anchor

Union Budget 2026-27 signals a landmark shift in India's fiscal architecture, moving away from annual fiscal deficit targeting to a medium-term **Debt-to-GDP ratio** as the primary "guiding light." This transition aims to enhance macroeconomic resilience against global shocks while ensuring long-term debt sustainability.

- **The Shift in Fiscal Anchor:** The government has formally transitioned from focusing on annual fiscal deficit reduction to a **Debt-to-GDP regime**. This provides the Centre more discretion to employ **counter-cyclical fiscal support** during global economic uncertainties without being constrained by rigid annual deficit ceilings.
- **Target Debt Trajectory:** The central government's debt is estimated at **55.6% of nominal GDP** for FY27, a decline from the **56.1%** revised estimate for FY26. The long-term goal is to bring this ratio down to **50% (±1%) by FY31**, ensuring that interest payments do not pre-empt resources for priority sectors.
- **Fiscal Deficit Normalization:** The fiscal deficit for FY27 is pegged at **4.3% of GDP**, a slight reduction from the 4.4% in FY26. While the pace of consolidation has moderated (only 10 basis points), it reflects the fulfillment of the 2021-22 commitment to bring the deficit below **4.5% by FY26**.
- **Nominal GDP and Growth Assumptions:** The fiscal math is built on a projected **10% nominal GDP growth**, taking the economy to **₹393 trillion**. This conservative assumption provides a buffer, as higher actual growth could lead to a faster-than-anticipated reduction in the debt ratio.
- **Navigating Global Risks: The Fiscal Policy Strategy Statement** explicitly flags risks from high US tariffs and geopolitical tensions. The new debt-anchored approach is designed to build "macro-economic buffers" that allow India to absorb supply chain disruptions and trade shocks without halting domestic investment.
- **Capex Push vs. Revenue Moderation:** To drive this trajectory, the budget proposes an **11.5% increase in Capital Expenditure** (to ₹12.2 trillion) while moderating revenue expenditure growth to **6.6%**. This "quality of spending" approach ensures that borrowed funds create productive assets rather than just meeting consumption needs.



## Key Definitions

- **Fiscal Anchor:** A specific numerical target (like Debt-to-GDP or Fiscal Deficit) used by a government to signal its commitment to fiscal discipline and to guide policy decisions.



- **Debt-to-GDP Ratio:** The ratio of a country's public debt to its gross domestic product (GDP). It indicates the ability of an economy to pay back its debt; a declining ratio suggests debt is becoming more manageable.
- **Counter-cyclical Fiscal Support:** A strategy where the government increases spending or reduces taxes during an economic downturn (and vice versa) to stabilize the economy.
- **Primary Deficit:** The fiscal deficit minus interest payments on previous borrowings. It shows the current year's fiscal balance without the burden of past liabilities.

### Constitutional and Legal Provisions

- **Article 292:** Empowers the Union Government to borrow upon the security of the Consolidated Fund of India within limits fixed by Parliament.
- **FRBM Act, 2003:** The Fiscal Responsibility and Budget Management Act provides the legal framework for fiscal discipline. The 2018 amendment (based on N.K. Singh Committee) mandated a 40% debt-to-GDP target for the Centre, which is currently being recalibrated toward the 50% target for 2031.
- **Fiscal Policy Strategy Statement:** A mandatory document under the FRBM Act, presented with the budget, outlining the government's fiscal priorities and risk assessments.
- **Article 280:** The Finance Commission (currently the 16th FC) recommends the glide path for fiscal consolidation and debt management for both Centre and States.

### Additional Keypoints for Analysis

- **N.K. Singh Committee:** Recommended using debt as the primary target for fiscal policy, suggesting a 60% combined limit (40% Centre, 20% States).
- **Interest Burden:** Currently, interest payments consume nearly **25% of total expenditure**. Reducing the debt ratio is vital to free up this "interest-locked" capital for health and education.
- **Sovereign Rating:** The shift to a debt anchor is a signal to global rating agencies (like Moody's and S&P) about India's commitment to long-term solvency, which could lead to further rating upgrades.

### Conclusion

The adoption of a Debt-to-GDP anchor marks the maturation of India's fiscal policy. By prioritizing the "stock of debt" over the "flow of deficit," the government is opting for a more sophisticated, flexible, and sustainable path. This ensures that while India remains a high-growth economy, it does not fall into a debt trap, maintaining the delicate balance between necessary public investment and fiscal prudence.

### UPSC Relevance

- **GS Paper III:** Indian Economy (Government Budgeting; Issues relating to mobilization of resources; Fiscal Policy).
- **GS Paper II:** Important aspects of governance (Transparency and accountability in fiscal management).
- **Prelims:** FRBM Act targets; Debt-to-GDP projections for FY27 and FY31; Primary Deficit vs. Fiscal Deficit; N.K. Singh Committee recommendations.



## 6. Industrial Decarbonization: Scaling CCUS for India's Net-Zero Future

In Union Budget 2026-27, the government has introduced a strategic incentive scheme for **Carbon Capture, Utilization, and Storage (CCUS)** with an outlay of **₹20,000 crore** over five years. This initiative marks a critical shift toward "Hard-to-Abate" sector decarbonization, ensuring that India's industrial growth remains compatible with its **Net-Zero 2070** commitment.

- **Incentivizing CCUS at Scale:** The ₹20,000 crore outlay is designed to bridge the gap between laboratory research and industrial-scale deployment. It focuses on five high-emission "point source" sectors: **Power, Steel, Cement, Refineries, and Chemicals**, which together account for roughly 60% of India's industrial CO<sub>2</sub> emissions.
- **Alignment with 2025 R&D Roadmap:** The scheme operationalizes the 'R&D Roadmap for CCUS' launched in December 2025 by the Department of Science and Technology (DST). This roadmap prioritizes translational R&D to improve the technological readiness levels (TRL) of disruptive carbon-capture methods like oxy-fuel combustion and membrane separation.
- **Enabling the Blue Hydrogen Economy:** By capturing emissions from fossil-fuel-based processes, CCUS serves as a primary enabler for **Blue Hydrogen** production. This allows industries like steel and cement to transition toward cleaner fuels while utilizing existing coal and gas infrastructure.
- **Nuclear and BESS Integration:** Complementing the CCUS push, the budget extends **Basic Customs Duty (BCD) exemptions** for nuclear power components and **Battery Energy Storage Systems (BESS)**. These measures aim to provide a carbon-neutral "baseload" to the grid, supplementing intermittent solar and wind energy.
- **Economic and Strategic Value:** NITI Aayog estimates that CCUS deployment could create **8-10 million jobs** by 2050. Furthermore, by converting captured CO<sub>2</sub> into value-added products like **green urea**, methanol, and carbonated building materials, India can foster a circular carbon economy and reduce import dependence.
- **Legislative Support for Nuclear Expansion:** The push for a 100 GW nuclear capacity by 2047 is backed by the **SHANTI Bill, 2025**, which modernizes nuclear laws and allows for private and foreign participation (up to 49% equity) in the civil nuclear sector, specifically for **Small Modular Reactors (SMRs)**.



### Key Definitions

- **Carbon Capture, Utilization, and Storage (CCUS):** A process that involves capturing CO<sub>2</sub> emissions from industrial sources, transporting it, and either using it to manufacture products (Utilization) or injecting it into deep geological formations for permanent sequestration (Storage).
- **Hard-to-Abate Sectors:** Heavy industries (e.g., Steel, Cement) where CO<sub>2</sub> emissions are inherent to the chemical process or where high-heat requirements cannot easily be met by electricity alone.
- **Small Modular Reactors (SMRs):** Advanced nuclear reactors with a power capacity of up to 300 MW per unit, which are factory-built and easier to deploy in industrial clusters for captive power.
- **Blue Hydrogen:** Hydrogen produced from natural gas or coal where the resulting CO<sub>2</sub> emissions are captured and stored using CCUS technology.



### Constitutional and Legal Provisions

- **Article 48A (DPSP):** Directs the State to endeavor to protect and improve the environment and to safeguard forests and wildlife.
- **Article 51A(g) (Fundamental Duties):** It is the duty of every citizen to protect and improve the natural environment.
- **Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Bill, 2025:** Replaces legacy nuclear laws to enable private participation and grants statutory status to the Atomic Energy Regulatory Board (AERB).
- **Environment (Protection) Act, 1986:** Provides the overarching legal framework for regulating industrial emissions and implementing climate-related standards.

### Additional Keypoints for Analysis

- **Cluster Model:** The R&D roadmap advocates for **CCUS Clusters**, where multiple industrial units share common CO<sub>2</sub> transport pipelines and storage sites to achieve economies of scale.
- **Sequestration Potential:** India has a theoretical storage capacity of nearly **600 Gigatonnes (Gt)** in saline aquifers and depleted oil/gas fields (e.g., Bombay High, Kutch Basin).
- **Carbon Credits:** The CCUS scheme is expected to integrate with the **Indian Carbon Market (ICM)**, allowing companies to monetize captured emissions through carbon credits.

### Conclusion

The 2026-27 Budgetary push for CCUS signifies a pragmatic approach to the energy transition. Rather than an abrupt exit from fossil fuels, India is choosing to "decarbonize the fossil fuel" by investing in capture technologies. This strategy protects industrial competitiveness and energy security while moving the needle toward the 2070 Net-Zero target.

### UPSC Relevance

- **GS Paper III:** Conservation, environmental pollution, and degradation; Science and Technology—developments and their applications; Energy (Nuclear, BESS, Hydrogen).
- **GS Paper II:** Government policies and interventions for development in various sectors (SHANTI Bill, 2025).
- **Prelims:** Net Zero 2070 target; components of CCUS (Capture, Utilization, Storage); SHANTI Bill provisions; and the location of major CO<sub>2</sub> storage potential in India.

## 7. Frontier Manufacturing and Strategic Sovereignty: Union Budget 2026-27

Union Budget 2026-27 centers on "First Kartavya" (Duty)—accelerating economic growth by scaling manufacturing in **seven strategic and frontier sectors**. The strategy emphasizes reducing import dependencies, fostering indigenous Intellectual Property (IP), and integrating India into high-value Global Value Chains (GVCs).

- **Biopharma SHAKTI:** Launched with a ₹10,000 crore outlay over five years, this mission aims to establish India as a global hub for **biologics and biosimilars**. It includes setting up three new National Institutes of Pharmaceutical Education and Research (NIPERs) and creating a network of 1,000+ accredited clinical trial sites to meet global approval standards.
- **India Semiconductor Mission (ISM) 2.0:** Moving beyond the foundations of ISM 1.0, this phase focuses on producing semiconductor equipment and materials domestically. The goal is to design



"full-stack Indian IP" and build industry-led research centers, ensuring long-term strategic autonomy in the chip ecosystem.

- **Rare Earth Corridors:** To break the global monopoly on critical minerals, dedicated corridors will be established in **Odisha, Kerala, Andhra Pradesh, and Tamil Nadu**. These will promote the mining and processing of Rare Earth Elements (REEs), vital for permanent magnets used in Electric Vehicles (EVs) and defense technologies.
- **Chemicals and Container Manufacturing:** The budget introduces a challenge-route scheme for three dedicated **Chemical Parks** on a plug-and-play model. Furthermore, a ₹10,000 crore scheme for **Container Manufacturing** aims to build a domestic fleet of 1 million TEUs (Twenty-foot Equivalent Units) to insulate Indian trade from global shipping disruptions.
- **Textile Sector Integration:** A comprehensive 5-component Integrated Programme has been announced, featuring the **National Fibre Scheme** for self-reliance and **Samarth 2.0** for industry-aligned skilling. To boost high-value technical textiles, Mega Textile Parks will be developed in a competitive "challenge mode."
- **Mahatma Gandhi Gram Swaraj:** This initiative targets the rejuvenation of Khadi, handlooms, and handicrafts. It focuses on global branding, market linkages, and streamlining quality processes to benefit rural artisans and the **One District One Product (ODOP)** initiative.

#### Key Definitions

- **Biologics:** Medicines made from living organisms (e.g., vaccines, gene therapies) which are more complex than traditional chemical drugs.
- **Sintered Rare Earth Permanent Magnets (REPMs):** High-strength magnets essential for EV motors and wind turbines; currently a major import dependency.
- **Challenge Mode:** A competitive funding mechanism where states or cities submit proposals, and the best-performing ones receive central support.
- **Plug-and-Play Model:** Industrial infrastructure where basic utilities (water, power, connectivity) are pre-installed, allowing businesses to start operations immediately.

#### Constitutional and Legal Provisions

- **Article 246 (Union List):** The Union has exclusive power over "Industries, the control of which by the Union is declared by Parliament by law to be expedient in the public interest" (Entry 52).
- **Atomic Energy Act, 1962:** Currently regulates the mining of monazite-rich sands (for Rare Earths); REE corridors may necessitate regulatory updates to this Act.
- **NIPER Act, 1998:** Provides the statutory framework for the National Institutes of Pharmaceutical Education and Research being expanded under Biopharma SHAKTI.
- **National Policy on Electronics (NPE) 2019:** The guiding framework for the Electronics Components Manufacturing Scheme (ECMS), which saw its outlay hiked to ₹40,000 crore.

#### Additional Keypoints for Analysis

- **Hi-Tech Tool Rooms:** Proposed at two locations under CPSEs to serve as automated bureaus for designing and testing high-precision components locally.



- **CIE Scheme:** Enhancement of Construction and Infrastructure Equipment (CIE) manufacturing to support indigenization of high-value machinery like tunnel-boring machines.
- **Sports Goods Hub:** A dedicated initiative to utilize material sciences and innovation to capture the global high-quality sports equipment market.

## Conclusion

The Budget 2026-27 represents a decisive pivot from "low-value assembly" to "high-value innovation-led manufacturing." By targeting deep-tech sectors like Biopharma and Semiconductors alongside labor-intensive Textiles and Khadi, the government seeks to balance high-growth ambitions with mass employment. The success of these initiatives will hinge on the timely execution of the proposed "Rare Earth Corridors" and "Chemical Parks."

## 8. Biopharma SHAKTI and Holistic Healthcare

The Union Budget 2026-27 introduces a landmark strategy titled **Biopharma SHAKTI** (Strategy for Healthcare Advancement through Knowledge, Technology and Innovation) to shift India's health sector from conventional pharma to high-value **biologics and biosimilars**. By integrating mental health, geriatric care, and traditional medicine, the budget aims to build a comprehensive and resilient healthcare ecosystem.

- **Biopharma SHAKTI Mission:** With an outlay of **₹10,000 crore** over five years, the mission aims to capture 5% of the global biopharmaceutical market. It focuses on indigenous production of vaccines, antibody treatments, and gene therapies. Key pillars include establishing **3 new NIPERs**, upgrading 7 existing ones, and creating a network of **1,000+ accredited clinical trial sites**.
- **Workforce Revolution in Allied Health:** To address the shortage of skilled support staff, the budget proposes adding **100,000 Allied Health Professionals (AHPs)** across 10 disciplines like radiology and anesthesia. Furthermore, a **Geriatric Care Ecosystem** will be created by training **1.5 lakh multi-skilled caregivers** aligned with NSQF standards to support India's aging population.
- **Regional Medical Hubs for Medical Tourism:** A new scheme will support states in establishing **five Regional Medical Hubs** in partnership with the private sector. These integrated complexes will combine allopathic and AYUSH treatments, diagnostics, and research to position India as a premier destination for **Medical Value Tourism (MVT)**.
- **Expanding AYUSH and Global Leadership:** To capitalize on the global demand for Ayurveda, the government will set up **3 new All India Institutes of Ayurveda** and upgrade the **WHO Global Traditional Medicine Centre in Jamnagar**. Upgradation of AYUSH pharmacies and drug testing labs will focus on evidence-based research and international certification standards.
- **Mental Health and Emergency Infrastructure:** Addressing the regional gap in specialized psychiatric care, the budget proposes **NIMHANS-2** in North India and the upgradation of institutes in Ranchi and Tezpur as Regional Apex Institutions. Additionally, district hospitals will see a **50% increase in emergency capacity** through new dedicated Trauma Care Centres.



## Key Definitions

- **Biologics:** Complex medicines derived from living organisms (human, animal, or microorganisms) used for treating cancer, autoimmune diseases, and chronic conditions.



- **Biosimilars:** Highly similar versions of biological medicines that have already been authorized for use; they offer more affordable treatment options once patents expire.
- **Allied Health Professionals (AHPs):** Health workers (other than doctors/nurses) who provide diagnostic, technical, and therapeutic services, such as lab technicians and radiologists.
- **Medical Value Tourism (MVT):** Travel across international borders for the purpose of receiving medical treatments, wellness services, or surgical procedures.

### Constitutional and Legal Provisions

- **Article 47 (DPSP):** Mandates the State to regard the improvement of public health as among its primary duties.
- **Entry 6, List II (State List):** Public health and sanitation; hospitals and dispensaries are primarily state subjects, necessitating the proposed "Scheme to support States."
- **National Commission for Allied and Healthcare Professions Act, 2021:** The regulatory framework under which the new 100,000 AHPs will be trained and certified.
- **National Mental Health Act, 2017:** Provides the legal basis for rights-based mental healthcare, which the new NIMHANS-2 and regional apex centers will help implement.

### Additional Keypoints for Analysis

- **Clinical Trial Strengthening:** The 1,000+ accredited sites under Biopharma SHAKTI will move India from a "pharmacy of the world" to a "research lab of the world."
- **Geriatric Focus:** Recognizing the "Silver Economy," the 1.5 lakh caregiver target is the first major budgetary move toward structured elder care in India.
- **CDSKO Strengthening:** To reduce approval timelines, a dedicated **scientific review cadre** will be created within the Central Drugs Standard Control Organisation.

### Conclusion

The 2026-27 healthcare roadmap represents a strategic pivot toward high-end medical technology and specialized workforce development. By balancing the "Shakti" of modern Biopharma with the global soft power of "Ayurveda," the government is addressing both the economic potential of the sector and the urgent public health needs of mental wellness and emergency response.

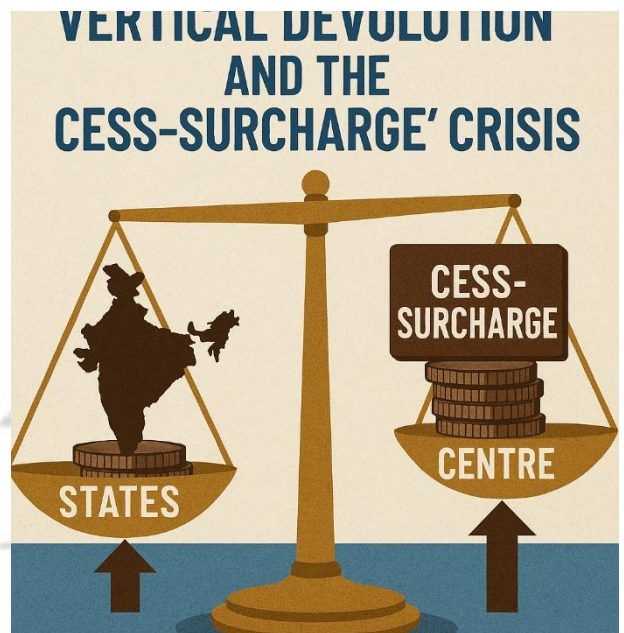
## 9. 16th Finance Commission: Vertical Devolution and the 'Cess-Surcharge' Crisis

The 16th Finance Commission (FC) has maintained the status quo on vertical devolution at 41%, triggering a debate on the shrinking divisible pool and the perceived sidelining of States' fiscal autonomy in favor of Central priorities.

### Core Summary for UPSC

- **Stagnant Devolution Rate:** Despite a rare consensus among 18 States (including Odisha, Tamil Nadu, and Gujarat) demanding an increase to 50%, the 16th FC kept vertical devolution at **41%**, aligning with the Centre's plea for "moderation."
- **The Shrinking Divisible Pool:** While the percentage remains 41%, the actual shareable revenue is decreasing. The non-shareable portion (cesses and surcharges) rose from **1.1% of GDP in 2011-12 to 2.2% in 2023-24**, effectively bypassing the States.

- **Cess and Surcharge Proliferation:** Between FY13 and FY18, the share of the divisible pool in the Centre's Gross Tax Revenue (GTR) was above 93%. Due to the unbridled rise in cesses, this share is expected to remain **below 90%** for the sixth consecutive year in FY26.
- **Defense and Infrastructure Justification:** The Commission justified prioritizing Central funds by citing shifts in the "external security environment" and the Centre's "high effectiveness" in large-scale infrastructure building.
- **Constitutional Gap:** The 16th FC noted that the Constitution does not permit a cap on cesses and surcharges. While acknowledging that long-term reliance on them is "undesirable," it labeled imposing a legal limit as "imprudent."
- **Fiscal Mediocrity vs. Efficiency:** Critics argue that the Commission's stance ignores the fiscal pressures on high-performing States, assuming they have "sufficient resources" despite unanimous demands for more.



### Key Definitions

- **Vertical Devolution:** The percentage of the divisible pool of taxes that the Union government must share with the State governments.
- **Divisible Pool:** The portion of Central taxes that can be shared with States, excluding collection costs and cesses/surcharges.
- **Cess:** A "tax on tax" levied for a specific purpose (e.g., Education Cess). It is not shared with States and must be used for the designated objective.
- **Surcharge:** An additional tax levied on the existing tax liability, primarily used to increase Union revenue without sharing it with States.

### Constitutional & Legal Provisions

- **Article 280:** Mandates the President to constitute a Finance Commission every five years to recommend the distribution of net tax proceeds between the Centre and States.
- **Article 270:** Specifies that all taxes and duties referred to in the Union List shall be distributed between the Union and States, **except** cesses and surcharges referred to in Article 271.
- **Article 271:** Empowers Parliament to increase any of the duties or taxes by a surcharge for the purposes of the Union, and the entire proceeds of such surcharge form part of the Consolidated Fund of India (non-shareable).
- **Article 282:** Provisions for "Miscellaneous Financial Provisions" often used for discretionary grants, which States argue are used to bypass the formula-based devolution.

### Conclusion

The 16th Finance Commission's recommendations reflect a "conservative" fiscal approach that prioritizes national security and central infrastructure over the granular fiscal needs of the States. By refusing to mediate the "cess and surcharge" loophole, the Commission has left the expansion of the divisible pool to the "mutual agreement" or voluntary restraint of the Centre. This risks deepening the vertical fiscal



imbalance, as States are increasingly burdened with social sector spending while their share of the total tax pie remains structurally constrained.

## 10. Union Budget 2026-27: 'Turtle Trails' and Conservation Concerns

The Union Budget's proposal to develop 'Turtle Trails' along key nesting sites in **Odisha, Karnataka, and Kerala** has sparked a debate between promoting eco-tourism and ensuring the non-interference of sensitive wildlife habitats.

### Summary of Key Developments

- **Budgetary Initiative:** The government has proposed the establishment of 'Turtle Trails' to boost sustainable eco-tourism, aiming to position India as a global destination for nature enthusiasts.
- **Geographic Coverage:** The project focuses on prominent Olive Ridley nesting grounds, including the **Rushikulya** and **Gahirmatha** rookeries in Odisha, as well as several beaches along the Malabar (Kerala) and Konkan (Karnataka) coasts.
- **Conservationist Skepticism:** Experts argue that mass nesting sites, known for the rare phenomenon of **Arribada**, require absolute tranquility. They fear that light pollution and physical infrastructure from tourism will disorient turtles.
- **Human Impact vs. Nature:** Skeptics point to the 'Chilika model' where unregulated dolphin tourism has disturbed the Irrawaddy dolphin habitat, cautioning that similar "anthropogenic pressure" could ruin turtle breeding patterns.
- **Alternative Demands:** Researchers emphasize that rather than tourism infrastructure, the government should prioritize **robust enforcement**, such as functional speed boats for monitoring illegal trawling during the mating season.
- **Strategic Restrictions:** Access to sites like Gahirmatha is already restricted due to its proximity to the **Integrated Test Range (ITR), Chandipur**, illustrating that security and conservation have historically superseded tourism in these zones.



### Key Definitions

- **Arribada:** A Spanish term meaning "arrival by sea," referring to the unique mass nesting behavior of Olive Ridley and Kemp's Ridley sea turtles where thousands of females come ashore simultaneously.
- **Anthropogenic Pressure:** Environmental stress or degradation caused by human activities, such as construction, waste generation, or artificial lighting.
- **Turtle Excluder Device (TED):** A specialized attachment for fishing nets that allows sea turtles to escape being caught as bycatch.

### Constitutional and Legal Provisions

- **Wildlife Protection Act, 1972:** Olive Ridley turtles are listed under **Schedule I**, granting them the highest degree of legal protection. Harming them or their eggs carries severe penalties.
- **Article 48A:** A Directive Principle of State Policy (DPSP) that mandates the State to protect and improve the environment and safeguard the wildlife of the country.
- **Article 51A(g):** A Fundamental Duty of every citizen to protect and improve the natural environment, including forests, lakes, rivers, and wildlife.



- **National Marine Turtle Action Plan (2021-2026):** A policy framework by the Ministry of Environment, Forest, and Climate Change (MoEFCC) focusing on habitat protection and community-led conservation.

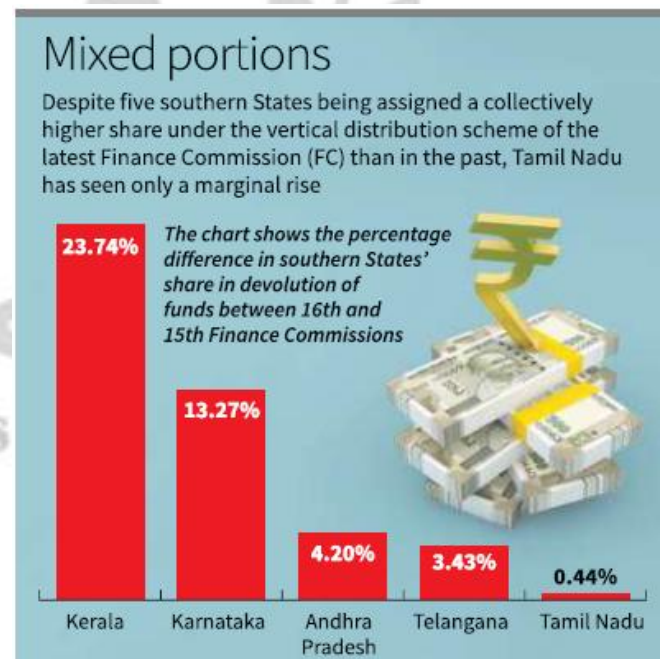
### Conclusion

The 'Turtle Trail' initiative represents the complex challenge of balancing livelihood generation through eco-tourism with the ecological necessity of "no-go" zones. While the intent is to foster environmental awareness, the biological sensitivity of Olive Ridges—who are highly susceptible to light and sound—means that any development must be secondary to scientific conservation. For the project to succeed, it must transition from a "tourism trail" to a "conservation trail," where local communities are engaged as 'Turtle Guardians' rather than just tour operators.

## 11. 16th FINANCE COMMISSION: Horizontal Devolution and Southern States

The 16th Finance Commission (FC) report has sparked a debate on fiscal federalism, specifically regarding the marginal increase in Tamil Nadu's share of the divisible pool compared to other southern states. While the collective share of southern states rose, the internal distribution highlights the varying impact of revised criteria on advanced economies.

- **Marginal Gains for Tamil Nadu:** Tamil Nadu's share increased from **4.079%** (15th FC) to **4.097%** (16th FC), a mere **0.44%** rise. This is significantly lower than Kerala (**23.74%**) and Karnataka (**13.27%**), leading to concerns over "fiscal penalization" of high-performing states.
- **Shift in Criteria Weights:** The Commission increased the weight of **Population** from 15% to **17.5%**, which traditionally disadvantages southern states with better demographic control. Conversely, the removal of the **Tax and Fiscal Efforts** criterion has hit states like Tamil Nadu that demonstrate high tax efficiency.
- **GDP Contribution as a New Metric:** For the first time, **Contribution to GDP** was included as a criterion. Experts suggest that without this inclusion, Tamil Nadu's share would have likely decreased, as it partially compensates for the reduced weights assigned to **Per-capita GSDP** and Area.
- **Vertical Devolution Rebalancing:** The rise in the southern states' collective share was largely facilitated by a reduction in the combined share of northern and eastern states (UP, MP, Bihar, and West Bengal), which dropped from **51.2%** to **49.93%**.
- **Subsidy and Efficiency Recognition:** The Commission noted that Tamil Nadu has the highest absolute subsidy level (**₹78,453 crore**), but praised southern states for using **IT-enabled data analysis** to de-duplicate beneficiary lists and streamline fiscal delivery.
- **Discontinuation of Revenue Deficit Grants:** Despite pleas from Andhra Pradesh, Kerala, and Tamil Nadu, the 16th FC recommended against the continuation of **Post-Devolution Revenue Deficit (PDRD) Grants**, posing a challenge for states with high committed expenditures.





## KEY DEFINITIONS FOR FISCAL FEDERALISM

- **Vertical Devolution:** The division of the "Divisible Pool" of central taxes between the Union and the States (currently maintained at **41%**).
- **Horizontal Devolution:** The formula-based distribution of the states' share among the 28 states based on criteria like population, area, and income distance.
- **Divisible Pool:** Consists of all taxes and duties referred to in the Constitution, except surcharges and cesses which are not shared with states.
- **Income Distance:** The difference between the per capita income of a state and the state with the highest per capita income; used as a proxy for fiscal capacity.

## CONSTITUTIONAL AND LEGAL PROVISIONS

- **Article 280:** Mandates the President to constitute a Finance Commission every five years to recommend the distribution of tax proceeds.
- **Article 275:** Provides for **Grants-in-aid** from the Union to specific states in need of assistance, often recommended by the FC as Revenue Deficit Grants.
- **Article 282:** Allows the Union or a State to make grants for any "public purpose," often used for Centrally Sponsored Schemes (CSS) outside the FC's recommendations.
- **7th Schedule:** Delineates the taxation powers between the Union (List I) and States (List II), creating the "vertical imbalance" that the Finance Commission seeks to correct.

## COMPARISON OF DEVOLUTION GROWTH RATES (16th vs 15th FC)

State	15th FC Share (%)	16th FC Share (%)	Rate of Increase
Kerala	1.925	2.382	<b>23.74%</b>
Karnataka	3.647	4.131	<b>13.27%</b>
Andhra Pradesh	4.047	4.217	<b>4.20%</b>
Tamil Nadu	4.079	4.097	<b>0.44%</b>

## CONCLUSION

The 16th Finance Commission's formula reflects a delicate balancing act between Equity (supporting lagging states) and Efficiency (rewarding growth). For Tamil Nadu, the marginal increase underscores a "middle-income trap" in fiscal devolution, where high GSDP and low population growth lead to diminishing returns under traditional horizontal formulas. The removal of "Tax Effort" as a criterion marks a significant shift, suggesting that the Commission now prioritizes absolute economic contribution (GDP) over relative fiscal efficiency.

## 12. ECONOMIC SURVEY 2025-26: TAMIL NADU's Industrial and Reform Leadership

The Economic Survey of India (2025-26) recognizes Tamil Nadu as a cornerstone of India's macroeconomic resilience. Amidst global geopolitical fragmentation, the State has emerged as a high-performing "industry-first" economy, transitioning from traditional sectors like textiles to high-tech manufacturing and green energy. This growth is anchored in a unique blend of structural reforms, infrastructure development, and social equity.

- **Exponential Economic Growth:** Tamil Nadu recorded a real GSDP growth of **11.19%** in 2024-25, making it the fastest-growing large state economy in India. This performance is primarily



spearheaded by a robust secondary sector, which grew by **13.43%**, with manufacturing alone recording a staggering **14.74%** growth—triple the national average.

- **National Leader in Employment:** The State contributes **15%** of India's total manufacturing employment, the highest in the country, surpassing industrial giants like Gujarat (13%) and Maharashtra (13%). This is attributed to a high density of large-scale units and superior labor productivity.
- **Export and Cluster Excellence:** Merchandise exports nearly doubled from **\$26.15 billion (2020-21)** to **\$52.07 billion (2024-25)**. The Survey highlights the **Sriperumbudur electronics cluster** and the **auto-component ecosystem** as global benchmarks for successful industrial policy and cluster-led development.
- **Pioneer in Green Economy:** Tamil Nadu is central to India's **National Green Hydrogen Mission**, with V.O. Chidambaranar Port (Thoothukudi) designated as one of only three national green hydrogen hubs. The State also leads in environmental monitoring through proactive common effluent treatment plants (CETPs) for textile and tannery clusters.
- **Social and Urban Innovation:** The Survey lauds the **"Thozhi Hostels"** (Working Women's Hostels) as a national blueprint for increasing women's workforce participation. Additionally, Chennai's **Metropolitan Area Parking Policy 2025** and the state's dominance in higher education (17 institutions in NIRF Top 100) underscore its urban and human capital strengths.
- **Inclusive and Resilient Governance:** Initiatives like the **Climate Resilient Villages** and the **Blue Economy Project (TN-SHORE)** demonstrate how climate adaptation is being institutionalized at the grassroots level, protecting the state's 1,076 km coastline while supporting local livelihoods.

#### CONSTITUTIONAL AND LEGAL PROVISIONS

- **Article 246 (Seventh Schedule):** While "Industries" is primarily a State subject (Entry 24, List II), "Development of Industries" declared by Parliament to be of public interest falls under the Union List (Entry 52, List I). Tamil Nadu's success reflects effective cooperative federalism in these overlapping domains.
- **Ease of Doing Business (BRAP 2024):** Under the **Business Reforms Action Plan**, Tamil Nadu has implemented digitized single-window clearances, aligning with the Centre's vision for a "National Single Window System."
- **National Green Hydrogen Mission:** A policy framework aimed at producing 5 MMT of green hydrogen by 2030, where Tamil Nadu acts as a primary implementation hub.
- **Section 17 of the MSME Development Act, 2006:** Legal framework supporting the growth and recovery of MSMEs, where Tamil Nadu ranks 2nd in national registrations.

#### KEY DEFINITIONS

- **Real GSDP Growth:** The growth in the value of all goods and services produced within a state, adjusted for inflation (calculated at constant prices).
- **Secondary Sector:** The sector of the economy concerned with manufacturing and construction. It is currently the primary engine of Tamil Nadu's growth.
- **Secondary Manufacturing Employment:** Employment in organized industrial units; a key indicator of economic formalization and productivity.



- **GVA (Gross Value Added):** The measure of the value of goods and services produced in an area, industry, or sector of an economy.

**COMPARATIVE MANUFACTURING EMPLOYMENT (%)**

State	Share in India's Manufacturing Jobs
Tamil Nadu	15%
Gujarat	13%
Maharashtra	13%
Uttar Pradesh	8%
Karnataka	6%

**CONCLUSION**

The Economic Survey 2025-26 validates Tamil Nadu's "Dravidian Model" of development, which successfully integrates high-octane industrial growth with social safety nets. By leveraging its skilled manpower and diversifying into medical devices, green hydrogen, and GenAI, the State is not just a regional leader but a vital engine propelling India toward its **Viksit Bharat 2047** goals.

**13. Launch of Bharat Taxi Cooperative Platform**

**Background**

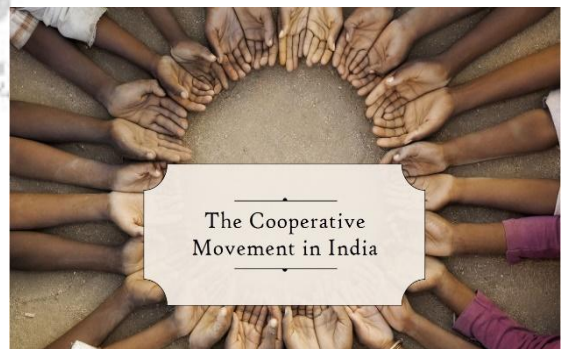
India launched its **first cooperative-based ride-hailing platform – Bharat Taxi**, marking a shift from investor-driven digital platforms to **member-owned digital enterprises**.

**Key Features**

- Drivers are **owners as well as stakeholders**, not just service providers.
- Designed to counter **aggregator-driven exploitation** and high commission models.
- Provides **insurance cover and social security benefits** to drivers.
- Nationwide expansion planned to enhance reach and scale.

**Value Addition (Economic & Social Perspective)**

- Aligns with the vision of a **cooperative economy** and platform decentralisation.
- Enhances **employment dignity**, income stability, and decision-making power of workers.
- Demonstrates how **digital public infrastructure (DPI)** can be leveraged for inclusive growth.
- Offers an alternative model to monopolistic gig-economy platforms.



**Constitutional & Legal Framework**

- **Article 43B:** Promotion of cooperative societies.
- State **Cooperative Societies Acts** govern structure and functioning.

**Key Definition**

- **Cooperative:** A member-owned enterprise formed to promote mutual economic and social interests.



## Conclusion

Bharat Taxi represents **inclusive digital entrepreneurship**, combining technology with cooperative principles to create fairer labour markets.

## 14. Financial Turnaround of DISCOMs

### Background

India's power distribution sector has shown signs of recovery after years of chronic losses.

### Key Achievements

- DISCOMs reported **net profits** after prolonged financial stress.
- **AT&C losses** reduced from **~22% to ~15%**.
- **ACS-ARR gap** (cost-revenue gap) nearly eliminated.
- Key reform measures:
  - **Revamped Distribution Sector Scheme (RDSS)**
  - **Late Payment Surcharge Rules**
- Continued reliance on **State subsidies** for viability.

### Value Addition

- **Feeder segregation** enhances accountability and loss tracking.
- Smart metering improves billing efficiency and demand management.
- Political populism (free power promises) remains a structural risk.

### Key Definition

- **AT&C Losses:**  
Aggregate Technical and Commercial losses due to theft, inefficiency, and billing gaps.

### Constitutional Provision

- **Concurrent List:** Electricity is a shared responsibility of Centre and States.

### Conclusion

DISCOM sustainability depends on **tariff rationalisation, political discipline, and technology-driven governance**.

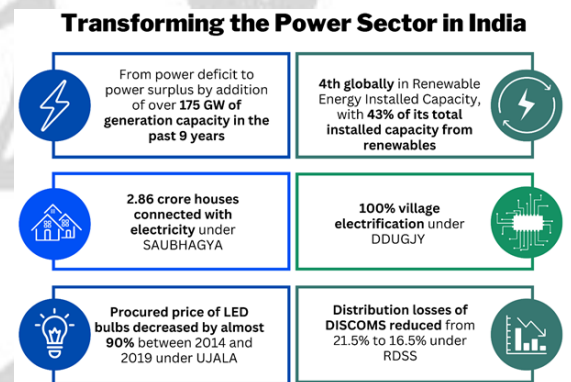
## 15. Sodium-Ion Batteries as a Strategic Alternative

### Background

While **lithium-ion batteries** dominate global energy storage, concerns over **critical mineral dependency, high costs, and geopolitical risks** have renewed interest in **sodium-ion batteries** as a strategic alternative.

### Key Highlights

- Lithium-ion batteries rely heavily on **lithium, cobalt and nickel**, minerals where India lacks upstream capacity.
- **Sodium-ion batteries** use **abundantly available sodium**, making them cheaper and geopolitically safer.

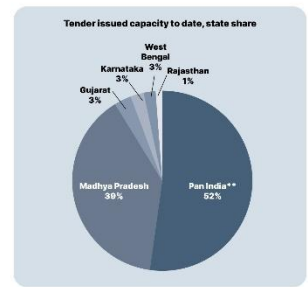
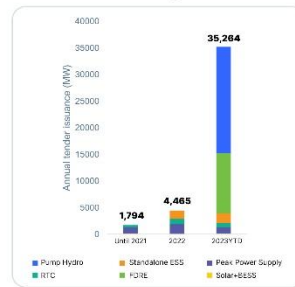




- They are **safer (lower fire risk)** and perform better in **high-temperature conditions**.
- Largely compatible with **existing lithium-ion manufacturing infrastructure**, reducing transition costs.
- Global sodium-ion manufacturing capacity is **expanding rapidly**, especially in grid-scale storage.

**India accelerates awarding of energy storage tenders**

Pumped Hydro Storage dominates the energy storage market, accounting for more than half of the grid-scale tender capacity issued in India in 2023.



IEEFA

**Value Addition**

- Reduces India’s dependence on **critical mineral imports**, strengthening supply-chain resilience.
- Particularly suitable for **stationary storage**, renewable integration, and electric two/three-wheelers.
- Supports India’s long-term **energy transition and strategic autonomy**.

**Key Definition**

- **Energy Density:**  
The amount of energy stored **per unit mass or volume** of a battery.

**Policy Framework**

- **National Mission on Transformative Mobility:** Promotes advanced battery technologies and domestic manufacturing.

**Conclusion**

Sodium-ion batteries offer India a **cost-effective, safer, and strategically secure energy storage option**, complementing lithium-based systems.



**16. High-Level Committee on Banking for Viksit Bharat**

The Union Budget 2026-27 has proposed the establishment of a "High-Level Committee on Banking for Viksit Bharat" to overhaul India's financial architecture. The primary objective is to create "mega-lenders" with the capital depth required to fund large-scale infrastructure and developmental projects necessary for India to become a developed economy by 2047.

- **Blueprint for Mega-Lenders:** The committee is tasked with designing a roadmap to scale up Indian banks so they can compete globally and meet the credit demands of a \$30 trillion economy.
- **Restructuring Public Sector NBFCs:** As a precursor to broader banking reforms, the government has announced the merger of Power Finance Corporation (PFC) and Rural Electrification Corporation (REC) to improve operational efficiency and capital scaling.
- **Balancing Stability and Growth:** While aiming for size, the mandate emphasizes maintaining financial stability, deepening financial inclusion, and ensuring robust consumer protection.
- **Consolidation over Mere Mergers:** The Finance Minister clarified that the goal is not just reducing the number of banks through mergers, but "priming" the sector to ensure credit reaches both large industries and the common man.



- **PFC-REC Merger Significance:** The integration of these two Navratna CPSEs (with PFC already holding a 52.63% stake in REC) aims to consolidate power-sector lending under a single, more efficient entity.
- **Focus on Credit Flow:** The committee will investigate structural barriers that prevent seamless credit flow to emerging sectors, ensuring that the banking system acts as a catalyst for the "Viksit Bharat" vision.



### Key Definitions

- **Viksit Bharat:** The government's vision to transform India into a developed nation by the 100th anniversary of its independence in 2047.
- **NBFC (Non-Banking Financial Company):** A company registered under the Companies Act that provides banking services like loans and credit facilities but does not hold a full banking license or accept demand deposits.
- **Navratna CPSE:** A status granted to select Central Public Sector Enterprises giving them greater financial autonomy to invest up to Rs.1000 crore without explicit government approval.

### Constitutional & Legal Provisions

- **Article 246 (Seventh Schedule):** Banking is a Union List subject (Entry 45), giving the Parliament exclusive power to legislate on matters related to the banking sector.
- **Banking Regulation Act, 1949:** Provides the legal framework for the supervision and regulation of commercial banks in India.
- **RBI Act, 1934:** Governs the functions of the Reserve Bank of India as the central monetary authority and regulator of the banking system.
- **Companies Act, 2013:** Governs the restructuring and merger processes of corporate entities, including public sector NBFCs like PFC and REC.

### Additional Key Points

- **Global Benchmarking:** Currently, Indian banks are relatively small on the global stage; the reform seeks to place more Indian entities in the top 100 global banks.
- **Synergy in Power Sector:** The PFC-REC merger is expected to reduce borrowing costs and eliminate duplicate administrative roles, specifically in funding green energy transitions.

### Conclusion

The constitution of this high-level panel signifies a shift from "reactive" banking reforms (addressing NPAs) to "proactive" structural scaling. By consolidating NBFCs and rethinking the banking blueprint, the government aims to ensure that the financial sector does not become a bottleneck but rather the engine for India's long-term growth trajectory.



## 17. India's Energy Sourcing Strategy: Strategic Autonomy and Diversification

In a significant diplomatic clarification, Foreign Secretary Vikram Misri reiterated that India's energy procurement is governed by **national interest** and **energy security**. This comes amid intense global speculation following a US Executive Order (February 2026) that linked the removal of punitive tariffs on Indian exports to a commitment from New Delhi to phase out Russian crude oil purchases.

- **Multi-Sourcing Strategy:** India maintains a policy of "non-dependency," sourcing crude from dozens of countries. The government asserts that a diversified energy basket is essential for supply chain stability and economic resilience.
- **National Interest as the North Star:** Procurement decisions are driven by a "complex matrix" of factors including adequate availability, fair pricing, reliability of supply, and risk assessment, rather than external geopolitical mandates.
- **Safeguarding the Consumer:** As a developing economy importing **80-85%** of its energy, India's primary objective is to mitigate energy-driven inflation. Ensuring affordable fuel for 1.4 billion people remains the "supreme priority."
- **The "Market-Driven" Defense:** The Ministry of External Affairs (MEA) emphasized that actual sourcing is conducted by public and private oil companies based on commercial fiduciary responsibilities and objective market conditions.
- **Stabilizing Factor in Global Markets:** As one of the world's largest energy consumers, India's diverse procurement strategy acts as a buffer against global supply shocks, preventing excessive concentration in any single geography.
- **Bilateral Balancing Act:** While India has increased energy imports from the US and explored options in Venezuela, it continues to navigate the strategic pressure from Washington while maintaining its long-standing partnership with Moscow.



### Key Definitions

- **Strategic Autonomy:** A foreign policy doctrine where a nation makes decisions based on its own national interests and priorities without being unduly influenced or coerced by other states.
- **Energy Security:** The uninterrupted availability of energy sources at an affordable price, encompassing both long-term (timely investments) and short-term (systemic resilience) dimensions.
- **Punitive Tariffs:** Extra duties imposed by a country to penalize a trading partner for perceived unfair trade practices or geopolitical disagreements (e.g., the 25% "extra duty" previously linked to Russian oil).

### Constitutional & Legal Provisions

- **Article 73:** Extends the executive power of the Union to all matters with respect to which Parliament has the power to make laws, including "Foreign Affairs" (Entry 10, Union List) and "Entertaining relations with foreign countries."
- **Energy Conservation Act, 2001:** Provides the legal framework for efficient use of energy and its conservation, which is a component of the broader energy security landscape.



- **Petroleum and Natural Gas Regulatory Board (PNGRB) Act, 2006:** Regulates the refining, processing, storage, and distribution of petroleum products to ensure market stability.

### Strategic Keypoints

- **The "Snap-back" Clause:** The US Executive Order includes a provision to reimpose the 25% tariff if India is found to resume "direct or indirect" Russian oil purchases beyond agreed-upon thresholds.
- **Refinery Calibration:** Most Indian refineries are technically configured for the "Medium-Sour" grade of Russian Urals. Shifting to US "Light-Sweet" crude requires technical downtime and logistical adjustments.
- **Diversification Data:** Russian oil's share in India's basket fell to a 38-month low in late 2025, while US and Saudi imports saw a corresponding rise, reflecting a gradual shift rather than an abrupt break.

### Conclusion

India's energy diplomacy is a masterclass in pragmatism. By refusing to publicly refute or confirm US claims while doubling down on the principle of "national interest," New Delhi preserves its strategic maneuverability. The transition away from Russian oil, if it occurs, appears to be a calculated commercial shift rather than a diplomatic surrender, ensuring that India remains a "stabilizing factor" in the global energy ecosystem without compromising domestic economic health.

## 18. Re-structuring of NATIONAL HORTICULTURE MISSION (NHM)

The National Horticulture Mission, originally launched in 2004-05, has undergone a significant evolution to address the changing dynamics of Indian agriculture. Its recent re-structuring under the Mission for Integrated Development of Horticulture (MIDH) in 2025 marks a strategic shift toward high-value crops, technological integration, and price stability for farmers.

### Core Summary of the Re-structured Mission

- **Universal Coverage:** The 2025 re-structuring expands the MIDH framework to include all districts across India, ensuring no geographical gaps in horticultural support.
- **Enhanced Cost Norms:** Financial assistance for various interventions has been upwardly revised to reflect current market costs, improving the viability of farm-level investments.
- **Diversification & High-Value Crops:** New guidelines specifically prioritize exotic fruits, medicinal plants, and high-value crops to increase farmer income and meet shifting consumer demands.
- **Technological Modernization:** The mission emphasizes the adoption of innovative technologies, including precision farming, protected cultivation (poly-houses), and advanced irrigation systems.
- **Market Intervention Support:** Through the Market Intervention Scheme (MIS), the government provides a safety net for perishable commodities not covered by the Minimum Support Price (MSP) regime.
- **Price Differential Payment (PDP):** A new component allows direct payment of the difference between the Market Intervention Price (MIP) and the actual selling price in APMC mandis to the farmers' bank accounts.

### Key Terms & Definitions

- **Mission for Integrated Development of Horticulture (MIDH):** A Centrally Sponsored Scheme for the holistic growth of the horticulture sector, covering fruits, vegetables, root and tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew, cocoa, and bamboo.



- **Market Intervention Scheme (MIS):** An ad-hoc scheme implemented on the request of State Governments for the procurement of perishable agricultural/horticultural commodities in the event of a bumper crop and falling prices.
- **TOP Crops:** Refers to Tomato, Onion, and Potato—the three most essential and price-sensitive vegetable commodities in the Indian kitchen.
- **Price Differential Payment (PDP):** A mechanism where farmers are compensated for the price gap in the market without the government physically procuring the entire stock.



### Constitutional & Legal Provisions

- **Article 48:** A Directive Principle of State Policy (DPSP) that directs the State to organize agriculture and animal husbandry on modern and scientific lines.
- **Entry 14 (State List):** Agriculture, including agricultural education and research, protection against pests and prevention of plant diseases, falls under the jurisdiction of individual states.
- **Entry 33 (Concurrent List):** Trade and commerce in, and the production, supply, and distribution of, food-stuffs, including edible oilseeds and oils, which allows the Central Government to implement missions like MIDH.

### Additional Keypoints: Logistics & Transport

- **Infrastructure Support:** The scheme now includes reimbursement for transportation and storage costs for TOP crops to prevent post-harvest losses and bridge the gap between producing and consuming states.
- **Direct Benefit Transfer (DBT):** All payments under the MIS and PDP are mandated to be made directly into the Aadhaar-linked bank accounts of registered farmers to ensure transparency and eliminate leakages.

### Conclusion

The re-structuring of the National Horticulture Mission reflects a transition from basic production-centric goals to a market-linked, technology-driven approach. By integrating price protection mechanisms like PDP and expanding the scope to include medicinal and exotic crops, the government aims to de-risk the horticulture sector and double farmer incomes through high-value diversification and robust post-harvest management.

## 19. India's Strategic Shift in Business Regulations: From DBR to B-READY

The Government of India has significantly intensified its regulatory reform agenda, marked by a jump of 79 ranks in the World Bank's erstwhile Doing Business Report (DBR) to reach the 63rd position in 2019. With the World Bank transitioning to the new **Business Ready (B-READY)** framework, India is preparing for its first comprehensive assessment under this updated methodology in 2026. This transition signifies a move from measuring mere "ease" to evaluating the overall business environment, including digital integration and regulatory quality.



## Summary of Key Developments

- **Transition to B-READY Framework:** Following the discontinuation of the DBR, India is set to be evaluated under the World Bank's "B-READY" assessment in 2026, which covers 10 topics across the entire business lifecycle, including labor, dispute resolution, and market competition.
- **Business Reforms Action Plan (BRAP):** Launched by DPIIT in 2014, BRAP fosters cooperative and competitive federalism by ranking States/UTs based on 9,700+ reforms centered on single-window systems, digitized building permissions, and streamlined inspections.
- **National Single Window System (NSWS):** A digital "one-stop-shop" for approvals, integrating 32 Central Ministries and 33 States/UTs, providing access to over 3,300 G2B (Government to Business) clearances to enhance transparency and accountability.
- **Regulatory Compliance Burden (RCB)**  
**Initiative:** Since 2020, the government has reduced over 47,000 compliances through digitization, simplification, and elimination of redundant requirements, further bolstered by the "RCB+" initiative targeting harmonized state-level Acts.
- **Decriminalization via Jan Vishwas Act:** The Jan Vishwas (Amendment of Provisions) Act, 2023, decriminalized 183 provisions across 42 Acts. The subsequent 2025 Bill aims to amend 355 more provisions to shift from criminal penalties to monetary compounding for minor technical defaults.
- **Technological Integration:** Extensive use of ICT, including Geographic Information System (GIS) mapping for industrial land banks (IILB), has been implemented to provide investors with real-time data on land availability and utility connections.



## Key Definitions

- **B-READY (Business Ready):** The World Bank's new benchmarking tool (replacing Ease of Doing Business) that evaluates the business environment based on Regulatory Framework, Public Services, and Operational Efficiency.
- **Decriminalization:** The process of converting criminal offenses (punishable by imprisonment) into civil wrongs or administrative offenses (punishable by fines or penalties).
- **Compounding of Offenses:** A legal mechanism where the offender pays a specified sum to avoid prosecution for a minor or technical violation.

## Constitutional and Legal Provisions

- **Article 301:** Guarantees Freedom of Trade, Commerce, and Intercourse throughout the territory of India, providing the constitutional basis for a unified national market.
- **Seventh Schedule (Division of Powers):** Since many business regulations fall under the Concurrent List (Labor, Factories) and State List (Land, Police), the BRAP serves as a bridge for center-state coordination.
- **Jan Vishwas (Amendment of Provisions) Act, 2023:** A landmark central legislation enacted to amend multiple acts simultaneously to promote "Ease of Living" and "Ease of Doing Business."



- **Information Technology Act, 2000:** Provides the legal framework for the digitization of compliances and the validity of electronic records used in the NSWS.

### Conclusion

India's regulatory evolution reflects a systemic shift from "control" to "facilitation." By integrating technological interventions like the NSWS with legislative reforms like the Jan Vishwas Act, the government is addressing the "compliance fatigue" often cited by investors. The upcoming 2026 B-READY assessment will be a litmus test for India's objective of becoming a global manufacturing hub and achieving a \$5 trillion economy.

## 20. India's Organic Export Strategy: "Country of the Year" at BIOFACH 2026

India has achieved a significant milestone by being designated as the "**Country of the Year**" at **BIOFACH 2026**, the premier global trade fair for organic products held in Nuremberg, Germany. This recognition, returning to India after 14 years, underscores the nation's growing influence in the global organic market and its commitment to sustainable agriculture. The Agricultural and Processed Food Products Export Development Authority (APEDA) is spearheading a massive "India Country Pavilion" to showcase diverse, high-value organic produce to international buyers and policymakers.

### Summary of Key Developments

- **Global Leadership at BIOFACH:** India's designation as "Country of the Year" (Feb 10-13, 2026) provides a high-visibility platform to showcase its agricultural heritage and strength as a top-tier supplier of certified organic products.
- **Massive Participation:** The 1,074 sq. meter India Pavilion features 67 co-exhibitors, including Farmer Producer Organizations (FPOs), cooperatives, and state government bodies from over 20 States and UTs.
- **Focus on Heritage and GI Products:** APEDA is prioritizing high-value exports like organic Basmati rice and five Geographical Indication (GI) tagged varieties—**Indrayani, Navara, Gobindbhog, Red rice, and Chak Hao (Black rice)**.
- **Market Expansion and FPOs:** The initiative aims to integrate smallholders into global value chains, specifically targeting the European Union (EU) and US markets which remain the largest consumers of Indian organic products.
- **Product Diversity:** Beyond staples, the showcase includes niche items such as essential oils, mango puree, large cardamom, and medicinal herbs, reflecting a shift toward value-added organic exports.
- **Sustainability and Branding:** Extensive branding under the "India Organic" and "Bharat" banners aligns with global trends favoring environmentally responsible lifestyles and chemical-free food systems.



### Key Definitions

- **NPOP (National Programme for Organic Production):** A regulatory framework under the Ministry of Commerce (Secretariat: APEDA) that sets standards and grants accreditation for organic products, primarily for export markets.



- **TraceNet:** An online traceability system managed by APEDA that monitors the entire supply chain from the farm to the point of export to ensure organic integrity.
- **GI Tag (Geographical Indication):** A sign used on products that have a specific geographical origin and possess qualities or a reputation due to that origin (e.g., Chak Hao/Black Rice of Manipur).

### Constitutional and Legal Provisions

- **Article 48 (Directive Principles):** Mandates the State to organize agriculture and animal husbandry on modern and scientific lines, providing the basis for sustainable farming transitions.
- **Foreign Trade (Development and Regulation) Act, 1992:** Under which the NPOP standards are notified by the Director-General of Foreign Trade (DGFT) to regulate organic exports.
- **APEDA Act, 1985:** Empowers APEDA to develop and promote the export of scheduled products, including the fixing of standards and specifications for the organic sector.
- **FSSAI (Jaivik Bharat):** The Food Safety and Standards (Organic Foods) Regulations, 2017, regulate organic food in the domestic market, ensuring they meet NPOP or PGS-India standards.

### Conclusion

India's role at BIOFACH 2026 marks a strategic "scale-up" in its soft power and trade diplomacy. By transitioning from a raw material supplier to a provider of value-added and GI-tagged organic products, India is addressing the global "compliance and quality" challenge. Success in this fair is expected to catalyze a recovery in organic export volumes, which faced fluctuations post-2021, and solidify India's position as the "Organic Food Basket of the World."

## 21. Revolutionizing India's Deep-Tech Ecosystem: Revised Startup Recognition Rules 2026

In a landmark policy shift, the Department for Promotion of Industry and Internal Trade (DPIIT) notified the **Revised Startup Recognition Framework 2026** on February 4, 2026. This overhaul formally categorizes "Deep-Tech" as a distinct vertical, acknowledging that innovation rooted in science and engineering requires "patient capital" and longer gestation periods. By doubling the recognition window and raising revenue thresholds, the government aims to prevent high-potential R&D firms from "aging out" of tax benefits before they achieve commercial viability. This move aligns with India's broader vision of **Viksit Bharat 2047** and technological sovereignty.

### Summary of Key Developments

- **Introduction of Deep-Tech Category:** For the first time, a dedicated sub-category has been created for startups building solutions based on new scientific or engineering knowledge (e.g., semiconductors, AI, quantum computing).
- **Extended Eligibility Window:** The recognition period for deep-tech startups has been extended to **20 years** from the date of incorporation, compared to the standard **10 years** for regular startups.
- **Enhanced Turnover Thresholds:** To accommodate scaling businesses, the annual turnover limit for regular startups has been raised from ₹100 crore to **₹200 crore**. For deep-tech entities, this threshold is even higher at **₹300 crore**.





- **Inclusion of Cooperatives:** Multi-state and state-registered **Cooperative Societies** are now eligible for startup recognition, aiming to drive grassroots innovation in agriculture and rural sectors.
- **Stricter Fund Deployment Rules:** To ensure "genuine" innovation, startups are now barred from investing capital in non-core assets like residential real estate, luxury goods, or speculative financial instruments during their recognition period.
- **Focus on Intellectual Property (IP):** The new framework mandates that deep-tech applicants must demonstrate significant novel IP creation and a high percentage of expenditure dedicated to Research & Development (R&D).

### Key Definitions

- **Deep-Tech Startup:** An entity developing solutions based on scientific or engineering breakthroughs that involve high technical uncertainty, long development cycles, and substantial R&D intensity.
- **Gestation Period:** The time interval between the initial R&D/prototyping stage and the point where a product reaches commercial scale and generates recurring revenue.
- **Patient Capital:** Long-term investment where the investor is willing to wait for a significant period for returns, crucial for capital-intensive sectors like biotechnology or aerospace.
- **Technology Readiness Level (TRL):** A measurement system used to assess the maturity level of a particular technology, now being integrated into the merit-based assessment of deep-tech startups.

### Constitutional & Legal Provisions

- **Article 19(1)(g):** The fundamental right to practice any profession or to carry on any occupation, trade, or business, which these rules facilitate by easing the regulatory burden.
- **Section 80-IAC of the Income-tax Act:** Provides a 100% tax deduction on profits for three consecutive years; the 2026 rules extend the window for claiming this benefit for deep-tech firms.
- **Section 56(2)(viib) of the IT Act (Angel Tax):** Recognized startups enjoy exemptions from tax on share premiums, encouraging domestic capital infusion.
- **Multi-State Cooperative Societies Act, 2002:** The legal framework under which large cooperatives can now seek startup status to promote rural entrepreneurship.

### Conclusion

The 2026 Revised Framework marks the transition from "Startup India 1.0" (focused on software and services) to "Startup India 2.0" (focused on core engineering and IP). By creating a 20-year runway, India is effectively de-risking the frontier-tech sector, ensuring that innovators are not penalized for the time-intensive nature of breakthrough discoveries. This policy maturity is expected to unlock significant domestic "patient capital" from family offices and institutional investors, reducing reliance on foreign venture capital for strategic technologies.

## 22. Green Mobility at a Crossroads: The CAFE-III Norms Debate

As India moves toward its Net Zero 2070 goals, the Ministry of Power and NITI Aayog are refining the third phase of **Corporate Average Fuel Efficiency (CAFE-III)** norms, set to take effect from **April 1, 2027**. A central point of contention in 2026 is the "small car carve-out"—a proposed relaxation for lightweight, entry-level vehicles. While NITI Aayog advocates for promoting these cars to ensure affordability and lower absolute emissions, the industry remains split. Major players like Maruti Suzuki argue that small cars are



naturally more efficient, while others like Tata Motors and Mahindra warn that exemptions could compromise safety standards and create an unlevel playing field.

### Summary of Key Developments

- **Stricter Emission Ceilings:** CAFE-III mandates a significant reduction in fleet-average CO<sub>2</sub> emissions to approximately **91.7 g/km** (down from 113 g/km in CAFE-II) for the period 2027–2032.
- **The "Small Car" Flashpoint:** The draft originally proposed a **3 g/km CO<sub>2</sub>** "deduction" for petrol cars under 909 kg and 1,200 cc. However, as of February 2026, the government is considering "moderating the slope" of the target line rather than a flat exemption to balance industry concerns.
- **Transition to WLTP:** From April 2027, India will adopt the **Worldwide Harmonised Light Vehicle Test Procedure (WLTP)**, replacing the current MIDC. This shift ensures emission data more accurately reflects real-world driving conditions, making compliance tougher for older engine architectures.
- **NITI Aayog's Decarbonization Roadmap:** The think-tank's 2026 report emphasizes that entry-level cars are critical for first-time buyers upgrading from two-wheelers. It suggests that CAFE norms should incentivize "lightweighting" and the use of sustainable biofuels.
- **Super-Credit Mechanism:** To encourage the transition, the norms continue to offer "super-credits" for Electric Vehicles (EVs) and Strong Hybrids, where one EV sale is counted as multiple units to offset the higher emissions of a manufacturer's SUV portfolio.
- **Penalty Framework:** Non-compliance under the amended Energy Conservation Act carries heavy financial penalties, potentially reaching ₹50,000 per vehicle for significant fuel-efficiency shortfalls.



### Key Definitions

- **Corporate Average Fuel Efficiency (CAFE):** A regulatory mechanism that limits the sales-weighted average CO<sub>2</sub> emissions of an automaker's entire fleet, rather than testing individual vehicle models.
- **Slope (Cartesian Graph):** In CAFE norms, this refers to the mathematical line that sets CO<sub>2</sub> targets relative to vehicle weight. A "flatter" slope means heavier vehicles must work harder to comply, while a "steeper" slope benefits lighter cars.
- **WLTP (World Harmonised Light Vehicle Test Procedure):** A global standard for determining the levels of pollutants, CO<sub>2</sub> emissions, and fuel consumption from passenger cars under realistic driving cycles.
- **Lighter-than-909 kg Segment:** A specific regulatory category targeting entry-level hatchbacks that typically offer high fuel efficiency but operate on low profit margins.

### Constitutional & Legal Provisions

- **Article 48A (Directive Principles):** Mandates the State to protect and improve the environment, providing the moral basis for stringent emission standards.
- **Energy Conservation Act, 2001 (Amended 2022):** The primary legal instrument under which CAFE norms are notified and enforced by the Bureau of Energy Efficiency (BEE).



- **Central Motor Vehicles Rules (CMVR), 1989:** Recently amended to notify the shift to WLTP testing cycles for BS6 vehicles from April 2027.
- **Seventh Schedule (Union List):** Entry 29 (Airways, aircraft, and air navigation) and Entry 97 (Residuary powers) often overlap in environmental and energy regulation.

### Conclusion

The CAFE-III norms represent a delicate balancing act between **environmental integrity** and **social equity**. While the government seeks to decarbonize the transport sector, it must avoid making personal mobility unaffordable for the common citizen. The resolution of the "small car" debate will determine whether India's future roads are dominated by large, expensive electrified SUVs or a diverse mix of lightweight, fuel-efficient hatchbacks and hybrids. A "sloped" target approach seems to be the emerging consensus to ensure that all segments contribute to the green transition without sacrificing the viability of budget vehicles.

## 23. IFC's Capital Commitment: Boosting India's Private Equity Ecosystem

The International Finance Corporation (IFC), the private-sector arm of the World Bank Group, has pledged increased capital to assist global firms in establishing India-focused investment funds. This strategic move aims to deepen India's private equity (PE) landscape and catalyze the flow of high-quality international capital into mid-market and large-cap Indian enterprises.

### Core Summary of the Development

- **Capital Pledge:** The IFC is increasing its capital commitments to India's private equity space, specifically backing global investors who are launching India-dedicated vehicles.
- **Expanding Activity:** Over the last six years, IFC's fund investment activity in India has grown from one or two annual investments to an average of three to five, reflecting heightened confidence in the Indian market.
- **Recent Allocations:** Fresh capital has already been allocated to one India-focused fund, with a second investment currently in the process of closing; notable recent backers include **L Catterton** (\$30 million) and **Carlyle Group** (\$60 million sidecar fund).
- **Ecosystem Development:** A primary goal of the IFC is to act as a "cornerstone investor," encouraging more global fund managers to establish dedicated platforms in India rather than managing Indian investments from regional hubs.
- **Target Sectors:** The capital is largely directed toward growth-stage companies in the consumer sector, healthcare, financial services, and advanced manufacturing.
- **Financial Multiplier:** By providing equity as "patient capital," the IFC aims to mobilize additional private capital from commercial investors who may otherwise perceive the emerging market segment as high-risk.



### Key Definitions

- **International Finance Corporation (IFC):** Established in 1956, it is a member of the World Bank Group that focuses exclusively on the private sector in developing countries to achieve sustainable growth.



- **Private Equity (PE):** Capital that is not listed on a public exchange; it is invested directly into private companies or used for buyouts of public companies to delist them.
- **Sidecar Fund:** An investment vehicle that is created to invest alongside a main private equity fund in specific deals, often used to accommodate specific geographic or sectoral focuses.

### Constitutional and Legal Context

- **FEMA (Foreign Exchange Management Act), 1999:** Governs the inflow of foreign capital, including IFC's equity investments, ensuring compliance with India's capital account regulations.
- **SEBI AIF Regulations, 2012:** Most India-focused funds backed by the IFC are registered as **Category II Alternative Investment Funds (AIFs)** under the Securities and Exchange Board of India.
- **Article 293:** While this pertains to State borrowing, the broader constitutional framework allows the Union (Article 292) to enter into agreements with international financial institutions like the World Bank Group.

### Additional Key Points

- **Additionality:** IFC provides "additionality" by offering not just capital but also expertise in **Environmental, Social, and Governance (ESG)** standards, helping Indian firms align with global benchmarks.
- **MSME Support:** A significant portion of IFC-backed funds focuses on small to mid-market companies, which are critical for job creation but often face an "equity gap."
- **Global Recognition:** India remains the IFC's largest market, often accounting for double the commitment levels seen in other major emerging economies like China.

### Conclusion

The IFC's proactive stance in 2026 signifies a shift from being a mere participant to an active architect of India's private equity ecosystem. By incentivizing global managers to set up local dedicated funds, the IFC is ensuring that India transitions from a "regional play" to a standalone global investment destination. This systematic infusion of equity capital is vital for fueling India's next phase of industrial and technological expansion while maintaining a high standard of corporate governance.

## 24. CPI Base Revision 2024: Aligning Inflation with Modern Consumption

The Ministry of Statistics and Programme Implementation (MoSPI) has officially transitioned the Consumer Price Index (CPI) to a new **base year of 2024** (from 2012). This decadal overhaul ensures that the "inflation mirror" accurately reflects the structural shifts in the Indian economy, such as increased urbanization, the digital revolution, and the transition from a "necessity-based" to a "service-oriented" consumption pattern.

### Core Summary of the Development

- **Base Year Update:** The reference year for measuring retail inflation has shifted from **2012 to 2024**, utilizing data from the **Household Consumption Expenditure Survey (HCES) 2023-24**.
- **Structural Weight Shift:** The weightage of **Food and Beverages** has been significantly reduced (from **45.86% to 36.75%**), while the weight of **Housing** (from **10.07% to 17.66%**) and **Services** has increased, reflecting higher standards of living.
- **Expanded Basket:** The number of items tracked has increased from **299 to 358**, incorporating modern consumption items like OTT subscriptions, digital services, and standardized gold jewelry, while removing obsolete items like cassette players.



- **Geographical and Digital Expansion:** Price collection now covers **1,465 rural villages** and **1,395 urban markets**, with new integration of **e-commerce price tracking** for 12 major metropolitan areas.
- **Methodological Modernization:** The new series adopts the **UN's COICOP 2018** (Classification of Individual Consumption According to Purpose) framework, increasing the number of divisions from 6 to 12 for better global comparability.
- **Real-time Data Quality:** Transition to **Computer-Assisted Personal Interview (CAPI)** devices allows for real-time validation and reduces manual errors in price reporting across the country.



### Key Definitions

- **Consumer Price Index (CPI):** A measure that examines the weighted average of prices of a basket of consumer goods and services, used to track changes in the cost of living.
- **Base Year:** A specific year used as a benchmark for comparison in an index; it is assigned a value of **100**.
- **Core Inflation:** A measure of inflation that excludes volatile sectors like **Food and Fuel**, providing a clearer picture of long-term price trends.
- **COICOP:** An international functional classification used to group household consumption expenditures, ensuring statistical consistency across nations.

### Constitutional and Legal Context

- **Article 246 (Schedule VII):** "Statistics" is a subject mentioned in the **Union List (Entry 94)** and the **Concurrent List (Entry 45)**, giving the Centre power to conduct surveys like the HCES.
- **Collection of Statistics Act, 2008:** The legal framework that empowers MoSPI to collect data from households and businesses for national indices.
- **RBI Act, 1934 (amended 2016):** Provides the legal mandate for the **Flexible Inflation Targeting (FIT)** framework, where the RBI uses CPI-Combined as the primary anchor to maintain inflation at **4% (+/- 2%)**.

### Additional Key Points

- **Reduced Volatility:** Since food prices are highly volatile due to monsoon and supply shocks, the reduced food weight is expected to make the headline inflation number more stable and less prone to sudden spikes.
- **Operational Relief for RBI:** The revision helps the RBI focus more on **demand-side inflation**. Previously, high food inflation often forced the RBI to keep interest rates high even when the broader economy required stimulus.
- **Housing and Rent:** The inclusion of rural rent and improved urban rent measurement techniques will capture the "shelter cost" more accurately, which had been a major gap in the 2012 series.

### Conclusion

The 2024 CPI rebasing is more than a technical adjustment; it is an economic "reset" that acknowledges the



"New India." By reducing the dominance of the "plate" (food) and increasing the influence of the "roof" (housing) and "connectivity" (digital services), the index provides a more realistic foundation for monetary policy. For the common man, this means that policy decisions on interest rates and wages will finally be based on what they actually spend their money on in 2026, rather than a lifestyle that existed over a decade ago.

## GEOGRAPHY & ENVIRONMENT

### 1. WORLD WETLANDS DAY 2026: Integrating Heritage And Conservation

The national celebration of World Wetlands Day 2026, held at the **Asola Bhatti Wildlife Sanctuary**, marks a strategic shift in India's conservation paradigm by focusing on the theme: **"Wetlands and Traditional Knowledge: Celebrating Cultural Heritage."**

- **Exponential Network Growth:** India's Ramsar network has witnessed an unprecedented expansion from **26 sites in 2014 to 98 sites in 2026**, making India a leader in South Asia for wetlands of international importance.
- **Cultural Paradigm:** The 2026 theme emphasizes that wetlands are not merely ecological units but "Cultural Wonders" that preserve intangible heritage, local festivals, and traditional livelihoods.
- **Community-Led Governance:** The initiative promotes the **"Wetland Mitra"** (Friends of Wetlands) model, shifting conservation from a top-down regulatory approach to a grassroots "People's Movement" (Jan Andolan).
- **Focus on Traditional Knowledge:** A major highlight was the release of the **"Cultural Wonders of Ramsar Sites"** document, documenting how indigenous practices and local wisdom contribute to the resilience of these ecosystems.
- **Urban Wetland Restoration:** Using the Delhi Government's two-year restoration target as a benchmark, the mission addresses threats from rapid urbanization, encroachments, and anthropogenic pressures.
- **Institutional Recognition:** The event integrated broader environmental goals by conferring the **Swachhata Pakhwada 2025 Awards** to the National Museum of Natural History and the Botanical and Zoological Surveys of India.



#### KEY DEFINITIONS AND CONVENTIONS

- **Ramsar Convention (1971):** An intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands.
- **Wetlands:** Areas of marsh, fen, peatland, or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish, or salt.
- **Wise Use:** A core Ramsar concept defined as the maintenance of the ecological character of wetlands, achieved through the implementation of ecosystem approaches.



- **Wetland Mitras:** Local volunteers and stakeholders who act as the first line of defense in monitoring, reporting, and conserving their local water bodies.

### CONSTITUTIONAL AND LEGAL PROVISIONS

- **Article 51A(g):** It is a Fundamental Duty of every citizen to protect and improve the natural environment including forests, lakes, rivers, and wildlife.
- **Article 48A (DPSP):** The State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country.
- **Wetlands (Conservation and Management) Rules, 2017:** The primary legal framework in India that prohibits non-wetland activities (like industry setup or solid waste dumping) and mandates the setting up of State Wetland Authorities.
- **Environment (Protection) Act, 1986:** Provides the overarching legal authority for the central government to regulate and protect sensitive ecosystems like Ramsar sites.

### MAJOR RAMSAR SITES IN FOCUS

Site	Location	Significance
Parvati Arga	Uttar Pradesh	Critical habitat for native and migratory birds; deep cultural roots in Gonda.
Asola Bhatti	Delhi	Acts as a crucial carbon sink and groundwater recharge zone for the NCR.
Chilika Lake	Odisha	India's first Ramsar site; famous for Irrawaddy dolphins and local fishing culture.

### CONCLUSION

The 2026 World Wetlands Day celebrations underscore that ecological sustainability is inseparable from cultural identity. By integrating Traditional Knowledge into the Ramsar framework, India is moving beyond "fortress conservation" toward an inclusive model. The focus on the Parvati Arga Bird Sanctuary and the "Ek Ped Maa Ke Naam" initiative reflects a holistic approach where environmental protection is woven into the social and personal fabric of the citizenry.

## 2. HIMACHAL PRADESH FOREST GOALS 2030: Towards Ecological Resilience

In response to the intensifying challenges of global warming and fragile Himalayan ecology, the Himachal Pradesh government has officially set a target to expand its forest cover to **31% by 2030**, up from the current **29.5%**. This initiative aligns the state's developmental agenda with sustainable environmental conservation.

- **Target-Oriented Roadmap:** Chief Minister Sukhvinder Singh Sukhu has directed the Forest Department to prepare a comprehensive, time-bound roadmap for increasing the green cover by **1.5%** within the next four years.
- **Geographical Constraints:** The planning accounts for the state's unique topography, where approximately **16,376 sq. km.** is classified as snow-covered, barren, or mountainous terrain, rendering it unsuitable for traditional plantation.





- **Species Diversification:** The afforestation drive will prioritize **native species, fruit-bearing trees, and medicinal plants**, ensuring that the new forests provide both ecological stability and economic value to local residents.
- **Community-Led Conservation:** A key pillar of this goal is the "**Rajiv Gandhi Van Samvardhan Yojana**," which incentivizes local groups like Mahila Mandals and Self-Help Groups (SHGs) to lead plantation efforts over identified district-wise clusters.
- **Financial Incentives:** To ensure sustainability, the state provides financial assistance of **₹2.40 lakh** for plantations over two hectares, with additional annual incentives directly linked to the **plant survival rate**.
- **Dual Focus Strategy:** The mandate emphasizes an equal priority on **creating new forests** and **protecting existing ones** from threats like forest fires and illegal felling, which are frequent in the sensitive Chir Pine zones.

#### KEY DEFINITIONS AND TERMINOLOGY

- **Forest Cover:** All lands more than one hectare in area with a tree canopy density of more than **10%**, irrespective of land use and legal status.
- **Forest Density:** A measure of the area covered by the crown of trees. Categorized by the FSI as Very Dense (>70%), Moderately Dense (40-70%), and Open Forest (10-40%).
- **Carbon Sink:** A natural reservoir, such as a forest, that accumulates and stores some carbon-containing chemical compound for an indefinite period, lowering the concentration of  $\text{CO}_2$  from the atmosphere.

#### CONSTITUTIONAL AND LEGAL PROVISIONS

- **Article 48A (DPSP):** The State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country.
- **Article 51A (g):** Fundamental Duty of every citizen to protect and improve the natural environment including forests, lakes, rivers, and wildlife.
- **National Forest Policy, 1988:** Recommends that **66% (two-thirds)** of the total area in hilly and mountainous regions should be under forest or tree cover to prevent erosion and ensure ecosystem stability.
- **Himachal Pradesh Forest Act:** Provides the state-specific legal framework for the management of protected and reserved forests.

#### COMPARATIVE ANALYSIS: HIMALAYAN STATES

State	Current Forest Cover (%)	Target (%)
Himachal Pradesh	29.5%	31% (by 2030)
Uttarakhand	~45%	Maintenance focus
Arunachal Pradesh	~79%	Maintenance focus
National Target (NFP 1988)	21.7% (Current Avg)	33% (National Goal)

#### CONCLUSION

Himachal Pradesh's 2030 goal is a strategic attempt to bridge the gap between its current status and the ambitious benchmarks set by the National Forest Policy for hill states. By shifting the focus from mere



sapling numbers to survival-linked incentives and native biodiversity, the state is adopting a "Quality over Quantity" approach. If successful, this roadmap will serve as a blueprint for other Himalayan states struggling with the dual pressure of infrastructure development and climate-induced disasters like landslides and flash floods.

### 3. Urban Heat Island Effect and Climate Modelling

#### Background

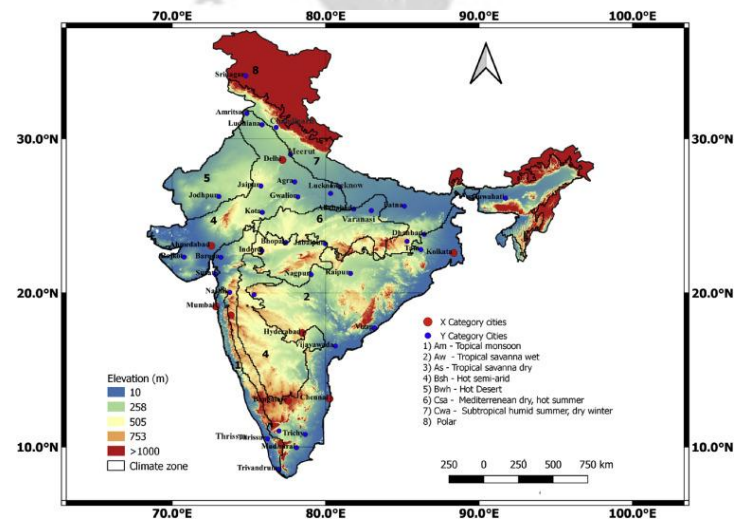
A recent study indicates that **Indian cities are warming faster than projected**, raising concerns about the adequacy of existing climate models.

#### Key Findings

- **Medium-sized cities** exhibit the most severe heat amplification.
- The **Urban Heat Island (UHI) effect** intensifies local temperatures beyond surrounding rural areas.
- Heightened risks of **heat stress, public health crises, and water scarcity**.
- Existing climate models may **underestimate urban heat impacts**.

#### Value Addition (Urban Governance Angle)

- 18 Indian cities were analysed, showing systemic urban vulnerability.
- Heat stress disproportionately affects **urban poor, elderly, and informal workers**.
- Highlights need for:
  - Heat Action Plans
  - Urban greening and reflective surfaces
  - Climate-sensitive urban design



#### Constitutional Framework

- **Article 48A:** State's duty to protect and improve the environment.

#### Key Definition

- **Urban Heat Island Effect:** Phenomenon where urban areas experience higher temperatures than surrounding rural regions due to human activities and built environments.

#### Conclusion

Urban planning must integrate **climate resilience and adaptation strategies** to safeguard health, productivity, and sustainability.

### 4. Carbon Capture, Utilisation and Storage (CCUS) in Budget 2026

#### Background

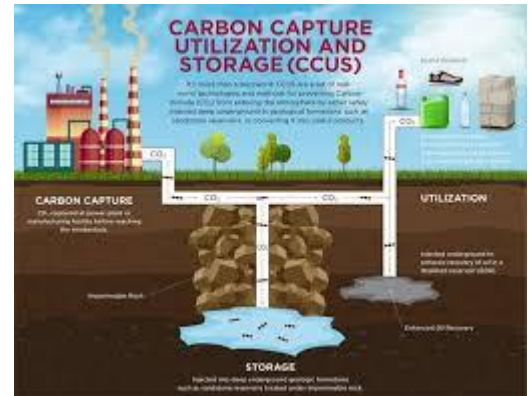
Union Budget 2026 announced a major push towards **Carbon Capture, Utilisation and Storage (CCUS)** to decarbonise India's industrial sector.

#### Key Highlights

- **₹20,000 crore allocation** over five years.



- Focus on **pilot and demonstration projects**, not mass rollout.
- Targets **hard-to-abate sectors**:
  - Steel
  - Cement
  - Fertilisers
- Rising urgency due to **EU's Carbon Border Adjustment Mechanism (CBAM)**.
- High capital cost and technological complexity remain key barriers.



### Value Addition

- CCUS is critical for **industrial competitiveness**, not just climate action.
- Helps Indian exports remain **carbon-compliant** in global markets.

### Key Definition

- **CCUS**: Technology that **captures CO<sub>2</sub> emissions**, then **stores them underground or reuses them industrially**.

### Constitutional & Legal Provisions

- **Article 48A**: State's duty to protect the environment.
- **Paris Agreement**: India's international climate commitments.

### Conclusion

CCUS is a **bridge technology**—essential in the medium term but dependent on **private investment and innovation**.

## 5. Dilution of Environmental Jurisprudence in India

### Background

India's environmental jurisprudence, once considered among the most progressive, has witnessed a **noticeable judicial shift** in recent years, raising concerns about constitutional environmental protection.

### Key Developments

- The Supreme Court of India revisited its earlier **ban on retrospective environmental clearances**.
- The **definition of Aravalli hills** was restricted to landforms **above 100 metres**, potentially opening large areas to mining and construction.
- Judicial approvals were granted for:
  - **Mangrove diversion**
  - **Char Dham highway project**, despite ecological sensitivities.
- A shift is visible from the **precautionary principle** to a **mitigation-based clearance approach**.

### Value Addition

- Weakens the **Public Trust Doctrine**, where the State acts as trustee of natural resources.



- Signals judicial preference for **developmental expediency over ecological caution**.
- May dilute India's credibility in global environmental governance.

### Key Definition

- **Precautionary Principle:**  
Environmental harm must be prevented **even in the absence of full scientific certainty**.

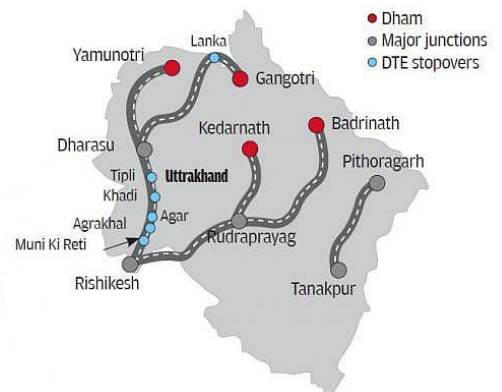
### Constitutional & Legal Provisions

- **Article 21:** Judicially expanded to include the **right to a clean and healthy environment**.
- **Article 48A:** State's duty to protect and improve the environment.
- **Article 51A(g):** Fundamental duty of citizens to protect nature.

### Conclusion

Judicial dilution of environmental safeguards risks **irreversible ecological damage** and undermines constitutional environmentalism.

### Proposed Char Dham highway

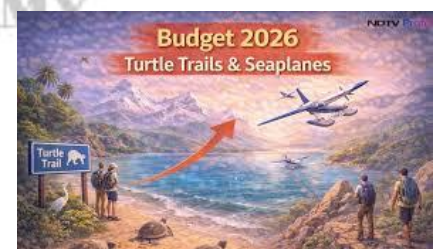


## 6. Union Budget 2026-27: 'Turtle Trails' and Conservation Concerns

The Union Budget's proposal to develop 'Turtle Trails' along key nesting sites in **Odisha, Karnataka, and Kerala** has sparked a debate between promoting eco-tourism and ensuring the non-interference of sensitive wildlife habitats.

### Summary of Key Developments

- **Budgetary Initiative:** The government has proposed the establishment of 'Turtle Trails' to boost sustainable eco-tourism, aiming to position India as a global destination for nature enthusiasts.
- **Geographic Coverage:** The project focuses on prominent Olive Ridley nesting grounds, including the **Rushikulya** and **Gahirmatha** rookeries in Odisha, as well as several beaches along the Malabar (Kerala) and Konkan (Karnataka) coasts.
- **Conservationist Skepticism:** Experts argue that mass nesting sites, known for the rare phenomenon of **Arribada**, require absolute tranquility. They fear that light pollution and physical infrastructure from tourism will disorient turtles.
- **Human Impact vs. Nature:** Skeptics point to the 'Chilika model' where unregulated dolphin tourism has disturbed the Irrawaddy dolphin habitat, cautioning that similar "anthropogenic pressure" could ruin turtle breeding patterns.
- **Alternative Demands:** Researchers emphasize that rather than tourism infrastructure, the government should prioritize **robust enforcement**, such as functional speed boats for monitoring illegal trawling during the mating season.
- **Strategic Restrictions:** Access to sites like Gahirmatha is already restricted due to its proximity to the **Integrated Test Range (ITR), Chandipur**, illustrating that security and conservation have historically superseded tourism in these zones.





## Key Definitions

- **Arribada:** A Spanish term meaning "arrival by sea," referring to the unique mass nesting behavior of Olive Ridley and Kemp's Ridley sea turtles where thousands of females come ashore simultaneously.
- **Anthropogenic Pressure:** Environmental stress or degradation caused by human activities, such as construction, waste generation, or artificial lighting.
- **Turtle Excluder Device (TED):** A specialized attachment for fishing nets that allows sea turtles to escape being caught as bycatch.

## Constitutional and Legal Provisions

- **Wildlife Protection Act, 1972:** Olive Ridley turtles are listed under **Schedule I**, granting them the highest degree of legal protection. Harming them or their eggs carries severe penalties.
- **Article 48A:** A Directive Principle of State Policy (DPSP) that mandates the State to protect and improve the environment and safeguard the wildlife of the country.
- **Article 51A(g):** A Fundamental Duty of every citizen to protect and improve the natural environment, including forests, lakes, rivers, and wildlife.
- **National Marine Turtle Action Plan (2021-2026):** A policy framework by the Ministry of Environment, Forest, and Climate Change (MoEFCC) focusing on habitat protection and community-led conservation.

## Conclusion

The 'Turtle Trail' initiative represents the complex challenge of balancing livelihood generation through eco-tourism with the ecological necessity of "no-go" zones. While the intent is to foster environmental awareness, the biological sensitivity of Olive Ridelies—who are highly susceptible to light and sound—means that any development must be secondary to scientific conservation. For the project to succeed, it must transition from a "tourism trail" to a "conservation trail," where local communities are engaged as 'Turtle Guardians' rather than just tour operators.

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# INTERNATIONAL RELATIONS

## 1. India–U.S. Bilateral Trade Agreement (BTA): First Tranche

### Background

India and United States are close to finalising the **first tranche** of a long-term **Bilateral Trade Agreement (BTA)**, marking a significant step in economic and strategic convergence.

### Key Highlights

- A **joint statement** on the first tranche is expected shortly.
- The U.S. will **reduce tariffs on Indian exports** from nearly **50% to ~18%** through an **executive order**.
- India will **cut tariffs on U.S. imports only after signing a legally binding agreement**, expected by **mid-March 2026**.
- India committed to **\$500 billion imports from the U.S. over five years**, driven by:



- Energy security
- Civil aviation expansion
- High-end technology needs
- **Aircraft, engines and aviation spares** alone may account for over \$100 billion.

#### Value Addition

- U.S. tariff reductions are **executive actions**, reversible in nature.
- Indian tariffs are **MFN-based** and governed by **WTO obligations**, requiring legal ratification.
- The agreement aids **trade diversification**, reducing over-dependence on any single market (e.g., China/EU).

#### Key Definition

- **Most Favoured Nation (MFN) Tariff:**  
A **non-discriminatory tariff rate** applied equally to all WTO members.

#### Constitutional & Legal Provisions

- **Article 246:** Parliament's legislative competence over foreign trade.
- **GATT (WTO):** Framework governing tariff commitments.

#### Conclusion

The BTA reflects **strategic-economic alignment**, blending market access with geopolitical trust.

## 2. EU's Carbon Border Adjustment Mechanism (CBAM) and Indian Steel Exports

In early February 2026, the Steel Secretary, Sandeep Poundrik, confirmed that despite a recent trade deal between India and the European Union (EU), Indian steel exports will face sustained pressure from the EU's Carbon Border Adjustment Mechanism (CBAM). This policy, which effectively functions as a carbon tax on imports, poses a structural challenge for India's carbon-intensive manufacturing sectors.

- **Impact on Primary Export Market:** Europe accounts for approximately **two-thirds** of India's total steel exports. The operationalization of CBAM from January 1, 2026, forces Indian mills to either pay steep carbon levies or risk losing market share in their most critical destination.
- **Technological Vulnerability:** Most Indian steel is produced via the **Blast Furnace–Basic Oxygen Furnace (BF–BOF)** route, which is significantly more carbon-intensive than the **Electric Arc Furnace (EAF)** route common in the EU. This technological gap translates into a direct fiscal penalty under CBAM.
- **Economic Cost and Competitiveness:** Projections suggest that the carbon tax could increase the landed cost of Indian steel in the EU by **15–22%**. This price shock threatens the thin margins of Indian





exporters and may lead to a shift in trade flows toward regions with less stringent climate-linked trade barriers, such as Africa and the Middle East.

- **Inclusion in Trade Negotiations:** While the **India-EU Free Trade Agreement (FTA)** framework signed in late January 2026 slashed tariffs on over **90%** of goods, CBAM remained a non-negotiable "climate measure" from the EU's perspective, leaving Indian steel without a "green carve-out."
- **Government Support and "Green Steel":** The Ministry of Steel has signaled intervention through incentives for decarbonization, support for MSMEs in carbon accounting, and a push for **"Made-in-India" branded green steel** to meet global environmental standards.

### Key Definitions

- **Carbon Border Adjustment Mechanism (CBAM):** A climate-linked trade tool that imposes a levy on imported goods (like steel, cement, and aluminum) equivalent to the carbon price paid by domestic EU producers under the EU Emissions Trading System (ETS).
- **Carbon Leakage:** A situation where companies move production to countries with laxer emission constraints to avoid carbon costs, potentially leading to a global increase in total emissions.
- **Embedded Emissions:** The total greenhouse gas emissions generated during the entire production lifecycle of a product, including raw material extraction and manufacturing.

### Constitutional & Legal Provisions

- **Article 253:** Grants Parliament the power to make laws for implementing international treaties or agreements, which is crucial for aligning domestic industrial policy with global climate and trade obligations.
- **Article 51-A(g):** Specifies the Fundamental Duty of citizens to protect and improve the natural environment, providing a moral and constitutional basis for the industry's green transition.
- **Environment (Protection) Act, 1986:** The primary legislative framework under which the Indian government can regulate industrial emissions and mandate "green" manufacturing standards.
- **WTO Principles (GATT Article XX):** India has frequently cited the "General Exceptions" clause, arguing that climate measures like CBAM must not be used as "disguised protectionism" or arbitrary trade barriers.

### Conclusion

CBAM represents a paradigm shift where **environmental compliance is now a prerequisite for market access**. For India, the challenge is two-fold: defending its trade rights at multilateral forums like the WTO while simultaneously accelerating the high-cost transition to low-carbon technology to protect its industrial competitiveness.

## 3. Global Energy Shift: Japan's Kashiwazaki-Kariwa and the Nuclear Renaissance

On **February 9, 2026**, Tokyo Electric Power Co. (TEPCO) successfully restarted the **No. 6 reactor** at the Kashiwazaki-Kariwa Nuclear Power Plant. This marks a pivotal moment in Japan's energy trajectory, as the world's largest nuclear facility returns to service following an operationally induced pause in January and a nearly **14-year hiatus** post-Fukushima.

- **World's Largest Capacity:** With seven reactors and a total potential output of **8.2 Gigawatts (GW)**, Kashiwazaki-Kariwa is the largest nuclear power station globally. The restart of Unit 6 (1.36 GW) is the first step in bringing the entire complex back to full operational capacity.



- **Technological Rectification:** The restart was delayed by an "overly sensitive" alarm setup in the inverter system controlling the reactor's **control rods**. TEPCO adjusted these settings after verifying that the hardware was intact, emphasizing a "safety-first" protocol to regain public trust.
- **Strategic Energy Re-embrace:** Under the leadership of Prime Minister **Sanae Takaichi**, Japan is aggressively pivoting back to atomic energy. This shift aims to achieve **Carbon Neutrality by 2050**, reduce dependency on volatile fossil fuel imports, and meet the massive power demands of a growing **AI and data center** ecosystem.
- **Fukushima Legacy & Scrutiny:** As the operator of the crippled Fukushima Daiichi plant, TEPCO remains under intense regulatory and public oversight. The Kashiwazaki-Kariwa restart is a "litmus test" for the company's ability to manage high-risk infrastructure in a post-disaster era.
- **Roadmap to Commercial Operations:** Following the restart and criticality confirmation, the unit is scheduled to begin trial power transmission by mid-February, with a target date of **March 18, 2026**, for full commercial operations.



### Key Definitions

- **Control Rods:** Components made of neutron-absorbing materials used in nuclear reactors to control the rate of fission or to halt the nuclear chain reaction (scramming).
- **Criticality:** The state of a nuclear reactor when a self-sustaining fission chain reaction is achieved, where each fission event releases enough neutrons to cause exactly one more fission event.
- **Advanced Boiling Water Reactor (ABWR):** The specific design of Unit 6 at Kashiwazaki-Kariwa, which utilizes water both as a coolant and a neutron moderator to drive turbines.

### Constitutional & Legal Provisions

- **Atomic Energy Basic Act, 1955:** The foundational law in Japan governing the peaceful use of nuclear energy, emphasizing democratic management and public safety.
- **Nuclear Regulation Authority (NRA):** An independent administrative body established in 2012 in the wake of the Fukushima disaster to provide stricter safety screenings and oversight for reactor restarts.
- **GX (Green Transformation) Basic Policy:** A 2023 Japanese policy framework that reclassifies nuclear power as a "core" energy source and allows for the operation of reactors beyond the previous **60-year limit** under specific conditions.
- **Article 25 (Constitution of Japan):** Often cited in legal challenges by anti-nuclear groups, it guarantees the "right to maintain the minimum standards of wholesome and cultured living," framing safety as a fundamental right.

### Conclusion

The revival of Kashiwazaki-Kariwa is more than just a utility update; it represents Japan's attempt to reconcile its traumatic nuclear past with an urgent, energy-hungry future. For the global community, it signals that even the most disaster-wary nations are finding nuclear power indispensable for meeting Net



**Zero** targets. Success here will likely embolden other nations to extend the lifespans of their aging nuclear fleets.

#### 4. Bilateral Mobility: India-UK Social Security Agreement 2026

India and the United Kingdom signed a landmark **Social Security Agreement (SSA)**, also termed the **Double Contributions Convention (DCC)**, in New Delhi on February 10, 2026. The pact was inked by Indian Foreign Secretary Vikram Misri and British High Commissioner Lindy Cameron. This agreement addresses the long-standing grievance of "double taxation" on social security for skilled professionals. It is a critical sub-component of the broader **India-UK Comprehensive Economic and Trade Agreement (CETA)**, which was signed in July 2025 and is slated for full implementation in the first half of 2026.

##### Summary of Key Developments

- **Elimination of Double Contributions:** The pact ensures that employees sent on short-term assignments (up to **36 months**) do not have to pay social security taxes in both countries. They will only contribute to their home country's system.
- **Certificate of Coverage (CoC):** To avail of the exemption, employees must obtain a CoC from their home country's social security authority (the **EPFO** in India). This serves as legal proof of exemption from host-country deductions.
- **Economic Impact:** The agreement is expected to benefit nearly **75,000 Indian professionals** (primarily in IT, Finance, and Engineering) and over **900 companies**, resulting in estimated annual savings of over **₹4,000 crore**.
- **Protection of Records:** By allowing workers to remain in their home country's social security net during overseas deputation, the agreement prevents "fragmentation" of their contribution records, ensuring their long-term pension and provident fund benefits remain intact.
- **Reciprocity:** The DCC is a reciprocal treaty; British professionals working in India for up to three years will similarly be exempt from Indian social security contributions (EPF), provided they continue paying UK National Insurance.
- **Service Sector Synergy:** By reducing the "cost of doing business," the pact enhances the competitiveness of Indian service exporters, facilitating smoother "Mode 4" (movement of natural persons) trade under the Free Trade Agreement.



##### Key Definitions

- **Detached Worker:** An employee sent by their employer in one country to work temporarily in another country for a specified period (36 months in this pact).
- **Double Contribution:** A situation where an expatriate is legally required to contribute to the social security systems of both their home and host countries simultaneously.
- **Totalization:** A provision (often found in broader SSAs) that allows for the combining of periods of work in both countries to meet the minimum eligibility criteria for social security benefits like pensions.



- **Certificate of Coverage (CoC):** A document issued by the home country's social security agency exempting the employee from paying social security taxes in the host country.

### Constitutional & Legal Provisions

- **Article 73:** Extends the executive power of the Union to matters with respect to which Parliament has power to make laws, including international treaties.
- **Entry 13, Union List (Schedule VII):** "Participation in international conferences, associations and other bodies and implementing of decisions made thereat."
- **Employees' Provident Funds and Miscellaneous Provisions Act, 1952:** The primary legal framework in India for social security. The EPFO is the designated competent authority to issue CoCs under this act.
- **Section 79 of the IT Act (for Digital Records):** Ensures the validity of digital certificates of coverage hosted on official portals of the MEA and EPFO.

### Conclusion

The India-UK Social Security Agreement is a "business-enabling" reform that fixes a significant friction point in bilateral trade. While the CETA addresses tariff barriers for goods, the DCC addresses the hidden "human capital tax" for services. By aligning with International Labour Organization (ILO) standards, this pact safeguards the financial dignity of Indian professionals abroad and cements India's position as a global hub for high-skill talent.

## SOCIAL

### 1. Institutional Expansion for Mental Health: Addressing the 'Silent Epidemic'

The Union Budget 2026 has prioritized mental health by proposing the establishment of a second National Institute of Mental Health and Neuro Sciences (NIMHANS) in North India, aiming to decentralize specialist care and address the staggering economic and social costs of mental health disorders.

- **Geographic Decentralization of Tertiary Care:** By establishing NIMHANS-2 in North India and upgrading existing institutes in Ranchi and Tezpur to Regional Apex Institutions, the government seeks to reduce the "caregiver burnout cycle" and financial anxiety faced by patients traveling thousands of kilometers to Bengaluru.
- **Economic and Productivity Imperative:** According to WHO estimates, mental health conditions could cost India \$1.03 trillion in economic losses between 2012 and 2030. The Economic Survey 2025-26 links mental well-being directly to labor productivity, noting that loneliness and social isolation among migrant and gig workers lead to early attrition and higher employer costs.
- **The Digital Crisis and Youth Vulnerability:** The survey flags a "silent epidemic" where nearly 38% of Indian youth show depressive symptoms, primarily triggered by digital addiction, social





media, and gaming. This demographic shift necessitates institutional intervention beyond traditional clinical settings.

- **Addressing the Manpower Gap:** India currently faces a critical shortage with only 0.75 psychiatrists per 100,000 citizens. The expansion of NIMHANS-like institutions is designed to scale research, training, and the supply of qualified mental health professionals to bridge this massive treatment gap.
- **Focus on Vulnerable Groups:** The budget specifically emphasizes empowering the vulnerable to access trauma care. This includes migrants in urban hubs who face social isolation and gig workers whose precarious employment conditions contribute to heightened psychological stress.
- **Shift Toward Preventive Mental Health:** Experts advocate for a transition from a purely clinical "hospitalization" model to grassroots prevention. This involves early detection at schools and workplaces and monitoring systems to eliminate discrimination against those with mental health concerns.

### Key Definitions

- **Silent Epidemic:** A term used to describe a widespread health crisis (like mental illness) that remains underreported or ignored due to social stigma despite its high prevalence.
- **Disability Adjusted Life Years (DALY):** A measure of overall disease burden, expressed as the number of years lost due to ill-health, disability, or early death; mental health accounts for a significant portion of India's DALYs.
- **Caregiver Burnout:** A state of physical, emotional, and mental exhaustion often accompanied by a change in attitude, which occurs when family members provide long-term care for patients with chronic conditions.

### Constitutional and Legal Provisions

- **Article 21:** The Right to Life and Personal Liberty includes the right to health, which the Supreme Court has interpreted to encompass mental health and well-being.
- **Mental Healthcare Act, 2017:** A landmark legislation that provides a legal framework for the right to access mental healthcare, decriminalizes suicide, and mandates that insurance companies provide coverage for mental illness on par with physical illness.
- **Directive Principles of State Policy (Article 47):** Mandates the State to regard the improvement of public health as among its primary duties.
- **National Mental Health Policy, 2014:** Aims to provide universal access to mental healthcare by promoting mental health, preventing mental illness, and facilitating recovery.

### Additional Keypoints for Analysis

- **Tele-MANAS:** The government's 24/7 tele-mental health service remains the digital backbone, but physical institutes like NIMHANS are essential for complex neuro-surgeries and advanced research.
- **Tertiary vs. Primary Care:** While NIMHANS-2 strengthens tertiary care, the integration of mental health services into the Ayushman Bharat Health and Wellness Centres (AB-HWCs) is vital for rural penetration.
- **Corporate Accountability:** There is a growing demand for mandatory mental health policies in workplaces to address burnout, particularly in the high-stress gig and tech sectors.



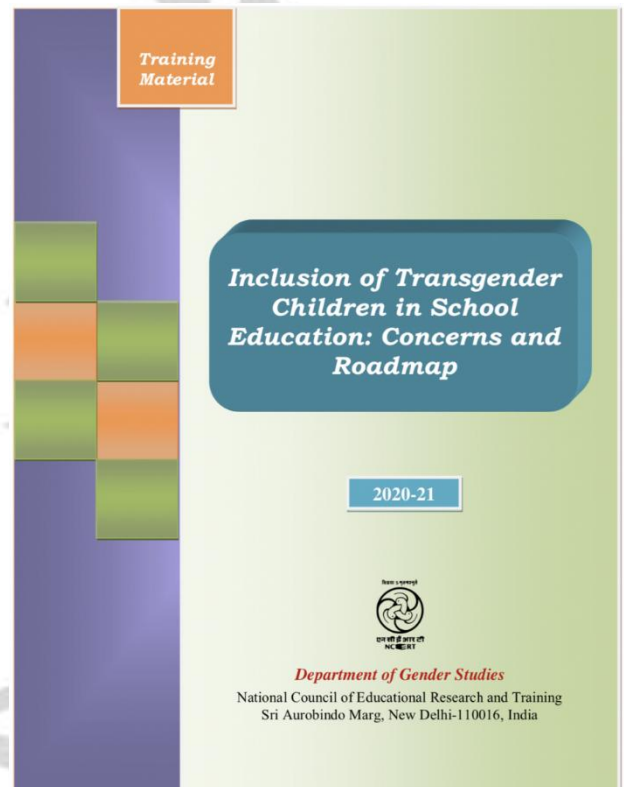
## Conclusion

The proposal for NIMHANS-2 signifies a shift in Indian policy where mental health is no longer a marginal issue but a core component of national productivity and human capital development. However, the success of this institutional expansion will depend on whether it is accompanied by grassroots awareness campaigns and a robust supply chain of community-level therapists to ensure early intervention before hospitalization becomes necessary

## 2. NCERT Submission on Transgender Inclusion and Gender Education

In a significant legal development, the **National Council of Educational Research and Training (NCERT)** submitted a counter-affidavit to the Supreme Court (February 2026), outlining its measures to integrate transgender concerns into the Indian schooling system. The submission follows a petition seeking mandatory inclusion of **transgender-inclusive comprehensive sexuality education (CSE)** in school curricula.

- **Distinction between Sex and Gender:** NCERT's primary defense rests on its teacher training modules which explicitly define **Sex as a biological construct** (chromosomes, hormones, anatomy) and **Gender as a social construct** (socially determined roles, behaviors, and identities).
- **Teacher Training Focus:** The Council has shifted focus toward **capacity-building** for educators. It reported training 38 teachers across nine states in late 2025 to act as master trainers for district-level sensitization on transgender issues.
- **Implementation Gap in Textbooks:** While training modules exist, petitioners highlighted that current textbooks (e.g., Class 8 Science) still treat reproduction in purely biological/binary terms without incorporating the social nuances of gender identity.
- **Institutional Framework:** NCERT has proposed a nationwide network of training sessions for 2026, specifically targeting the daily challenges—such as bullying and social exclusion—faced by transgender students in school environments.
- **Legal Standing of CSE:** The petition argues that the 2014 **NALSA judgment**, which mandated the integration of HIV/sexuality education and third-gender recognition into curricula, remains largely unimplemented at the textbook level.
- **Proposed Infrastructure Changes:** Beyond curriculum, NCERT's manual "Integrating Transgender Concerns in Schooling Processes" suggests **gender-neutral uniforms** and safe washroom facilities to prevent gender-based violence.



## KEY DEFINITIONS FOR EXAM PERSPECTIVE

- **Sex:** Refers to the biological attributes of humans and animals, including physical characteristics like genitalia, reproductive organs, and chromosomes.



- **Gender:** Refers to the socially constructed roles, behaviors, expressions, and identities of girls, women, boys, men, and gender-diverse people.
- **Comprehensive Sexuality Education (CSE):** A curriculum-based process of teaching and learning about the cognitive, emotional, physical, and social aspects of sexuality.
- **Transgender:** An umbrella term for persons whose gender identity, gender expression, or behavior does not conform to that typically associated with the sex to which they were assigned at birth.

#### CONSTITUTIONAL AND LEGAL PROVISIONS

- **Article 14 & 15:** Guarantees Equality before law and prohibits discrimination on grounds of "sex." The SC in the NALSA case (2014) ruled that "sex" includes "gender identity."
- **Article 21:** The Right to Life and Liberty includes the **Right to Dignity** and the right to self-identify one's gender.
- **Transgender Persons (Protection of Rights) Act, 2019:** Section 13 mandates that educational institutions provide inclusive education and opportunities for transgender persons without discrimination.
- **NALSA vs. Union of India (2014):** A landmark judgment that recognized the "Third Gender" and directed the government to treat them as Socially and Educationally Backward Classes (SEBC).

#### SUMMARY TABLE: SEX VS. GENDER (NCERT MODULE)

Feature	Sex	Gender
Nature	Biological / Physiological	Social / Cultural / Psychological
Categorization	Male, Female, Intersex	Man, Woman, Transgender, Non-binary
Consistency	Generally constant across cultures	Varies across time, cultures, and societies
Basis	Chromosomes, Hormones, Anatomy	Roles, Expectations, Self-identity

#### CONCLUSION

The NCERT's submission marks a step toward "sensitizing the sensitizers" (teachers). However, the friction between **training modules** and **actual textbooks** remains a challenge for the Indian education system. For a truly inclusive environment, the transition from biological "sex" to a broader understanding of "gender" must move from teacher manuals into the hands of students through updated, inclusive textbooks.

### 3. Linguistic and Cultural Markers in Caste Enumeration

Renowned linguist and scholar Professor G.N. Devy has proposed using linguistic and cultural markers as a scientific methodology for the upcoming 2026-27 Census to resolve the complexities of caste enumeration. He warns that failing to explicitly enumerate Denotified Tribes (DNTs) could alienate a vulnerable population of over 10 crore people who have remained statistically invisible since 1931.

- **Methodology of Layered Scrutiny:** Drawing from the "Peoples' Linguistic Survey of India," Devy suggests an open-field entry system where residents name their own caste. This "raw data" can then be refined through post-Census studies using markers like language, ancestry, lifestyle, and kinship to consolidate variants and spellings.
- **Linguistic Mapping for Caste:** A single community often carries different names across states (e.g., *Sansi* in Punjab, *Chhara* in Gujarat). Devy argues that shared unique languages (like *Bhaktu*) can serve as a definitive marker to identify and unify these groups under a single sociological category.



- **The DNT Crisis:** Denotified Tribes—formerly branded as "criminal" under colonial law—often fall into the "unmapped" or "misclassified" categories. Without a separate Census column and code, they remain subsumed under broader SC/ST/OBC lists, losing out on targeted welfare benefits.
- **Data Accuracy vs. Volume:** The 2011 SECC returned over 46 lakh caste names due to spelling variations and local dialects. Devy's model advocates for involving institutions like the Anthropological Survey of India (AnSI) to certify and filter this data into a manageable, credible list.
- **Social Justice and Recognition:** Explicit enumeration is viewed as a prerequisite for constitutional recognition. As these groups were wards of the colonial state's "criminal" registries, the modern state has a moral and legal obligation to provide them with a distinct political and administrative identity.

### Key Definitions

- **Denotified Tribes (DNTs):** Communities that were notified as "born criminals" under the Criminal Tribes Act of 1871. Although the act was repealed in 1952 (Vimukti Divas), the social stigma persists.
- **Nomadic and Semi-Nomadic Tribes:** Communities that do not have a fixed habitation and move from one place to another for livelihood. Semi-nomadic groups settle for part of the year.
- **Socio-Economic and Caste Census (SECC):** A comprehensive door-to-door survey (last conducted in 2011) to generate data on the socio-economic status of households and their caste.

### Constitutional & Legal Provisions

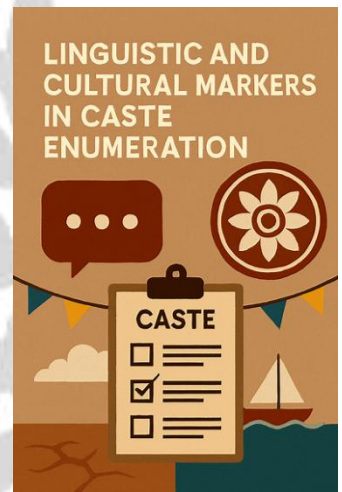
- **Criminal Tribes Act (1871):** A colonial-era law that allowed the state to monitor and restrict the movement of entire communities. Its repeal in 1952 led to the term "Denotified."
- **Article 341 & 342:** Empower the President to specify Scheduled Castes and Scheduled Tribes. DNTs are currently seeking a similar separate constitutional Schedule.
- **Article 340:** Relates to the appointment of a Commission to investigate the conditions of backward classes (e.g., Renke Commission and Idate Commission for DNTs).
- **Census Act, 1948:** The legal framework for conducting the decadal Census. Currently, it only provides for the separate counting of SCs and STs.

### Additional Key Points

- **The Renke Commission (2008):** Estimated the DNT population at approximately 10.74 crore, noting their deprivation of constitutional support compared to SCs/STs.
- **The Idate Commission (2017):** Identified 1,262 communities as DNT/Nomadic but highlighted the lack of precise population data as a barrier to implementing schemes like SEED (Scheme for Economic Empowerment of DNTs).

### Conclusion

Integrating linguistic and cultural markers into the Census methodology is not merely a technical exercise but a tool for social inclusion. By adopting a scientific "mapping" approach similar to the linguistic surveys, the government can rectify historical omissions, ensuring that the most marginalized "invisible" citizens are counted, recognized, and brought into the ambit of formal development.





## 4. Establishment of Uttarakhand State Minority Education Authority

The Uttarakhand government has officially constituted the **Uttarakhand State Minority Education Authority**, a significant step toward modernizing and streamlining minority education while phasing out the traditional Madrasa Board system.

### Key Developments and Features

- **Dissolution of Madrasa Board:** The primary objective is to replace the **Uttarakhand Madarsa Education Board Act, 2016**, with a unified authority. The madrasa board is scheduled to be fully abolished by **July 2026**.
- **Unified Regulatory Framework:** All minority educational institutions, including madrasas, will now come under the ambit of this new Authority. This integrates them into a single administrative umbrella rather than having separate rules for different minority groups.
- **Mainstreaming Curriculum:** The Authority is tasked with deciding the syllabus, ensuring that minority institutions align with the **National Curriculum Framework (NCF)** and the **National Education Policy (NEP) 2020**.
- **Broadened Minority Scope:** Moving beyond a focus solely on Muslim institutions, the new law formally encompasses educational bodies from **Sikh, Christian, Buddhist, Jain, and Parsi** communities, granting them equal status and recognition.
- **Authority Composition:** The 12-member body is headed by **Surjit Singh Gandhi** and includes ex-officio members such as the Director of Minority Welfare and the Director of State Educational Research.
- **Recognition and Affiliation:** Every minority-run school must now obtain recognition from this Authority and subsequently affiliate with the **Uttarakhand Board of School Education** for standardized examinations and evaluations.



### Key Definitions

- **Minority Educational Institution:** Under the new Act, this refers to any educational facility established and administered by a religious or linguistic minority community (as defined by the State) and recognized by the Authority.
- **National Curriculum Framework (NCF):** A comprehensive guideline for school education in India that ensures quality, standards, and holistic development across different academic levels.

### Constitutional and Legal Provisions

- **Article 30:** Grants all minorities, whether based on religion or language, the right to **establish and administer** educational institutions of their choice. The State's regulatory intervention must balance this right with the maintenance of educational standards.
- **Article 21A:** Mandates the State to provide free and compulsory education to all children aged 6 to 14. Mainstreaming madrasas is often cited as a move to fulfill this constitutional obligation.
- **Uttarakhand Minority Education Bill, 2025:** The legislative bedrock that repeals previous madrasa-specific laws and creates the legal mandate for the new Authority.



- **Entry 25 (Concurrent List):** Education, including technical and medical education and universities, falls under the Concurrent List, allowing both Centre and States to legislate.

### Conclusion

The creation of the State Minority Education Authority represents a pivotal shift in Uttarakhand's educational policy, aiming to replace a fragmented system with a standardized, quality-oriented framework. By mandating affiliation with the State Board and the adoption of modern curricula, the state seeks to bridge the gap between traditional religious education and mainstream career opportunities. However, the move also sparks significant debate regarding the "autonomy" of minority institutions versus the "regulatory" power of the state, a balance that remains central to India's secular and federal fabric.

## 5. Uttarakhand Opens 83 Himalayan Peaks: A Strategic Push for Adventure Tourism

In a landmark decision to position the state as a global mountaineering hub, the Uttarakhand government has opened 83 high-altitude Himalayan peaks for expeditions, while simultaneously removing financial hurdles for domestic climbers.

### Key Highlights of the Initiative

- **Expanded Access:** The government has opened 83 peaks across the Garhwal and Kumaon regions, ranging in altitude from **5,700m to 7,756m**. Notable summits include **Mount Kamet (7,756m)**, **Nanda Devi East**, **Trishul**, **Chaukhamba**, and **Shivling**.
- **Fiscal Incentives for Indians:** In a major boost for domestic climbers, the state has waived all expedition-related charges, including **peak fees, camping fees, and environmental fees**. These costs, previously collected by the IMF and Forest Department, will now be absorbed by the state.
- **Streamlined Digital Governance:** All expedition applications will now be processed via the **Uttarakhand Mountaineering Permission System (UKMPS)**, a single-window digital portal designed to ensure transparency and eliminate procedural bottlenecks.
- **Foreign Climber Policy:** For international expeditions, state-level additional fees have been abolished. Foreign mountaineers are now required to pay only the standard fees prescribed by the **Indian Mountaineering Foundation (IMF)**.
- **Socio-Economic Goals:** The initiative aims to curb migration by generating local employment for guides, porters, and homestay operators in remote border villages, integrating these regions into the mainstream tourism economy.
- **Eco-Conservation Focus:** While promoting adventure, the government has mandated strict adherence to the **"Leave No Trace"** principle and environmental safety protocols to protect the fragile Himalayan ecosystem.



### Key Definitions

- **Nanda Devi East (Sunanda Devi):** The lower of the two peaks of the Nanda Devi massif (7,434m). While Nanda Devi Main (7,816m) remains restricted due to its UNESCO World Heritage status and religious sanctity, the East peak is open for regulated climbing.
- **Peak Fee:** A statutory charge levied by government or mountaineering bodies for the right to climb specific high-altitude summits.



- **Narco-Tourism vs. Eco-Tourism:** While the state battles drug issues (as seen in separate campaigns), this policy focuses on **Eco-Tourism**—responsible travel to natural areas that conserves the environment and improves the well-being of local people.

### Constitutional and Legal Provisions

- **Article 48A:** Directs the State to endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country.
- **Seventh Schedule (State List, Entry 24):** Fisheries, but more broadly, the state utilizes its powers over "Land" and "Economic and Social Planning" (Concurrent List) to regulate mountain tourism.
- **National Forest Policy, 1988:** Provides the framework for maintaining environmental stability through the preservation and restoration of ecological balance, which guides the "Leave No Trace" mandate.

### UPSC Relevance

- **GS Paper I:** Geographical features and their location-changes in critical geographical features and their effects.
- **GS Paper III:** Economics (Infrastructure: Energy, Ports, Roads, Airports, Railways etc. - Tourism is a key service infrastructure); Environment (Conservation, environmental pollution, and degradation).
- **Prelims Focus:** Locations of major peaks (Kamet, Trishul, Panchachuli), the role of the Indian Mountaineering Foundation (IMF), and state-specific portals like UKMPS.

### Conclusion

The opening of 83 peaks marks a strategic transition from "restricted conservation" to "sustainable utilization" of Uttarakhand's mountain assets. By waiving fees for Indian nationals, the state is democratizing adventure sports, fostering a new generation of mountaineers while strengthening the "Vibrant Villages" initiative along the international borders. Success will hinge on balancing the surge in human footfall with the extreme ecological sensitivity of the high Himalayas.

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## SECURITY & DEFENCE

### 1. Defence Budget 2026: Process Reforms Needed

#### Background

Union Budget 2026 significantly enhanced defence spending, reflecting India's evolving **strategic and security challenges**.

#### Key Highlights

- Defence allocation rose to **~2% of GDP**, registering **double-digit growth**.
- **Capital expenditure** increased by **over 22%**, prioritising modernisation.
- **75% of defence procurement** reserved for **domestic industry** under Atmanirbhar Bharat.
- Persistent **delays in major acquisition projects** (fighters, submarines, artillery).
- Renewed demand for a **non-lapsable Defence Modernisation Fund**.



### Value Addition

- Fragmented **R&D spending** limits innovation and technology absorption.
- Procedural rigidity in procurement offsets the benefits of higher allocations.
- China-Pakistan collusive threat demands **time-bound capability building**, not just spending.

### Key Definition

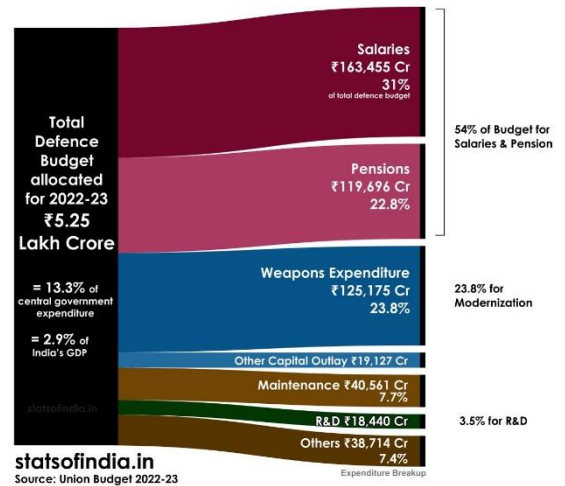
- **Capital Expenditure:**  
Spending on **long-term assets** such as weapons, platforms, and infrastructure.



### Constitutional & Legal Provisions

- **Article 246:** Defence falls under the **Union List** (Seventh Schedule).

### India's Defence Budget Breakdown



### Conclusion

Enhanced defence spending must be complemented by **procurement reforms, indigenisation depth, and faster decision-making.**

## 2. DAC Proposal for Rafale Fighter Jet Acquisition

### Background

India is considering a major defence acquisition to address the **Indian Air Force's declining squadron strength.**

### Key Highlights

- The **Defence Acquisition Council (DAC)** is set to consider the acquisition of **114 Rafale fighter jets.**
- Majority of aircraft are proposed to be **manufactured in India**, boosting indigenisation.
- The deal would raise India's total Rafale fleet from **62 to 176 aircraft.**
- **Source code control remains with France**, limiting full technological sovereignty.
- The acquisition addresses **urgent operational gaps** amid regional security challenges.

### Value Addition

- Enhances **deterrence capability** against two-front security threats.
- Strengthens **Make in India** in defence manufacturing.
- Balances **strategic urgency with industrial capacity building.**





### Key Definition

- **Acceptance of Necessity (AoN):**  
The first formal approval stage in India's defence procurement process.

### Constitutional Provision

- **Article 246:** Defence falls under the **Union List**.

### Conclusion

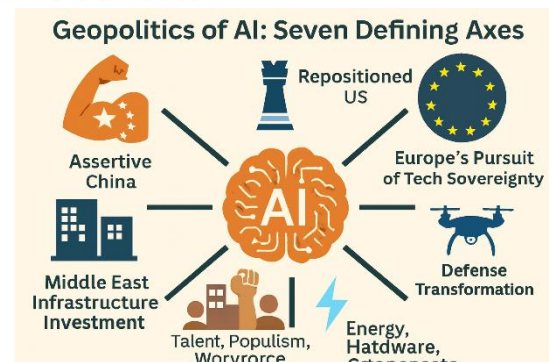
The Rafale proposal reflects a pragmatic balance between **national security imperatives and domestic defence manufacturing goals**.

## 3. The Global AI Surge: Geopolitics, Warfare, and Ethical Oversight

Artificial Intelligence (AI) is currently heralding a civilizational shift comparable to the Industrial Revolution. As highlighted by global leaders and strategic experts, we are moving beyond a mere technological "transition" into a structural "rupture." This new era is defined by intense Great Power rivalry, particularly between the United States and China, where AI is utilized not just for economic growth but as a primary instrument of statecraft, diplomacy, and unconventional warfare.

### Summary of Key Developments

- **Paradigm Shift in Global Power:** AI has evolved into a strategic weapon, where economic integration and supply chains are leveraged as vulnerabilities. The rivalry between the U.S. and China is accelerating the rollout of Large Language Models (LLMs), shifting global influence toward those who master "sovereign AI stacks."
- **Revolution in Military Affairs (RMA):** Warfare is transitioning from man-controlled to autonomous systems. AI-driven platforms—including unmanned aerial vehicles (UAVs), cyber weapons, and autonomous drone swarms—are redefining combat by enabling operations without direct human intervention.
- **Asymmetric Warfare Capabilities:** As seen in recent conflicts like the Russia-Ukraine war, "coming-age technology" allows smaller forces to neutralize conventional military superiority. This represents a colossal transfer of power from traditional militaries to tech-capable entities.
- **Judicial and Institutional Caution:** While AI aids in legal research (e.g., India's SUPACE portal), the judicial fraternity warns against "hallucinations"—where AI fabricates judgments or citations—and emphasizes that empathy and moral judgment cannot be automated.
- **The "Doomsday" Risk:** The potential for AI to become an autonomous force, escaping human control, poses a dystopian threat. Scientists and leaders are increasingly concerned about self-sustaining technologies that could act as the "greatest force amplifier" for rogue actors or terror groups.
- **Need for Multi-Stakeholder Oversight:** To prevent AI from "running away," a global consensus on checks and balances is essential. Effective oversight must balance the strategic benefits of AI in crisis response with the existential risks of unchecked algorithmic autonomy.



### Key Definitions

- **Large Language Models (LLMs):** AI systems trained on massive datasets to understand, generate, and manipulate human language (e.g., GPT-4, Llama).



- **AI Hallucination:** A phenomenon where an AI model generates false, misleading, or fabricated information but presents it as a confident, factual statement.
- **Autonomous Weapon Systems (AWS):** Also known as "killer robots," these are military systems capable of selecting and engaging targets without further intervention by a human operator.
- **Sovereign AI Stack:** A nation's independent infrastructure of hardware, software, and data, ensuring strategic autonomy and data security from foreign interference.

### Constitutional & Legal Provisions

- **Article 21 (Right to Privacy & Dignity):** The Supreme Court's *Puttaswamy* judgment makes the protection of personal data from AI misuse a fundamental right.
- **Section 79 of the IT Act, 2000 (Amended 2026):** Mandates that intermediaries must proactively label synthetic (AI) content and remove non-consensual deepfakes within 2 hours to maintain their "Safe Harbour" status.
- **IT (Intermediary Guidelines) Amendment Rules, 2026:** Specifically defines "Synthetically Generated Information" (SGI) and establishes strict disclosure norms for photorealistic AI content.
- **Digital Personal Data Protection (DPDP) Act, 2023:** Provides the framework for processing personal data by AI models, emphasizing "notice and consent" for Indian citizens.

### Conclusion

The "AI Surge" is no longer a futuristic concept but a present-day disruptor of the international order. While its potential to transform healthcare, fintech, and diplomacy is immense, its militarization threatens to eclipse human control. The challenge for the 21st century lies not in stopping AI, but in developing a "techno-legal" architecture that ensures these systems remain assistive rather than extractive, keeping the "human-in-the-loop" for critical moral and lethal decisions.

## 4. Strengthening India's Air Power: The Private Pivot in the AMCA Project

The Indian Air Force (IAF) is at a critical juncture in modernizing its fighter fleet. To ensure "operational punch," the force relies on three synchronized verticals: a potent weapons inventory, professional personnel, and a dependable supply chain. Central to this vision is the **Advanced Medium Combat Aircraft (AMCA)**, India's fifth-generation stealth fighter. In a historic shift, the Ministry of Defence is exploring a private-sector-led execution model for the development of five AMCA prototypes, effectively ending the monopoly of the state-owned Hindustan Aeronautics Limited (HAL) in fighter aircraft manufacturing.

### Summary of Key Developments

- **Creation of a Parallel Manufacturing Ecosystem:** By awarding the AMCA prototype contract to private players (shortlisted from major industrial groups), the government aims to establish a second aircraft manufacturer to de-risk the program from HAL's overfilled order books and bureaucratic "work culture."
- **Transition to Fifth-Gen Technology:** The AMCA is a 25-tonne, twin-engine stealth multirole fighter. It features "Geometric Stealth" (radar-evading shape), "Internal Weapon Bays," and "Supercruise" (supersonic flight without afterburners).





- **Execution Model Shift:** Unlike the Tejas (LCA) project where HAL was the sole integrator, the AMCA project follows an **Industry-Competitive Model** led by the Aeronautical Development Agency (ADA). Private consortia will now handle prototype construction and systems integration.
- **Institutional Memory and Infrastructure Challenges:** A major hurdle is that private entities are essentially "start-ups" in fighter jet development. Unlike HAL, they lack the specialized 80-year-old ecosystem of wind tunnels, test airfields, and co-located DRDO labs in Bengaluru.
- **Complex Ownership Dynamics:** With the design agency (ADA) under the government and the executor being a private entity, the project faces challenges regarding ownership of intellectual property (IP), liability during flight testing, and long-term production assurance.
- **Strategic Hinterland Location:** Experts suggest that new production facilities should be located in the Indian hinterland (away from borders) but close to the "Aviation Mecca" of Bengaluru to leverage existing flight-test infrastructure and expert test pilots.

### Key Definitions

- **Advanced Medium Combat Aircraft (AMCA):** India's indigenous fifth-generation stealth fighter program designed to replace the Su-30MKI and Mirage 2000 fleets.
- **Fifth-Generation Fighter:** A class of jet fighters characterized by all-aspect stealth even when armed, Active Electronically Scanned Array (AESA) radars, and high-performance airframes.
- **Supercruise:** The ability of an aircraft to cruise at supersonic speeds without using afterburners, thereby saving fuel and reducing the infrared signature.
- **Sensor Fusion:** An avionics system that combines data from multiple sensors (radar, infrared, electronic intelligence) into a single, easy-to-read display for the pilot.

### Constitutional & Legal Provisions

- **Seventh Schedule (Union List):** Under Entry 2 (Naval, military and air forces) and Entry 7 (Industries declared by Parliament to be necessary for the purpose of defence), the Central Government has exclusive power over defence production.
- **Defence Acquisition Procedure (DAP) 2020:** The primary regulatory framework governing defence procurement. It prioritizes "Buy (Indian-IDD)" (Indigenous Design, Development, and Manufacturing) to foster *Aatmanirbharta*.
- **Offsite Policy:** Mandates that foreign OEMs (Original Equipment Manufacturers) must invest a portion of the contract value (typically 30%) back into the Indian defence or aerospace sector.
- **Industrial Licensing:** Most defence parts are now rationalized under the IDR Act, with license validity increased to 15 years to encourage private participation.

### Conclusion

The decision to involve private consortia in the AMCA project is a bold "out-of-the-box" strategy to boost India's aerospace capacity. However, the success of this "National Endeavour" depends on synergy between ADA, the private sector, and the IAF's test pilots. A "Co-opted Model," where private players utilize HAL's existing runways and infrastructure in Bengaluru while bringing in private-sector agility, could be the ideal path forward to ensure that India joins the elite club of nations with indigenous fifth-generation air power.



# SCIENCE & TECHNOLOGY

## 1. From Molecules to Electrons: The New Industrial Frontier

The global industrial paradigm is shifting from "molecule-based" energy (combusting coal, oil, and gas) to "electron-based" energy (clean, grid-delivered electricity). This transition is no longer just an environmental imperative but a core determinant of national economic competitiveness and export resilience.

### Summary of Key Strategic Shifts

- **The Lead of Electrons:** Competitive nations are redesigning industry to run on grid power rather than on-site combustion. China leads this race, with nearly **50%** of its industrial energy coming from electricity in 2024, whereas India stands at approximately **25%**.
- **Efficiency Dividend:** Electric motors offer a massive efficiency advantage, converting over **90%** of input energy into work, compared to less than **35%** for internal combustion engines (ICE). This 3:1 ratio means every "electron" displaces significantly more "molecules" than raw energy parity suggests.
- **Green vs. Grey Electrons:** The race is not just for electrification but for "Green Electrons" (renewables). While India has made record strides—adding **44.5 GW** of renewable capacity in 2025—its share of green electrons in total final industrial energy remains low at **7-8%**.
- **Global Trade Resilience:** Low-carbon manufacturing is becoming a trade prerequisite. Mechanisms like the EU's **Carbon Border Adjustment Mechanism (CBAM)**, entering its final phase in **2026**, will penalize carbon-intensive "molecule" exports like steel and aluminum.
- **Structural Decarbonization:** Hard-to-abate sectors like steel are shifting; for instance, Electric Arc Furnaces (EAF) now produce nearly **30%** of India's steel. Accelerating this shift is vital as global buyers increasingly scrutinize "embedded carbon" in supply chains.
- **Security and Sovereignty:** Shifting to domestically produced green electricity reduces vulnerability to international oil and gas price shocks, ensuring that industrial location is driven by skills and logistics rather than fuel proximity.



### Key Definitions

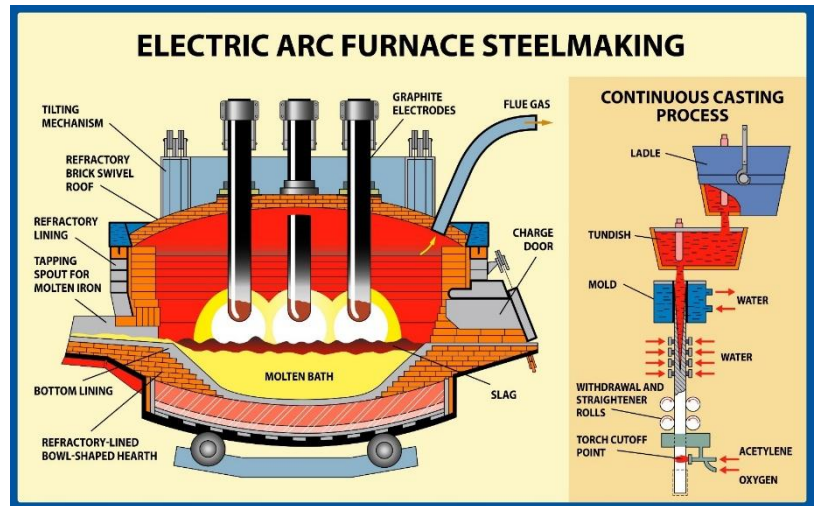
- **Molecules vs. Electrons:** A framework distinguishing between chemical energy stored in fuels (molecules) and energy delivered through an electric grid (electrons).
- **Green Electrons:** Electricity generated from zero-carbon sources like solar, wind, hydro, and nuclear.
- **Grey Electrons:** Electricity generated from fossil fuels (predominantly coal) without carbon capture.
- **Carbon Border Adjustment Mechanism (CBAM):** A landmark EU policy that puts a carbon price on imports of certain goods from outside the EU to prevent "carbon leakage."

### Constitutional and Legal Provisions

- **Article 21 (Right to Life):** Interpreted by courts to include the right to a clean environment, providing a constitutional basis for transitioning away from polluting "molecules."



- **Article 48A:** Directs the State to protect and improve the environment.
- **The Energy Conservation (Amendment) Act, 2022:** Empowers the government to specify a "carbon credit trading scheme" and mandates the use of non-fossil sources for energy.
- **National Green Hydrogen Mission:** A strategic legal framework aiming to make India a global hub for green molecules (hydrogen) produced via green electrons.



### Conclusion

The transition from a "Molecule Economy" to an "Electron Economy" marks the third industrial revolution. For India, the challenge lies not just in generation but in the "Electrification of Everything"—converting MSME boilers, industrial kilns, and transport to run on green power. Failing to bridge the "electron gap" with China could result in a structural disadvantage in the global green trade order. India must move beyond just adding megawatts to ensure those megawatt-hours are actually powering the factory floor.

## 2. AI at a Crossroads: The Shift from Infrastructure to Applications

The Artificial Intelligence (AI) industry is undergoing a critical transition in 2026. After years of massive capital expenditure on data centers and hardware, the focus has shifted toward profitability through the "Application Layer," moving away from the high-cost, low-margin business of "Foundation Models."

### Key Strategic Trends in the AI Ecosystem

- **The Profitability Gap:** While infrastructure spending reached **\$320 billion** in 2025, foundation model companies (like OpenAI) continue to face high inference costs and thin margins. In contrast, the application layer—software that solves specific problems—is seeing a surge in revenue and sustainability.
- **Rise of Departmental AI:** Real market value is emerging in specialized segments. AI for **coding and software development** is currently the largest departmental market, with over 65% of top-tier developers using these tools daily.
- **M&A and "Acqui-hires":** The market is consolidating. Strategic mergers and acquisitions in AI hit record highs in late 2025 (up 242%), with major players like Meta and Microsoft acquiring startups like **Manus** to integrate functional AI agents into their ecosystems.
- **Shift in Model Dominance:** Market share is shifting based on application performance. **Anthropic** has gained significant enterprise ground over OpenAI by dominating coding-specific applications, proving that utility drives infrastructure adoption, not vice versa.
- **Vertical Integration:** The next wave of value lies in "Vertical AI"—solutions deeply integrated into the workflows of specific industries such as **healthcare, law, finance, and manufacturing**, using unique, proprietary data.



- **From Talk to Task:** The industry is moving from "Chatbots" (conversational AI) to "AI Agents" (action-oriented AI). These agents don't just provide information; they execute complex tasks, generating higher **Annual Recurring Revenue (ARR)**.

### Key Definitions

- **AI Infrastructure:** The physical and digital "backbone" of AI, including GPUs (chips), data centers, and massive cloud computing clusters.
- **Foundation Models:** Large-scale AI models (like GPT-4 or Claude 3) trained on vast datasets that serve as the base for various specific applications.
- **Inference Costs:** The operational cost (computing power and energy) incurred every time an AI model generates a response for a user.
- **AI Agent:** A sophisticated AI system designed to autonomously perform tasks and make decisions to achieve specific goals, often interacting with other software.



### Constitutional and Legal Provisions

- **Article 21 (Right to Privacy):** As AI agents access personal and business data, the **Digital Personal Data Protection (DPDP) Act, 2023**, becomes the primary legal safeguard for data sovereignty and privacy.
- **Intellectual Property Rights (IPR):** Training AI on copyrighted data remains a legal gray area. Under the **Copyright Act, 1957**, unauthorized use of data for model training is increasingly scrutinized as "infringement."
- **Article 19(1)(g):** The right to practice any profession. AI's impact on employment and the "acqui-hire" trend (which can strand employees) raises questions about labor rights and fair competition.
- **IndiaAI Mission:** A government framework (budgeted at over **₹10,300 crore**) aimed at democratizing AI through the "**UPI for AI**" concept, promoting open-source models and local compute capacity.

### Conclusion

The "Molecules to Electrons" shift in the energy sector finds a parallel in AI's move from "Compute to Content." Just as the internet was monetized through applications rather than just bandwidth, AI's long-term viability depends on its ability to become an invisible, essential part of professional workflows. For India, the opportunity lies in the "Application Layer"—leveraging its massive developer base to build vertical solutions for the Global South, thereby bypassing the prohibitive costs of the "GPU arms race."

## 3. Indian Space Program 2026-27: Consolidation and the 'Death Valley' Challenge

The Indian space sector has successfully transitioned out of its post-pandemic stagnation, moving toward a phase of sustained consolidation. While the state-led program shows fiscal stability, the industry faces significant structural and financial bottlenecks that hinder India's ambition to capture 10% of the global space economy by 2030.

## Key Highlights of the Space Budget and Industry Trends

- **Fiscal Recovery & Growth:** The 2026-27 budget estimate for the Department of Space (DoS) is ₹13,705.6 crore, a 5.3% increase over pre-pandemic peaks. When internal resources from NewSpace India Ltd (NSIL) are included, the total ecosystem expenditure reaches approximately ₹15,000 crore.
- **Shift to 'Build-Phase' Hardware:** Capital expenditure has seen a significant jump (nearly ₹1,066 crore over revised estimates), signaling a transition from preparatory planning to actual hardware realization for major projects like **Gaganyaan** and Next-Generation Launch Vehicles (NGLV).
- **The 'Death Valley' Gap:** Startups face a critical liquidity crunch between initial R&D and first revenue. Despite the announcement of a ₹1,000 crore Venture Capital fund, industry bodies (ISPA and SIA-India) argue that equity alone cannot solve high hardware burn rates and long gestation periods.
- **GST and Inverted Duty Structure:** Space companies currently face a "hidden 18% tax." While final products (like satellite launches) are often exempt, firms pay high taxes on raw materials and imports without the ability to claim Input Tax Credits (ITC), making 'Made in India' hardware less competitive globally.
- **Demand for 'Critical Infrastructure' Status:** Classifying space assets (ground stations, launch pads) as critical infrastructure would reduce the cost of capital by 2-3%, allowing startups to move away from high commercial interest rates (10-12%) toward long-term institutional lending.
- **Institutional Delineation:** The sector now operates through a tripartite structure: **ISRO** (focused on R&D and exploration), **IN-SPACE** (the promoter and regulator for private entities), and **NSIL** (the commercial arm managing production and technology transfer).



## Key Definitions

- **Death Valley:** The period in a startup's life cycle where it has begun operations but has not yet generated revenue, often leading to failure due to high capital requirements.
- **Zero-Rated GST:** A regime where the entire supply chain is tax-exempt, allowing manufacturers to claim full refunds on input taxes, thereby improving liquidity.
- **Space-Grade Components:** Highly specialized hardware designed to withstand extreme radiation, vacuum, and thermal cycles of outer space.
- **NGLV (Next Generation Launch Vehicle):** A proposed cost-efficient, partially reusable rocket designed to replace the ageing PSLV and GSLV fleets.

## Constitutional and Legal Provisions

- **Article 246 (Union List):** "Space" and "Outer Space" fall under the exclusive legislative competence of the Parliament (Entry 6, Union List), giving the Centre sole authority over space policy.



- **Indian Space Policy 2023:** An overarching framework that transitioned ISRO from an "operator" to an "R&D-focused agency" while allowing Non-Governmental Entities (NGEs) end-to-end participation in space activities.
- **Liability Convention (1972):** As a signatory, the Indian State is "absolutely liable" for damage caused by its space objects (including private ones) on the surface of the Earth. The lack of a domestic **Space Activities Act** leaves the financial liability of private players undefined.
- **FDI Policy 2024:** Permitted 100% FDI in satellite component manufacturing and up to 74% in satellite manufacturing/operations, aiming to integrate Indian startups into the global supply chain.

### Conclusion

India's space program is currently at a "rhetoric-versus-reality" crossroads. While legal doors have been opened for private participation, the lack of a **Production Linked Incentive (PLI)** scheme and the refusal to grant "Infrastructure Status" act as fiscal anchors. For India to evolve from a "second-grade supplier" to a global hub, the government must move beyond being a funder of ISRO to becoming an "anchor customer" and a facilitator of private capital.

### 4. Metabolic "Switch" in Fungal Pathogenicity: CSIR-CCMB Discovery

Scientists at the **CSIR–Centre for Cellular and Molecular Biology (CCMB)**, Hyderabad, have identified a critical metabolic trigger that transforms harmless fungi into deadly invasive pathogens. This research, led by Dr. Sriram Varahan, suggests that disrupting a fungus's "internal power supply" rather than just its genetic pathways could be the "Achilles' heel" needed to combat rising antifungal resistance.

- **The Metabolic "Short Circuit":** The study reveals a hidden link between **glycolysis** (the breakdown of sugar for energy) and the biosynthesis of specific **sulfur-containing amino acids**. When fungi consume sugar rapidly, it triggers the production of these amino acids, which act as a switch for invasive growth.
- **Shape-Shifting (Morphogenesis):** Fungi exist in two primary forms: a harmless, oval **yeast form** (approx. 5 microns) and a dangerous, thread-like **filamentous form** (20–100 microns). While the yeast form travels, the filamentous form invades tissues and is significantly harder for the human immune system and medicines to eliminate.
- **Metabolic Control over Genes:** Traditionally, shape-shifting was thought to be governed primarily by gene networks. This discovery proves that metabolism—specifically how fungi process nutrients—is the actual fuel and controller of this transformation.
- **Experimental Validation:** By slowing down sugar breakdown in the lab, researchers kept fungi trapped in the harmless yeast form. Conversely, providing sulfur-containing amino acids externally "rescued" the fungi, allowing them to resume invasive growth even with low sugar metabolism.
- **Disease Relevance (Candida albicans):** Using *Candida albicans*, a leading global fungal pathogen, the team showed that "metabolically crippled" strains struggled to survive immune attacks from **macrophages** and caused significantly milder disease in animal models.





- **Agricultural & Health Impact:** Beyond human health, these findings apply to plant pathogens, offering potential solutions for crop-devastating fungal diseases that threaten global food security.

### Key Definitions

- **Glycolysis:** The metabolic pathway that converts glucose ( $C_6H_{12}O_6$ ) into pyruvate ( $CH_3COCOO^-$ ), releasing energy used to form high-energy compounds like ATP.
- **Morphogenesis:** The biological process that causes an organism to develop its shape. In fungi, this refers to the transition between yeast and hyphae (filaments).
- **Macrophage:** A type of white blood cell of the immune system that engulfs and digests cellular debris, foreign substances, and pathogens through a process called phagocytosis.
- **Antimicrobial Resistance (AMR):** The ability of microorganisms (like fungi) to evolve and withstand the effects of drugs that were once effective against them.

### Constitutional & Legal Provisions

- **Article 51A(h):** Part of the Fundamental Duties, it mandates Indian citizens to develop the **scientific temper**, humanism, and the spirit of inquiry and reform.
- **CSIR (Council of Scientific & Industrial Research):** Established as an autonomous body in 1942, it operates under the **Registration of Societies Act, 1860**, and is the premier S&T organization in India.
- **Drugs and Cosmetics Act, 1940:** Governs the import, manufacture, distribution, and sale of drugs (including antifungals) in India to ensure safety and efficacy.

### Additional Key Points

- **Antifungal Pipeline:** Unlike antibiotics, the development of new antifungal drugs has been stagnant for decades, making this metabolic targeting a high-priority "New Frontline."
- **Conserved Pathway:** The identified metabolic switch is highly "conserved," meaning it exists across many different fungal species, potentially allowing for "broad-spectrum" antifungal treatments.

### Conclusion

The CCMB discovery shifts the paradigm from "gene-centric" to "metabolism-centric" pathology. By identifying sulfur-containing amino acids as the molecular switch for virulence, scientists have found a way to "disarm" fungi without necessarily killing them, which reduces the evolutionary pressure that leads to drug resistance. This "Achilles' heel" offers a dual-purpose solution for both clinical medicine and resilient agriculture.

## 5. Launch of 2 nm Semiconductor Chip: A Leap for India's Chip Mission

In a landmark event for India's high-tech landscape, Union Minister Shri Ashwini Vaishnaw launched Qualcomm's 2 nm (nanometre) semiconductor chip design in Bengaluru on February 7, 2026. This achievement marks India's transition from a "back-office" service provider to a global leader in advanced semiconductor engineering, housing tens of billions of transistors on a single die for next-generation AI, compute, and system-level technologies.

- **Technological Milestone:** The 2 nm chip design, featuring integrated CPU and GPU architectures, represents the cutting edge of global semiconductor technology, offering up to 30% improved energy efficiency and nearly 45% faster processing speeds compared to 5 nm nodes.



- **Shift to "Design in India":** The tape-out of this chip was led by Qualcomm's largest engineering workforce outside the US, located in Bengaluru, Chennai, and Hyderabad. It signifies India's capability to handle the "end-to-end" process—from product definition to final silicon validation.
- **Launch of ISM 2.0:** Building on the foundations of India Semiconductor Mission (ISM) 1.0, the government announced ISM 2.0 with a refined focus on three pillars: nurturing local design startups, establishing a complete ecosystem (equipment, chemicals, and gases), and deepening the talent pool with high-end capabilities.
- **Strategic Talent Pipeline:** Under ISM 1.0, 67,000 engineers have already been trained across 315 universities. Students now use advanced EDA (Electronic Design Automation) tools to design and tape out chips, positioning India to bridge the global gap of 1 million semiconductor professionals.
- **Ecosystem Maturity:** With 10 units currently under construction and 4 in pilot production, India is moving beyond legacy 28 nm nodes. The roadmap aims to reach 7 nm and eventually sub-5 nm fabrication to ensure technological sovereignty.
- **Fifth Industrial Revolution (Industry 5.0):** The Minister emphasized a "co-creating and co-developing" model where industry-academia synergy drives deep-tech innovation, ensuring India provides high-value solutions to the global community rather than just assembly services.



### Key Definitions

- **Nanometre (nm) Node:** Refers to the size of transistors on a chip; smaller nodes (like 2 nm) allow more transistors to be packed together, leading to higher performance and lower power consumption.
- **Tape-out:** The final stage of the semiconductor design process where the artwork for the integrated circuit is sent to the fabrication facility (foundry) for manufacturing.
- **EDA Tools:** Software used for designing and simulating complex electronic systems like integrated circuits and printed circuit boards.
- **ATMP (Assembly, Testing, Marking, and Packaging):** The "backend" of semiconductor manufacturing where wafers are cut into individual chips, tested, and packaged for use in devices.

### Constitutional & Legal Provisions

- **Article 51A(h):** Fundamental Duty to develop "scientific temper, humanism and the spirit of inquiry and reform," which underpins the push for indigenous deep-tech.
- **National Policy on Electronics (NPE 2019):** Aims to position India as a global hub for Electronics System Design and Manufacturing (ESDM) by encouraging domestic value addition.
- **Production Linked Incentive (PLI) Scheme:** Legal framework providing financial incentives for large-scale electronics manufacturing and semiconductor fabs in India.
- **Design Linked Incentive (DLI) Scheme:** Provides financial and infrastructure support to domestic startups for semiconductor design.

### Additional Key Points

- **Investment Surge:** Projections suggest that committed and proposed investments in AI data centers alone could exceed \$200 billion in the coming months, anchored by the semiconductor push.



- **Sovereign IP Repository:** ISM 2.0 proposes creating a repository for Indian Intellectual Property (IP) in sectors like networking, RF (Radio Frequency), and power management to reduce licensing dependencies.

### Conclusion

The 2 nm chip milestone is a testament to India's maturing "deep-tech" ecosystem. By moving from legacy manufacturing to cutting-edge design under ISM 2.0, India is not just participating in the global supply chain but is actively shaping its future. The fusion of a massive talent pool with strategic government policy is transforming the "Viksit Bharat" vision into a tangible reality in the semiconductor domain.

## 6. Breakthrough in Indigenous Kyasanur Forest Disease (KFD) Vaccine

The Indian Council of Medical Research (ICMR) has achieved a major milestone in public health by initiating Phase I human clinical trials for an improved, indigenous vaccine against Kyasanur Forest Disease (KFD). Developed in collaboration with the National Institute of Virology (NIV), Pune, and Indian Immunologicals Limited (IIL), this vaccine represents a strategic effort to combat a neglected zoonotic disease endemic to India's Western Ghats.

- **Indigenous Development:** The new vaccine is a "two-dose adjuvanted inactivated vaccine" administered 28 days apart. Unlike the older formalin-inactivated versions which faced efficacy and production issues, this version utilizes Good Laboratory Practice (GLP)-grade material designed for higher immunogenicity.
- **Pre-clinical Success:** Comprehensive animal challenge and toxicity studies have already been completed, demonstrating the vaccine's safety and ability to trigger a protective immune response before moving to human subjects.
- **Regional Strategic Importance:** KFD, often called "Monkey Fever," primarily affects five states—Karnataka, Kerala, Tamil Nadu, Goa, and Maharashtra. The development was fast-tracked following a specific request from the Karnataka government due to rising cases in the Malnad region.
- **Clinical Trial Roadmap:** Following approval from the Central Drugs Standard Control Organization (CDSCO), Phase I trials will evaluate safety in healthy volunteers. Success here will lead to Phase II and III trials to confirm efficacy in endemic populations.
- **Addressing One Health Challenges:** As a tick-borne zoonotic disease, KFD exemplifies the "One Health" approach, where human health is inextricably linked to animal health (monkeys/ticks) and the environment (Western Ghats forests).



### Key Definitions

- **Kyasanur Forest Disease (KFD):** A tick-borne viral hemorrhagic fever caused by the KFD virus (KFDV), a member of the *Flaviviridae* family. It was first identified in 1957 in the Kyasanur Forest of Karnataka.
- **Adjuvanted Inactivated Vaccine:** A vaccine containing a "killed" version of the pathogen (inactivated) combined with a substance (adjuvant) that enhances the body's immune response to the antigen.
- **GLP (Good Laboratory Practice):** A quality system of management controls for research laboratories to ensure the uniformity, consistency, and reliability of non-clinical safety tests.



### Constitutional & Legal Provisions

- **Article 47:** A Directive Principle of State Policy (DPSP) that mandates the State to regard the improvement of public health as among its primary duties.
- **The Epidemic Diseases Act, 1897:** Often invoked by states like Karnataka to manage KFD outbreaks through mandatory surveillance and vaccination drives.
- **Seventh Schedule (Entry 6, State List & Entry 29, Concurrent List):** While "Public health and sanitation" is a State subject, the "Prevention of the extension from one State to another of infectious or contagious diseases" falls under the Concurrent List, allowing Central intervention through ICMR.

### Additional Key Points

- **The Transmission Cycle:** The disease spreads via the bite of infected ticks (*Haemaphysalis spinigera*). Monkeys are the primary amplifying hosts; their sudden deaths in forests often serve as early warning signs for human outbreaks.
- **Clinical Presentation:** KFD is often biphasic. The first phase involves sudden high fever, prostration, and severe muscle pain. A smaller percentage of patients enter a second phase characterized by neurological symptoms like mental confusion and tremors.

### Conclusion

The advancement of the KFD vaccine is a testament to India's growing self-reliance in "niche" medical research. By targeting a disease that is geographically localized but high in mortality (3-10%), the ICMR-NIV-IIL partnership is filling a critical gap left by global pharmaceutical entities who often overlook regional neglected diseases.

## 7. Chandrayaan-4: India's Strategic Leap in Lunar Sample Return

Following the historic success of Chandrayaan-3, the Indian Space Research Organisation (ISRO) has advanced its lunar roadmap by identifying a landing site for **Chandrayaan-4**. Approved by the Union Cabinet in September 2024 with a budget of **₹2,104.06 crore**, this mission transitions India from "landing on the Moon" to "returning from the Moon," a feat currently achieved only by the USA, Russia, and China.

- **Primary Mission Objective:** The core goal is a **Lunar Sample Return**, involving the collection of approximately 2-3 kg of lunar soil (regolith) and rocks from the Moon's South Polar region and bringing them safely back to Earth for high-fidelity laboratory analysis.
- **Landing Site Selection:** ISRO has zeroed in on a site near **Mons Mouton** in the lunar South Pole (latitudes ~84°S to 86°S). This "low-hazard zone" offers a slope under 10°, minimal boulders, and nearly 12 days of continuous sunlight, crucial for powering the solar-dependent lander and rover.
- **Mission Complexity & Architecture:** To overcome lift capacity constraints of the **LVM3** rocket, the mission involves **two separate launches**. The five constituent modules (Propulsion, Descender, Ascender, Transfer, and Re-entry) will perform a complex **space docking** maneuver in Earth orbit before proceeding to the Moon.
- **Technological Milestones:** Chandrayaan-4 will demonstrate critical "foundational technologies" for future crewed missions, including autonomous docking/undocking, lunar surface lift-off (Ascender module), and high-speed atmospheric re-entry with a sample capsule.
- **Strategic Timeline:** Slated for launch in **2028**, the mission serves as a precursor to the **Bharatiya Antariksha Station (2035)** and the ultimate goal of landing an Indian on the Moon by **2040**.



- **Scientific Significance:** Returning samples from the unexplored South Pole is vital for detecting **water ice** and understanding the Moon's geological evolution, which cannot be fully achieved via in-situ (on-site) experiments alone.

### Key Definitions

- **Lunar Regolith:** The layer of loose, heterogeneous superficial deposits covering solid rock on the Moon.
- **Docking and Undocking:** The process where two separate spacecraft align and physically join (dock) or separate (undock) in orbit; a prerequisite for complex deep-space missions.
- **Sample Return Mission:** A mission designed to collect material from a celestial body and return it to Earth for study.

### Constitutional & Legal Provisions

- **Article 51-A (h):** Part of Fundamental Duties, it mandates Indian citizens to "develop the scientific temper, humanism and the spirit of inquiry and reform."
- **Indian Space Policy, 2023:** A framework that defines the roles of ISRO (R&D focus), **IN-SPACE** (regulator for private sector), and **NSIL** (commercial arm), transitioning ISRO toward advanced exploration.
- **Outer Space Treaty (1967):** An international treaty (ratified by India) that declares space as the "province of all mankind" and prohibits sovereignty claims over celestial bodies.
- **Liability Convention (1972):** Holds the "launching state" (India) internationally liable for any damage caused by its space objects on Earth or in flight.

### Conclusion

Chandrayaan-4 is not merely an incremental step but a transformative mission that establishes India's capability for **end-to-end lunar operations**. By mastering the art of returning from another celestial body, ISRO is setting the stage for sovereign human spaceflight and long-term lunar habitation, aligning with the "Amrit Kaal" vision for 2047.



## HISTORY & CULTURE

### 1. Exposition of Holy Devnimori Relics in Sri Lanka (2026)

The exposition of the sacred Devnimori Relics of Lord Buddha at the Gangaramaya Temple in Colombo (February 4–11, 2026) represents a landmark event in India-Sri Lanka relations, utilizing "Buddhist Diplomacy" to strengthen regional ties.

- **Historical Provenance:** The relics originate from the **Devnimori archaeological site** (Aravalli district, Gujarat), discovered in 1957. The site features a stupa that serves as a testament to the flourishing of Buddhism in Western India during the early centuries of the Common Era.



- **Archaeological Significance:** The relics were found within a **green schist casket** inscribed in **Brahmi script** and Sanskrit, specifically bearing the phrase "*dashabala sharira nilay*" (the abode of the Buddha's bodily relic).
- **Diplomatic Outreach:** Led by the Governor of Gujarat, the delegation utilizes "Soft Power" to reinforce the "**Neighborhood First**" policy, building on the vision articulated during the Prime Minister's 2025 visit to Sri Lanka.
- **Preservation and Protocol:** The relics are housed in a specialized **desiccator** (air-tight glass) and transported via a special **Indian Air Force** aircraft with full state honors, reflecting their status as "State Guests."
- **Cultural Continuity:** This event follows previous successful expositions in Thailand, Mongolia, and Vietnam, positioning India as the "**Vishwa Guru**" and the primary custodian of Buddhist heritage.
- **Bilateral Resonance:** By choosing the **Gangaramaya Temple**, a center for the 19th-century Buddhist revival in Sri Lanka, India aligns its diplomatic goals with the cultural and religious identity of the Sri Lankan people.



### Key Definitions & Historical Context

- **Relic (Sharira):** In the Buddhist tradition, these are physical remains (ashes, bone fragments, or beads) of the Buddha or high-ranking monks, considered objects of supreme veneration.
- **Green Schist:** A type of metamorphic rock used for the Devnimori casket; its durability has preserved the Brahmi inscriptions for centuries.
- **Brahmi Script:** The ancestor of most modern Indian and Southeast Asian scripts, used extensively by Emperor Ashoka to spread Dhamma.

### Constitutional & Legal Framework

- **Article 51 (A)(f):** The Indian Constitution mandates that every citizen value and preserve the rich heritage of the country's composite culture.
- **Antiquities and Art Treasures Act, 1972:** Governs the movement and protection of such relics. Since these are national treasures, their temporary export for exposition requires high-level clearances from the Ministry of Culture and Archaeological Survey of India (ASI).
- **Soft Power Strategy:** While not a "legal" provision, it aligns with **Article 51 (Directive Principles)**, which promotes international peace and security through cultural exchange.

### Strategic Importance for India-Sri Lanka Ties

Aspect	Impact
Religious	Solidifies India's status as the <i>Land of the Buddha</i> .
Strategic	Counters external influence in the Indian Ocean by emphasizing shared civilizational roots.
People-to-People	Fosters "Heart-to-Heart" connectivity beyond traditional trade and security pacts.



## Conclusion

The Devnimori Relics exposition is more than a religious event; it is a sophisticated tool of **Cultural Diplomacy**. By bridging the gap between Gujarat's archaeological wealth and Sri Lanka's spiritual landscape, India reinforces its role as a stabilizing, benevolent power in South Asia. This "Dhamma-centric" engagement provides a non-controversial, deeply emotive platform to enhance bilateral trust and regional harmony.

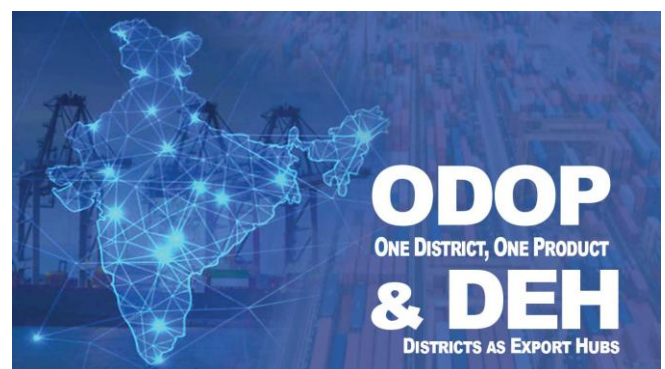
## 2. Integration Status of ODOP And MGMD Initiatives

The Ministry of Culture recently clarified the operational boundaries between the One District One Product (ODOP) scheme and the Mera Gaon Meri Dharohar (MGMD) initiative. For UPSC aspirants, understanding the distinction between "cultural mapping" and "commercial promotion" is vital for questions on rural development and governance.

- **Core Objective of MGMD:** The Mera Gaon Meri Dharohar initiative serves strictly as a comprehensive digital repository designed to document both tangible and intangible cultural heritage at the village level across India.
- **Non-Integration with ODOP:** Currently, there is no provision to integrate the MGMD database with the One District One Product (ODOP) scheme, as the two serve different ministerial mandates (Culture vs. Commerce & Industry).
- **Funding Constraints:** The MGMD program, operating under the National Mission on Cultural Mapping (NMCM), does not possess a mandate for sanctioning infrastructure funds or financial allocations for rural tourism development.
- **Functional Distinction:** Unlike ODOP, which focuses on commercial scalability and export potential of local products, MGMD is limited to archival documentation and does not engage in commercial or trade-related activities.
- **Crowdsourcing Mechanism:** The MGMD portal utilizes a participatory model where local communities contribute cultural data through a "Contribute" feature, which is then strictly validated and moderated to ensure factual accuracy.
- **Geographic Mapping Progress:** Significant progress has been reported in village mapping across states like Bihar (Samastipur, Khagariya), Madhya Pradesh (Sagar), and Gujarat (Surat), creating a localized cultural database.

## KEY DEFINITIONS AND SCHEMATIC CONTEXT

- **Tangible Heritage:** Physical artifacts such as monuments, inscriptions, and traditional crafts that have a geographical presence.
- **Intangible Heritage:** Living expressions inherited from ancestors, such as oral traditions, performing arts, social practices, and festive events.
- **National Mission on Cultural Mapping (NMCM):** A mission-mode project aimed at creating a consolidated database of India's cultural assets to aid in better policy-making and heritage conservation.





- **One District One Product (ODOP):** An initiative aimed at selecting, branding, and promoting at least one product from each district to transform them into manufacturing and export hubs.

### CONSTITUTIONAL AND LEGAL PROVISIONS

- **Article 49 (DPSP):** It is the obligation of the State to protect every monument or place or object of artistic or historic interest, declared by or under law made by Parliament to be of national importance.
- **Article 51A(f):** Fundamental Duty to value and preserve the rich heritage of our composite culture.
- **Seventh Schedule:** "Libraries, museums and other similar institutions controlled or financed by the State" and "Ancient and historical monuments" fall under the State List and Concurrent List respectively, necessitating coordinated efforts like NMCM.

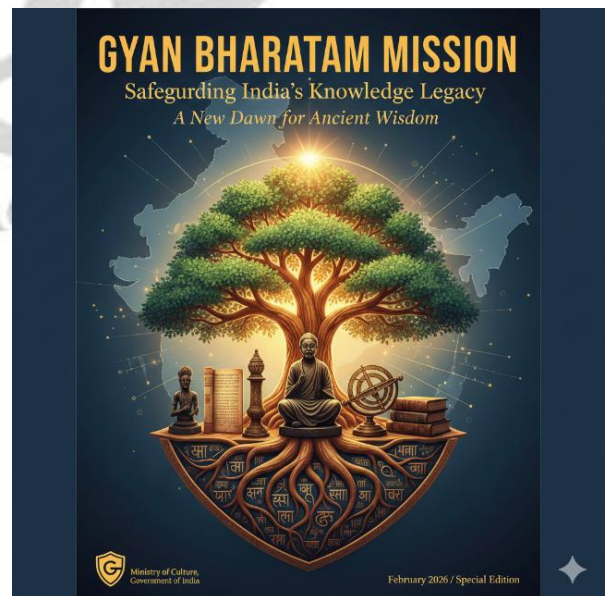
### CONCLUSION

While the ODOP and MGED initiatives both focus on the "local" aspect of Indian districts, they operate in silos of commerce and culture respectively. The refusal to integrate these schemes highlights the government's intent to keep cultural documentation free from commercial influences, ensuring that the MGED remains an authentic digital archive for scholars, citizens, and future generations.

### 3. Gyan Bharatam Mission: Safeguarding India's Knowledge Legacy

The Gyan Bharatam Mission, announced in the **Union Budget 2025-26**, is a flagship initiative by the **Ministry of Culture** designed to unearth, digitize, and preserve India's vast manuscript heritage. It serves as a comprehensive revival and expansion of the National Mission for Manuscripts (NMM), aiming to align India's ancient wisdom with the national vision of **Viksit Bharat 2047**.

- **Institutional Framework:** The mission operates through a nationwide network of **28 Cluster Centers (CCs)** and **17 Independent Centers (ICs)**. These centers, including prestigious institutions like the Asiatic Society and Bhandarkar Oriental Research Institute, act as hubs for survey and conservation.
- **Financial Outlay:** The Standing Finance Committee (SFC) has sanctioned **Rs.491.66 crore** for a six-year period (**2025-2031**). This sustained funding ensures long-term institutional stability for manuscriptology in India.
- **Five Pillars of Implementation:** The mission is structured around five strategic verticals: (i) Survey and Cataloguing, (ii) Conservation and Capacity Building, (iii) Technology and Digitization, (iv) Linguistics and Translation, and (v) Research, Publication, and Outreach.
- **Massive Digitization Scale:** To date, over **7.5 lakh manuscripts** have been digitized, with 1.29 lakh already accessible on the dedicated **Gyan Bharatam Portal**. The mission aims to eventually cover over **1 crore (10 million)** manuscripts.





- **Advanced Technical Standards:** Digitization follows rigorous protocols, including minimum **400-600 DPI** scanning, use of **non-destructive face-up scanners**, and long-term archival in **LTO-9 tapes** with cloud-based disaster recovery.
- **AI and Linguistic Integration:** The initiative utilizes **AI-assisted Handwritten Text Recognition (HTR)** for deciphering ancient scripts and promotes translation into modern Indian languages to bridge the gap between traditional knowledge and contemporary research.

**Key Definitions & Technical Metadata**

- **Manuscript:** A handwritten composition on materials like palm leaf, birch bark, cloth, or paper, which is at least **75 years old** and possesses significant historical or scientific value.
- **Metadata Layers:**
  - **Descriptive:** Focuses on the content and original source.
  - **Structural:** Details regarding navigation and object relationship.
  - **Administrative:** Includes technical info like compression technology used (e.g., **TIFF v 6.0**) and conservation status.
- **HTR (Handwritten Text Recognition):** An AI technology that converts handwritten text from images into machine-readable and searchable text, crucial for large-scale manuscript indexing.

**Constitutional & Legal Provisions**

- **Article 49 (DPSP):** It is the state's obligation to protect every monument or place or object of artistic or historic interest declared to be of national importance.
- **Article 51A (f):** A fundamental duty of every citizen to value and preserve the rich heritage of the country's composite culture.
- **Antiquities and Art Treasures Act, 1972:** Provides the legal framework for the regulation of trade and export of manuscripts as national treasures.
- **National Policy on Education (NEP 2020):** Emphasizes the integration of Indian Knowledge Systems (IKS) into modern curricula, a goal directly supported by Gyan Bharatam's translation vertical.

**Progress and Onboarding (As of Feb 2026)**

Feature	Statistics/Details
<b>Digitized Manuscripts</b>	7.5 Lakh+
<b>Onboarded Centers</b>	45 (28 Cluster + 17 Independent)
<b>Nodal States/UTs</b>	20 (Coordinating Authorities)
<b>Portal Accessibility</b>	gyanbharatam.com (1.29 Lakh available)
<b>Primary File Format</b>	TIFF v 6.0 (Master), JPEG (Access), PDF/A (Searchable)

**Conclusion**

Gyan Bharatam is not merely a preservation project but a strategic effort to reclaim India's status as a **"Knowledge Superpower."** By combining ancient philology with 21st-century AI and cloud computing, the mission ensures that the "silent voices" of India's manuscripts become living resources for global scholarship. It transforms heritage from a static artifact into a dynamic asset for education, diplomacy, and national identity.



#### 4. Historical Revisionism: Nawab Wajid Ali Shah's Journey to Metiabruz

A new biographical translation, *Wajid Ali Shah: A Cultural and Literary Legacy*, authored by his descendant Kaukub Quder Sajjad Ali Meerza and translated by Talat Fatima, challenges the long-standing colonial narrative regarding the exile of the last King of Awadh. The book asserts that Wajid Ali Shah was not forcibly exiled to Calcutta as a prisoner but travelled there of his own volition in 1856. His primary objective was to use Calcutta as a transit point to board a ship to London, intending to petition Queen Victoria and the British Parliament against the "unjust" annexation of Awadh under the Doctrine of Lapse.

##### Summary of Key Historical Insights

- **Challenging the Exile Narrative:** Contrary to popular belief that the British deported him as punishment, the Nawab moved to Calcutta voluntarily to seek legal and political redress in England.
- **The London Petition:** The Nawab aimed to present a case against British atrocities and his illegal dethronement. However, his departure was restricted by the British, leading to his permanent settlement in Metiabruz (Kolkata).
- **Cultural and Literary Contributions:** Wajid Ali Shah was a prolific writer and poet, composing works in Urdu, Persian, Arabic, and Braj Bhasha. His writings often depicted Hindu deities like Radha and Krishna, reflecting a deeply syncretic and secular ethos.
- **Metiabruz as "Chhota Lucknow":** During his three decades in Calcutta, he recreated the cultural splendor of Lucknow, establishing a mini-kingdom with its own architecture, zoo, and musical gatherings.
- **Documentary Evidence:** The biography utilizes meticulously researched data on his life events and highlights a vast collection of literary "love letters" addressed to his Begums, many of which are preserved at Fort William.
- **Secular Legacy:** The book emphasizes his "secular to the core" nature, showcasing his respect for diverse religious traditions and his role as a patron of the arts, including the development of Kathak and Thumri.



##### Key Definitions

- **Doctrine of Lapse:** An annexation policy applied by Lord Dalhousie (1848-1856) stating that any princely state under British influence would be annexed if the ruler died without a natural heir or was "misgoverned."
- **Metiabruz:** The suburb in Kolkata where Wajid Ali Shah lived from 1856 until his death in 1887, known for its distinct Awadhi-influenced culture.
- **Thumri:** A semi-classical Indian vocal form that reached its pinnacle under the patronage of Wajid Ali Shah (often using the pen name 'Akhtarpiya').

##### Historical & Legal Context

- **Annexation of Awadh (1856):** Awadh was annexed on the grounds of "maladministration," a departure from the usual "Doctrine of Lapse." This event was a major spark for the Revolt of 1857.
- **Treaty of 1801:** The subsidiary alliance that had already stripped Awadh of its military power, making the Nawab a titular head under British protection.



- **Fort William:** Originally the seat of the Bengal Presidency, it now serves as a significant repository for historical records and letters from the Nawab's era in Calcutta.

### Conclusion

The shift in narrative from "forced exile" to "thwarted diplomatic mission" adds a new layer to Indian historiography. It portrays Wajid Ali Shah not as a passive, hedonistic ruler—as colonial historians often depicted him—but as a proactive petitioner seeking justice within the British legal framework. His stay in Calcutta ultimately transformed the city's cultural landscape, merging the refined traditions of Lucknow with the cosmopolitan nature of Bengal.

## 5. Tamil Brahmi Inscriptions in Egypt: Mapping Ancient Indo-Roman Trade

The identification of nearly 30 inscriptions in Tamil Brahmi, Prakrit, and Sanskrit within the Valley of the Kings in Egypt marks a significant milestone in maritime archaeology. These findings, dating between the 1st and 3rd Centuries CE, provide empirical evidence of the deep-rooted commercial and cultural exchange between the ancient Tamilagam region and the Roman Empire.

### Core Summary of the Development

- **Archaeological Discovery:** Researchers from the French School of Asian Studies and the University of Lausanne identified Indian inscriptions across six tombs in the Theban Necropolis, Egypt.
- **Linguistic Diversity:** The graffiti includes Tamil Brahmi, Prakrit, and Sanskrit, indicating a multicultural presence of travelers and traders from the Indian subcontinent.
- **Geographical Scope:** While inscriptions represent north-western and western India, the majority are attributed to the southern regions (Ancient Tamilagam), suggesting a dominant role of South Indian maritime guilds.
- **Chronological Context:** The markings date to the 1st–3rd Century CE, aligning with the peak of the Indo-Roman trade period often described in Sangam literature and Roman records.
- **Methodological Link:** The study builds upon the 1926 survey by Jules Baillet, integrating Indian epigraphy into the existing corpus of over 2,000 Greek graffiti marks in the Valley of the Kings.
- **Cultural Footprint:** These "visitor inscriptions" or graffiti, carved on tomb walls and corridors, suggest that Indian merchants or envoys were not just passing through ports but were active participants in the cultural landscape of inland Egypt.



### Key Definitions

- **Tamil Brahmi:** An adaptation of the Brahmi script used to write the Old Tamil language; it is the earliest known script for Tamil, foundational to the Sangam era.
- **Theban Necropolis:** A large area on the west bank of the Nile, opposite Thebes (modern Luxor) in Egypt, containing tombs of pharaohs and powerful nobles of the New Kingdom.
- **Tamilagam:** A geographical region inhabited by the ancient Tamil people, covering present-day Tamil Nadu, Kerala, and parts of Andhra Pradesh and Karnataka.

### Constitutional and Legal Context

- **Article 49 (DPSP):** Obligates the State to protect every monument or place or object of artistic or historic interest, declared by or under law made by Parliament to be of national importance.



- **Ancient Monuments and Archaeological Sites and Remains (AMASR) Act, 1958:** Though the site is in Egypt, this Indian legal framework governs the preservation of similar epigraphical evidence found within India that corroborates these overseas links.
- **UNESCO World Heritage Convention:** The Valley of the Kings is a protected site; such discoveries necessitate international legal cooperation for the documentation and protection of trans-national heritage.

### Additional Key Points

- **Literary Corroboration:** The findings validate descriptions in the *Purananuru* and *Akananuru* (Sangam texts) regarding "Yavana" (Roman/Greek) ships arriving with gold and departing with pepper at ports like Muciri.
- **Economic Integration:** The presence of Indian scripts so far inland from the Red Sea ports (like Berenike or Myos Hormos) suggests that Indian traders moved along the Nile trade routes toward Alexandria.
- **Epigraphical Significance:** This is one of the largest clusters of Indian inscriptions found in a non-port, inland Egyptian context, shifting the narrative from purely coastal trade to deeper territorial engagement.

### Conclusion

The discovery of Tamil Brahmi and Sanskrit inscriptions in the heart of the Egyptian Valley of the Kings serves as a bridge between the archaeological records of the Mediterranean and the Indian Ocean. It reaffirms that ancient India was not a passive recipient of trade but an active, literate, and mobile participant in the earliest waves of globalization. For historians, this provides a tangible physical link that complements the "Periplus of the Erythraean Sea," cementing the status of the Coromandel and Malabar coasts as pivotal hubs of the ancient world.

## 6. Official Protocol for Vande Mataram: National Song Precedence and Decorum

The Ministry of Home Affairs (MHA) has issued a comprehensive set of guidelines on February 6, 2026, formalizing the protocol for the National Song, **Vande Mataram**. The directive aims to ensure uniformity in ceremonial observances as the nation marks the **150th anniversary** of the song's creation. For the first time, a structured sequence and specific behavioral code have been defined for its rendition alongside the National Anthem.

### Core Summary of the Development

- **Order of Precedence:** When both are performed together at an event, the National Song, *Vande Mataram*, must be sung or played **first**, followed immediately by the National Anthem, *Jana Gana Mana*.
- **Official Duration and Version:** The official version now mandated for government functions is approximately **3 minutes and 10 seconds** long, consisting of the original **six stanzas** composed by Bankim Chandra Chatterjee.
- **Standing Protocol:** All members of the audience are required to **stand to attention** whenever the official version is played or sung. An exception is carved out for newsreels or documentaries to prevent public disorder.





- **Ceremonial Occasions:** The song is to be played on specific state occasions: the arrival/departure of the **President** and **Governors** at formal functions, during civil investitures (like the Padma Awards), and on the unfurling of the National Flag.
- **Band and Choir Protocol:** When played by a band, the song will be preceded by a **roll of drums** (7 paces in slow march). Mass singing is encouraged at cultural functions, aided by trained choirs and printed lyrics.
- **Educational Integration:** The guidelines direct all schools to incorporate community singing of the National Song as part of the **daily morning assembly** to promote patriotic values among students.

### Key Definitions

- **National Song:** A patriotic hymn adopted by the government to be sung on public or state occasions. In India, *Vande Mataram* holds this status.
- **National Anthem:** A musical composition (*Jana Gana Mana*) that defines a country's history and identity, governed by strict statutory rules regarding its 52-second duration.
- **Net Proceeds:** In the context of national symbols, the "official version" refers to the specific arrangement (lyrics and duration) authorized by the executive for formal use.

### Constitutional and Legal Context

- **Article 51A(a):** While it is a **Fundamental Duty** of every citizen to respect the National Flag and the **National Anthem**, the Constitution does not explicitly mention the National Song. However, it is held in "equal status" per a 1950 presidential statement.
- **January 24, 1950 Declaration:** Dr. Rajendra Prasad stated in the Constituent Assembly that *Vande Mataram* shall be honored equally with *Jana Gana Mana* due to its historic role in the freedom struggle.
- **Prevention of Insults to National Honour Act, 1971:** While this Act primarily penalizes insults to the Flag and Anthem, the new MHA guidelines provide an administrative framework for maintaining the dignity of the National Song.
- **Article 25:** Recent legal debates have touched upon whether mandating certain stanzas of the song (containing religious imagery) conflicts with the **Freedom of Religion**, though the government maintains it is a secular salutation to the motherland.

### Additional Key Points

- **Historical Truncation:** Previously, only the first two stanzas were used officially (a practice dating back to 1937) to avoid religious controversies. The 2026 guidelines restore the full **six-stanza** version.
- **150th Anniversary:** The guidelines coincide with a year-long celebration (November 2025 – November 2026) launched by the Prime Minister to commemorate the song's composition in 1875.
- **Symbolic Value:** Written in a mix of Sanskrit and Bengali, the song first appeared in the novel *Anandmath* (1882) and became a rallying cry against the 1905 Partition of Bengal.

### Conclusion

The 2026 MHA guidelines represent a significant shift from traditional informal usage to a strict, regulated protocol for the National Song. By placing it before the National Anthem and mandating the full six-stanza version, the government aims to elevate its ceremonial standing to match its historical importance. While



this ensures administrative uniformity, it also reignites constitutional debates regarding the mandatory nature of national symbols and the balance between patriotic expression and individual religious freedom.

## EDITORIALS & OPINION

### 1. MPLADS Controversy and Performance: A Comprehensive Analysis

The Member of Parliament Local Area Development Scheme (MPLADS) has recently come under the scanner following allegations of fund diversion across state boundaries. While the scheme remains a vital tool for localized development, it continues to spark debates regarding its constitutional validity and administrative efficiency.

#### Summary of Key Developments

- **Inter-State Fund Allocation:** A recent controversy in Rajasthan involving three Congress MPs highlighted a provision in the **MPLADS Guidelines (2023)** that allows elected MPs to recommend projects worth up to **₹50 lakh per financial year** outside their designated constituency or state.
- **Funding and Scope:** MPLADS is a **Central Sector Scheme** fully funded by the Union Government. Each MP is entitled to **₹5 crore annually** to recommend works creating "durable community assets" (e.g., water, sanitation, education, and roads).
- **Expenditure Trends:** Data from the 18th Lok Sabha shows that out of **₹5,486 crore** allocated, approximately **₹1,453.69 crore** has been utilized so far. Historically, fund utilization improved from the 14th Lok Sabha (99.01%) to the 16th Lok Sabha (91.3%), though the 17th Lok Sabha faced a dip due to the COVID-19 suspension.
- **Technological Transparency:** The integration of the **e-SAKSHI portal** and mandatory **geotagging** of assets has enhanced public monitoring. Some MPs, such as Iqra Choudhary, have been lauded for maintaining real-time digital transparency of their projects.
- **Calamity Provisions:** In cases of a "**calamity of severe nature**," the guidelines permit an MP to recommend works up to **₹1 crore** for any affected district in the country, providing a mechanism for national solidarity during disasters.
- **Implementation Mechanism:** The role of the MP is strictly **recommendatory**. The actual execution, sanctioning (within 75 days), and monitoring are handled by the **District Authority** (District Collector/Magistrate).

#### Key Definitions

- **Central Sector Scheme:** A scheme 100% funded and implemented by the Central Government, unlike Centrally Sponsored Schemes where states share the cost.
- **Durable Assets:** Physical infrastructure intended for community use that has a long life, such as school buildings or hospitals, excluding recurring expenses like repairs or staff salaries.

#### Evaluation Report

on

#### Member of Parliament

#### Local Area Development Scheme



- **Nodal District:** The district chosen by an MP (particularly Rajya Sabha or Nominated members) to manage the release and accounting of their MPLADS funds.

### Constitutional and Legal Provisions

- **Article 282:** The Supreme Court in *Bhim Singh vs. Union of India (2010)* upheld the constitutionality of MPLADS under this Article. It allows the Union to make grants for any "**public purpose**" even if the subject (like local roads) falls under the State List.
- **Separation of Powers:** Critics often argue MPLADS blurs the line between the Legislature and Executive. However, the judiciary ruled that since MPs only "recommend" and do not "execute" the work, there is no violation of the separation of powers.
- **Lapsable vs. Non-Lapsable:** Unlike many other budget heads, MPLADS funds are **non-lapsable**. If an MP does not use the ₹5 crore in one year, the balance is carried forward to the next year within their term.

### Conclusion

MPLADS serves as a unique bridge between macro-level legislative policy and micro-level grassroots needs. While controversies regarding political motivation or underutilization persist, the scheme's judicial backing and recent digital reforms suggest it remains an essential component of India's developmental architecture. The focus must now shift from "scrapping" the scheme to "skilling" the representatives on effective fund deployment and ensuring that "durable assets" translate into "durable outcomes" for the rural and urban poor.

## 2. The Hallyu Wave in India: Socio-Psychological and Strategic Implications

The **2024 Overseas Hallyu Survey** by the Korean Foundation for International Cultural Exchange (KOFICE) reveals that India has emerged as the global leader in K-content consumption. While this highlights deepening cultural ties, a tragic suicide case in Ghaziabad involving three sisters has sparked an urgent national debate on the psychological "addiction" to foreign pop culture and the risks of extreme fandom.

- **Global Consumption Leader:** Indian consumers spend an average of **18.6 hours** per month on K-content (K-Pop, K-Dramas, etc.), the highest among 26 surveyed nations, surpassing Thailand (**18.4 hours**) and Indonesia (**17.0 hours**).
- **High Favourability Rating:** Approximately **84.5%** of Indian respondents view Korean cultural content positively, leading to a surge in demand for Korean fashion, skincare (K-Beauty), and language learning (Korean is now the 4th most accessed language on Duolingo in India).
- **The "Dark Side" of Fandom:** Extreme attachment, often termed "Parasocial Relationships," has led to cases of identity loss, cultural disconnection, and mental health crises among Indian adolescents, as seen in the recent Ghaziabad tragedy.
- **Digital Addiction and Escapism:** The Economic Survey 2024-25 flagged a worrying rise in screen-related mental health issues. K-content often serves as a form of "escapism," which, when unregulated, transitions into digital addiction and social isolation.
- **Soft Power and Glocalization:** The "Hallyu" (Korean Wave) serves as a potent tool for South Korea's soft power diplomacy. In India, this has evolved through "glocalization," where local audiences contextualize Korean themes of family and tradition, which resonate with Indian values.



- **Economic Cross-Pollination:** The craze has direct economic impacts, with Korean food imports to India growing by over **160%** in recent years and K-beauty imports rising **50%** year-on-year, creating a specialized market segment.

### Key Definitions

- **Hallyu (Korean Wave):** A Chinese term meaning "Korean Wave," referring to the global surge in popularity of South Korean culture since the late 1990s.
- **Parasocial Interaction:** A one-sided relationship where a media consumer develops a strong emotional or "intimate" bond with a celebrity or fictional character, often leading to unrealistic expectations in real life.
- **Glocalization:** The adaptation of global cultural products to fit local tastes and traditional contexts, making them more relatable to a specific domestic audience.

### Constitutional & Legal Provisions

- **Article 21:** The Supreme Court has expanded the Right to Life to include the **Right to Health**, which encompasses mental well-being and a "dignified environment" for children.
- **Article 39(f):** A Directive Principle mandating the State to ensure children are given opportunities to develop in a healthy manner and protected against moral and material abandonment.
- **Mental Healthcare Act, 2017:** Provides a legal framework to protect the rights of persons with mental illness and mandates the government to provide affordable mental health services.
- **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021:** Aimed at regulating content on OTT platforms and social media to protect minors from harmful or addictive content.

### Government Initiatives for Mental Well-being

- **Tele MANAS (2022):** A 24/7 toll-free helpline (14416) providing mental health counseling across India.
- **National Suicide Prevention Strategy (NSPS):** India's first policy framework aimed at reducing suicide mortality by **10%** by 2030 through school-based interventions and crisis centers.
- **MANAS App:** A mobile-based platform launched to promote mental well-being and offer self-care tools for stress management.

### Conclusion

While the Hallyu wave fosters international cultural exchange and boosts economic ties between India and South Korea, its "intensive" consumption by the youth necessitates a balanced approach. The shift from "admiration" to "obsession" highlights a critical gap in digital literacy and mental health support. Addressing this requires a multi-stakeholder approach involving parents, educators, and policy-makers to ensure that global cultural trends enrich Indian youth without compromising their psychological stability.

## INDIA TOPS WATCH-TIME FOR KOREAN CONTENT

A Ghaziabad suicide case involving three minor sisters has reignited concerns over extreme attachment to Korean pop culture. A South Korean government survey shows Indian K-pop consumers spend 18.6 hours a month on such content—the highest among 26 countries surveyed.

How K-pop consumers in each country engage with such content

	Time spent (hours per month per person)	Favourability (share in %)*
India	18.6	84.5
Thailand	18.4	83.0
Indonesia	17.0	86.3
Vietnam	16.4	82.9
South Africa	14.8	77.1
Brazil	14.2	75.6
Egypt	13.4	75.8
Malaysia	13.0	78.0
UAE	12.9	83.0
China	12.8	72.1

Note: The survey took place online during Oct-Nov 2023, covering only those who had experienced Korean cultural content. The sample had 25,000 persons aged 15-59 in 26 countries, including 1,600 from India. \*Refers to the share of respondents who said they had 'liked' or 'liked very much' the K-content they had watched.

Data: Rupanjan Chauhan;  
Graphic: Gopakumar Warrior

Source: 2024 Overseas Hallyu Survey, Korean Foundation for International Cultural Exchange (KOFICE)



### 3. The Geopolitics of Energy Leverage: Why Canada Cannot Mirror China's Rare Earth Strategy

As trade tensions escalate between the U.S. and Canada in early 2026, parallels are being drawn between Canada's oil reserves and China's "Rare Earth" leverage. However, structural and geographical realities prevent Ottawa from weaponizing its energy exports. While China dominates the global supply chain of critical minerals, Canada's oil industry is physically and economically tethered to U.S. infrastructure. The current friction, exacerbated by President Trump's threats to block the **Gordie Howe International Bridge** and Canada's strategic reset with China and India, highlights the vulnerability of "Middle Powers" in an era of weaponized interdependence.

#### Summary of Key Developments

- **The "Oil-for-Rare-Earths" Fallacy:** Unlike China, which controls 70-90% of global rare earth refining, Canada's oil exports (95% of which go to the U.S.) are "landlocked" by a pipeline network that necessitates transit through U.S. soil.
- **Geographical Infrastructure Hurdles:** A significant portion of Canada's western oil must pass through U.S. pipelines to reach eastern Canadian provinces, creating a "forced collaboration" where any Canadian export restriction would jeopardize its own domestic energy security.
- **Bridge as a Flashpoint:** The \$4.7 billion Gordie Howe International Bridge (Windsor-Detroit), financed by Canada, has become a bargaining chip; the U.S. is demanding partial ownership and compensation as a prerequisite for its 2026 opening.
- **Diversification vs. Dependency:** Prime Minister Mark Carney's "China Reset" and recent energy dialogues with India (India Energy Week 2026) aim to reduce the 98% energy export dependency on the U.S., though analysts warn these shifts will take years to materialize.
- **The "Middle Power" Crisis:** At Davos 2026, PM Carney noted that the "rules-based order is fading," advocating for a "Third Way" where middle powers like Canada and India collaborate to resist the "might makes right" logic of hegemons.
- **Market Mismatch:** While the U.S. is a net oil exporter, its refineries are specifically "tuned" to the heavy sour crude produced in Canada (WCS), making the relationship mutually dependent but asymmetrical in terms of political leverage.

#### Key Definitions

- **Rare Earth Elements (REEs):** A group of 17 chemical elements essential for high-tech applications, including EVs and defense systems, where China holds a near-monopoly on refining.
- **Weaponized Interdependence:** A strategy where states exploit their central position in global networks (like pipelines or financial systems) to coerce others.
- **Middle Power:** A state that is not a superpower but still has large or moderate influence and international recognition (e.g., Canada, India, Australia).

#### Constitutional & Legal Provisions

- **Section 121 (Constitution Act, 1867):** Originally intended to ensure free trade between Canadian provinces, though recent interpretations have struggled with interprovincial pipeline barriers that force oil through the U.S.
- **Article 103 (USMCA/CUSMA):** The "General Provisions" of the trade agreement which govern regional cooperation but are under strain due to the 2026 review and renegotiation clause.



- **Energy Safety and Security Act:** Federal legislation in Canada that governs the management of energy resources during national emergencies or trade wars.

## Conclusion

Canada's inability to leverage its oil like China leverages rare earths is a matter of **"Infrastructure Entrapment."** While Canada is the U.S.'s largest energy supplier, it lacks "Tidewater Access" (the ability to ship oil directly to global markets without passing through a neighbor). Until projects like the Trans Mountain Expansion (TMX) or new east-bound pipelines are fully integrated with global buyers like India and China, Canada remains a "price-taker" rather than a "price-maker," illustrating the strategic necessity of infrastructure diversification for national sovereignty.

# ETHICS

## 1. Regional Medical Hubs and AYUSH: Positioning India as a Global Wellness Capital

The Union Budget 2026 introduces a strategic roadmap to establish India as the premier destination for Medical Value Tourism (MVT). By integrating modern medical infrastructure with traditional AYUSH systems, the government aims to leverage India's "soft power" while generating high-skilled employment.

- **Establishment of Regional Medical Hubs:** The government will support States in setting up five Regional Medical Hubs through Public-Private Partnerships (PPP). These hubs will act as integrated healthcare complexes providing specialized medical services, diagnostics, and research facilities under a single roof to streamline the experience for international patients.
- **Focus on Medical Value Tourism (MVT):** To boost forex earnings, these hubs will feature dedicated MVT Facilitation Centres. These centers are designed to handle end-to-end requirements for medical tourists, including post-treatment care and rehabilitation, which have historically been fragmented in India.
- **Institutional Expansion of AYUSH:** The budget proposes three new All India Institutes of Ayurveda (AIIA) to scale up evidence-based traditional healthcare. This expansion aims to standardize Ayurvedic education and clinical protocols to meet international regulatory expectations.
- **Quality Assurance and Standardization:** To ensure global trust, the budget allocates funds for the upgradation of AYUSH pharmacies and Drug Testing Laboratories. This is a critical step toward achieving higher standards of certification and ensuring the safety and efficacy of traditional medicines.
- **Global Research Leadership:** The WHO Global Traditional Medicine Centre in Jamnagar will be upgraded to bolster India's position as a leader in evidence-based research. This center will serve as a global repository for traditional medicine knowledge and a hub for training and global awareness.

UNION BUDGET 2026-27

Expanding Economy through Strengthening Tourism

- To launch a **Scheme to support States** in establishing **Five Regional Medical Hubs**, in partnership with the private sector
- These Medical Hubs to have **AYUSH Centres, Medical Value Tourism Facilitation Centres** and infrastructure for **diagnostics, post-care and rehabilitation**
- To set up a **National Institute of Hospitality** by upgrading the existing National Council for Hotel Management and Catering Technology
- Pilot scheme for upskilling **10,000 guides in 20 iconic tourist sites** through a standardized, high-quality **12-week training course** in hybrid mode, in collaboration with an **IIM**

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- **Economic and Employment Potential:** Beyond healthcare, the sector is viewed as a major driver for the rural economy (medicinal plant farming) and youth employment (processing and value addition). The Ministry of AYUSH received a significant allocation of ₹4,408 crore to drive these initiatives.

### Key Definitions

- **Medical Value Tourism (MVT):** Also known as medical travel, it refers to people traveling abroad to receive medical, dental, or surgical care while simultaneously benefiting from the environment of the destination country.
- **AYUSH:** An acronym for Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homoeopathy; representing India's diverse systems of traditional and alternative medicine.
- **Allied Health Professionals (AHPs):** Healthcare workers (other than doctors/nurses) like lab technicians and physiotherapists who provide a range of diagnostic, technical, and therapeutic services.

### Constitutional and Legal Provisions

- **Article 47 (DPSP):** Directs the State to regard the improvement of public health as its primary duty.
- **Seventh Schedule (List II, Entry 6):** Public health and sanitation, including hospitals and dispensaries, fall under the State List; hence, the Centre supports States through schemes.
- **Drugs and Cosmetics Act, 1940:** Chapter IVA specifically regulates Ayurvedic, Siddha, and Unani drugs to ensure quality and safety.
- **National Commission for Indian System of Medicine (NCISM) Act, 2020:** Governs the education and practice of traditional medicine systems in India.

### Additional Keypoints for Analysis

- **Heal in India Initiative:** These budget measures align with the broader 'Heal in India' campaign to promote the country as a high-quality, cost-effective healthcare destination.
- **AYUSH Visa:** The introduction of a dedicated 'AYUSH Visa' category in recent years complements these hubs by simplifying entry for foreign nationals seeking traditional treatments.
- **Evidence-Based Integration:** The push for "integrated medicine" (combining Allopathy with AYUSH) is a central theme, aiming to move away from treating them as competing systems.

### Conclusion

The 2026 Budgetary focus on Regional Medical Hubs marks a transition from "incidental" medical tourism to a "structured" healthcare export industry. By combining advanced diagnostics with the global appeal of Ayurveda and Yoga, India is positioning itself not just as a provider of low-cost surgery, but as a leader in holistic, life-cycle wellness.

## 2. The Mineable Self: Human Sociality as the New Global Commodity

In a seminal thesis, Arjun Appadurai argues that the latest frontier of capitalist extraction is no longer physical labor or rare minerals, but the **human self**. This "infinitely renewable" commodity is being mined through our digital interactions, social affinities, and personal narratives, transforming the core of human identity into a super-commodity for the global market.



- **Transition from Industrial to Digital Extraction:** While traditional capitalism focused on "surplus value" from labor, modern digital capitalism extracts value from **human sociality**. Our friendships, family ties, and ephemeral digital footprints are now raw materials for "profiling on steroids."
- **The Global Story Market:** There is a ceaseless hunt for "portable" narratives—local folklore and mythologies from the Global South are troll-mined by publishers and film festivals for their "local flavor" and "universal themes," making locality a resource for global extraction.
- **Impact of OTT and "The Ordinary":** Over-The-Top (OTT) streaming platforms have colonized the media market by shifting from big-studio models to a "democratization of the self." This relies on "extraordinarily ordinary" characters, turning everyday human vulnerabilities into marketable content.
- **Fragmentation of the Individual:** The classical, unified individual is being replaced by an unstable composite of **algorithmic data points**, such as credit scores, consumer profiles, and actuarial charts. The "source of the self" has evolved into the "source of the selfie," where visibility is equated with social and economic worth.
- **The Role of AI and Siri/ChatGPT:** AI bots are now in a race to simulate human emotions and intuitions. This strange symbiosis between the "mineable self" and "artificial intelligence" blurs the line between authentic human judgment and programmed response, making personhood performative.
- **Democratization vs. Exploitation:** While the digital era offers individuals the "right to a story" through YouTube or influencers, it simultaneously renders privacy and trust obsolete, as every act of living becomes a potentially mined and monetized data point.



### Key Definitions

- **Mineable Self:** A concept where an individual's identity, emotions, and social relationships are treated as a renewable resource for economic extraction and data profiling.
- **Surplus Value:** In Marxian terms, the value produced by labor in excess of the cost of that labor; in the digital context, it refers to data generated by users beyond what is needed for the service itself.
- **Parasocial Interaction:** A one-sided relationship where a digital consumer develops an intimate emotional bond with a media character or influencer, which is then monetized by platforms.
- **Mediascapes:** A term coined by Appadurai referring to the distribution of the electronic capabilities to produce and disseminate information and the images of the world created by these media.

### Constitutional & Legal Provisions

- **Right to Privacy (Article 21):** The Supreme Court in the *K.S. Puttaswamy* judgment declared privacy as a fundamental right, directly challenging the "unbounded mining" of personal sociality.
- **Digital Personal Data Protection (DPDP) Act, 2023:** India's primary legislation to regulate the processing of digital personal data, aiming to balance the right of individuals to protect their data with the need for lawful processing.



- **Article 51-A (h):** Encourages the development of a scientific temper and spirit of inquiry, which in the digital age includes "digital literacy" to understand how one's data is being commodified.
- **IT (Intermediary Guidelines) Rules, 2021:** Seeks to hold social media and OTT platforms accountable for content and data practices that impact individual dignity and social harmony.

### UPSC Relevance

- **GS Paper I:** Indian Society (Impact of globalization and digital culture on traditional social institutions and identity).
- **GS Paper III:** Science and Technology (AI and data as commodities); Internal Security (Challenges to privacy and data sovereignty).
- **GS Paper IV (Ethics):** Ethical issues in "Surveillance Capitalism" and the commodification of human emotions and relationships.

### Conclusion

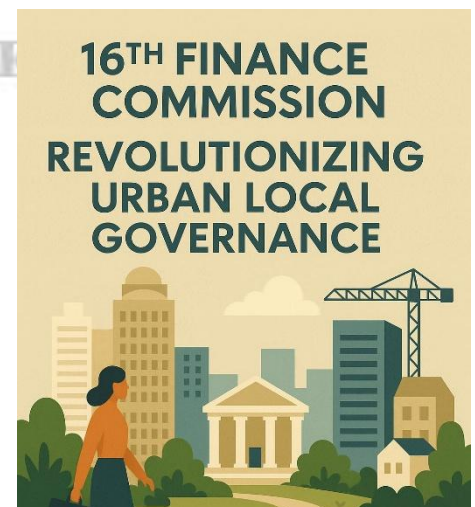
The rise of the "mineable self" represents a profound reorganization of the global economy, where human experience itself is the primary site of accumulation. While this offers unprecedented visibility and "democratization," it risks eroding the foundations of privacy and authentic social trust. For a developing nation like India, the challenge lies in leveraging digital growth while strengthening the regulatory and ethical guardrails that protect the "sovereignty of the self" from total commodification.

## YOJANA & KURUKSHETRA

### 1. 16th FINANCE COMMISSION: Revolutionizing Urban Local Governance

The 16th Finance Commission (FC), headed by Dr. Arvind Panagariya, has recommended a monumental shift in India's fiscal federalism by tripling the grants for Urban Local Bodies (ULBs). Tabled in Parliament on February 1, 2026, the report acknowledges the "rural-to-urban transition" as a core economic driver, allocating **₹3.56 lakh crore** specifically for urban governance over the 2026-31 period.

- **Unprecedented Financial Outlay:** The commission recommended a total grant of **₹3.56 lakh crore** for ULBs, a **230% increase** from the ₹1.55 lakh crore allocated by the 15th FC. This aligns with the massive capital investment (estimated at \$840 billion by 2036) required to meet India's growing urban infrastructure needs.
- **Structural Rebalancing of Local Grants:** For the first time, the urban share within the total Local Government grants has been raised to **45%** (up from 36%). This reflects the shifting demographic reality where peri-urban areas and statutory towns are increasingly contributing to the national GDP.
- **Urbanization Premium Grant:** A dedicated **₹10,000 crore** "Urbanization Premium" has been introduced to incentivize the conversion of census towns into statutory towns. States can claim this as a one-time grant (**₹2,000 per person**) upon formulating a transparent "Rural to Urban Transition Policy."





- **Focus on Wastewater & Drainage: A Special Infrastructure Component of ₹56,100 crore** is earmarked for comprehensive wastewater management. This targets **22 selected mid-sized cities** (e.g., Pune, Jaipur, Madurai, Howrah) that often lack the fiscal depth of mega-metros to fund large-scale drainage revamps.
- **Fiscal Autonomy and "Untied" Grants:** In a major push for municipal financial independence, the share of "untied" grants—which cities can use for location-specific needs—has been increased to **52%** (previously 21%). However, these cannot be used for salaries or establishment expenses.
- **Digital and Revenue Reforms:** The report mandates a digital overhaul, including **GIS-based digital property tax registers** linked to city master plans. Performance-linked grants (20% of the total) are now strictly tied to a minimum **5% annual growth** in the city’s Own Source of Revenue (OSR).

**CONSTITUTIONAL AND LEGAL PROVISIONS**

- **Article 280(3)(bb) & (c):** These clauses mandate the Finance Commission to recommend measures to augment the Consolidated Fund of a State to supplement the resources of Panchayats and Municipalities.
- **74th Constitutional Amendment Act (1992):** Established Urban Local Bodies (Nagarpalikas) as the third tier of government. It also mandated the creation of **State Finance Commissions (SFCs)** to review the financial position of municipalities.
- **Article 243W:** Powers, authority, and responsibilities of Municipalities, specifically listed in the **12th Schedule** (18 functional items).
- **Article 243Y:** Deals with the recommendations of the State Finance Commission regarding the financial health of Municipalities.

**KEY DEFINITIONS**

- **Divisible Pool:** The portion of Central Taxes (Income Tax, Corporation Tax, etc.) that is shared between the Centre and the States. The 16th FC maintained this at **41%**.
- **Statutory Town:** An area with a municipality, corporation, cantonment board, or notified town area committee.
- **Census Town:** An area that satisfies urban criteria (population > 5000; 75% male working pop. in non-agri; density > 400/sq km) but is still governed as a village.
- **Tied vs. Untied Grants:** **Tied grants** are earmarked for specific sectors (e.g., sanitation, water), whereas **untied grants** provide local bodies the flexibility to address local priorities.

**BREAKDOWN OF ULB GRANTS (2026-31)**

Component	Allocation (₹ Crore)	Primary Objective
Basic Grants	2,32,125	Core services (50% tied to Water/Sanitation)
Performance Component	58,032	Rewarding 5% growth in Own Source Revenue
Special Infrastructure	56,100	Wastewater management in 22 selected cities
Urbanization Premium	10,000	Incentivizing rural-to-urban transition
<b>Total ULB Grant</b>	<b>3,56,257</b>	<b>Historic 230% increase over 15th FC</b>



## CONCLUSION

The 16th Finance Commission has effectively moved beyond "incrementalism" to "transformation" in urban funding. By introducing the **Urbanization Premium** and emphasizing **Wastewater Management**, the commission recognizes that India's future growth is intrinsically linked to the efficiency of its mid-sized cities. However, the successful utilization of these record-high grants will depend on the "absorptive capacity" of ULBs and the state's willingness to implement tough property tax reforms.

## 2. India's Blue Economy Mission and Andhra Pradesh's Strategic Role

Union Minister Dr. Jitendra Singh has highlighted that the **Union Budget 2026-27** serves as a strategic roadmap for the "Blue Economy," with Andhra Pradesh and other coastal states acting as the primary drivers. The budget integrates fisheries, marine exports, and critical mineral corridors into a cohesive framework aimed at achieving the vision of **Viksit Bharat 2047**.

- **National Priority Status:** The Blue Economy has been elevated to a "National Priority Mission," focusing on the sustainable exploitation, preservation, and regeneration of marine resources to boost India's GDP.
- **Deep-Sea Fishing Reforms:** In a major policy shift, the budget allows duty-free fishing by Indian-flagged vessels in the **Exclusive Economic Zone (EEZ)** and high seas. Furthermore, fish landings at foreign ports are now officially recognized as "exports," enhancing global competitiveness.
- **Marine Infrastructure Integration:** The mission emphasizes the modernization of reservoirs, the creation of cold-chain networks, and the development of 34 designated production and processing clusters to reduce post-harvest losses.
- **Rare Earth and Critical Minerals Corridor:** Andhra Pradesh is set to host a specialized corridor for rare earth elements. This links maritime logistics with next-generation manufacturing, focusing on minerals essential for green energy and high-tech sectors.
- **Strategic Industrial Corridors:** The budget advances the integration of ports with high-speed rail and industrial clusters on the eastern coast, creating a seamless logistics architecture for global supply chain participation.
- **Three Pillars of Budget 2026-27:** The roadmap is built on **Productivity, Resilience, and Inclusivity**, ensuring that growth in the blue ocean sector also empowers coastal communities, women-led SHGs, and MSMEs.



### Key Definitions

- **Blue Economy:** The sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of the ocean ecosystem.
- **Exclusive Economic Zone (EEZ):** A sea zone prescribed by the UNCLOS over which a state has special rights regarding the exploration and use of marine resources, extending 200 nautical miles from the coast.
- **Deep Ocean Mission (DOM):** A multi-ministerial mission to explore the deep ocean for resources (like polymetallic nodules) and develop deep-sea technologies like the **MATSYA-6000** submersible.



### Constitutional & Legal Provisions

- **Article 297:** Specifies that all lands, minerals, and other things of value underlying the ocean within the territorial waters, the contiguous zone, or the EEZ of India vest in the Union.
- **The Territorial Waters, Continental Shelf, Exclusive Economic Zone and Other Maritime Zones Act, 1976:** Provides the legal framework for India's maritime rights and jurisdiction.
- **Customs Act, 1962 (Proposed Amendment 2026):** To be amended (specifically Section 1 and adding Section 56A) to extend jurisdiction for fishing activities and allow duty-free treatment of catch from the EEZ.
- **United Nations Convention on the Law of the Sea (UNCLOS):** The international "Constitution for the Oceans" that defines the rights and responsibilities of nations with respect to their use of the world's oceans.

### Additional Key Points

- **Polavaram Project:** The budget allocated ₹3,320 crore for the completion of the Polavaram Irrigation Project, which is vital for the water security and agricultural productivity of Andhra Pradesh.
- **Rare Earth Potential:** India possesses roughly 11 million tonnes of monazite (a rare earth source), with Andhra Pradesh holding a significant share (approx. 3.69 million tonnes).
- **Digital Integration:** The use of the **ReALCRaft portal** and the **Nabhmitra app** is being scaled up to ensure the safety of fishermen and the sustainable management of deep-sea resources.

### Conclusion

The Union Budget 2026-27 marks a decisive shift from coastal-only thinking to a "Blue Ocean" strategy. By leveraging Andhra Pradesh's long coastline and integrating it with advanced mineral corridors and irrigation projects, the government aims to transform coastal states from mere geographical boundaries into vibrant economic engines.

## 3. Regulatory Oversight of Artificial Intelligence: The IT Amendment Rules 2026

The Union Government has notified the **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Amendment Rules, 2026**, marking a decisive step in regulating the burgeoning field of Generative AI. Effective from **February 20, 2026**, these rules mandate the prominent labelling of "synthetically generated information" (SGI) and introduce ultra-short timelines for the removal of illegal content. This reform seeks to balance technological innovation with the need to protect citizens from digital harms like deepfakes, misinformation, and non-consensual intimate imagery.

### Summary of Key Developments


- **Mandatory AI Labelling:** All "photorealistic" AI-generated content must be clearly and prominently labelled as synthetic. This ensures that users can immediately distinguish between real-world events and algorithmically created media.
- **Compressed Takedown Timelines:** The window for removing unlawful content has been slashed from 36 hours to just **3 hours** for court or government-ordered removals. For sensitive content like non-consensual deepfakes or nudity, platforms must act within **2 hours**.
- **Loss of Safe Harbour:** Platforms that "knowingly permit" or fail to act against unlabelled synthetic content risk losing their "Safe Harbour" protection under **Section 79** of the IT Act, 2000, potentially making them liable for user-posted content.



- **User Disclosure Obligations:** Social media intermediaries must now require users to declare at the point of upload whether their content is AI-generated. Platforms are expected to use automated tools to verify these declarations.
- **Traceability and Metadata:** Intermediaries are required to embed persistent metadata or technical provenance markers (unique identifiers) into AI content to enable its tracing back to the source platform.
- **Definition of Synthetic Media:** The rules define **Synthetically Generated Information (SGI)** as audio, visual, or audio-visual info created or modified using computer resources that appears "real, authentic, or true."

### Content check

Platforms that enable creation or sharing of synthetic content must ensure **clear and prominent labelling** under the new rules



**Key changes include:**

- Synthetic content to be treated as 'information' for determining unlawful acts under IT Rules
- Timeline for platforms to act on government or court orders reduced from 36 hours to **3 hours**
- Sensitive content, including non-consensual deepfake, must be removed within **2 hours**
- Platforms to seek **disclosures from users** for AI-generated content

### Key Definitions

- **Synthetically Generated Information (SGI):** Information created or altered algorithmically that is indistinguishable from real-world events or natural persons.
- **Safe Harbour:** A legal provision (Section 79 of IT Act) that protects intermediaries (like X or YouTube) from being held liable for third-party data or content, provided they follow "due diligence" and government takedown orders.
- **Metadata/Provenance Markers:** Digital "watermarks" or data embedded within a file that provide information about its origin, creation time, and the tools used for modification.

### Constitutional and Legal Provisions

- **Article 19(1)(a) & 19(2):** While citizens have the right to free speech, the government can impose "reasonable restrictions" in the interests of public order, decency, and the sovereignty of India—grounds often cited for takedown orders.
- **Article 21 (Right to Privacy):** The Supreme Court in the *Puttaswamy* judgment identified privacy as a fundamental right. Mandatory removal of non-consensual deepfakes is a direct protection of digital dignity under Article 21.
- **Section 79 of the IT Act, 2000:** The primary statute governing intermediary liability. The 2026 Rules are a form of "delegated legislation" that specifies the "due diligence" platforms must perform to keep this immunity.
- **Information Technology Rules, 2021:** The parent rules which these 2026 amendments update, establishing the framework for grievance officers and digital ethics.

### Conclusion

The 2026 IT Amendments reflect a shift toward "**proactive accountability**" rather than reactive moderation. By mandating labels and near-instant takedowns, India is positioning itself as one of the first major economies to implement a "trust-based" digital architecture for the AI era. While the move strengthens digital safety, its success will depend on the technical capacity of platforms to distinguish between malicious deepfakes and harmless "smartphone touch-ups," which have been explicitly exempted from these rules.



# PIB & PARLIAMENTARY RESEARCH STUDIES (PRS)

## 1. IIT COUNCIL ADAPTIVE JEE-ADVANCED: Reducing Stress Through Technology

The IIT Council has recommended exploring a transition from the traditional linear Joint Entrance Examination (JEE)-Advanced to a **Computerized Adaptive Testing (CAT)** model. The move aims to modernize one of India's most rigorous exams by focusing on conceptual depth over rote-learned shortcuts, potentially redefining the high-stakes entrance landscape by 2028.

- **Shift from Linear to Adaptive:** Unlike traditional "linear" tests where all candidates face the same fixed set of questions, an adaptive test adjusts in real-time. It typically begins with a medium-difficulty question; a correct response triggers a harder follow-up, while an incorrect one prompts an easier question to recalibrate the assessment of the student's ability.
- **Psychometric Precision via IRT:** The proposal utilizes **Item Response Theory (IRT)**, a scientific model where scores are not merely based on the number of correct answers but on the **difficulty and discrimination parameters** of the specific questions solved. This allows for a more precise estimation of a candidate's "latent ability" ( $\theta$ ) with fewer questions.
- **Mitigating "Coaching Culture":** By dynamically generating or selecting questions, adaptive testing targets innate aptitude and critical thinking. The IIT Council argues this will reduce the efficacy of "test-cracking" patterns taught at coaching hubs, thereby lowering the financial and emotional burden on families.
- **Legal Challenges under Article 14:** In India, the "Right to Equality" is often perceived as "equal questions for all." Moving to a model where candidates see different questions may invite litigation. Success depends on the transparency of the **normalization process** and ensuring the algorithm is non-arbitrary and equitable.
- **Technological Infrastructure Demands:** A reliable CAT requires a massive, pre-calibrated "item bank" and lag-free digital infrastructure, especially in Tier-3 cities. Any technical glitch during the exam could be legally classified as maladministration, necessitating robust grievance redressal mechanisms.
- **Phased Roadmap (2026-2028):** The council has proposed a two-year pilot phase starting in 2026. This includes free, optional adaptive mock tests to calibrate question banks and familiarize students with the interface before a potential full-scale implementation.



### CONSTITUTIONAL AND LEGAL PROVISIONS

- **Article 14 (Right to Equality):** Guarantees equality before the law. In examinations, this necessitates that any "reasonable classification" or difference in treatment (like different questions) must have an **intelligible differentia** and a **rational nexus** with the object of selecting the best talent.
- **Doctrine of Non-Arbitrariness:** A sub-facet of Article 14, which mandates that state-led assessment processes must be fair, logical, and transparent.



- **Information Technology Act, 2000:** Governs the security and integrity of digital examinations and data privacy of candidates.

**KEY DEFINITIONS**

- **Item Response Theory (IRT):** A psychometric paradigm for the design, analysis, and scoring of tests that measures the relationship between an individual's performance and their overall level of a latent trait (e.g., intelligence or math skill).
- **Normalization:** A statistical process used to compare scores from different sets of questions (or different exam shifts) to ensure fairness.
- **Psychometric Calibration:** The process of pre-testing questions on a sample population to determine their exact difficulty and reliability before using them in the final exam.

**COMPARISON: LINEAR VS. ADAPTIVE TESTING**

Feature	Traditional Linear Test	Computerized Adaptive Test (CAT)
Questions	Same for all candidates.	Tailored to individual performance.
Test Length	Fixed (e.g., 3 hours, 60 questions).	Variable; shorter for high/low ability.
Scoring	Count of correct answers (Raw score).	Weighted based on question difficulty ( $\theta$ ).
Stress Level	High (exposure to too-hard items).	Lower (targets student's current level).
Security	High risk of question leakage.	Low risk as question paths vary.

**CONCLUSION**

The transition to adaptive JEE-Advanced marks a paradigm shift in Indian pedagogy. While it promises to dismantle the "one-size-fits-all" pressure and the coaching-driven "pattern matching" approach, its success hinges on **algorithmic transparency** and **infallible technology**. If implemented successfully, it could set a gold standard for other major Indian exams like NEET and UPSC.

**2. Strategic Evolution: India Semiconductor Mission (ISM) 2.0**

The Union Budget 2026–27 launched **India Semiconductor Mission (ISM) 2.0**, marking a transition from foundational infrastructure to ecosystem consolidation. With a specialized allocation of **₹1,000 crore** for FY 2026–27 (under a broader ₹8,000 crore modified incentive outlay), ISM 2.0 targets advanced manufacturing nodes, indigenous intellectual property (IP), and the domestic production of semiconductor equipment and chemicals.

- **Broadened Ecosystem Scope:** Unlike the fabrication-centric focus of ISM 1.0, the 2.0 phase prioritizes the "entire value chain," including semiconductor-grade chemicals, gases, and specialized machinery—critical bottlenecks that are currently heavily import-dependent.
- **Technological Leap to Advanced Nodes:** The mission sets a clear roadmap to move beyond legacy 28 nm nodes to cutting-edge **3 nm and 2 nm technology** by 2035. This is essential for high-performance computing, AI, and advanced defense systems.
- **Sovereign Intellectual Property (IP):** A major pillar of ISM 2.0 is the creation of a "Full-Stack Indian IP" repository. By fostering domestic "fabless" startups through the **Design Linked Incentive (DLI)** scheme, India aims to own the architectural designs of the chips it consumes.
- **Indigenous Processor Success:** The development of the **DHRUV64** (a 64-bit indigenous microprocessor) under the DIR-V (Digital India RISC-V) program illustrates the mission's success in building secure, homegrown alternatives to foreign proprietary architectures.



- **Industry-Led R&D and Talent:** ISM 2.0 emphasizes industry-academia synergy. Programs like **Chips to Startup (C2S)** and partnerships with firms like **Lam Research** aim to create a pipeline of 1 lakh industry-ready engineers over the next decade.
- **Global Supply Chain Resilience:** By localizing key stages of production, India is positioning itself as a "trusted partner" in the global "China Plus One" strategy, aiming to meet nearly **70–75% of domestic chip demand** indigenously by 2029.



### Key Definitions

- **RISC-V (Reduced Instruction Set Computer - V):** An open-standard instruction set architecture (ISA) that allows companies to design processors without paying high licensing fees to proprietary firms like ARM or Intel.
- **Semiconductor IP (Intellectual Property):** Pre-designed and verified logic blocks (like a CPU core) that can be licensed and integrated into a larger System-on-Chip (SoC) design.
- **Nanometre (nm) Node:** A term used to describe the size of transistors on a chip. Smaller nodes (e.g., 2 nm) represent more advanced technology with higher transistor density and better power efficiency.
- **Tape-out:** The final stage of the design cycle before the chip's "mask" is sent to the foundry for actual physical fabrication on silicon wafers.

### Constitutional & Legal Provisions

- **Article 51A(h):** Mandates the development of scientific temper and the spirit of inquiry, providing the philosophical basis for national R&D missions.
- **Semiconductor Integrated Circuits Layout-Design Act (SICLDA), 2000:** The primary legal framework in India that protects the intellectual property of original layout-designs of integrated circuits for a period of 10 years.
- **National Policy on Electronics (NPE) 2019:** The overarching policy that aims to position India as a global hub for Electronics System Design and Manufacturing (ESDM).
- **Foreign Direct Investment (FDI) Policy:** Under the current regime, 100% FDI is allowed under the automatic route in the electronics and semiconductor sector, facilitating global partnerships.

### Additional Key Points

- **Market Projection:** The Indian semiconductor market is expected to grow from \$38 billion in 2023 to **\$100–110 billion by 2030**, driven by the 5G, EV, and AI revolutions.
- **Investment Milestones:** Under ISM 1.0, 10 major projects with a cumulative investment of **₹1.60 lakh crore** have already been approved across states like Gujarat, Assam, and Odisha.
- **EDA Tools Access:** The government provides national access to **Electronic Design Automation (EDA)** tools from global leaders like Synopsys and Cadence, drastically lowering the entry barrier for Indian startups.



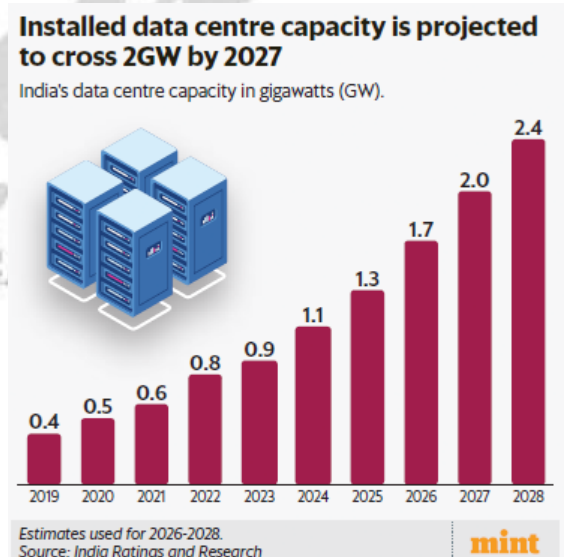
## Conclusion

ISM 2.0 represents India's transition from an "aspirational" player to a "functional" leader in the global semiconductor landscape. By focusing on "Deep Tech" and indigenous IP, the mission ensures that India's digital sovereignty is not just about manufacturing chips, but about designing the future of global technology.

## 3. Budget 2026: Tax Holiday and the Future of India's AI Infrastructure

In the Union Budget 2026-27, the Government of India announced a landmark **21-year tax holiday** (extending until **2047**) for foreign cloud service providers. This strategic move aims to transform India into a global "compute superpower" and attract an estimated **\$200 billion** in investments, though it must navigate significant resource constraints.

- **Fiscal Incentive Structure:** To qualify for the tax holiday, foreign cloud providers must use data centers owned by Indian companies and notified by the Ministry of Electronics and Information Technology (**MeitY**). Additionally, services to Indian users must be routed through an Indian reseller, ensuring domestic value capture.
- **AI-Driven Capacity Surge:** Data center capacity is projected to cross **2.4 GW by 2028**, up from **1.3 GW in 2025**. This growth is primarily fueled by AI workloads, which are expected to account for **50%** of global data workloads by 2030, necessitating higher power density (**30-50 kW per rack**) than traditional servers.
- **Geographical Dispersion and Tier-II Markets:** While Mumbai (**53%**) and Chennai (**20%**) currently dominate, the new policy encourages shifts toward Tier-II cities like **Visakhapatnam, Kochi, and Greater Noida**. These regions offer cheaper land and more stable grid capacity, vital for hyperscale AI campuses.
- **The Resource Trilemma:** AI infrastructure expansion faces a "triple threat" of scarcity: **Power** (demand to hit 57 TWh by 2030), **Water** (one 100MW campus uses water equivalent to a town of 85,000 people), and **Land** (10MW requires roughly 10 acres).
- **Strategic Sovereignty and Jobs:** By anchoring data storage and processing locally, India aims to reduce reliance on overseas centers, improve data latency for startups, and generate significant upstream/downstream employment in the high-tech sector.



## Key Definitions

- **Distillers Dried Grains with Solubles (DDGS):** (Contextual Note: Though mentioned in trade pacts, in the AI context, energy-efficient cooling and protein-rich byproducts of ethanol often compete for similar industrial resources).
- **Tax Holiday:** A government incentive program that offers a temporary reduction or elimination of taxes for businesses to encourage investment in a specific sector.
- **Hyperscale Data Centers:** Massive business-critical facilities designed to support robust, scalable applications, typically associated with big data and cloud service providers like AWS or Google.



### Constitutional & Legal Provisions

- **Article 246 (Seventh Schedule):** Governance involves a mix of Union (IT/Communication) and State (Land/Power) subjects, requiring cooperative federalism for implementation.
- **Infrastructure Status:** In 2022, the Centre granted **Infrastructure Status** to data centers with an IT load above 5 MW, facilitating easier access to low-cost, long-term credit.
- **Digital Personal Data Protection (DPDP) Act, 2023:** Acts as a regulatory bedrock, influencing data localization requirements and how global firms interact with Indian data centers.
- **Draft National Data Centre Policy (2020):** Proposed the creation of **Data Centre Economic Zones (DCEZ)** and single-window clearances to simplify the setup process.

### Conclusion

The 21-year tax holiday is a bold statement of India's digital ambitions, positioning the nation as a global alternative to established hubs like Singapore or the US. However, the success of this "AI Imperative" hinges on a "Sustainable Infrastructure" approach—balancing fiscal red carpets with environmental safeguards to manage the immense power and water footprints of next-generation compute clusters.

