

ForumIAS

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Mains Marathon

June, 2026

*HISTORY
ECONOMICS
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SCIENCE AND TECHNOLOGY
GEOGRAPHY AND ENVIRONMENT*

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Examine how structural dependence on foreign cloud infrastructure undermines digital sovereignty. Evaluate the policy measures required to ensure absolute strategic autonomy.

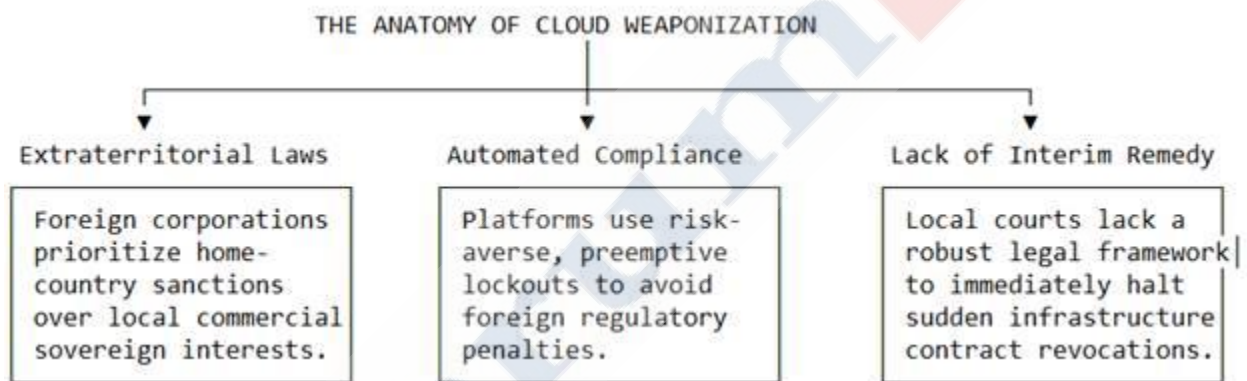
Introduction

Economic Survey 2025–26 identifies digital infrastructure as a strategic growth multiplier, while Budget 2026–27 deepens investments in AI, semiconductors, and data centres. Yet dependence on foreign clouds exposes India's digital sovereignty vulnerabilities.

Foreign Cloud Dependence and the Crisis of Digital Sovereignty

1. India's Digital Public Infrastructure (DPI) architecture—comprising Aadhaar, UPI, DigiLocker, ONDC, and Account Aggregators—has emerged as a global governance model.
2. However, while India controls the application layer, much of the foundational compute, cloud storage, AI infrastructure, and semiconductor ecosystem remains dependent on foreign hyperscalers such as Amazon Web Services (AWS), Microsoft Azure, and Google Cloud. This structural dependence creates significant challenges for strategic autonomy.

How Foreign Cloud Infrastructure Undermines Digital Sovereignty



1. **Extraterritorial Legal Control:** Foreign cloud providers remain bound by the laws of their home jurisdictions, irrespective of server location. The U.S. CLOUD Act permits access to data held by American companies even when stored abroad. Data localisation without ownership control becomes merely “data residency”, not sovereignty. Example: CLOUD Act exposure.
2. **Geopolitical Weaponisation of Digital Infrastructure:** The 2025 Nayara Energy–Microsoft episode demonstrated how geopolitical tensions can directly affect domestic operations. Foreign sanctions can influence service continuity within India. Critical sectors such as banking, energy, logistics, and defence become vulnerable. Example: Nayara Energy.
3. **Vendor Lock-In and Strategic Dependence:** Proprietary architectures create migration barriers. High switching costs reduce policy flexibility. Foreign corporations gain disproportionate influence over pricing and technological standards. Example: Proprietary cloud stack.
4. **National Security Risks:** Cloud infrastructure now supports critical information infrastructure. Disruption can affect defence communications, financial networks, and public services. Centralised foreign-controlled systems create systemic vulnerabilities. Example: Financial grid.
5. **AI Sovereignty Deficit:** Large Language Models (LLMs) are increasingly embedded in governance and enterprise workflows. Most foundational AI models are controlled by U.S. or Chinese firms. Embedded values, datasets, and moderation standards may not align with Indian priorities. Example: Foreign LLMs.

Broader Implications

1. **Constitution and Governance:** Digital sovereignty is increasingly linked to the constitutional obligation of protecting citizen data and ensuring accountable governance. DPDP Act seeks data protection. Operational dependence weakens effective state control. Example: Data governance.
2. **Economic:** India's digital economy is projected to become a major contributor to GDP. Foreign cloud concentration increases capital outflows. Domestic innovation remains dependent on external infrastructure. Example: Cloud expenditure.
3. **Geopolitical:** Technology is becoming a strategic instrument of power. Semiconductor controls and AI export restrictions illustrate emerging techno-nationalism. Digital dependence can constrain foreign policy autonomy. Example: Chip restrictions.
4. **Global South Implications:** Several developing nations face similar vulnerabilities. India's DPI partnerships in Africa, Southeast Asia, and Latin America create opportunities for alternative digital ecosystems. Example: UPI diplomacy.

Policy Measures for Absolute Strategic Autonomy

1. **Develop Sovereign Cloud Infrastructure:** Expand MeghRaj into a hyperscale sovereign cloud ecosystem. Create mandatory sovereign backups for critical sectors. Example: Government cloud MeghRaj.
2. **Accelerate Semiconductor Self-Reliance:** Strengthen India Semiconductor Mission (ISM) 2.0. Promote indigenous chip design, fabrication, and AI accelerators. Budget 2026–27 significantly expanded semiconductor support.
3. **Enact a Digital Sovereignty Law:** Require cloud providers to operate through Indian-incorporated subsidiaries. Restrict unilateral service termination based on foreign sanctions. Example: Jurisdictional control.
4. **Promote Open Standards and Interoperability:** Mandate portability and multi-cloud architecture. Reduce vendor lock-in risks. Example: Open APIs.
5. **Build Sovereign AI Ecosystems:** Expand IndiaAI Mission and indigenous foundation models. Develop sector-specific AI for governance, agriculture, healthcare, and education. Budget 2026–27 places AI infrastructure and data centres at the centre of technological sovereignty.
6. **Strengthen Global South Coalitions:** Collaborate on sovereign cloud frameworks. Create alternatives to concentrated digital monopolies. Example: DPI partnerships.

Conclusion

As Dr. APJ Abdul Kalam wrote in Wings of Fire: A nation's strength ultimately consists in what it can do on its own. Building world-class apps on rented infrastructure is not sovereignty it is sophisticated dependency. India's digital future must be built on foundations it owns, not leases.

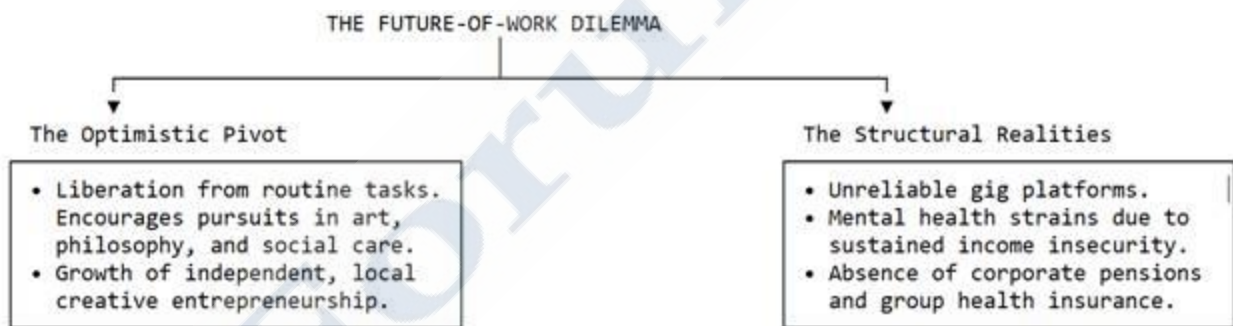
Examine the socio-economic implications of AI-driven automation on the future of employment. Evaluate the structural challenges of transitioning toward a passion-driven economy.

Introduction

The accelerating integration of Artificial Intelligence (AI) and advanced automation across global industries is fundamentally altering the traditional nine-to-five employment paradigm. While optimization technologies promise to liberate human labor from repetitive, cognitive tasks, they simultaneously threaten to trigger widespread structural unemployment.

Socio-Economic Implications of AI-Driven Automation

- 1. Transformation of Labour Markets:** AI is increasingly automating routine cognitive and administrative functions. Entry-level jobs in coding, legal research, customer support, accounting, and content generation face disruption. Traditional apprenticeship pathways are weakening for young entrants. Example: Junior coding roles.
- 2. Labour Market Polarisation:** The World Economic Forum's Future of Jobs Report highlights simultaneous job creation and displacement. High-skilled AI-enabled professionals gain disproportionate benefits. Middle-skill routine jobs experience contraction. Income inequality may widen significantly. Example: K-shaped employment.
- 3. Productivity and Economic Growth:** Automation can substantially enhance national productivity. Reduced operational costs improve competitiveness. New sectors emerge around AI development, cybersecurity, data governance, and human-machine collaboration. Example: AI startups.
- 4. Informalisation of Work:** Stable long-term employment may increasingly give way to project-based engagements. Gig work, freelancing, and platform-mediated labour expand. Employment becomes flexible but less secure. Example: Platform economy.
- 5. Social and Psychological Consequences:** Work provides identity, purpose, and social belonging. Job displacement may increase anxiety, loneliness, and uncertainty. Younger generations face career ambiguity and delayed financial independence. Example: Career insecurity.
- 6. Demographic Implications:** India adds millions to its workforce annually. Automation may constrain labour-intensive absorption. Demographic dividend risks becoming demographic stress. Example: Youth unemployment.



Can a Passion-Driven Economy Emerge?

- 1. Human Creativity Becomes Central:** As machines perform repetitive tasks, human strengths gain value. Creativity, empathy, ethics, caregiving, design, and innovation become critical. Example: Creative industries.
- 2. Rise of Independent Entrepreneurship:** Digital platforms enable individuals to monetize niche skills. Content creation, online education, consulting, and cultural enterprises expand. Example: Creator economy.
- 3. Greater Work-Life Flexibility:** People may increasingly pursue meaningful vocations rather than purely survival-oriented jobs. Example: Social entrepreneurship.

Structural Challenges of Transitioning to a Passion-Driven Economy

- 1. Economic Challenge:** Passion alone cannot guarantee livelihood. Creative and freelance incomes remain volatile. Absence of predictable earnings creates financial insecurity. Example: Gig fluctuations.

2. **Social Security Deficit:** Most independent workers lack institutional protections. No employer-sponsored pensions, insurance, or paid leave. Example: Informal freelancers.
3. **Educational Mismatch:** Current education systems remain examination-oriented. Creativity, critical thinking, emotional intelligence, and adaptability remain underdeveloped. NITI Aayog's AI strategy emphasised future-ready skills. Example: Skill mismatch.
4. **Constitution and Equity:** The State's commitment to social justice requires inclusive transitions. Automation should not deepen inequalities across regions, gender, caste, or income groups. Example: Digital divide.
5. **Technological Concentration:** A small number of global firms control advanced AI infrastructure. Wealth concentration may intensify. Example: MANG dominance.
6. **Governance and Regulatory:** Labour laws remain designed for employer-employee relationships. Gig workers and creators often fall outside traditional protections.

Way Forward

1. **Build Human-Centric Education:** Emphasize creativity, ethics, problem-solving, communication, and interdisciplinary learning. Align with National Education Policy (NEP) objectives.
2. **Establish Portable Social Protection:** Universal health coverage, pension portability, and unemployment support. Protect workers across multiple careers and platforms.
3. **Promote Lifelong Reskilling:** Expand IndiaAI Mission, Skill India, and digital skilling ecosystems. Encourage continuous learning rather than one-time education.
4. **Strengthen Gig Worker Protections:** Ensure social security coverage, grievance redressal, and platform accountability. Example: Gig welfare framework.
5. **Explore Universal Basic Support Systems:** Pilot Universal Basic Income (UBI) or Universal Basic Services (UBS) in vulnerable sectors. Example: Income floor.
6. **Foster Inclusive AI Governance:** Encourage responsible innovation through transparent and ethical AI regulation. Example: Responsible AI.

Conclusion

Echoing Dr. A.P.J. Abdul Kalam's vision of empowering minds, the future of work must prioritize human creativity over mere productivity. Technological progress should expand human dignity, not economic insecurity.

Examine how China's dual-use counter-space capabilities threaten India's space assets. Evaluate the measures required to strengthen orbital deterrence and architectural resilience.

Introduction

China's dual-use space programme poses direct threats to India's orbital assets amid LAC tensions. With over 60 operational satellites underpinning communications, navigation, disaster management and military surveillance, India's expanding space economy faces unprecedented risks.

The Counter-Space Threat Profile

1. **Direct-Ascent Kinetic Kill Vehicles (DA-ASAT) Capabilities:** China's 2007 ASAT test and subsequent DN-series interceptors demonstrated the ability to physically destroy satellites in Low-Earth-Orbit (LEO). Potential targeting of critical Indian assets such as NavIC, GSAT and CARTOSAT satellites could disrupt military operations. Example: SC-19 missile & LAC surveillance

2. Co-Orbital and Rendezvous Technologies: Chinese satellites equipped with robotic arms and proximity-operation capabilities can inspect, capture or disable adversary satellites under the guise of servicing missions. Blurs distinction between civilian and military activities, complicating attribution under international law. Example: SJ-series satellites, Orbital dogfight 2024.

3. Directed-Energy and Electronic Warfare (Soft-Kill Options): Ground-based lasers can dazzle or blind optical sensors of Indian ISR satellites. Jamming and spoofing can disrupt satellite communication and navigation services. Example: CARTOSAT imaging, NavIC interference.

4. Cyber-Space Convergence: Cyber intrusions targeting satellite command-and-control systems can degrade operational effectiveness without physical destruction. Example: Satellite uplink attacks.

Strategic Vulnerabilities in India's Space Architecture

1. Technological: India possesses a comparatively smaller satellite constellation, creating a redundancy deficit. Kinetic ASAT like Mission Shakti creates Kessler Syndrome risks. Example: Debris proliferation.

2. Military-Security: Space-based ISR, missile warning, precision navigation and communications are critical for integrated theatre operations. Loss of even a handful of satellites could significantly degrade battlefield awareness. Example: Border crisis scenario

3. Economic: Satellites support banking, telecom, logistics, weather forecasting and digital governance. Disruptions could impose substantial economic costs and affect critical infrastructure. Example: Financial network disruption

4. Geopolitical: China seeks strategic dominance through integrated civil-military space development. Expanding Chinese satellite constellations and lunar ambitions strengthen its influence in future space governance frameworks. Example: Lunar base plans

5. Legal and Normative: Existing frameworks such as the United Nations-backed Outer Space Treaty (UN-OST) inadequately address grey-zone activities such as cyberattacks, jamming and co-orbital interference.

Measures to Strengthen Orbital Deterrence and Architectural Resilience

1. Build Deterrence-by-Resilience: Transition from few large satellites to distributed SmallSat constellations. Ensure mission continuity through network redundancy. Example: Starlink model.

2. Strengthen Space Situational Awareness (SSA): Expand Project NETRA and deploy advanced tracking radars and optical sensors. Monitor suspicious orbital manoeuvres in real time. Example: Close-approach alerts.

3. Develop Responsive Launch Capability: Create multiple launch facilities beyond Sriharikota. Enable rapid replacement of damaged satellites. Example: Launch-on-demand.

4. Enhance Non-Kinetic Deterrence: Invest in cyber defence, anti-jamming technologies and electronic countermeasures. Provide proportional response options below the threshold of war. Example: Signal denial capability.

5. Deepen Strategic Partnerships: Expand data-sharing arrangements through frameworks like the Quad. Leverage commercial and allied satellite networks during contingencies. Example: Intelligence sharing.

6. Accelerate Space Industrial Capacity: Budget 2026–27 increased Department of Space allocation to ₹13,705 crore, with higher capital expenditure for launch vehicles and satellite infrastructure. This should be leveraged to strengthen indigenous manufacturing and private-sector participation through IN-SPACe.

Conclusion

Echoing former President A. P. J. Abdul Kalam's vision that strength respects strength, India must combine resilience, innovation and deterrence to secure its orbital future and strategic autonomy.

Examine how NFHS-VI data highlights India's double burden of malnutrition. Evaluate the structural shifts needed to transition from supply-side to household-centric interventions.

Introduction

NFHS-VI reveals a paradoxical nutrition transition: stunting has declined to 29.3%, yet obesity affects nearly 30% of adults and diabetes one-sixth of Indians, exposing limits of calorie-centric welfare approaches.

NFHS-VI and Anatomy of the Double Burden

India is experiencing a double burden of malnutrition, where undernutrition coexists with overnutrition and rising non-communicable diseases (NCDs), reflecting an advanced epidemiological transition.

- 1. The Infant Dietary Deficit:** A staggering 80%+ of infants aged 6 to 23 months do not receive a minimum acceptable diet. This points to severe deficiencies in early complementary feeding practices, nutritional diversity, and maternal awareness during crucial developmental windows.
- 2. Persistent Child Undernutrition:** Despite progress, around 31% of children remain underweight and stunting remains significant at 29.3%. More than 80% of children aged 6–23 months do not receive a Minimum Acceptable Diet (MAD). Exclusive breastfeeding declined from 63.7% (NFHS-5) to 55.8% (NFHS-6).
- 3. Rapid Rise of Overnutrition and NCDs:** Obesity increased to 30.7% among women and 27.3% among men. One in six Indians reports elevated blood sugar levels, indicating growing diabetes prevalence. Rising hypertension and cardiovascular risks are emerging across age groups.
- 4. Intergenerational Nutrition Trap:** Poor maternal nutrition leads to low-birth-weight babies and stunting. Simultaneously, excessive consumption of refined carbohydrates and ultra-processed foods creates obesity risks. The Comprehensive National Nutrition Survey found nearly 35% of children showing adult-level triglycerides. Example: Hidden hunger & Future NCD burden.
- 5. Social and Gender Preference:** Women often face intra-household nutritional discrimination despite being primary caregivers. Maternal education strongly influences child feeding practices. Example: Gendered food allocation and Nutrition literacy.
- 6. Economic Implications:** Malnutrition reduces productivity and increases healthcare expenditure. NITI Aayog estimates nutrition improvements significantly enhance human capital formation. Example: Demographic dividend.

Why Supply-Side Nutrition Interventions Are Inadequate

- 1. Calorie-Centric Policy Bias:** Programmes such as ICDS, PM-POSHAN and PDS have prioritized food quantity over dietary quality. Heavy dependence on rice and wheat addresses hunger but not micronutrient deficiencies. Example: Iron deficiency.
- 2. Neglect of Household Behaviour:** Food distribution ends at the household doorstep; actual consumption depends on family choices. Infant feeding practices, dietary diversity and meal frequency remain weak. Example: Poor weaning practices.
- 3. Limited Focus on Lifestyle Risks:** Existing schemes inadequately address obesity, diabetes and processed-food consumption. Example: HFSS food-consumption.
- 4. Fragmented Policy Architecture:** Nutrition, agriculture, education and health programmes often function in silos. Example: Convergence deficit.

Structural Shifts to Household-Centric Interventions

- 1. Behaviour-Change-Communication (BCC) Revolution:** Transform ASHA and Anganwadi workers into nutrition counsellors. Promote breastfeeding, complementary feeding and healthy cooking practices. Example: Poshan-Tracker outreach.
- 2. Diversified Food Basket Approach:** Expand beyond cereals to include millets, pulses, eggs, fruits and fortified foods. Align with International Year of Millets momentum. Example: Nutri-cereals.
- 3. Household-Based Nutrition Monitoring:** Track nutrition outcomes for entire families rather than only mothers and children. Integrate NCD screening with nutrition programmes. Example: Family health cards.
- 4. Regulatory and Fiscal Measures:** Front-of-pack warning labels for HFSS (High Fat, Sugar, Salt) foods. Higher taxation on sugary drinks and ultra-processed foods. Example: Sugar tax.
- 5. Technology-Enabled Precision Nutrition:** Use AI-driven Poshan Tracker and digital health records for targeted interventions. Real-time monitoring of vulnerable households. Example: Aspirational districts.
- 6. Agriculture-Nutrition Convergence:** Promote nutrition-sensitive agriculture and local food systems. Encourage kitchen gardens and bio-fortified crops. Example: Nutri-gardens.
- 7. Institutional Reforms:** Strengthen convergence among POSHAN Abhiyaan, NHM, PM-POSHAN and Jal Jeevan Mission. Move from food security to nutrition security. Example: Mission convergence.

Way Forward

1. Adopt “**Double-Duty Actions**” that simultaneously address undernutrition and obesity.
2. Institutionalize nutrition literacy in schools and maternal healthcare.
3. Scale community-led nutrition models through SHGs and Panchayats.
4. Establish universal NCD screening alongside nutrition surveillance.
5. Shift policy focus from calorie sufficiency to metabolic health outcomes.

Conclusion

Echoing Dr. A.P.J. Abdul Kalam's vision of a healthy and developed India, NFHS-VI underscores that nutrition security must evolve beyond calories toward holistic, household-centered human development.

Analyze how India's extreme semiconductor import reliance threatens its electronics ecosystem. Evaluate NITI Aayog's strategy of shifting from cutting-edge fabrication to collaborative co-creation.

Introduction

NITI Aayog's 2026 report reveals India imports 90–95% of its semiconductors despite demand projected to exceed \$200 billion by 2035, making semiconductor self-reliance central to economic resilience, technological sovereignty, and national security.

India's Extreme Semiconductor Dependence

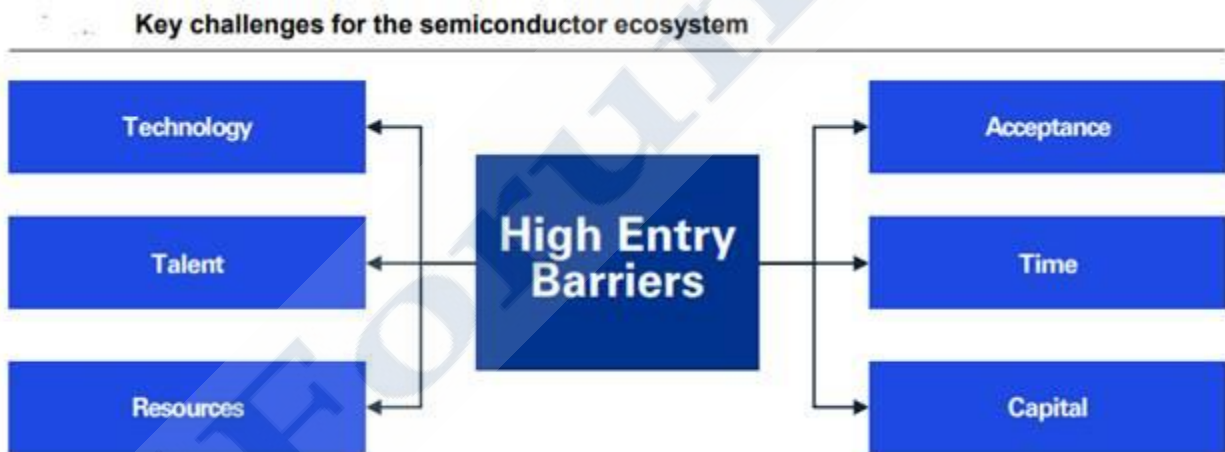
- 1. Massive Forex Outflow:** India spent roughly \$150 billion on chip imports between FY17 and FY25. Without localized intervention, annual chip import costs are projected to skyrocket to \$240 billion by 2035. Rising chip dependence threatens competitiveness of Electronics-Manufacturing-Services (EMS), smartphones and EV sectors. Example: Mobile manufacturing.
- 2. Exploding Internal Demand:** Driven by advancements in AI, electric vehicles, and telecom, domestic semiconductor demand is expected to reach \$100–110 billion by 2030 and cross \$200 billion by 2035.
- 3. Supply Chain Fragility:** Semiconductor production remains concentrated in Taiwan, South Korea and East Asia. Geopolitical tensions, natural disasters, or maritime disruptions can halt production across automobiles, telecom and healthcare sectors. Example: COVID chip shortage.
- 4. National Security Risks:** Defence systems, UAVs, aerospace platforms and critical infrastructure rely heavily on imported chips. Dependence on foreign "black-box" semiconductors creates risks of embedded vulnerabilities and strategic coercion. Example: Defence electronics.
- 5. Industrial and Employment Constraints:** Limited domestic semiconductor capabilities reduce value addition within India. High-end manufacturing jobs and intellectual property creation remain concentrated abroad. Example: Design migration.
- 6. Strategic-Geopolitical Dimension:** The ongoing US–China technology rivalry has transformed semiconductors into instruments of geopolitical leverage. Supply restrictions may affect India's strategic sectors. Example: Export controls.



Evaluating NITI Aayog's "Co-Creation" Strategy

The report advocates moving beyond the costly race for leading-edge sub-5nm fabrication and focusing on areas where India can become globally indispensable.

- 1. Strengthening Design Leadership (Pioneering):** India possesses nearly 20% of global semiconductor design talent. Focus on developing 100+ indigenous semiconductor IPs by 2035. High-value and less capital-intensive; leverages India's comparative advantage. Example: VLSI ecosystem.
- 2. Advanced Packaging and OSAT Leadership:** Targeting top-three global status in Advanced Packaging and OSAT. Packaging is increasingly strategic in the chiplet era. Realistic entry point with faster returns than advanced fabs. Example: ATMP facilities.
- 3. Focus on Mature Nodes and Compound Semiconductors:** Prioritizing 28–65 nm chips, Silicon Carbide (SiC) and Gallium Nitride (GaN). Aligns with domestic demand rather than prestige-driven technology races. These dominate automotive, industrial automation and power electronics. Example: Electric vehicles.
- 4. Talent and Institutional Development:** Proposal for National Fab Academy and semiconductor talent pyramid. Supports long-term ecosystem deepening. Example: Clean-room training.
- 5. Trusted Global Partnerships:** Strategic cooperation with the US, Japan, South Korea and EU. Facilitates technology transfer and supply-chain diversification. Example: Quad technology cooperation.

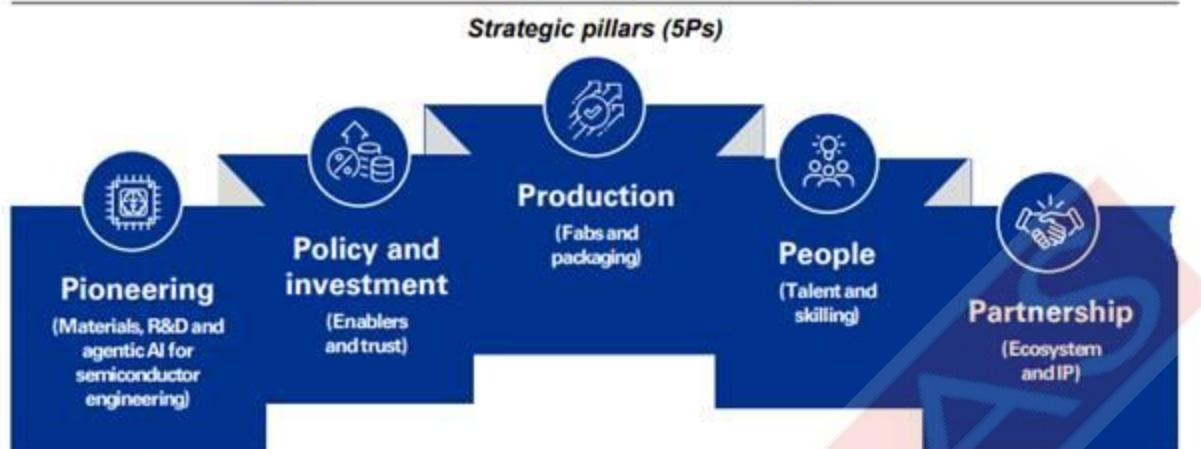


Challenges in the Co-Creation Model

1. Capital requirement of \$135–180 billion over a decade.
2. Dependence on imported equipment, wafers and specialty chemicals.
3. Infrastructure deficits: ultra-pure water, uninterrupted power and logistics.
4. Risk of remaining confined to lower-value segments if indigenous R&D remains weak.

Way Forward

Strategic pillars required to build a competitive ecosystem



1. **Adopt a “Fab + Design + Packaging” Triad:** Balance mature-node fabrication with design IP and advanced packaging.
2. **Institutionalize ISM 2.0:** Create a statutory Semiconductor Development Authority with long-term policy certainty.
3. **Build Semiconductor Clusters:** Fab-ready industrial corridors with dedicated utilities. Example: Dholera.
4. **Strengthen Research Ecosystem:** Industry-academia collaboration through IITs, IISc and Semiconductor Research Centres.
5. **Secure Critical Mineral Supply Chains:** Strategic partnerships for gallium, germanium and rare-earth access.
6. **Promote Demand-Side Procurement:** Preference for trusted domestic chips in defence, telecom and public infrastructure.

Conclusion

Echoing Dr. A.P.J. Abdul Kalam’s vision of technological self-reliance in India 2020, semiconductor sovereignty demands not imitation but strategic co-creation, transforming India from consumer market to indispensable global innovator.

Examine how land pooling minimizes displacement and acquisition delays in urban development. Evaluate its efficacy as an alternative to traditional land acquisition.

Introduction

With India projected to be over 50% urban by 2050, land assembly has emerged as a major bottleneck. Land- Pooling-Schemes (LPS) offer participatory urban expansion, reducing displacement, litigation, and fiscal burdens.

Land Pooling As Transformative Alternative in Urban Development

1. Rapid urbanisation has intensified demand for land for roads, housing, industrial corridors, and public utilities.

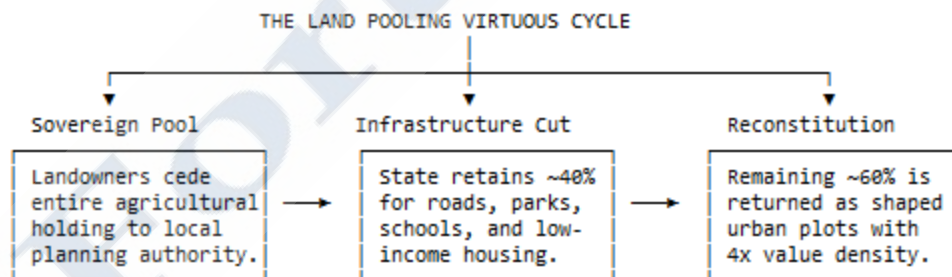
2. However, acquisition under the RFCTLARR Act, 2013, often faces prolonged litigation, escalating compensation costs, and social resistance.
3. Against this backdrop, Land Pooling Schemes (LPS), particularly Gujarat's Town Planning (TP) model, provide a collaborative framework that aligns urban growth with stakeholder interests.

How Land Pooling Minimizes Displacement and Acquisition Delays

1. **Participatory Rather than Coercive Approach:** Landowners voluntarily contribute land to a common pool. Eliminates adversarial State-citizen relationships associated with eminent domain. Enhances social acceptance and trust. Example: Gujarat TP Schemes.
2. **Near-Zero Physical Displacement:** Owners receive reconstituted serviced plots after development. Preserves social networks, livelihoods, and community identity. Avoids rehabilitation and resettlement challenges. Example: Ahmedabad Expansion.
3. **Reduction in Litigation:** Since landowners become beneficiaries rather than victims of development, disputes decline significantly. Accelerates project execution timelines. Example: Surat TP Projects.
4. **Faster Infrastructure Creation:** Entire urban layouts are planned simultaneously instead of parcel-wise acquisition. Enables seamless development of roads, drainage, utilities, and public spaces. Example: Ring-road networks.
5. **Fiscal Sustainability:** Governments avoid massive upfront compensation obligations. Infrastructure costs recovered through betterment charges and sale of reserved commercial land. Example: Self-financing model.

Efficacy of the Land Pooling Model the Lessons from Gujarat

The long-term execution of TP schemes under the Gujarat Town Planning and Urban Development Act, 1976, provides a proven blueprint for managing urban sprawl:



1. **Ensuring Equitable Benefit-Sharing:** By transforming irregular agricultural fields into geometric, fully serviced urban plots, the model guarantees that the unearned increment (the surge in property value due to public infrastructure) goes directly to the original agrarian family rather than speculative middlemen.
2. **Accelerating Ring-Road and Network Logistics:** Cities like Ahmedabad and Surat successfully built massive outer ring roads and micro-utilities seamlessly across 1,000 sq. km because the layout was cleared globally via TP schemes, entirely bypassing individual plot-by-plot acquisition litigations.

Systemic Challenges and Implementation Roadblocks

Despite its conceptual elegance, scaling land pooling nationwide involves distinct operational bottlenecks:

1. **Extremely Protracted Approval Timelines:** While faster than standard litigation, the bureaucratic finalization of a TP scheme spanning draft, preliminary, and final stages under a Town-Planning-Officer frequently takes 3 to 5 years, delaying immediate infrastructure deployment.
2. **The Fragmented Land Titling Crisis:** Land pooling relies entirely on clear, undisputed local property registries. In states lacking updated, digitized mutation records or facing complex pending family disputes, determining the exact ownership of the pooled fragments creates immediate legal gridlock.
3. **Resistance from Small and Marginal Farmers:** Landowners with tiny holdings often resist pooling. Receiving a reconstituted plot that is 40% smaller may leave them with a piece of land too small to be economically viable for housing or small-scale commercial use, driving localized inequality.

Way Forward

1. **Strengthen Digital Land Governance:** Integrate LPS with DILRMP, GIS mapping, and blockchain-enabled land records. Ensure title certainty and transparency.
2. **Establish Dedicated Urban Planning Authorities:** Create autonomous statutory planning bodies with single-window approvals. Reduce bureaucratic fragmentation.
3. **Protect Marginal Landowners:** Guarantee minimum reconstituted plot sizes. Offer equity participation, annuity models, or transferable development rights (TDRs).
4. **Promote Flexible State-Specific Models:** Adapt contribution ratios according to local realities. Learn from Gujarat, Maharashtra, Rajasthan, and Delhi experiences.
5. **Link with National Urban Missions:** Converge LPS with PM Gati Shakti, Smart Cities 2.0, AMRUT, and Transit-Oriented Development policies.

Conclusion

By ensuring that rural communities become financial stakeholders in urban expansion rather than its casualties, India can build resilient, world-class cities without triggering rural distress or systemic economic delays.

Examine whether global and national university rankings genuinely improve higher education or distort its public purpose. Evaluate the need for socially relevant evaluation metrics.

Introduction

With India targeting a knowledge-driven economy under NEP 2020 and Budget 2026–27, global rankings like QS and THE, alongside NIRF, drive policy but often distort priorities. The real question is whether rankings measure excellence or merely institutional visibility.

Role of University Rankings in Improving Higher Education

1. **Enhancing Accountability and Transparency:** Rankings provide measurable benchmarks for institutional performance. NIRF evaluates institutions through teaching, research, graduation outcomes, inclusivity and perception. Example: NIRF-based institutional reforms.
2. **Promoting Healthy Competition:** Encourages universities to improve faculty quality, research output and infrastructure. Help governments identify best-performing institutions. Example: Institutions of Eminence Scheme.
3. **Facilitating Student Choice:** Offers comparative information for students and employers. Enhances international academic mobility. Example: Global student recruitment.
4. **Driving Research Ecosystems:** Incentivises publications, patents and collaborations. Contributes to India's emergence as a major scientific publication hub. Example: Research visibility.

5. **Global Recognition and Soft Power:** High-ranking universities strengthen a nation's knowledge diplomacy. Supports objectives of internationalisation under NEP 2020. Example: Study in India initiative.



How Metrics Shift the Public Purpose of Higher Education

1. **Excessive Research-Citation Bias:** QS, THE and similar systems heavily reward citations and research visibility. Teaching quality, mentoring and classroom learning receive limited attention. Example: Publish-or-perish culture.

- 2. Reputation-Driven Inequality:** Reputation surveys account for a significant share of ranking scores, reinforcing historical advantages. Older Western universities continue dominating rankings. Example: Matthew Effect.
- 3. Marginalisation of Social Inclusion:** Universities serving first-generation learners, tribal communities and regional populations receive inadequate recognition. Social transformation becomes secondary to branding. Example: Rural universities.
- 4. Linguistic and Knowledge Bias:** Dependence on Scopus/Web of Science favours English-language scholarship. Indigenous and vernacular knowledge systems remain underrepresented. Example: Regional language research.
- 5. Commercialisation of Higher Education:** Ranking agencies often sell consulting services alongside evaluations, creating potential conflicts of interest. Encourages marketing-oriented institutional behaviour. Example: Brand management expenditure.
- 6. Institutional Homogenisation:** Diverse institutions are judged through identical metrics. Agricultural, tribal and community-focused universities appear less successful despite high social impact. Example: Extension universities.

Need for Socially Relevant Evaluation Metrics

- 1. Social Inclusivity and Value-Added Mobility:** Measure admission, retention and graduation of SC/ST/OBC, women and economically weaker students. Assess value addition through employability, entrepreneurship and income mobility. Example: Social mobility index and Graduate outcome tracking.
- 2. Community Development:** Evaluate local problem-solving and extension activities. Example: Farmer outreach programmes.
- 3. Knowledge Diversity:** Reward contributions in Indian languages and indigenous knowledge systems. Example: Bhasha research outputs.
- 4. Governance:** Measure institutional autonomy, transparency and ethical practices. Example: NAAC governance indicators.
- 5. Institutional Culture Overhaul:** Adopt DORA (San Francisco Declaration on Research Assessment) principles focusing on research quality over quantity.
- 6. Constitutional:** Align evaluation with equality, social justice and educational access under Articles 14, 15, 21A and DPSPs. Example: Inclusive education outcomes.

Way Forward

- 1. Adopt a Multi-Dimensional Assessment Framework:** Balance research excellence with teaching quality, inclusion and societal impact.
- 2. Create a Social Impact Index:** Measure contribution to local development, public policy and community welfare.
- 3. Strengthen Outcome-Based Evaluation:** Focus on learning outcomes, employability and innovation rather than institutional reputation.
- 4. Reward Inclusive Excellence:** Provide incentives for institutions serving disadvantaged populations.
- 5. Integrate NEP 2020 Objectives:** Align rankings with access, equity, affordability and multidisciplinary education.
- 6. Promote Responsible Research:** Prioritise quality and societal relevance over publication volume.

Conclusion

As Dr. S. Radhakrishnan observed, universities must cultivate wisdom, not merely credentials. Evaluation systems should therefore reward social transformation, knowledge creation and inclusion not just prestige, citations and rankings.

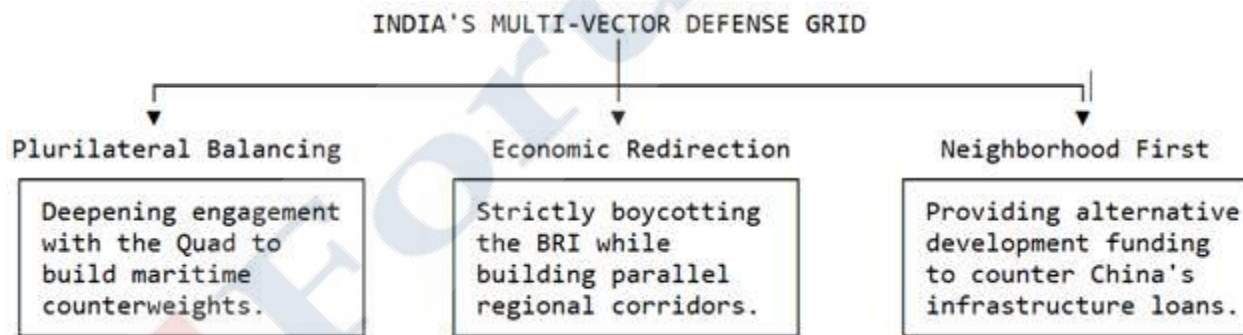
Critically analyze India's strategic response to the deepening China-Pakistan axis in South Asia. Evaluate its implications for regional stability and India's sovereignty.

Introduction

As India emerges as the world's fourth-largest economy and advances its Indo-Pacific vision, the deepening China-Pakistan strategic partnership—manifested through CPEC 2.0 and coordinated positions on Kashmir—poses complex sovereignty and security challenges.

China-Pakistan Axis and Strategic Synchronization and Sovereignty Challenges

- 1. Diplomatic Convergence on Kashmir:** China's recent endorsement of references to Jammu & Kashmir in its joint statement with Pakistan marks a departure from its earlier caution. Attempts to internationalize an issue India considers strictly internal and bilateral. Example: UNSC resolutions reference.
- 2. Sovereignty Concerns through CPEC:** The \$65-billion CPEC passes through Pakistan-occupied Kashmir (PoK). Infrastructure projects in disputed territory undermine India's territorial claims. Example: Gilgit-Baltistan corridor.
- 3. Two-Front Security Dilemma:** Growing military cooperation, intelligence sharing, and defence technology transfers increase pressure on both the LAC and LoC. Example: Joint military exercises.
- 4. Strategic Encirclement in the Indian Ocean:** Chinese investments in Gwadar, Hambantota, Ream and other dual-use facilities strengthen the "String of Pearls". Example: Gwadar Port.



India's Strategic Response and Multi-Vector Diplomacy

- 1. Geopolitical and Diplomatic Balancing:** Deepening engagement with the Quad comprising United States, Japan and Australia. Enhances maritime surveillance, critical minerals cooperation and rules-based order. Example: IPMSC initiative.
- 2. Strategic Partnerships:** Expanding ties with ASEAN, Europe, Gulf states and Africa. Reduces strategic isolation. Example: Comprehensive partnerships.
- 3. Connectivity and Economic Counterbalancing:** Development of Chabahar Port as a gateway to Central Asia. Promotion of India-Middle East-Europe Economic Corridor and International North-South Transport Corridor. Example: Connectivity diversification.
- 4. Neighborhood First Policy:** Greater emphasis on energy grids, digital payments, disaster relief and trade integration. Example: UPI diplomacy.

5. **Military and Maritime Responses:** Strengthening the Andaman and Nicobar Islands as a strategic outpost. Expansion of Maritime Domain Awareness networks. Example: Sea-lane monitoring.
6. **Defence Modernisation:** Theatre commands, indigenous defence manufacturing and ISR capabilities. Example: Aatmanirbhar defence

Implications for India's Sovereignty

1. **Stronger Deterrence:** Greater external balancing improves bargaining power against coercive diplomacy. Example: Quad deterrence.
2. **Protection of Territorial Claims:** Consistent rejection of CPEC and Kashmir references reinforces legal and diplomatic claims. Example: PoK assertion.
3. **Strategic Autonomy:** India avoids formal alliances while expanding partnerships. Example: Multi-alignment.

Limitations and Risks

1. **Resource Stretch:** Simultaneous management of continental and maritime theatres increases defence expenditure. Example: Two-front preparedness.
2. **Regional Polarisation:** Smaller South Asian states may become arenas of great-power competition. Example: Debt-influence politics.
3. **Grey-Zone Escalation:** Cyberattacks, information warfare and maritime coercion may intensify below conventional war thresholds. Example: Hybrid warfare.

Implications for Regional Stability

1. **Stabilising Effects:** Greater strategic balancing discourages unilateral dominance. Enhanced maritime cooperation supports secure sea lanes. Example: Collective security.
2. **Destabilising Effects:** Security dilemma may fuel military modernization and arms competition. Competing connectivity blocs could deepen regional fragmentation. Example: Strategic rivalry.

Way Forward

1. **Strengthen Regional Economic Integration:** Accelerate BBIN, BIMSTEC and energy connectivity projects. Example: Cross-border grids.
2. **Build Credible Maritime Deterrence:** Expand naval presence from the Arabian Sea to the Western Pacific. Example: Blue-water navy.
3. **Enhance Technological Sovereignty:** Invest in AI, cyber defence, semiconductors and space capabilities. Example: Critical technologies.
4. **Maintain Firm Diplomatic Red Lines:** Continue linking normalization with border peace and respect for sovereignty. Example: Border stability.
5. **Lead Through Development Partnerships:** Deliver faster, transparent and sustainable infrastructure assistance in South Asia. Example: Capacity building.

Conclusion

The synchronized statements from China and Pakistan regarding Jammu and Kashmir show that regional border disputes are increasingly linked to wider global power competitions. India must combine strategic deterrence, regional connectivity and sovereign resilience to ensure stability without compromising autonomy or territorial integrity.

**Evaluate the legal and institutional challenges in enforcing fire safety norms in India.
Examine the role of NDMA guidelines in transforming fire services.**

Introduction

As per NCRB with 7,435 deaths in over 7,500 fire incidents in 2022, fire safety has emerged as a critical governance challenge. Rapid urbanization, infrastructure expansion, and weak enforcement necessitate robust legal and institutional reforms.

Constitutional and Legal Framework

India's fire governance architecture is decentralized. Fire services fall under the State List, while municipalities are empowered under the 12th Schedule (Article 243W) to regulate urban safety. Consequently, enforcement standards vary significantly across states.

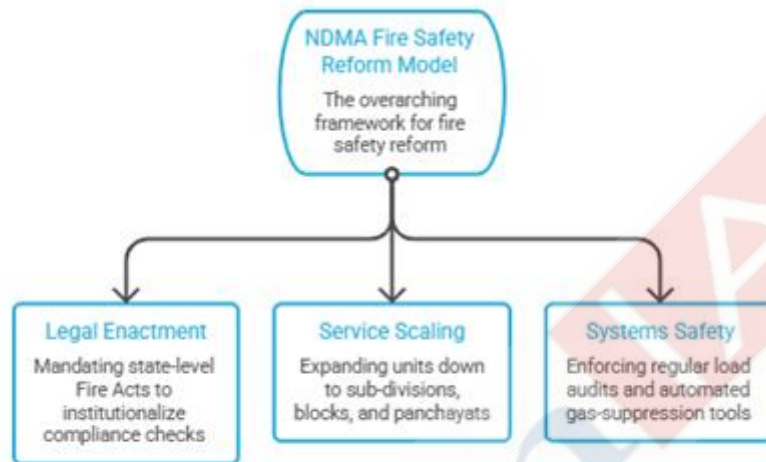
1. **National Building Code (NBC), 2016 (Part IV):** Comprehensive fire prevention and life-safety standards.
2. **Model Building Bye-Laws, 2016:** Framework for integrating fire norms into local regulations.
3. **Model Fire and Emergency Services Bill, 2019:** Recommended uniform legal architecture for states.
4. **Scheme for Expansion and Modernisation of Fire Services (2023-26):** Financial support for modernization of state fire services.

Legal and Institutional Challenges

1. **Fragmented Legislative Framework:** India lacks a uniform national fire law. Several states have either outdated legislation or incomplete adoption of the Model Fire Act, resulting in uneven compliance standards and penalties.
2. **Advisory Nature of NBC:** NBC standards become enforceable only after incorporation into local building bye-laws. This creates regulatory gaps and inconsistent implementation across urban jurisdictions. Example: Practical Difficulty Clause.
3. **Weak Enforcement and Regulatory Capture:** Periodic inspections, fire NOC renewals, and safety audits are often irregular due to corruption, understaffing, and poor monitoring. Example: Rajkot Game Zone fire.
4. **Capacity Deficits:** The Parliamentary and NDMA assessments have repeatedly highlighted shortages of fire stations, trained personnel, and specialized equipment. Shortage of over 5,000 fire stations, deficit exceeding 5 lakh personnel. These shortages reduce response effectiveness during emergencies.
5. **Urbanization-Induced Vulnerabilities:** Economic Survey 2025-26 identifies urban governance and infrastructure constraints as major developmental challenges. Congested settlements, mixed land use, and unauthorized constructions increase fire risks. Examples: Uphaar Cinema fire (Delhi).
6. **Technological and Infrastructure Gaps:** Many buildings lack: functional sprinklers, smoke detectors, automated suppression systems and fire-resistant materials. Electrical overloading remains a leading cause of urban fires.
7. **Social and Behavioral Challenges:** Public awareness regarding evacuation protocols and emergency response remains inadequate. Fire drills are often treated as procedural formalities. Example: Panic-induced casualties.

NDMA Guidelines for Transforming Fire Services

The NDMA FIRE SAFETY REFORM MODEL



Made with Napkin

1. **Legal Reforms:** NDMA recommends: State-specific Fire Acts, mandatory fire clearances, periodic safety certification, stronger penal provisions. This promotes accountability and uniformity.
2. **Institutional Modernization:** NDMA advocates: professional Fire Service Cadres, state-level Chief Fire Officers, dedicated training academies and scientific manpower planning. **Example:** Modern Fire Service Training Centres.
3. **Infrastructure Expansion:** NDMA proposes: fire stations up to block and Gram Panchayat levels, water reservoirs and hydrant networks and specialized rescue vehicles. This improves last-mile emergency response.
4. **Technology Integration:** Recommended interventions include: GIS mapping, IoT-based sensors, drone-assisted assessment and computerized command-and-control systems. **Example:** Smart city fire surveillance.
5. **Community-Based Preparedness:** NDMA emphasizes: school safety programs, community volunteers, periodic fire drills and public awareness campaigns. This aligns with the **Sendai Framework's "Build Back Better" approach.**

Systemic Gaps and Recurring Structural Vulnerabilities

Despite established guidelines, real-world execution frequently reveals critical vulnerabilities:

| Vulnerability Vector | Operational Manifestation | Impact on Public Safety |
|------------------------------------|---|--|
| Material Substandardization | Widespread use of non-ISI certified wiring and highly flammable composite building materials. | Accelerates fire spread and structural failure, bypassing basic containment systems. |

Mains Marathon Compilation June 2026

| | | | |
|--------------------------------|--------------|---|---|
| Electrical Mismatches | Load | Rapid installation of heavy cooling units (ACs) without upgrading underlying wiring infrastructure. | Triggers catastrophic short-circuits and arc faults during high-demand summer peaks. |
| Evacuation Encroachment | Route | Internal stairwells and corridors are often blocked or used as makeshift storage areas. | Traps occupants during smoke propagation, making smoke inhalation and asphyxiation a primary cause of casualties. |

Way Forward

1. Make NBC fire provisions legally mandatory nationwide.
2. Establish independent third-party fire safety audits.
3. Create a National Fire Safety Compliance Portal.
4. Implement Hazard Identification and Risk Assessment (HIRA) frameworks.
5. Fully integrate NBC 2016 into all state municipal bylaws.
6. Promote indigenous firefighting technologies and AI-enabled early-warning systems.
Examples: Singapore Fire Code; Tokyo Disaster Preparedness Model.
7. Integrate fire resilience into Smart Cities and PM Gati Shakti planning.

Conclusion

As Dr. A.P.J. Abdul Kalam wrote in *Ignited Minds*: A nation's strength lies in its capacity to protect every citizen. Transforming fire safety from governance failure to institutional imperative is not a choice it is a constitutional obligation.

**Critically analyze the impact of bureaucratic control on national educational bodies.
Evaluate the need for academic leadership to restore institutional autonomy and credibility.**

Introduction

As India implements NEP 2020 and expands digital education, recent crises involving NTA, NCERT, and CBSE reveal how excessive bureaucratic control can undermine institutional credibility, autonomy, innovation, and public trust.

Impact of Bureaucratic Control on National Educational Bodies

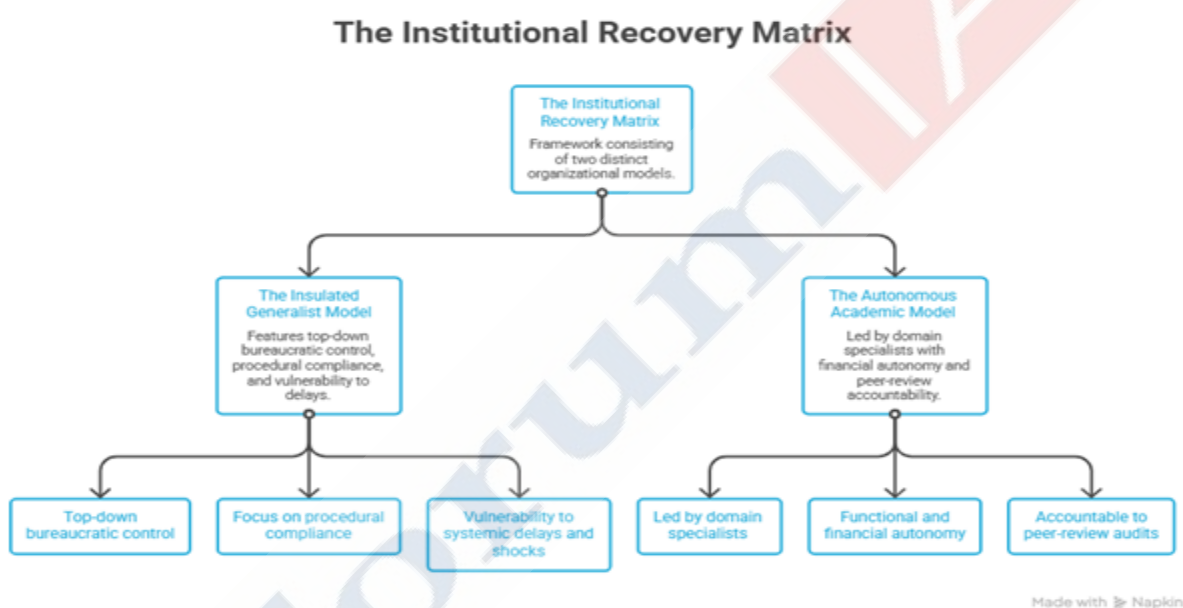
1. **Knowledge Attrition:** Educational governance increasingly requires expertise in pedagogy, psychometrics, curriculum development, AI-enabled assessment, and educational psychology. Generalist administrators often lack specialized understanding necessary for such complex functions. Example: NEET examination.
2. **Bottlenecking and Delayed Accountability:** Hierarchical decision-making often discourages institutional initiative. Operational failures escalate upward rather than being resolved internally through professional leadership. Example: NTA controversies.
3. **Performative accountability:** Bureaucratic systems prioritize file-based compliance, audits, and procedural correctness rather than learning outcomes, innovation, and academic excellence. Example: Compliance-Driven Culture in curriculum implementation.

4. **Institutional Voids and Innovation Lag:** NEP 2020 advocates critical thinking, multidisciplinary learning, and institutional flexibility. However, risk-averse bureaucratic cultures often discourage experimentation and reform. Example: Slow adoption of assessment innovations.

5. **Institutional Distrust:** Repeated administrative failures directly affect millions of students and parents, reducing confidence in public institutions. Examples: NEET paper leak allegations, CBSE evaluation concerns, NCERT textbook controversies.

6. **Techno-Regulation:** Digital examinations, encrypted question banks, AI-assisted assessments, and cybersecurity require professional educational technologists rather than purely administrative supervision.

7. **Democratic and Constitutional Concerns:** Educational institutions are expected to function as professional public bodies insulated from day-to-day political or bureaucratic pressures. Excessive control may compromise academic freedom and intellectual neutrality.



Why Academic Leadership is Necessary

1. **Graded Autonomy:** Historically, institutions such as NCERT, CBSE, CSIR, TIFR, and ISRO gained credibility through professional leadership and operational autonomy. Academic leaders possess: subject expertise, research orientation, pedagogical understanding and long-term institutional vision. Example: Early NCERT leadership model.

2. **Strengthening Evidence-Based Decision Making:** Academic administrators rely on: learning assessments, educational research, comparative international practices, rather than merely procedural considerations. Example: Finland's autonomous education governance.

3. **Improving Examination Integrity:** Specialized leadership can modernize: psychometric testing, digital security architecture, question-bank development and evaluation systems. Example: Advanced testing agencies globally.

4. **Enhancing Global Competitiveness:** Institutions led by academic professionals are better positioned to achieve objectives envisioned under: NEP 2020, NCF and Internationalization of Higher Education. Example: Singapore education reforms.

Way Forward

Structural Reforms

1. Grant statutory autonomy to major educational bodies.
2. Prioritize academic qualifications for leadership positions.
3. Separate academic functions from routine administrative control.
4. Create National Educational Governance Standards under NEP 2020.
5. Establish independent examination security and cyber-audit units.
6. Institutionalize stakeholder consultation involving teachers, universities, students, and researchers.
7. Strengthen parliamentary and public accountability without operational interference.

Institutional Culture Reforms

1. Encourage innovation and evidence-based policymaking.
2. Promote academic freedom with responsibility.
3. Develop leadership pipelines from within educational institutions. Examples: RBI autonomy; ISRO professional governance.

Conclusion

Echoing Dr. S. Radhakrishnan's belief that education shapes national character, India's educational institutions require academic leadership, autonomy, and accountability to preserve trust, excellence, and democratic nation-building.

Examine the strategic dilemma in India's Myanmar policy amid its ongoing internal conflict. Evaluate the imperatives of balancing ties with state and non-state actors.

Introduction

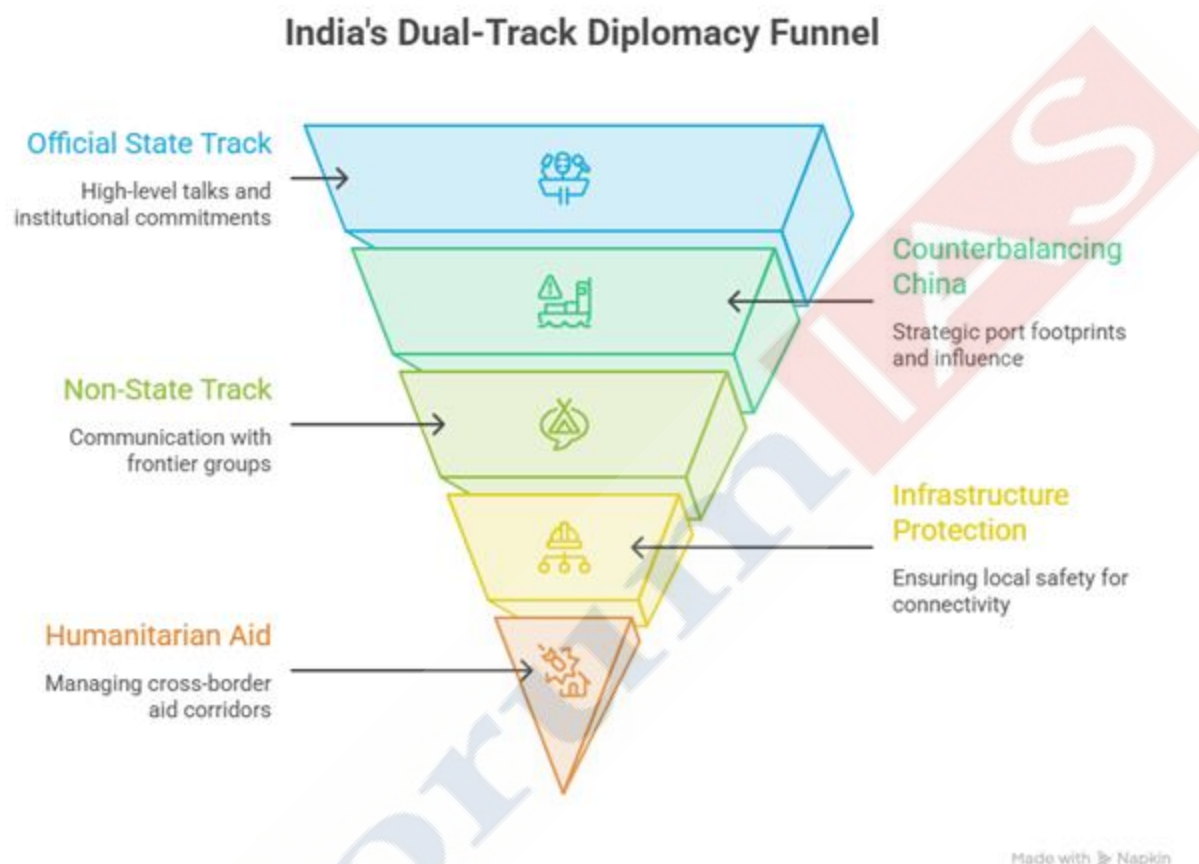
Sharing a 1,643-km border with Myanmar, India views it as the confluence of its Neighbourhood First, Act East and MAHASAGAR priorities. Myanmar's prolonged conflict has transformed a bilateral relationship into a complex strategic dilemma.

Myanmar Conflict and India's Strategic Dilemma

1. **Democratic Constitutionalism vs Pragmatic Realism:** India supports a return to the path of democratic transition while maintaining engagement with the military-led government exercising de facto control. Complete isolation of the junta could create a geopolitical vacuum, increasing Chinese leverage in Myanmar. Example: Post-2021 Chinese influence.
2. **Sovereignty vs Ground Realities:** India officially recognizes the Myanmar state and engages Naypyidaw on security and connectivity. However, several border regions are effectively controlled by ethnic armed organizations (EAOs) and pro-democracy Peoples-Defence-Forces (PDFs), requiring informal engagement. Example: Arakan Army and Chin National Army.
3. **The Transnational Security Spillover:** Internal conflict has generated transnational spillovers into Mizoram, Manipur, Nagaland and Arunachal Pradesh. Refugee inflows, ethnic linkages and insurgent sanctuaries directly affect India's internal security. Example: Chin refugees.
4. **Countering the Nexus of Shadow Economies:** Weak state control has strengthened networks of: narcotics trafficking (Golden Triangle), arms smuggling, human trafficking and cyber-scam

syndicates. These undermine stability in India's Northeast. Example: Suspending the Free-Movement-Regime (FMR).

Why Balancing State and Non-State Actors is Essential



1. **Strategic Hard Infrastructure Protection:** India's flagship projects traverse conflict-prone regions: Kaladan Multi-Modal Transit Transport Project and India-Myanmar-Thailand Trilateral Highway. Progress requires cooperation not only from Naypyidaw but also from local power centers controlling territory. Example: Rakhine corridor.
2. **Ensuring Trusted Connectivity to ASEAN:** Myanmar is India's only land bridge to Southeast Asia. Stability is necessary for creating resilient gateways connecting Northeast India to ASEAN markets. Example: Act East connectivity.
3. **Managing China's Expanding Footprint:** China backs projects under the China-Myanmar Economic Corridor and enjoys substantial influence over military and ethnic actors. India's engagement prevents Myanmar from becoming strategically dependent on Beijing. Example: CMEC projects.
4. **Humanitarian and Social Imperatives:** India's **Operation Brahma** after the 2025 Myanmar earthquake demonstrated its HADR capacity and strengthened people-centric goodwill beyond regime politics. Example: First responder diplomacy.

Challenges in the Balancing Strategy

1. **Geopolitical:** Engagement with the junta attracts criticism from pro-democracy groups and Western democracies. Example: Legitimacy concerns.
2. **Legal and Diplomatic:** Excessive outreach to non-state actors may be perceived as interference in Myanmar's sovereignty. Example: Diplomatic sensitivities.
3. **Security:** Fragmented authority complicates border management and counter-insurgency coordination. Example: Sagaing instability.
4. **Economic:** Delays in connectivity projects reduce India's competitiveness vis-à-vis China's faster infrastructure execution. Example: Kaladan delays.

India's Evolving Strategic Response

1. **Smart Border Management:** Integrated check-posts, fencing, surveillance drones and intelligence-sharing. Prevent safe havens for anti-India insurgent groups. Example: Northeast security.
2. **Myanmar-Led and Myanmar-Owned Peace Process:** Support inclusive reconciliation without external imposition. Encourage dialogue among military authorities, democratic forces and ethnic organizations. Example: ASEAN coordination.
3. **People-Centric and Demand-Driven Development:** Capacity building, education, healthcare and cultural projects. Build long-term goodwill beyond regime changes. Example: Sarsobeikman Literary Centre.
4. **Geo-Economic Diversification:** Expand cooperation in critical minerals, rare earths, trade and digital connectivity. Example: Rare-earth partnership and Rupee-Kyat Settlement Mechanism.

Way Forward

1. Institutionalize multi-channel engagement with both state authorities and legitimate local stakeholders.
2. Fast-track Kaladan and Trilateral Highway as strategic hard infrastructure.
3. Strengthen border-centric development in Northeast India.
4. Expand HADR diplomacy and developmental partnerships.
5. Coordinate with ASEAN while preserving India's strategic autonomy.

Conclusion

Echoing President Droupadi Murmu's description of Myanmar as India's "gateway to Southeast Asia", India must combine democratic values with pragmatic realism, ensuring stability, sovereignty, connectivity and regional balance simultaneously.

Critically analyze the impact of Western pressure on India-Russia ties on global stability. Evaluate India's multi-alignment strategy in balancing its competing strategic partnerships.

Introduction

As the world moves towards multipolarity, India's strategic autonomy faces renewed scrutiny amid Western pressure over Russia ties. With Russia becoming India's largest crude supplier post-Ukraine conflict, New Delhi's multi-alignment is increasingly consequential.

India-Russia Ties under Western Pressure and Impact on Global Stability

1. **Weaponization of Interdependence:** India's purchase of discounted Russian crude prevented a major supply shock following Western sanctions. According to the IEA, removing Russian oil entirely

from global markets could have triggered severe price volatility. Affordable energy imports moderated inflationary pressures across developing economies. Example: Oil market stabilization.

2. Reinforcement of Multipolarity: Attempts to isolate Russia accelerated the emergence of alternative power centres such as BRICS and SCO. India's independent stance demonstrated that major Global South powers can pursue issue-based partnerships rather than bloc alignment. Enhances strategic voice of developing nations. Example: BRICS expansion.

3. Preventing Excessive Russia-China Convergence: Sustained India-Russia engagement prevents Moscow's complete dependence on Beijing. Creates strategic space in Eurasia and avoids formation of a rigid China-Russia axis detrimental to Indian interests. Supports balance-of-power dynamics. Example: Eurasian equilibrium.

4. Diplomatic Bridge-Building Role: India maintains dialogue with both Western capitals and Moscow. Its position enabled constructive engagement on food security, fertilizer supplies and humanitarian concerns during the Ukraine crisis. Enhances India's role as a credible interlocutor. Example: Global South diplomacy.

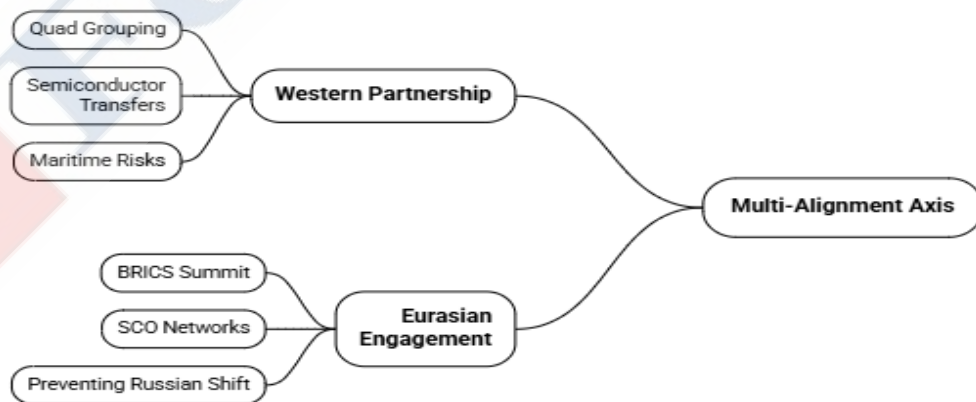
Critical Concerns Regarding India-Russia Engagement

1. Secondary Sanctions Risks: Western tariffs, sanctions threats and financial restrictions complicate trade settlements. Exposure to dollar-dominated financial systems remains a vulnerability. Example: Payment disruptions.

2. Technology and Investment Constraints: Excessive proximity to Russia may affect access to advanced Western technologies, semiconductors and critical supply chains. Particularly relevant under India's technology-led growth strategy. Example: Critical tech transfers.

3. Strategic Perception Challenges: Some Western partners view India's Russia engagement as weakening sanctions effectiveness. Creates diplomatic balancing costs despite growing convergence in the Indo-Pacific. Example: Ukraine divergence.

Multi-Alignment Axis: Strategic Partnerships and Engagement



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Evaluating India's Multi-Alignment Strategy

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India's foreign policy is neither non-alignment 2.0 nor alliance politics; it is **multi-alignment**—simultaneous engagement with competing power centres based on national interest.

1. **Special and Privileged Strategic Partnership:** Deepening defence cooperation with the US, Japan and Australia through the Quad. Simultaneously retaining Russian military supplies, maintenance networks and strategic technologies. Nearly half of India's major military platforms retain Russian-origin components. Example: S-400 systems.
2. **Geopolitical Anchor / Stabilizing Constant:** Participation in Quad for Indo-Pacific stability. Active engagement in BRICS, SCO and RIC formats. Avoids strategic overdependence on any single bloc. Example: Issue-based coalitions.
3. **De-risking and Diversification:** Russian energy imports strengthen energy security. Western partnerships support investments, semiconductor ecosystems and manufacturing under Make in India. Balances affordability with modernization. Example: Energy-tech duality.
4. **Preventing an Asymmetric Embrace:** Cooperation with Russia in nuclear energy, space and defence. Collaboration with Western partners in AI, quantum computing, semiconductors and emerging technologies. Diversifies technological dependencies. Example: Target 100 by 2030.
5. **Multi-Vector Diplomacy / Dynamic Equilibrium:** India projects itself as a voice of developing countries. Its refusal to join sanctions regimes reflects an independent foreign policy rooted in sovereign decision-making. Enhances diplomatic credibility. Example: Global South Leadership, G20 Presidency.
6. **Continental Eurasian Multi-Polarity:** Highlighting that true multipolarity cannot exist if Eurasia is dominated by a single power (China). A strong India-Russia axis preserves a multi-polar balance within the continent.

Way Forward

1. **Strategic Indispensability:** Expand Rupee-Ruble settlement mechanisms. Promote alternative payment systems and local currency trade.
2. **Accelerate Defence Indigenisation:** Utilize Russian and Western technology partnerships for domestic manufacturing. Strengthen Atmanirbhar Bharat in defence. Example: Joint production
3. **Deepen Issue-Based Partnerships:** Continue Quad engagement for maritime security. Maintain BRICS and SCO participation for Eurasian connectivity.
4. **Preserve Strategic Autonomy:** Avoid formal alliance commitments. Maintain flexibility amid intensifying great-power competition.
5. **Strengthen Global Governance Role:** Use platforms such as G20, BRICS and the UN to advocate inclusive multipolarity and reform of global institutions.

Conclusion

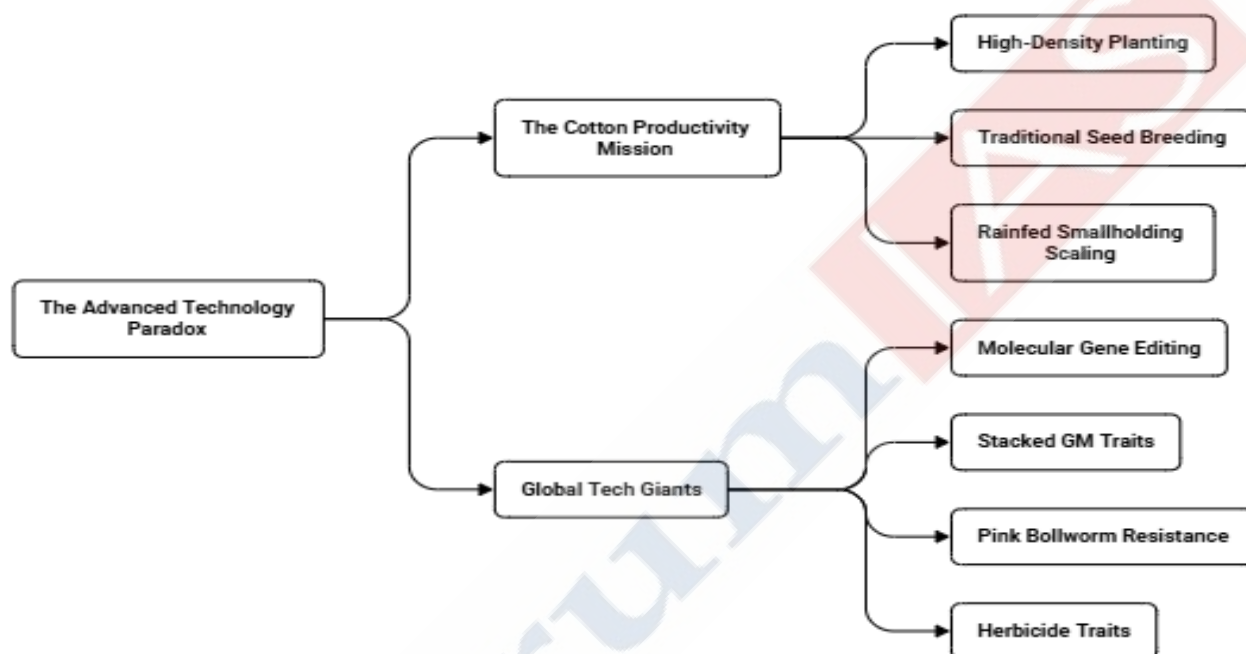
Echoing External Affairs Minister S. Jaishankar in The India Way, India's multi-alignment reflects strategic autonomy in practice engaging all major powers while remaining aligned only to national interest and global stability.

Examine how regulatory bottlenecks hamper technology adoption in India's cotton sector. Evaluate the role of private global innovations in reversing declining crop productivity.

Introduction

India, the world's largest cotton cultivator, has witnessed lint productivity stagnate at about 440 kg/ha despite Budget 2026-27's ₹5,659 crore Mission for Cotton Productivity, highlighting the growing disconnect between regulatory policy and technological advancement.

The Advanced Technology Paradox: Cotton Productivity



Regulatory Bottlenecks Hampering Technology Adoption

- 1. Stalled Regulatory Approvals:** Prolonged GEAC approvals and multi-year field trials delay commercialization by 8-10 years. Advanced technologies such as HTBt cotton and next-generation stacked traits remain pending for years. Creates a technology lag vis-à-vis Brazil, Australia and the USA. Example: HTBt cotton pending commercialization.
- 2. Federal-State Regulatory Fragmentation:** State-level vetoes create fragmented rollout despite central clearance. Creates an uneven regulatory landscape and discourages investment. Example: Opposition to HT traits by some states.
- 3. Price Controls and Weak IPR Incentives:** Cotton Seed Price Control Orders and trait-fee caps reduced returns on innovation. Abolition of trait fees weakened incentives for multinational seed companies and discourages introduction of advanced biotechnology products. Example: Withdrawal of advanced Bollgard variants.
- 4. Expansion of Illegal Seed Markets:** Regulatory restrictions have encouraged unapproved HTBt seed markets. Farmers adopt illegal seeds due to lack of legal alternatives. Raises biosafety and quality concerns. Example: Grey-market HTBt cultivation.
- 5. Cotton Productivity Mission vs. Global Technology:** Cotton Productivity Mission's focus on High-Density Planting Systems (HDPS) and better extension services while agronomic adjustments alone cannot overcome underlying biological vulnerabilities. Without modern, gene-stacked seed

varieties that offer built-in resistance to evolving pest biotypes, structural yield declines cannot be permanently reversed.

Multi-Dimensional Impact of Technology Stagnation

1. **Economic Productivity:** Cotton output declined from its growth trajectory despite rising textile demand. India imported nearly 4 million bales in 2025-26. Higher raw material costs affect textile exports and MSMEs. Example: Import dependence rising.
2. **Farmer Livelihoods:** Small farmers face lower yields and rising pest-management costs. Increased income volatility in rainfed cotton regions. Example: Vidarbha distress regions.
3. **Technological Proliferation:** First-generation Bt technology faces pest resistance. Absence of gene-stacking, gene-editing and herbicide-tolerant traits reduces competitiveness. Example: Pink bollworm resurgence.
4. **Environmental:** Higher pesticide use due to resistance buildup. Reduced sustainability of cotton cultivation. **Example:** Excess insecticide sprays.
5. **Global Competitiveness:** India's lint productivity (~440 kg/ha) remains far below Australia, Brazil and China. Weakens the "Farm-to-Fibre" value chain. Example: Productivity gap persists.

Role of Private Global Innovations in Reviving Productivity

1. **Advanced Biotechnology Solutions:** Stacked gene and herbicide-tolerant varieties reduce labor and pest losses. Climate-resilient seeds enhance drought tolerance. Example: HTBt technology.
2. **Precision Agriculture Technologies:** AI-enabled pest surveillance, IoT-based soil moisture monitoring and satellite-driven crop advisories. Example: Digital agriculture platforms.
3. **Drone and Smart Spraying Systems:** Precise pesticide application lowers input costs. Reduces chemical wastage and environmental damage. Example: Drone spraying adoption.
4. **Global R&D Partnerships:** Collaboration between ICAR, CICR and multinational firms can accelerate innovation. Facilitates technology transfer and indigenous adaptation. **Example:** Public-private breeding programmes.
5. **Supply Chain Modernisation:** Certified seed traceability systems and QR-based authentication against counterfeit seeds. Example: Digital seed tracking.

Strategic Interventions for Long-Term Cotton Security

1. **Overhauling the Biotechnology Regulatory Pipeline:** Streamline GEAC approvals with time-bound, science-based processes and single-window clearances for GM traits.
2. **Reforming IPR and Trait Fee Models:** Deregulating seed prices to attract foreign capital and secure early access to cutting edge global R&D. Example: Market-Linked Trait Pricing.
3. **Public-Private Co-Development:** Partnering state labs (ICAR/ CICR) with global innovators for domestic gene-transfer licensing arrangements.
4. **Technology Democratization:** Subsidized access to drones, sensors and custom-hiring centres. Support smallholder adoption.
5. **Strengthen Biosafety and Monitoring:** Digital traceability of seeds and field-level monitoring and eliminate illegal seed markets.
6. **Global Benchmarking:** Align cotton innovation strategy with Brazil and Australia models.

Conclusion

Cotton revival requires science-based regulation, innovation-friendly policies and public-private collaboration to restore global competitiveness and farmer prosperity.

Analyze the economic and strategic potential of Northeast India's critical mineral reserves. Evaluate the environmental and regulatory challenges in unlocking this frontier for clean energy transition.

Introduction

Rare Earth Elements (REEs) are “vitamins of modern industry” because, like vitamins in human biology, they are required in tiny, precise amounts. As India pursues Net-Zero 2070 and Viksit Bharat 2047, Geological Survey of India (GSI) critical Mineral Assessment identifies secure mineral supply chains as indispensable. Northeast India's untapped reserves can transform energy security, manufacturing competitiveness, and strategic autonomy.

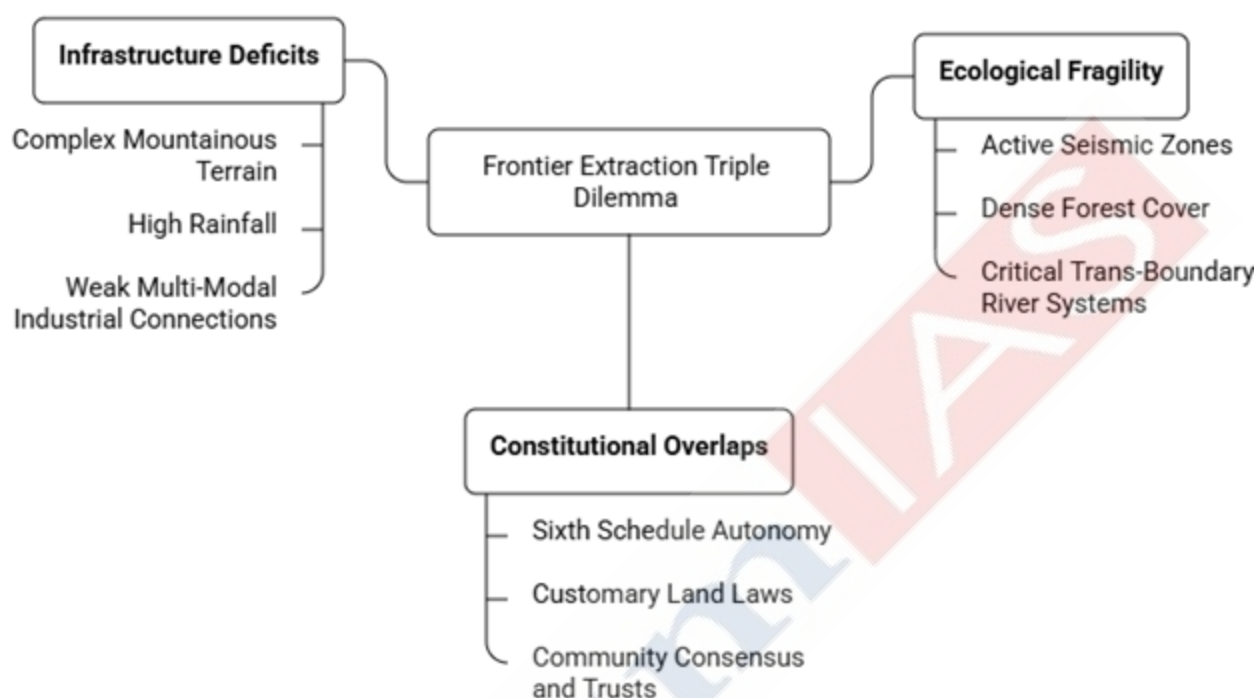
Economic Potential

- 1. Enabling the Green Energy Transition:** Graphite, India lithium, cobalt, and nickel are critical for EV batteries and energy storage systems. Supports National Electric Mobility Mission and battery manufacturing ecosystem. Example: Arunachal Pradesh's 17.89 million tonnes graphite resource.
- 2. Securing Digital and Defense Supply Chains:** Beyond energy applications, these strategic minerals are vital inputs for advanced semiconductor packaging, telecommunications gear, and precision-guided defense manufacturing. Example: Vanadium resources of 13.79 million tonnes.
- 3. Import Substitution and Forex Savings:** remains highly dependent on imports of lithium, cobalt, and REEs. Domestic mining reduces vulnerability to external supply disruptions. Example: China's export restrictions on rare-earth magnets.
- 4. Industrial and Employment Multiplier:** Mining-linked processing, refining, and battery-component manufacturing can generate high-skilled jobs. Promotes industrialization of the Northeast beyond traditional sectors. Example: Regional mineral-processing clusters.
- 5. Revenue Mobilization and Regional Development Gains:** Auctions under MMDR reforms can enhance state revenues and infrastructure creation. Reduces developmental disparities in the Northeast. Example: Seven mineral blocks already auctioned.

Strategic and Geopolitical Significance

- 1. Geoeconomic De-risking (China+1 Strategy):** China dominates global rare-earth processing and magnet supply chains. Indigenous reserves strengthen India's "China Plus One" strategy. Example: Rare-earth deposits in Assam and Meghalaya.
- 2. Comprehensive National Security:** Critical minerals are essential for semiconductors, missiles, aerospace systems, and advanced electronics. Enhances defence manufacturing under Atmanirbhar Bharat. Example: REEs in precision-guided systems.
- 3. Supporting Mineral Security Partnerships:** Strengthens India's role in the Mineral Security Partnership (MSP) and other strategic coalitions. Enhances bargaining power in global supply chains. Example: National Critical Mineral Mission.
- 4. Act East and Connectivity Dividend:** Northeast can evolve into a mineral-processing and logistics hub connecting ASEAN markets. Complements Kaladan Multi-Modal Project and India-Myanmar-Thailand Highway. Example: Resource-to-market corridors.

Frontier Extraction Triple Dilemma



Environmental and Regulatory Challenges

- 1. Ecological Fragility:** Region contains biodiversity hotspots, dense forests, seismic zones, and fragile river systems. Mining may trigger habitat loss, landslides, and water contamination. Example: Legacy of rat-hole mining in Meghalaya.
- 2. Customary Governance:** Sixth Schedule areas and Article 371 protections recognize tribal land rights. Community consent is indispensable for project legitimacy. Example: Autonomous District Councils.
- 3. Last-Mile Challenge:** Rugged terrain, poor logistics, and high rainfall raise extraction costs. Many prospective deposits remain commercially inaccessible. Example: Remote districts of Arunachal Pradesh.
- 4. Regulatory and Investment Bottlenecks:** Lengthy clearances, environmental approvals, and land acquisition issues delay projects. Several mineral block auctions have received limited investor interest. Example: Cancelled critical mineral auctions.
- 5. Social Acceptance Challenges:** Concerns over displacement, livelihood loss, and cultural disruption. Absence of equitable benefit-sharing may fuel resistance. Example: Tribal land ownership systems.

Way Forward

- 1.** Institutionalize Public-Private-Community Partnerships (PPCP) with revenue-sharing mechanisms.
- 2.** Promote green mining technologies, aero-geophysical surveys, and AI-enabled exploration.
- 3.** Establish mine-to-market value chains within the Northeast rather than exporting raw ore.
- 4.** Strengthen environmental safeguards through mandatory restoration bonds and ESG standards.

5. Integrate mineral development with Act East connectivity and local skill development.
6. Develop strategic mineral processing hubs under the National Critical Mineral Mission.

Conclusion

As former President Dr. A.P.J. Abdul Kalam envisioned in India 2020: Natural resources are the foundation of a developed nation. Northeast India's mineral wealth is not merely economic opportunity it is the bedrock of India's sovereign technological future.

Analyze how tariff asymmetries in Free Trade Agreements incentivize Make in ASEAN, Sell in India. Evaluate its impact on domestic manufacturing and employment. (500 Words)

Introduction

As India expands its FTA network to nearly 69 countries covering around 75% of exports, pushing its global trade toward a targeted \$1 trillion milestone. The Economic Survey 2025-26 highlights the need for trade agreements that strengthen domestic value addition rather than import dependence.

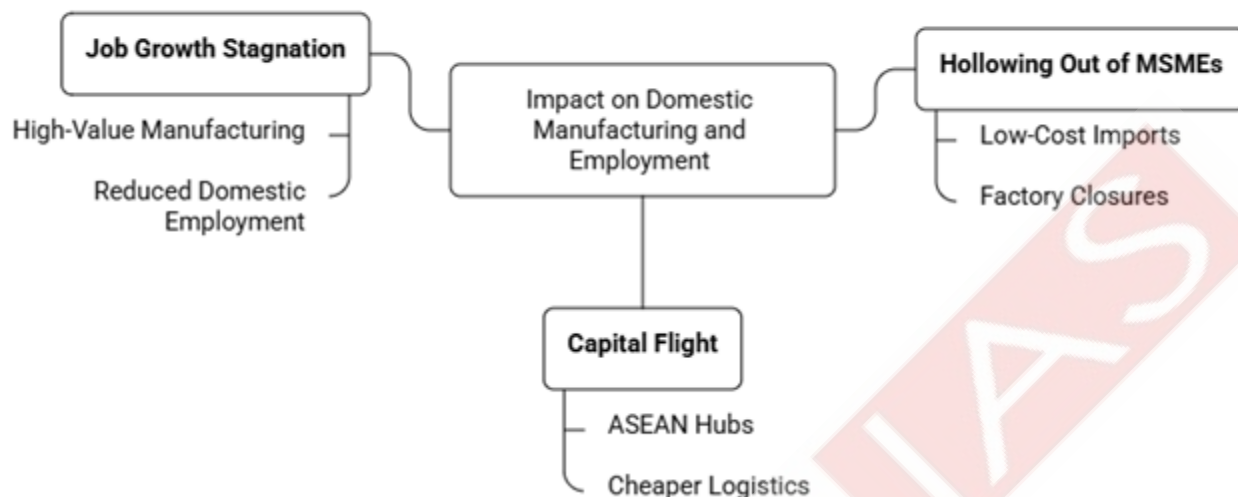
Tariff Asymmetries and the Make in ASEAN, Sell in India Phenomenon

Free Trade Agreements are intended to enhance mutual trade and production integration. However, India's experience with ASEAN-India Free Trade Area (AIFTA) and other Asian FTAs reveals a structural asymmetry wherein imports have outpaced exports, incentivizing firms to locate production in ASEAN while targeting India's vast consumer market.

How Tariff Asymmetries Create Offshore Manufacturing Incentives

1. **Asymmetric Tariff Compression:** India enters FTAs with relatively high MFN tariffs (trade-weighted tariff around 12.6%), whereas ASEAN economies already maintain low tariff regimes. Tariff elimination provides significant gains to ASEAN exporters in India. Indian exporters receive limited additional market access because partner-country tariffs were already low. Example: ASEAN imports surge post-AIFTA.
2. **Inverted Duty Structure and Cost Disadvantage:** A major distortion arises when raw materials and intermediate goods attract duties. Finished products enter duty-free under FTAs. Consequently, domestic manufacturers face higher production costs than importers. Steel and aluminium inputs attract duties, while finished machinery enters at zero duty. Example: Engineering Goods Sector.
3. **Weak Rules of Origin (RoO) & Trade Diversion:** Insufficient verification enables third-country goods to exploit ASEAN routes. Chinese firms establish assembly operations in Vietnam, Thailand, and Indonesia. Minimal value addition secures preferential access to India. Example: Electronics Assembly Networks.
4. **Global Value Chain Relocation:** FTAs combined with lower logistics and production costs encourage firms to relocate manufacturing. "Make in ASEAN, Sell in India" becomes commercially attractive. Example: Consumer Electronics Manufacturing.

Impact on Domestic Manufacturing and Employment



Impact on Domestic Manufacturing and Employment

1. **De-industrialization Pressures:** Domestic industries lose competitiveness against tariff-free imports. Trade deficit with ASEAN increased significantly after AIFTA; capacity utilization declines in vulnerable sectors. Example: Chemicals and Plastics.
2. **Erosion of MSMEs:** MSMEs face severe competitive disadvantages due to high compliance costs, limited economies of scale and inability to absorb tariff distortions. Example: Small Engineering Units.
3. **Job Leakage:** When production shifts abroad employment generation occurs in ASEAN rather than India, labour-intensive sectors are particularly affected. Example: Textiles and Footwear.
4. **Informal Sector Vulnerability:** Small ancillary suppliers dependent on domestic manufacturing clusters suffer income losses. Example: Auto Components Ecosystem.
5. **Technology Gap:** Relocation weakens India's industrial learning curve. Reduced domestic production limits technology absorption, slows movement up global value chains. Example: Electronics Value Chain.
6. **Supply Chain Vulnerability:** Excessive import dependence exposes India to external shocks, geopolitical tensions and disruptions in critical sectors. Example: Semiconductor Components.
7. **Policy Contradiction:** Offshore manufacturing undermines domestic value addition, industrial resilience and national manufacturing ambitions. Example: Make in India and Atmanirbhar Bharat.

Way Forward

1. **Strengthen Rules of Origin:** Strict implementation of Customs (Administration of Rules of Origin under Trade Agreements) Rules (CAROTAR). Higher Regional Value Content (RVC) thresholds and digital origin verification systems.
2. **Correct Inverted Duty Structures:** Reduce duties on inputs before final products and align customs policy with industrial policy.
3. **Strategic FTA Design:** Expand sensitive-sector exclusion lists, introduce phased tariff liberalization and conduct periodic impact assessments.
4. **Deploy Trade Remedies:** Faster anti-dumping investigations, safeguard duties against import surges and robust Quality Control Orders (QCOs).

5. **Integrate FTAs with Industrial Policy:** Synchronize FTAs with PLI schemes. Promote domestic manufacturing clusters and encourage GVC participation from India-based firms.

Conclusion

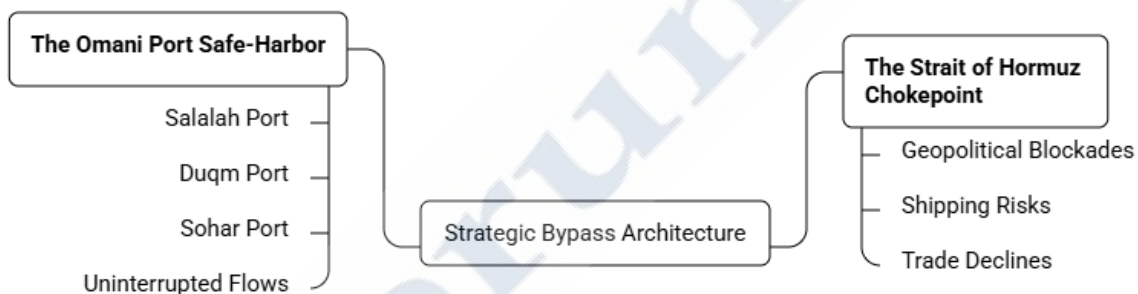
Echoing Dr. A.P.J. Abdul Kalam's vision of economic self-reliance, India's trade strategy must transform FTAs from mere market-access instruments into catalysts for domestic manufacturing, employment generation, and resilient supply chains.

Examine the strategic and economic significance of the India-Oman CEPA. Evaluate its role in bypassing West Asian maritime chokepoints and enhancing professional mobility.

Introduction

With bilateral trade rising to about \$11.18 billion in FY 2025-26 and the India-Oman CEPA entering force on 1 June 2026, the agreement advances India's trade diversification, energy security, services exports, and maritime resilience objectives.

Strategic Bypass Architecture: Hormuz Chokepoint vs. Omani Port Safe-Harbor



Economic Significance

1. **Unprecedented Market Access for Indian Exports:** Oman grants duty-free access to 98.08% tariff lines, covering 99.38% of India's exports by value. Boosts competitiveness in: Engineering goods, Textiles & apparels, gems & jewelry and electronics.
2. **Support to Make in India and MSMEs:** Eliminates the earlier 5% MFN duty on many products. Expands export opportunities for labour-intensive sectors. Aligns with Budget 2026-27 emphasis on manufacturing-led growth.
3. **Pharmaceutical and Regulatory Gains:** Fast-track approval mechanism for medicines already approved by leading regulators. Reduces compliance costs and time-to-market.
4. **The Best-Ever Services Framework:** Oman has extended its most liberal service commitments yet to India, encompassing 127 service sub-sectors. CEPA extends beyond tariffs to: investment facilitation, regulatory cooperation, digital trade architecture and services liberalisation. Deepens India's integration into Gulf value chains.

Strategic Significance

1. **Bypassing West Asian Maritime Chokepoints:** Traditional Gulf trade depends heavily on the Strait of Hormuz, vulnerable to geopolitical disruptions. Oman's major ports, Port of Duqm, Port of

Salalah and Port of Sohar are strategically positioned along the Arabian Sea and Indian Ocean, offering alternative logistics routes. Example: Hormuz bypass.

2. Energy Security Dimension: Oman remains an important supplier of crude oil, LNG and Urea and ammonia. Enhances supply-chain resilience amid West Asian instability.

3. Gateway to GCC, Africa and Indo-Pacific: Oman acts as a logistics bridge connecting: Gulf Cooperation Council (GCC), East Africa and North Africa. Complements SAGAR Vision, Act West Policy and IMEC aspirations.

4. Strategic Balancing: Strengthens India's presence in the western Indian Ocean. Counters excessive dependence on any single maritime corridor. Enhances India's role as a net security provider.

Professional Mobility

1. Liberalized Services Framework: Oman has offered one of its most extensive commitments in services sectors. Benefits: IT professionals, engineers, doctors, teachers and accountants.

2. Enhanced Intra-Corporate Mobility: Easier movement of professionals and specialists. Supports Indian firms operating across Gulf markets.

3. Human Capital Diplomacy: Builds upon India's demographic advantage and expands remittances and skill exports. Strengthens people-to-people ties.

4. New Sectors of Cooperation: Recognition of traditional medicine and wellness services. Creates opportunities for: AYUSH, Healthcare services and Medical tourism.

Challenges and Concerns

1. Demographic Limitation: Oman's population (~5 million) limits market size. CEPA must be leveraged as a regional gateway rather than a standalone market.

2. Trade circumvention and Rules of Origin Risks: Potential third-country routing through Oman. Requires strict CAROTAR-based verification.

3. Implementation Deficit: MSMEs may face information and compliance gaps. Utilisation rates must improve.

Way Forward

1. Develop India–Oman logistics corridors linking Duqm with western Indian ports.

2. Create dedicated CEPA facilitation cells for MSMEs.

3. Strengthen digital Rules-of-Origin verification.

4. Promote Indian participation in Omani SEZs and industrial parks.

5. Integrate CEPA with IMEC and broader GCC market strategies.

Conclusion

Echoing President Dr. A.P.J. Abdul Kalam's vision that economic strength underpins strategic autonomy, the India-Oman CEPA transforms historical maritime ties into a future-oriented partnership of trade, connectivity, mobility, and resilience.

Analyze how periodic boundary disputes impact India-Nepal relations. Suggest how developmental diplomacy can prevent external third-party mediation in their bilateral affairs

Introduction

India and Nepal share a unique, time-tested relationship rooted in geography, deep-rooted cultural ties, and 1,800-km open border that allows for the unregulated movement of people. Bound by an open border, deep civilizational links and the 1950 Treaty, India-Nepal relations remain strategically significant.

Impact of Periodic Boundary Disputes on India-Nepal Relations and the Role of Developmental Diplomacy

India and Nepal share one of South Asia's most unique bilateral relationships characterized by free movement of people, extensive cultural affinity, economic integration and security cooperation. However, unresolved disputes over Kalapani, Lipulekh, Limpiyadhura and Susta periodically generate political tensions, influencing broader bilateral engagement.

Historical and Legal Roots of Boundary Disputes

- 1. Legacy of the Treaty of Sugauli (1816):** The dispute originates from differing interpretations of the Treaty of Sugauli, signed between Nepal and the East India Company. Absence of precise maps created ambiguity, Nepal relies on maps of 1850-56; India relies on later surveys of 1879 and competing interpretations continue to shape territorial claims. Example: Kalapani-Limpiyadhura dispute.
- 2. Constitutional and Sovereignty Dimension:** Territorial integrity is politically sensitive in both countries. Nepal incorporated disputed territories in its 2020 constitutional map. Border issues often become symbols of national sovereignty. Example: Constitutional map amendment.

India's Foreign Policy Approach for Border Stability



How Boundary Disputes Impact Bilateral Relations

- 1. Domestic-Political-Trigger:** Periodic disputes create cycles of mistrust and diplomatic friction. Delays in high-level engagements. Escalation through public statements and nationalist rhetoric and reduced political space for compromise. Example: Kailash-Mansarovar Yatra through the Lipulekh Pass controversy.
- 2. Strategic and Geopolitical Impact:** Border tensions create opportunities for external actors. Increased geopolitical competition in the Himalayas. Concerns regarding Chinese influence in Nepal. Diversion of diplomatic energies from regional cooperation. Example: Third-party mediation debate.
- 3. Economic Impact:** Political uncertainty affects economic cooperation. Delays in connectivity projects. Reduced investor confidence and disruptions in trade facilitation discussions. India remains Nepal's largest trading partner, while Nepal is emerging as a significant electricity exporter to India. Example: Cross-border transmission projects.

4. Social and People-to-People Impact: Unlike most international borders, India-Nepal relations involve deep societal integration. Open-border movement, roti-Beti relations and sShared religious heritage. Border disputes risk politicizing traditionally cordial social relations. Example: Janakpur–Ayodhya linkages.

5. Security and Border Management Impact: Tensions complicate: border infrastructure development, anti-smuggling cooperation, counterfeit currency monitoring and transnational crime management. Example: Integrated Check Posts.

Why Developmental Diplomacy is the Best Alternative to Third-Party Mediation

India has consistently maintained that boundary issues must be resolved through bilateral mechanisms without external intervention.

1. Creating Stakes in Stability: Economic interdependence reduces incentives for confrontation. Hydropower cooperation, cross-border energy trade and transit and logistics integration. Example: Arun-III Hydropower Project.

2. Connectivity as Confidence Building: Development projects transform borders from barriers into bridges. Rail links, petroleum pipelines, digital payments and integrated check posts. Example: Motihari-Amlekhgunj pipeline.

| Mechanism | Purpose |
|-------------------------------|------------------------------|
| Joint Boundary Working Group | Technical dispute resolution |
| Joint Commission | Political coordination |
| Energy Cooperation Mechanisms | Economic integration |
| Water Resource Committees | River governance |

3. Development Before Dispute Strategy: When citizens experience tangible developmental gains, political rhetoric loses traction. Employment generation, infrastructure access and energy security. Example: Cross-border electricity exports.

4. Strengthening Bilateral Institutions: Developmental diplomacy reinforces institutional dialogue. **Example:** Technical boundary surveys.

5. Technological Cooperation: Modern technologies can depoliticize disputes. GIS mapping, satellite imagery, digital land records and joint geospatial surveys. Example: Scientific boundary demarcation.

Way Forward

1. Diplomatic Measures: Resume regular Joint Boundary Committee meetings. Institutionalize Track-1.5 and Track-2 dialogues and avoid public megaphone diplomacy.

2. Developmental Measures: Fast-track BBIN connectivity projects, expand power trade and hydropower investments and promote border economic zones.

3. Strategic Measures: Maintain bilateral-only dispute resolution, enhance cooperation under the “Neighbourhood First” policy and build trust through predictable engagement.

4. Societal Measures: Expand educational exchanges, strengthen Buddhist and Ramayana circuits and promote youth and parliamentary interactions.

Conclusion

Neighbours are not chosen; they are given. India and Nepal's shared civilisational heritage demands that their leaders rise above colonial cartographic legacies and build a relationship defined by sovereign respect, not historical suspicion.

Evaluate the vulnerability of India's critical digital infrastructure to dual-use frontier AI models, and suggest regulatory frameworks to mitigate systemic cyber risks.

Introduction

The advent of frontier Artificial Intelligence (AI) models like Anthropic's Claude Myths marks a paradigm shift in cybersecurity. Capable of autonomously discovering zero-day vulnerabilities (previously unpatched software flaws) hidden deep within legacy code, these models possess immense dual-use capabilities (can be used for both defense and offense).

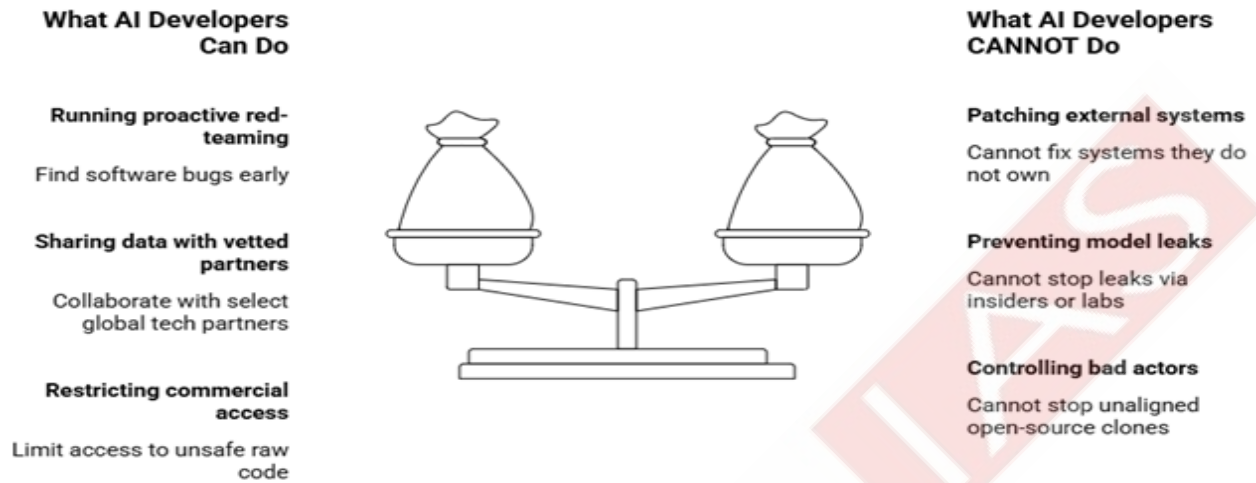
India's Vulnerability to Dual-Use Frontier AI Models

If weaponized by non-state actors or hostile states, this technology threatens a Mythocalypse, a scenario where automated, cascading cyberattacks exploit systemic blind spots to cripple an entire nation's critical infrastructure.

- 1. Financial and Banking Ecosystem:** India's digital economy rests on UPI, Aadhaar, Account Aggregator and Core Banking Systems. Many public sector banks still operate on legacy software architectures vulnerable to AI-discovered zero-day exploits. AI can autonomously chain low-risk flaws into large-scale attacks targeting payment systems. *Example: UPI ecosystem.*
- 2. National Power Grids and Utilities:** Industrial Control Systems (ICS) and SCADA networks governing electricity, water and energy grids often run outdated software. Autonomous AI could identify dormant vulnerabilities and trigger physical disruptions. *Example: Grid blackout risk.*
- 3. Threat to Governance and Citizen Databases:** National examination systems, land records, welfare databases and identity platforms face risks of manipulation. AI-driven attacks could compromise service delivery and public trust. *Example: Aadhaar-linked services.*
- 4. National Security Concerns:** Defence logistics, satellite communication networks and strategic infrastructure increasingly depend on digital systems. AI-enabled cyber warfare reduces the distinction between peacetime and conflict. *Example: Hybrid warfare.*
- 5. Economic Vulnerability:** According to NASSCOM and industry estimates, India faces a cybersecurity workforce shortage exceeding 6 lakh professionals. Slow patch cycles create a mismatch between machine-speed attacks and human-speed responses. *Example: PSU banking networks.*
- 6. Social and Democratic Risks:** Frontier AI can facilitate misinformation, credential theft and institutional disruption. Attacks on examination systems or public databases can undermine citizen confidence. *Example: Recruitment portals.*
- 7. Geopolitical:** Open-source proliferation of advanced cyber-capable models may empower hostile states and non-state actors. India's position as the world's largest Digital Public Infrastructure ecosystem increases its attractiveness as a target. *Example: State-sponsored actors.*

Challenges and The Limits of AI Developers




The Frontier AI Cyber Defense Paradox: Developer Capabilities vs. Limitations



1. While AI creators like Anthropic attempt to act responsibly through initiative groups (e.g., Project Glasswing), their unilateral capacity to protect countries like India is fundamentally constrained.
2. Even if an AI agent flags thousands of critical bugs overnight, the human engineering pipeline takes weeks or months to develop, test, and safely deploy security patches across complex public networks. In that gap, the advantage shifts entirely to the attacker.

Regulatory Frameworks to Mitigate Systemic Cyber Risks

Strategic Regulatory Framework for India

| Strategic Pillar | Actionable Mechanism | Institutional Objective |
|---|------------------------------------|----------------------------|
|  Sovereign AI Red-Teaming | Partner with CERT-In | Hunt for zero-days |
|  Strict Patching Mandates | Enforce automated patch compliance | Shrink exposure window |
|  Geopolitical AI Governance | Formulate tech-sharing treaties | Ensure threat intelligence |

1. **Establish an India AI Safety Institute (IAISI):** Create an independent body for testing frontier AI models against Indian threat scenarios. Similar to the UK AI Security Institute and U.S. safety initiatives. *Example: National AI audits.*

- 2. Sovereign AI Red-Teaming Framework:** CERT-In, NCIIPC and academia should deploy indigenous AI tools to proactively discover vulnerabilities. Shift from reactive to predictive cybersecurity. *Example: AI vulnerability hunting.*
- 3. Critical Infrastructure Cybersecurity Fund:** Budget-supported modernization of legacy systems in banking, power and governance sectors. Accelerate migration from obsolete software. *Example: Legacy modernization.*
- 4. Frontier AI Accountability Law:** Mandate capability disclosures, safety evaluations and incident reporting for advanced AI developers. Draw lessons from the EU AI Act and emerging global standards. *Example: Risk-based regulation.*
- 5. Automated Patch Compliance Standards:** Mandatory timelines for patch deployment in critical sectors. Real-time monitoring through regulatory dashboards. *Example: Banking compliance.*
- 6. International AI Governance:** Lead G20 efforts for notification and review mechanisms for highly capable cyber models. Expand trusted partnerships with the U.S., Japan, UK and Quad members. *Example: Defensive AI cooperation.*
- 7. Capacity Building:** Integrate AI-security curricula through IndiaAI Mission and Digital India initiatives. Address the cyber talent gap. *Example: Cyber workforce development.*

Conclusion

As former President Dr. A.P.J. Abdul Kalam observed, national strength rests on technological preparedness. In the AI era, India's resilience will depend on securing digital infrastructure before vulnerabilities become systemic crises.

Critically analyze the need to institutionalize irretrievable breakdown of marriage as a ground for divorce in India. Evaluate its socio-legal challenges.

Introduction

India's matrimonial legal architecture rests on two colonial-era pillars, the Hindu Marriage Act, 1955 (HMA) and the Special Marriage Act, 1954 (SMA), both structured around the fault theory of divorce: a marriage can only be dissolved if one spouse proves a specific statutory wrong (cruelty, desertion, adultery, conversion) committed by the other.

Need to Institutionalize Irretrievable Breakdown of Marriage (IBM)




- 1. Aligning Law with Social Reality:** Many marriages fail due to incompatibility, emotional alienation, or prolonged separation rather than legally provable fault. Forcing continuation of such unions creates a legal fiction divorced from reality. *Example: 15-year separation cases.*
- 2. Reducing Adversarial Litigation:** Present laws under the Hindu Marriage Act, 1955 and Special Marriage Act, 1954 compel parties to prove cruelty, desertion, or adultery. This often leads to multiple proceedings involving maintenance, domestic violence, and criminal complaints. *Example: Matrimonial litigation spiral.*
- 3. Advancing Constitutional Morality:** Article 21 guarantees dignity, autonomy, and the right to make intimate life choices. A dignified exit from an irreparable relationship is consistent with substantive liberty jurisprudence. *Example: Privacy judgment principles.*
- 4. Democratizing Access to Justice:** In *Shilpa Sailesh v. Varun Sreenivasan (2023)*, the Supreme Court recognized its power under Article 142 to dissolve irretrievably broken marriages. Relief should not depend upon reaching the apex court; family courts must possess similar statutory authority. *Example: Equal legal access.*

5. **Promoting Mental and Social Well-being:** Prolonged matrimonial disputes adversely affect spouses, children, and extended families. Early closure facilitates emotional rehabilitation and social stability. Example: Child psychological welfare.

6. **Supporting Judicial Efficiency:** Family courts face growing pendency due to prolonged fault-based proceedings. Recognition of IBM could reduce unnecessary evidentiary battles and judicial burden. Example: Faster dispute resolution.

7. **Backed by Law Commission Recommendations:** The 71st Report (1978) and 217th Report (2009) of the Law Commission recommended incorporating irretrievable breakdown as an independent ground for divorce. Example: Long-standing reform demand.

Socio-Legal Challenges in No-Fault Divorce

| Challenge Vector | Socio-Legal Vulnerability | Essential Safeguard |
|--|---|---|
|  Socio-Economic Disparity | Women face financial disadvantages | Strict formulas for property division |
|  Child Welfare Concerns | Custody disputes become contentious | Court-appointed psychologists for child welfare |
|  Misuse in Unilateral Claims | Stronger spouse abandons vulnerable partner | Mandatory separation period to verify breakdown |

Socio-Legal Challenges in Institutionalizing IBM

1. **Risk of Economic Vulnerability for Women:** Women often experience unequal access to property, income, and employment. Easy divorce mechanisms may expose economically dependent spouses to insecurity. Example: Homemaker disadvantage.

2. **Possibility of Unilateral Abandonment:** A stronger spouse may invoke breakdown to exit responsibilities without adequate compensation. Marriage involves emotional and economic investments that require recognition. Example: Desertion through law.

3. **Child Custody and Welfare Concerns:** Expedited divorce may intensify disputes regarding custody, visitation, and education expenses. Children's best interests must remain paramount. Example: Shared parenting conflicts.

4. **Social and Cultural Resistance:** Marriage remains a significant social institution in India. Concerns persist that no-fault divorce may weaken familial stability. Example: Traditional family structures.

5. **Determining Genuine Breakdown:** Courts require objective criteria to distinguish temporary discord from permanent collapse. Absence of standards may encourage misuse. Example: Strategic litigation.
6. **Gender Justice Concerns:** Feminist scholars caution that no-fault divorce without robust financial safeguards may disproportionately burden women. Example: Post-divorce impoverishment.

Way Forward

1. **Legislative Reforms:** Amend the Hindu Marriage Act and Special Marriage Act to recognize IBM as an independent ground. Example: Statutory recognition.
2. **Mandatory Economic Restitution Framework:** Ensure equitable division of matrimonial assets, maintenance, and pension rights before decree. Example: Financial security guarantee.
3. **Separation-Based Safeguard:** Require a minimum period of continuous separation before invoking IBM. Example: Cooling-off verification.
4. **Child-Centric Divorce Model:** Mandatory parenting plans, educational support arrangements, and psychological assessment where necessary. Example: Best-interest standard.
5. **Strengthening Mediation:** Family courts should prioritize settlement of financial and parenting issues rather than forced reconciliation. Example: Collaborative resolution.
6. **Gender-Sensitive Judicial Guidelines:** Develop uniform standards through judicial and legislative coordination. Example: Consistent jurisprudence.

Conclusion

As Justice V.R. Krishna Iyer observed, law must serve human realities, not abstractions. Recognizing irretrievable breakdown would transform matrimonial law from fault-finding litigation into dignity-oriented social justice.

Analyze how the governance of higher education has become a flashpoint in Centre-State relations. Suggest measures to balance institutional standardization with regional autonomy.

Introduction

With education placed in the Concurrent List since 1976, higher education reflects India's evolving federalism. NEP 2020, ANRF, CUET and digital governance have intensified debates over standardization, autonomy, and cooperative federalism.

Higher Education as a Flashpoint in Centre-State Relations

1. **Constitutional and Federal Dimension:** Education falls under Entry 25 of the Concurrent List, enabling shared jurisdiction. Growing central influence through UGC, NAAC, NCVET and proposed Viksit Bharat Shiksha Adhishthan Bill, 2025 has raised concerns regarding federal balance. Frequent disputes over Governors powers and Vice-Chancellor appointments. Example: Tamil Nadu, Kerala.
2. **Policy and Regulatory Centralization:** NEP 2020 introduced FYUP (Four-Year Undergraduate-Programme), Academic-Bank-of-Credits (ABC), multidisciplinary universities and institutional restructuring. States argue that reforms are often designed centrally with limited adaptation to local needs. Standardization sometimes reduces policy flexibility. Example: FYUP implementation.
3. **Financial Federalism Concerns:** Access to central grants increasingly linked with compliance to national reforms. Schemes such as Institutions of Eminence, HEFA financing, and ANRF research

funding enhance Union leverage. Economically weaker States face dependence on centrally designed priorities. Example: Research grants.

4. Language and Cultural Dimension: Three-language formula and curriculum reforms have generated opposition in linguistically diverse States. Regional governments perceive certain policies as affecting linguistic identities and cultural autonomy. Education remains a vehicle of cultural preservation. Example: Tamil Nadu's opposition.

5. Digital Governance and Data Centralization: Platforms such as ABC, DigiLocker integration, NAD, APAAR ID increase interoperability. However, centralized digital architecture expands Union oversight over State institutions. Digital divide may disadvantage rural and vernacular learners. Example: CUET access gaps.

6. Economic and Developmental Impact: Economic Survey 2025-26 emphasizes human capital and research-driven growth. Budget 2026-27 strengthens innovation ecosystems through ANRF and digital learning initiatives. States seek flexibility to align higher education with local labour markets and industrial clusters. Example: Skill-linked universities.

7. Political and Administrative: Higher education has become a site of ideological contestation between different political dispensations. Disputes over curriculum, appointments and governance often reflect wider Centre-State tensions. Universities increasingly mirror broader federal negotiations. Example: Governor-State conflicts.

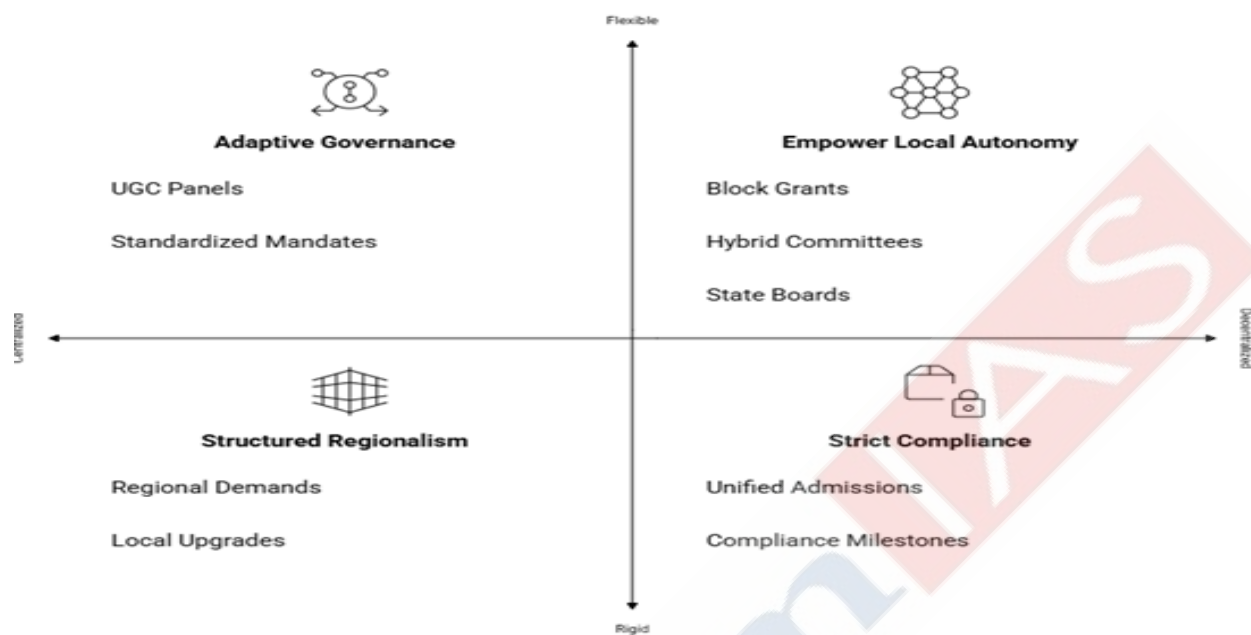
8. Global Competitiveness versus Local Priorities: Union emphasizes global rankings, foreign university campuses and internationalization. States prioritize affordability, inclusion and regional development. Balancing excellence with equity remains a major challenge. Example: Foreign branch campuses.

Need for Institutional Standardization

1. Ensures minimum academic quality nationwide.
2. Facilitates student mobility through credit transfer.
3. Enhances international recognition of Indian degrees.
4. Promotes research collaboration and national skill frameworks.
5. Supports the vision of a knowledge economy i.e. NITI Aayog: India@2047.

Measures to Balance Standardization with Regional Autonomy

Decentralize Policy Frameworks



1. **Strengthen Cooperative Federal Institutions:** Revitalize Central Advisory Board of Education (CABE) with mandatory consultation before major reforms.
2. **Adopt Asymmetric Federalism:** National standards should define outcomes, while States retain flexibility in implementation.
3. **Shared Governance Models:** Hybrid Vice-Chancellor selection committees with equal representation of States and national academic experts.
4. **Decentralized Funding Architecture:** Increase untied block grants to State Higher Education Councils. Performance metrics should account for regional realities.
5. **Flexible Language and Curriculum Framework:** National core standards alongside region-specific content and local language integration.
6. **Digital Federalism:** Common digital platforms with State-level customization and data governance safeguards.
7. **Institutionalized Inter-Governmental Dialogue:** Annual Centre-State Higher Education Council to resolve disputes before litigation.

Conclusion

As President Dr. S. Radhakrishnan observed, education must nurture both national unity and diversity. A balanced federal architecture can reconcile excellence, equity, standardization and regional aspirations in higher education.

Examine how the Foreign Contribution (Regulation) Amendment Bill, 2026 shifts the state's role from regulating foreign funding to controlling civil society. Evaluate its impact on welfare delivery.

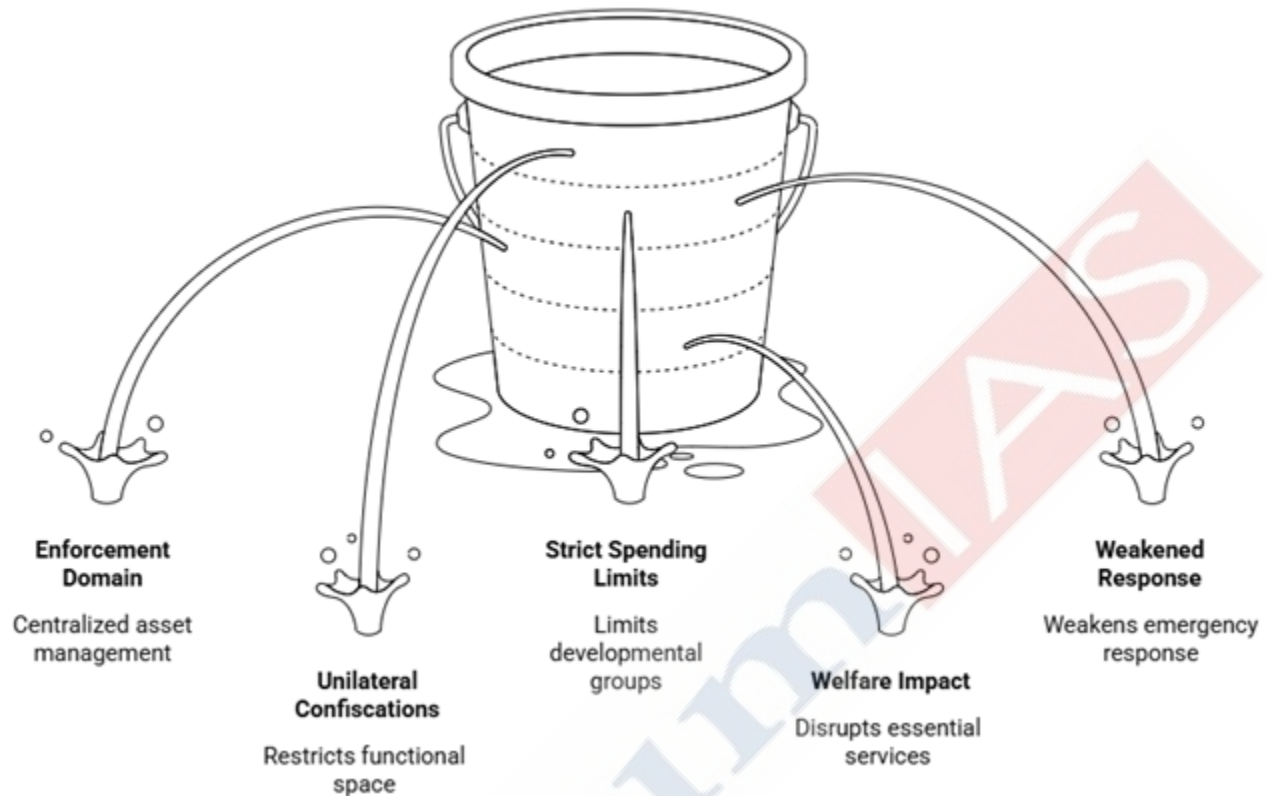
Introduction

Approximately 16,000 associations currently hold FCRA registration in India, collectively receiving around ₹22,000 crore annually funding schools, hospitals, and tribal welfare programmes that the state itself does not adequately reach. The FCRA Amendment Bill, 2026, does not merely tighten this funding pipeline; it converts the state from a regulatory watchdog into a potential landlord of civil society's infrastructure.

FCRA Amendment Bill, 2026 From Regulating Foreign Funding to Controlling Civil Society

- 1. Institutional Shift:** Introduction of a government-notified Designated Authority (DA) to manage assets and operations of organizations losing FCRA status. Converts the State from a regulator into a direct administrator of civil society assets. Enables takeover of institutions in the name of public interest. Example: NGO asset-management.
- 2. Asset-Vesting and Executive-Control:** Foreign-funded assets provisionally and subsequently permanently vest in the DA upon cancellation, surrender, or non-renewal. Authority can transfer assets to government departments or liquidate them, with proceeds credited to the Consolidated Fund of India. Moves beyond financial regulation to organizational control. Example: Schools, hospitals.
- 3. Expansion of Compliance Liability:** Broadened definition of Key Functionaries includes trustees, directors, CEOs and operational managers. Personal liability increases regulatory pressure and discourages civic participation. Creates a compliance-heavy ecosystem. Example: Trustee accountability.
- 4. Curtailment of Procedural Safeguards:** Administrative vesting occurs before independent judicial scrutiny. Restricts immediate legal remedies and strengthens executive discretion. Raises concerns regarding due process. Example: Registration lapses.
- 5. Control over Mixed-Funded Assets:** Assets partly financed through domestic resources and foreign contributions may be fully vested in the DA. Creates uncertainty for institutions built through blended philanthropy. Discourages future capital investments. Example: Community hospitals.

Civil Society Resource Pipeline Blockage



Impact on Welfare Delivery

- 1. Disruption of Last-Mile Service Delivery:** NGOs often supplement State capacity in remote and underserved areas. Closure or takeover of institutions can interrupt healthcare, education and livelihood programmes. Example: Tribal schools.
- 2. Public Health Implications:** Mission hospitals, child nutrition centres and disease-control initiatives depend on long-term foreign grants. Administrative freezes can affect vulnerable populations. Example: Maternal health services.
- 3. Impact on Marginalized Communities:** Civil society organizations work extensively with women, children, tribals and persons with disabilities. Reduced operational space may weaken social inclusion efforts. Example: Child protection networks.
- 4. Economic Consequences:** According to Ministry of Statistics estimates, civil society organizations generate millions of jobs and volunteer opportunities. Funding uncertainty may affect employment and local economies. Example: Rural development NGOs.
- 5. Chilling Effect on Global Philanthropy:** Risk of asset confiscation discourages long-term foreign donors. May reduce capital inflows into social development sectors. Example: International foundations.
- 6. Democratic and Social Capital Costs:** Civil society acts as a bridge between citizens and government. Excessive control may shrink public participation and feedback mechanisms. Example: Rights-based advocacy.

Way Forward

1. **Adopt a Risk-Based Regulatory Framework:** Differentiate between high-risk entities and welfare-oriented organizations.
2. **Introduce Independent Oversight:** Asset transfer should require approval from an independent tribunal or judicial authority.
3. **Protect Welfare Assets:** Schools, hospitals and community infrastructure should receive special safeguards.
4. **Ensure Time-Bound FCRA Decisions:** Mandatory timelines for renewal and registration approvals.
5. **Strengthen Transparency Through Technology:** Real-time digital disclosure systems instead of excessive administrative control.
6. **Institutionalize Stakeholder Consultation:** Engage NITI Aayog, State governments and civil society representatives in regulatory reforms.

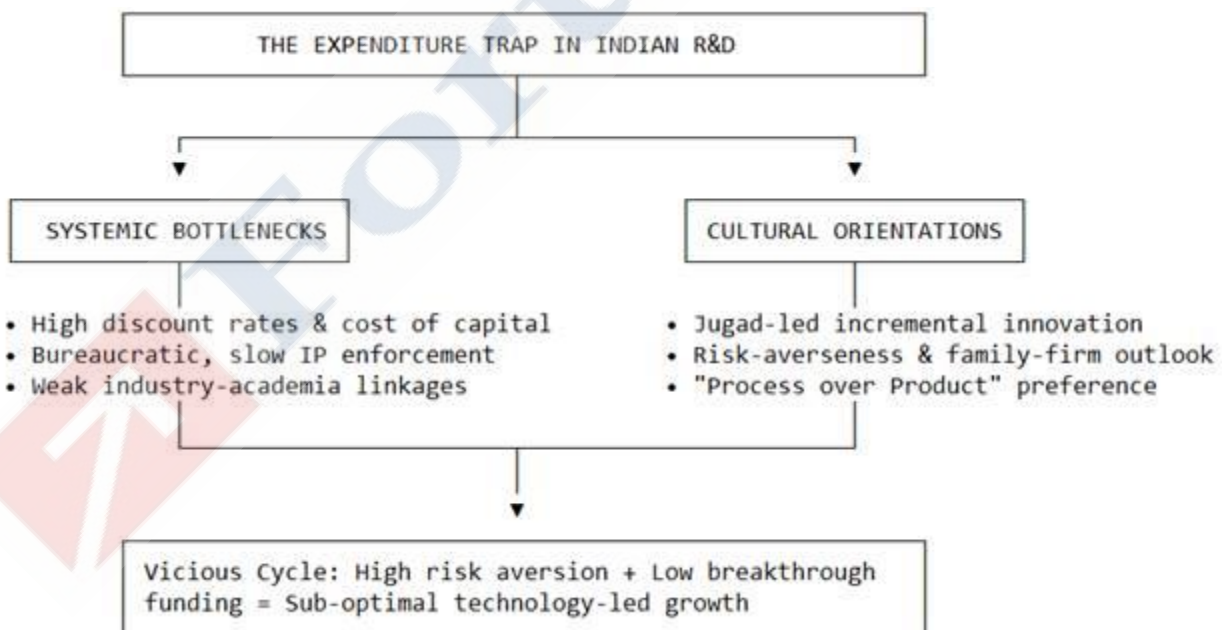
Conclusion

Development requires active citizen participation. Regulation must secure national interests while preserving civil society's indispensable role in welfare delivery.

Examine how structural barriers and corporate culture interact to cause chronic private sector underinvestment in India's Research and Development (R&D) ecosystem.

Introduction

India's Gross Expenditure on R&D (GERD) stagnates between 0.6% to 0.7% of GDP, vastly trailing global leaders like South Korea (~4.8%) and the US (~3.4%). Crucially, while the private sector contributes over 70% of GERD in advanced economies, in India, it accounts for a mere 36%.



Structural Barriers Limiting Corporate R&D

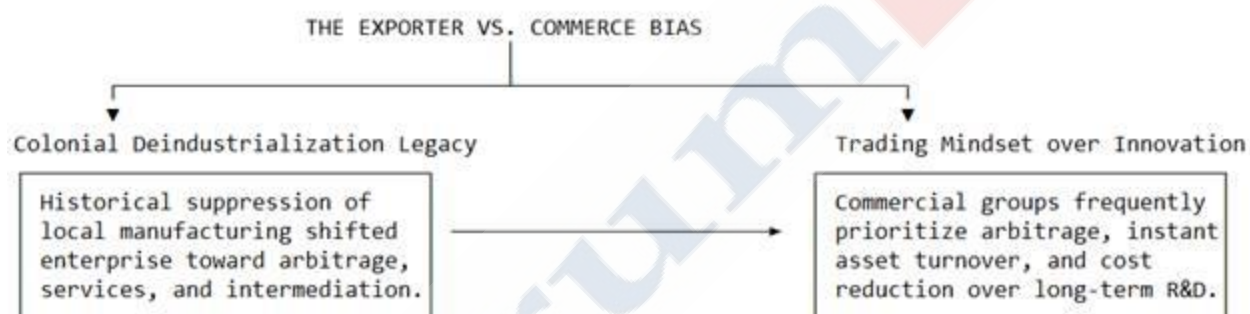
1. **Large Domestic Market and Weak Competitive Pressure:** India's vast consumer base enables firms to grow without investing heavily in frontier innovation. Limited export dependence

reduces incentives for technological upgrading. Example: Preference for market expansion over patent generation.

2. **Financing Constraints and Short-Term Capitalism:** Deep-tech research requires patient capital, but Indian financial markets emphasize short-term profitability. High discount rates discourage investments with long gestation periods. As highlighted by studies of John Asker et al., listed firms tend to invest less in long-term innovation. Example: Venture capital bias towards quick-return sectors.

3. **Execution Gap:** Delays in grant approvals, technology transfers, and regulatory clearances discourage industry-academia collaboration. Underutilisation of research allocations weakens confidence in public-private partnerships. Example: Delayed commercialization of publicly funded research.

4. **Innovation Disconnect:** NITI Aayog's innovation assessments repeatedly emphasize inadequate collaboration between universities and industry. Universities generate publications, while industry seeks market-ready solutions. Example: Low industry-sponsored research in public universities.



Cultural and Historical Drivers

1. **Legacy of Colonial Deindustrialisation:** Colonial policies weakened indigenous manufacturing ecosystems and fostered commercial intermediation rather than technological production. Many business communities evolved around trade and arbitrage rather than innovation. Example: Historical preference for commerce over industrial research.

2. **Technology Adoption over Technology Creation:** Firms often find importing or licensing proven foreign technologies less risky than developing proprietary intellectual property. This creates a “follower economy” rather than a “frontier innovator”. Example: Dependence on foreign semiconductor technologies.

3. **Shareholder-Value Orientation:** Corporate governance increasingly rewards quarterly earnings and stock performance. R&D reduces short-term profits while generating uncertain future returns. Example: Preference for dividends and buybacks over innovation spending.

4. **Risk-Averse Entrepreneurial Culture:** Failure in high-risk research projects carries reputational and financial costs. Consequently, incremental innovation is preferred over disruptive innovation. Example: Limited investment in frontier technologies.

Broader Implications

1. **Middle-income trap:** Constrains productivity growth and global competitiveness. Example: Manufacturing value-chain limitations.

2. **Strategic dependence:** Dependence on foreign intellectual property and critical technologies. Example: AI chips and advanced semiconductors.
3. **Supply-Chain Vulnerability:** Weak indigenous innovation affects technological sovereignty. Example: Critical technology imports during geopolitical disruptions.
4. **Talent Migration:** Limits creation of high-skilled research jobs. Example: Brain drain towards global innovation hubs.

Way Forward

1. **Institutional Reforms:** Strengthen the Anusandhan National Research Foundation (ANRF) for risk-sharing grants. Expand public-private co-funded research missions.
2. **Financial Incentives:** Introduce enhanced R&D tax credits and innovation-linked procurement. Create sovereign deep-tech venture funds.
3. **Industry-Academia Integration:** Establish research chairs, translational labs, and technology-transfer offices. Promote university-industry innovation clusters.
4. **Regulatory and IP Reforms:** Accelerate patent processing and strengthen IP enforcement. Simplify technology commercialization procedures.
5. **Global Competitiveness Push:** Link production-linked incentives (PLI) with mandatory R&D benchmarks. Encourage export-oriented innovation ecosystems.

Conclusion

Echoing former President A.P.J. Abdul Kalam's vision in India 2020, India's innovation future depends on transforming businesses from technology consumers into creators through sustained R&D investment and risk-taking.

Adopting a Universal Disability Pension Floor and Linking it with Employment Support can Transition India's Disabled from Survival to Productive Participation. Evaluate.

Introduction

With an estimated 4.5–6 crore Persons with Disabilities (PwDs) and disability welfare spending below 0.02% of GDP. While the Rights of RPwD Act, 2016 guarantees equal opportunities, the current social security ecosystem functions merely as a survival safety net rather than an engine for empowerment.

The Need for a Minimum Universal Disability Pension-Floor-Rate

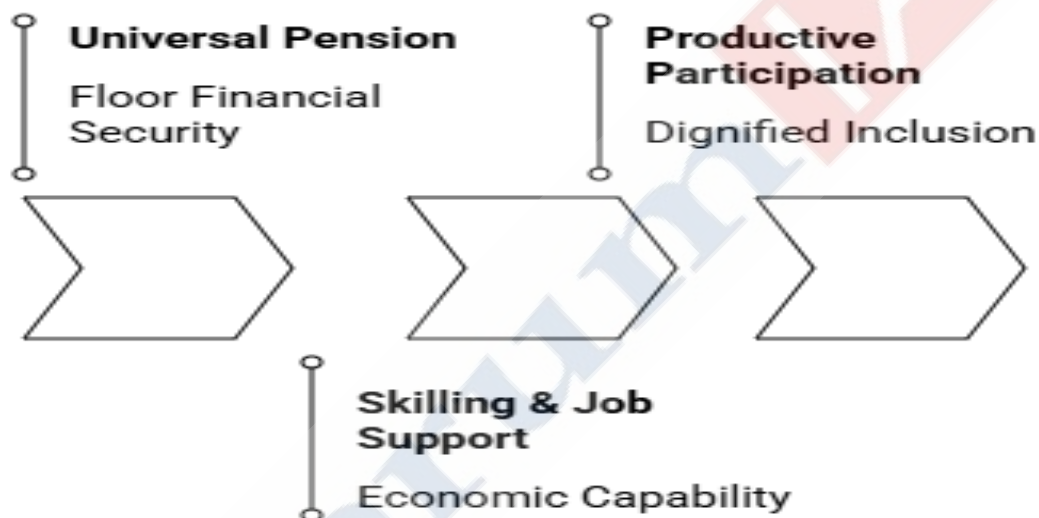
1. **Addressing Income Insecurity and the Disability-Tax:** PwDs incur higher costs on healthcare, assistive devices, caregivers and accessible mobility. Existing pensions under IGNDPS remain inadequate, with central assistance as low as ₹300 per month. A nationally guaranteed floor rate would ensure minimum economic security irrespective of domicile. Example: South Africa's National Disability Grant.
2. **Correcting Interstate Inequalities:** Disability pensions vary widely across States, creating a "postcode lottery". A Minimum Universal Disability Pension Floor Rate (MUDPFR) would uphold equal citizenship. Aligns with Article 14 (Equality) and Article 41 (Public Assistance). Example: Uniform national standards.
3. **Constitutional and Rights-Based Imperative:** Supports the RPwD Act, 2016 and India's obligations under the UNCRPD. Reinforces dignity under Article 21. Moves disability support from charity to entitlement. Example: Rights-based welfare.

Why Pension Alone is Insufficient?

1. **Risk of Welfare Dependence:** Income support without capability-building may perpetuate passive dependency. Economic inclusion requires employability and workplace participation. Example: Long-term exclusion.
2. **Untapped Human Capital:** World Bank estimates exclusion of PwDs costs countries 3–7% of GDP. Productive participation converts welfare beneficiaries into contributors. Example: Labour-force integration.

Employment Support as the Multiplier

Empowering Seniors Through Employment



1. **Skill Development and Employability:** Integrate MUDPFRR with PM-DAKSH, National Apprenticeship Promotion Scheme (NAPS) and digital skilling initiatives. Sector-specific training improves labour market outcomes. Example: Assistive-tech training.
2. **Incentivising Employers:** Wage subsidies, tax deductions and social-security support can encourage hiring. Learning from the UK's Access to Work Programme and Australia's disability employment services. Example: Corporate inclusion.
3. **Accessible Work Ecosystem:** Universal accessibility in workplaces, transport and digital platforms. Leverage Digital India, AI-enabled assistive technologies and remote work. Example: Work-from-home models.
4. **Graded Benefit Withdrawal:** Pension should taper gradually after employment rather than stop abruptly. Eliminates fear of losing income security. Example: Transition support.

Benefits of the Integrated Approach

1. **Inclusive Growth:** Boosts consumption, productivity and labour-force participation. Pro Bono Economics (2025) found disability-support returns exceed costs significantly.

2. **Dignified Citizenship:** Reduces stigma and dependency narratives. Enhances social inclusion and self-esteem.
3. **Accessible Governance:** Digital payments, Aadhaar-enabled DBT and assistive technologies improve outreach.
4. **Future Readiness:** Supports ageing populations and rising disability prevalence.
5. **Global Obligations:** Advances SDG 1 (No Poverty), SDG 8 (Decent Work) and SDG 10 (Reduced Inequalities).

Way Forward

1. Establish a legally backed Minimum Universal Disability Pension Floor Rate.
2. Create a National Disability Pension Authority for uniform implementation.
3. Integrate pension, skilling, placement and rehabilitation services through a single portal.
4. Expand disability-sensitive employer incentives and procurement preferences.
5. Increase disability welfare expenditure in line with international benchmarks.
6. Use Social Registries, DBT and UPI for portability and transparency.

Conclusion

To realize true constitutional equality under Article 14 and 21, India must upgrade its disability paradigm from a charitable/medical model to a rights-and-economic-empowerment model. Establishing a legally backed minimum national pension floor, run alongside robust public-private employment initiatives, is essential to convert PwDs into active contributors to India's growth.

Critically analyze the existential threats to Indian industry from chronic technological dependence. Suggest structural reforms to transition from IP consumers to IP creators.

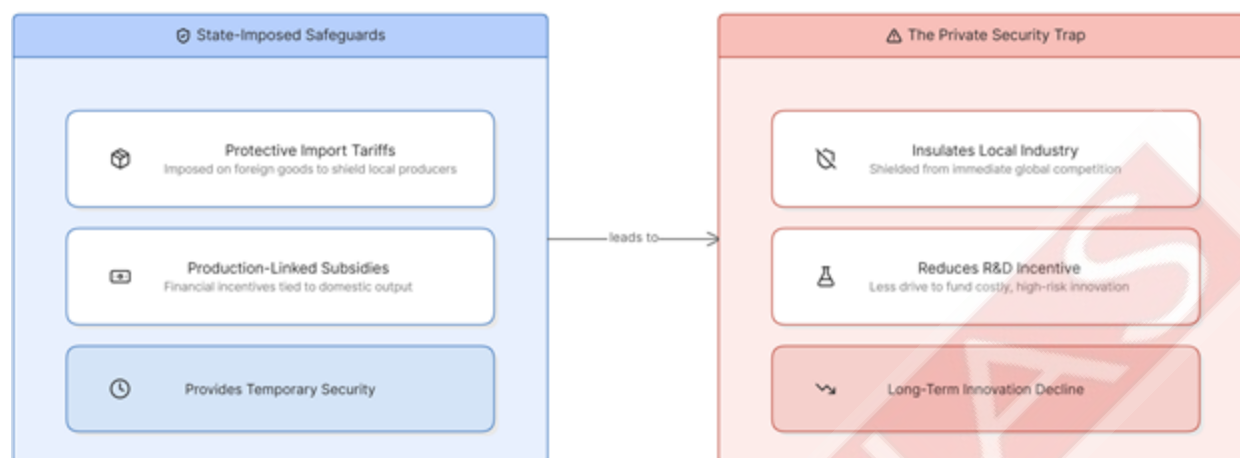
Introduction

Economic Survey 2025-26 highlights innovation as the foundation of *Viksit Bharat*, yet India's GERD remains around 0.7% of GDP and patent intensity modest, exposing industry to technological dependence amid fragmented global supply chains.

Indian Industry at a Crossroads the Threats from Chronic Technological Dependence

India has emerged as a major manufacturing and services hub, but much of its industrial success rests on imported technologies, licensed intellectual property (IP), and foreign-designed platforms. As geopolitical rivalries reshape technology flows, excessive dependence poses strategic, economic, and technological risks.

The Chronic Industrial Protection Paradox



Existential Threats from Technological Dependence

1. **Economic Vulnerability and The Value-Chain Trap:** According to the Smile Curve, highest value accrues in R&D, design and branding, while assembly generates thin margins. Indian firms often remain confined to low-value manufacturing while royalty payments flow abroad. Example: Electronics assembly dependence.
2. **Technological Obsolescence Risk:** Reliance on imported technologies creates a perpetual innovation lag. Emerging sectors such as AI, green hydrogen, EV batteries and semiconductors evolve rapidly. Firms adopting second-generation technologies lose competitiveness. Example: Advanced battery technologies.
3. **Geopolitical and Strategic Risks:** Technology has become a strategic weapon in global politics. Export controls, sanctions, and licensing restrictions can disrupt industrial ecosystems. Example: Global semiconductor restrictions.
4. **Weak Global Bargaining Power:** Nations possessing frontier technologies command greater influence in trade and diplomacy. Technological dependence limits India's leverage in critical negotiations. Example: Chip manufacturing ecosystem.
5. **Innovation Deficit and Productivity Loss:** NITI Aayog's innovation studies emphasize that productivity growth increasingly stems from knowledge creation rather than factor accumulation. Limited indigenous IP reduces long-term competitiveness. Example: Patent-poor sectors.
6. **National Security Concerns:** Dependence on foreign technologies in telecom, cyber systems, defence electronics and digital infrastructure creates strategic vulnerabilities. Example: Critical communication networks.
7. **Historical and Cultural Constraints:** Colonial deindustrialisation shifted enterprise toward trade and intermediation rather than innovation. Many family-owned firms prioritise wealth preservation over high-risk R&D investments. Example: Conservative investment behaviour.
8. **Financialisation and Short-Termism:** Corporate focus on quarterly returns discourages long-horizon research projects. R&D expenditure often appears unattractive compared to financial investments. Example: Shareholder-value pressures.

Structural Reforms From IP Consumers to IP Creators

1. **Strengthening Private Sector R&D:** Expand challenge-based funding through the Anusandhan National Research Foundation (ANRF). Introduce outcome-linked R&D tax incentives. Example: Deep-tech grants.
2. **Reform Public Procurement:** Move beyond the Lowest Cost (L1) model. Prefer products incorporating indigenous patents and technologies. Example: Defence procurement.
3. **Accelerate Industry-Academia Collaboration:** Create joint research centres involving IITs, IISc, CSIR and industry. Promote industry-funded research chairs. Example: Semiconductor design labs.
4. **Commercialise Public Research:** Simplify technology transfer from CSIR, DRDO and universities. Establish dedicated IP commercialization offices. Example: DRDO spin-offs.
5. **Build Patient Capital Ecosystems:** Encourage sovereign innovation funds, venture debt and pension-fund participation in deep-tech. Reduce financing constraints for long-gestation projects. Example: Semiconductor startups.
6. **Strengthen Intellectual Property Regime:** Expand specialized IP courts. Reduce patent examination timelines. Example: Fast-track patents.
7. **Develop Human Capital:** Align NEP 2020 with advanced research ecosystems. Promote doctoral fellowships and industry-linked research. Example: AI research talent.
8. **Integrate with Global Innovation Networks:** Pursue technology partnerships while ensuring domestic capability creation. Example: India-US iCET collaboration.

Way Forward

1. Raise GERD to 2% of GDP through public-private participation.
2. Increase business share in R&D funding from ~36% toward OECD levels.
3. Create sector-specific innovation clusters in AI, biotechnology, defence, semiconductors and clean energy.
4. Institutionalise innovation-linked procurement and regulatory sandboxes.
5. Foster a culture of long-term risk-taking and technology ownership.

Conclusion

As former President A.P.J. Abdul Kalam envisioned, nations achieve strategic autonomy through innovation. India's rise depends not on assembling technologies, but on creating intellectual property powering future growth.

Analyze the Chakravayuha Challenge in India's insolvency framework. Evaluate how a universal Creditor-Initiated Insolvency Resolution Process (CIIRP) with a default-neutral initiation rule can reform the IBC.

Introduction

The Economic Survey termed inefficient business exit mechanisms India's Chakravayuha Challenge. Although the IBC improved recovery rates and credit discipline, persistent delays and value erosion necessitate innovative restructuring tools such as CIIRP.

Analyzing the Chakravayuha Challenge and the Reform Potential of Universal CIIRP

1. India's Insolvency and Bankruptcy Code (IBC), 2016 represented a paradigm shift from debtor-friendly regimes such as SICA to a creditor-driven resolution framework.

2. Yet, despite strengthening credit culture, insolvency resolution remains constrained by procedural delays, litigation, and declining enterprise value.
3. The proposed Creditor-Initiated Insolvency Resolution Process (CIIRP) and the concept of a universal CIIRP with a default-neutral initiation rule seek to address these structural deficiencies.

Understanding the Chakravyuha Challenge

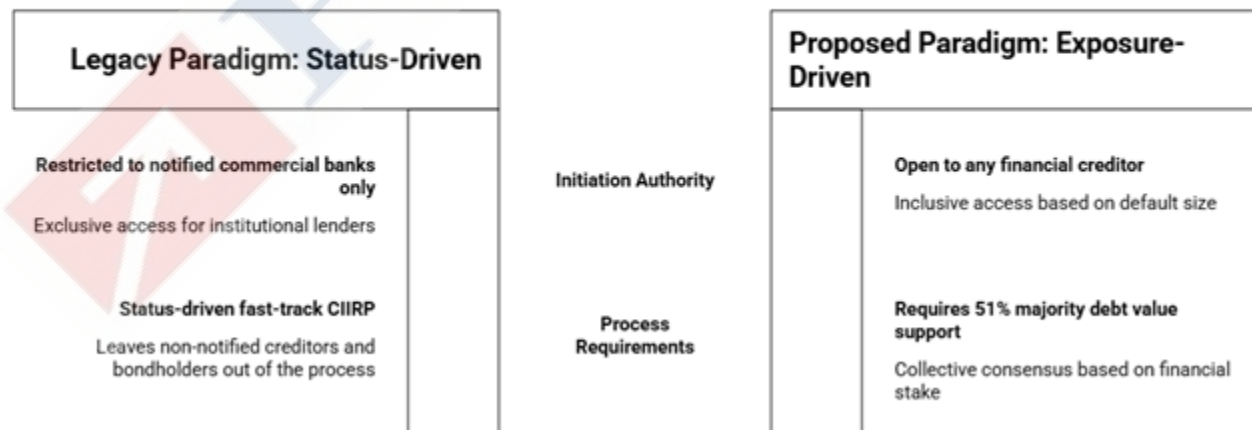
The challenge refers to the paradox where market entry is relatively easy, but exit remains cumbersome, trapping capital and reducing economic efficiency.

1. **Legacy of Delayed Exits:** Pre-IBC mechanisms under SICA and BIFR often prolonged corporate distress. Stressed firms remained operational without revival prospects. Example: Zombie enterprises.
2. **Value Erosion:** Delayed admission and litigation reduce asset value. Going-concern businesses deteriorate during prolonged proceedings. IBBI studies indicate recoveries are highest when resolution occurs early. Example: Depreciating manufacturing assets.
3. **NCLT Bottlenecks:** Heavy caseloads delay admission and resolution. The Vidarbha Industries judgment (2022) introduced admission discretion despite established default. Example: Admission delays.
4. **Financial Sector Impact:** Locked capital increases Non-Performing Assets (NPAs). Raises credit costs and risk premiums across the economy. Example: Banking stress.
5. **Employment and Social Costs:** Delayed restructuring often leads to liquidation. Workers, MSME suppliers, and local economies suffer. Example: Job losses.
6. **Ease of Doing Business Dimension:** Efficient exit mechanisms are critical for investment confidence. World Bank insolvency indicators emphasize timely resolution. Example: Investor confidence.

How Universal CIIRP Can Reform the IBC

CIIRP introduces a debtor-in-possession with creditor oversight model, preserving enterprise continuity while ensuring accountability.

THE INSOLVENCY ARCHITECTURE EVOLUTION



1. **Faster and Less Disruptive Resolution:** Existing management continues operations under professional supervision. Minimizes disruption to customers, employees, and supply chains. Example: Going-concern preservation.
2. **Default-Neutral Initiation Rule:** Initiation depends on verified default and creditor exposure, not institutional identity. Any financial creditor may initiate with support from creditors representing at least 51% debt value. Example: Exposure-based framework.
3. **Constitutional Soundness:** Eliminates arbitrary distinction between notified and non-notified financial creditors. Better aligns with Article 14's equality principle. Example: Equal creditor treatment.
4. **Strengthening Corporate Bond Markets:** Protects interests of AIFs, ARCs, NBFCs, pension funds and bondholders. Encourages diversified debt financing. Example: Deep bond markets.
5. **Reducing Litigation:** Public announcement-based initiation reduces admission-stage disputes. NCLT shifts toward supervisory rather than gatekeeping functions. Example: Lower judicial burden.
6. **Global Best Practices:** Mirrors flexibility seen in U.S. Chapter 11 and U.K. Part 26A restructuring plans. Focuses on objective financial distress rather than creditor classification. Example: International alignment.
7. **Technological and Institutional Efficiency:** Greater use of Information Utilities (IUs) for default verification. Facilitates digital, evidence-based insolvency initiation. Example: Data-driven resolution.

Strategic Impact of the Reforms

Transitioning to an exposure-led, universal insolvency mechanism delivers several core systemic benefits:

| Reform Vector | Old IBC Barrier | Universal CIIRP Advantage |
|--------------------------------|---|--|
| Constitutional Validity | Vulnerable to legal challenges due to arbitrary gaps between financial creditors. | Establishes a uniform standard based on objective financial exposure. |
| Asset Value Retention | Delayed admissions cause ongoing asset depreciation during long court trials. | Fast-tracks entry into resolution while keeping the business running as a going concern. |
| Debt Market Depth | Smaller or non-bank creditors face longer recovery times, increasing capital costs. | Protects non-traditional investors, directly encouraging deeper domestic corporate bond markets. |

Conclusion

As the Economic Survey's Chakravyuha metaphor suggests, efficient exits are essential for dynamic capitalism. A universal CIIRP can transform insolvency from value destruction to value preservation, strengthening growth and credit markets.

Evaluate the potential of upgrading the Anganwadi ecosystem to tap early childhood cognitive development opportunities. Outline the structural challenges in executing holistic pre-school interventions.

Introduction

With over 13.9 lakh Anganwadi Centres serving nearly 8 crore children, India's ECCE agenda under NEP 2020, Saksham Anganwadi Mission, and Budget 2026-27 recognizes early cognition as the foundation of future human capital.

Upgrading the Anganwadi Ecosystem and Unlocking Early Childhood Cognitive Development

Why Anganwadis are Central to India's Cognitive Dividend

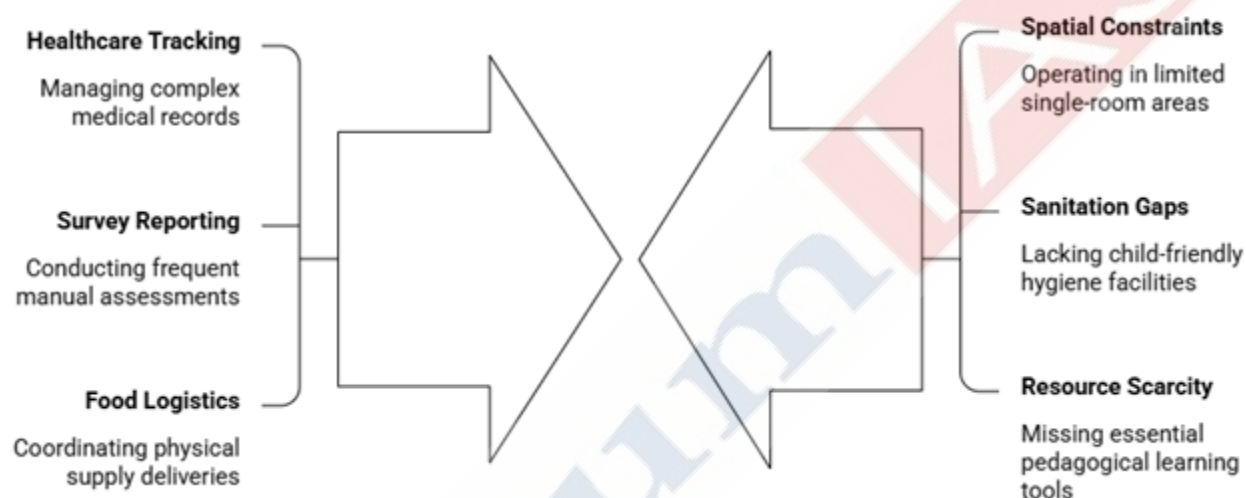
- 1. Neurological Window of Opportunity:** Nearly 90% of brain development occurs before age six; early stimulation shapes language, memory and socio-emotional skills. First-year grey matter expands by almost 149%, making early intervention highly productive. Example: Brain plasticity & UNICEF study.
- 2. Enhancing School Readiness:** Structured preschool exposure improves foundational literacy and numeracy envisioned under NIPUN Bharat Mission. Vellore Birth Cohort found preschool attendees scoring nearly 7 IQ points higher than non-attendees.
- 3. Reducing Intergenerational Inequality:** Children from disadvantaged households often lack learning materials and stimulating environments. Anganwadis provide equitable early-learning exposure before formal schooling.
- 4. Nutrition-Cognition Synergy:** NEP 2020 adopts a holistic ECCE approach integrating health, nutrition and education. Studies from Jamaica and India show nutrition combined with psychosocial stimulation yields superior cognitive outcomes.
- 5. Economic and Demographic Gains:** Nobel Laureate James Heckman estimates highest social returns arise from early childhood investments. Strong ECCE improves future productivity, employability and earnings. Example: Human capital dividend
- 6. Women Empowerment:** Reliable childcare enables greater female labour-force participation. Supports the care economy and complements the demographic dividend.
- 7. Constitutional and Social Justice Perspective:** Advances Article 21A, Article 39(f) and SDG-4 commitments. Promotes equitable educational opportunities from the earliest stage. Example: Inclusive growth.

Structural Challenges in Executing Holistic Pre-School Interventions

- 1. Administrative Challenges:** Anganwadi Workers (AWWs) simultaneously handle nutrition delivery, surveys, Poshan Tracker entries and health monitoring. Limited time remains for quality preschool instruction.
- 2. Pedagogical Deficits:** Many workers are trained primarily in nutrition and health rather than ECCE pedagogy. Risk of rote teaching instead of play-based learning envisaged under Aadharshila.
- 3. Infrastructure Constraints:** Numerous centres operate in single-room buildings with inadequate ventilation and sanitation. Lack of child-friendly furniture, play spaces and learning materials.
- 4. Technological Challenges:** Digital tools largely track nutrition indicators rather than cognitive milestones. Absence of a national early-learning assessment architecture.
- 5. Institutional Silos:** Fragmentation among Ministries of Education, Women & Child Development and State departments. Weak convergence with primary schools affects smooth transitions.

- Socio-Cultural Barriers:** Low parental awareness regarding responsive caregiving and early stimulation. Rising screen exposure undermines language and social development.
- Regional and Federal Disparities:** Significant variations across States in infrastructure, worker capacity and funding. Uneven ECCE outcomes despite national frameworks.
- Fiscal Constraints:** NITI Aayog and World Bank studies emphasize persistent underinvestment in early childhood development. Resource limitations affect quality enhancement efforts.

Optimizing Anganwadi Service Delivery



Way Forward

- Strengthening Human Resources:** Introduce a two-worker model: one for nutrition-health services and another ECCE specialist.
- Professionalize ECCE Training:** Continuous certification-based training on play-based pedagogy, storytelling and socio-emotional learning.
- Infrastructure Modernization:** Converge VB-GRAMG, Finance Commission grants and local-body funds for child-friendly centres. Example: Print-rich, safe play areas.
- Mainstream Pedagogy:** Roll out Aadharshila/Navchetana toolkits universally with digital support. Example: IIT Ropar AI training partnerships.
- School-Anganwadi Integration:** Cluster Anganwadis with nearby primary schools for seamless Foundational Stage implementation.
- Community Participation:** Institutionalize parent-learning modules under Navchetana and Poshan Bhi Padhai Bhi.
- Outcome-Based Financing:** Link part of funding to measurable ECCE indicators rather than merely enrolment figures.

Conclusion

Echoing Dr. A.P.J. Abdul Kalam's vision that a nation's future is shaped in its classrooms, India must transform Anganwadis into cognitive-development hubs where nutrition, learning and care converge.

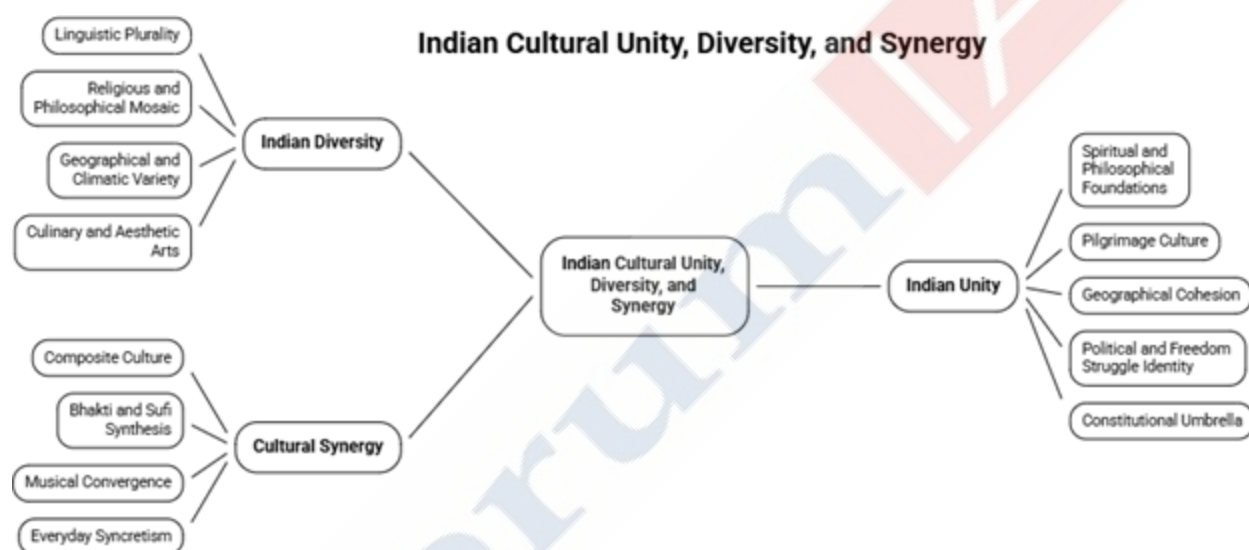
Enumerate the cultural elements that foster fraternity in India, and evaluate how this psychological solidarity acts as a bulwark against communal polarization.

Introduction

Dr. B.R. Ambedkar famously warned that without Fraternity which he defined as “a sense of common brotherhood of all Indians”, the constitutional guarantees of Liberty and Equality would remain “no deeper than coats of paint.” While liberty and equality provide the legal and institutional structure of democracy, fraternity represents its emotional and social foundation.

Cultural Elements Fostering Fraternity in India and Its Role Against Communal Polarization

Fraternity, enshrined in the Preamble, transcends mere coexistence. Ambedkar viewed it as the psychological foundation that binds liberty and equality into a functioning social democracy. In a civilizational state marked by extraordinary diversity, fraternity converts constitutional citizenship into lived solidarity.



Cultural Elements Fostering Fraternity in India

- 1. Civilizational Ethos of Inclusiveness:** Ancient ideals such as “Vasudhaiva Kutumbakam”, “Sarva Dharma Sambhava” and “Ekam Sat Vipra Bahudha Vadanti” promote universalism and respect for diversity. Encourages coexistence without assimilation.
- 2. Shared Spirituality:** Saints such as Kabir, Guru Nanak and Nizamuddin Auliya emphasized spiritual equality over sectarian identity. Created shared cultural spaces cutting across religious boundaries.
- 3. Ganga-Jamuni Tehzeeb and Composite Culture:** Shared festivals, folk traditions, music, cuisine and crafts foster everyday social interaction. Examples include communal participation in local fairs and Urs celebrations.
- 4. Linguistic and Literary Interactions:** Languages such as Hindustani and Urdu evolved through cultural exchange. Literature from Rabindranath Tagore to Premchand reflects pluralistic values.
- 5. Constitutional Morality and Shared Citizenship:** Articles 14, 15, 25–30 and Fundamental Duties institutionalize respect for diversity. Creates a civic identity above religious affiliations.

6. **Community Networks and Seva Traditions:** Practices such as Langar, community kitchens, voluntary service and disaster relief cultivate empathy. Strengthened during floods, pandemics and humanitarian crises.
7. **Shared Public Spaces and Democratic Participation:** Schools, markets, Panchayats, Self-Help Groups and electoral participation facilitate inter-group interactions. Builds social capital across identities.

Fraternity as a Bulwark Against Communal Polarization

1. **Weakening Us versus Them Narratives:** Fraternity emphasizes common citizenship over religious identities. Makes communal stereotyping less persuasive.
2. **Creating a Reservoir of Social Trust:** Political scientist Ashutosh Varshney demonstrated that strong inter-community civic networks reduce the likelihood of communal violence. Regular interaction prevents rumor-driven escalation.
3. **Protecting Constitutional Democracy:** Fraternity ensures majoritarian power is moderated by concern for minority rights. Converts legal equality into social acceptance.
4. **Grassroots Peacebuilding:** Informal neighborhood networks, Mohalla Committees and civil society organizations diffuse tensions before they escalate. Example: Mumbai's post-1993 community peace initiatives.
5. **Countering Digital Polarization:** Psychological solidarity reduces susceptibility to online hate campaigns and misinformation. Encourages fact-checking and inter-community dialogue.
6. **Development dividend:** Social trust lowers transaction costs and encourages cooperation. NITI Aayog has repeatedly emphasized social cohesion as a prerequisite for inclusive growth.
7. **Strategic Cohesion:** Internal unity reduces vulnerability to divisive propaganda and external attempts to exploit social cleavages. Reinforces national resilience.

Modern Structural Challenges to Social Solidarity

| Threat Vector | Socio-Political Manifestation | Impact on Constitutional Goals |
|--------------------------------------|---|---|
| Digital-Echo-Chambers | The rapid spread of online hate speech, misinformation, and targeted communal narratives. | Ervades everyday trust and weakens the psychological bond of shared citizenship. |
| Ghettoization of Urban-Spaces | Increasing residential segregation along communal and caste lines in modern cities. | Reduces the opportunities for natural, cross-community interaction and shared childhood spaces. |

Way Forward

1. **Value Education:** Mainstream fraternity-oriented constitutional education through experiential learning. Highlight syncretic histories in school curricula.
2. **Institutional Measures:** Revitalize Mohalla Committees, interfaith councils and youth exchange programmes. Strengthen local dispute-resolution platforms. Preventive harmony
3. **Technological Measures:** Promote algorithmic accountability and digital literacy. Expand fact-checking ecosystems.

- 4. Inclusive Citizenship:** Reduce spatial segregation through inclusive urban planning. Encourage mixed-community public spaces and welfare delivery.
- 5. Living Pluralism:** Support festivals, museums and cultural initiatives celebrating composite traditions. Promote people-to-people engagement.

Conclusion

Fraternity is the essential glue that holds India's diverse constitutional democracy together. As Dr. Ambedkar sharply noted, structural laws alone cannot guarantee a stable nation if the underlying society lacks mutual respect and solidarity.

Evaluate the socio-economic implications of the Supreme Court recognizing homemakers as economic entities. Suggest measures to institutionalize the monetary valuation of unpaid domestic labor.

Introduction

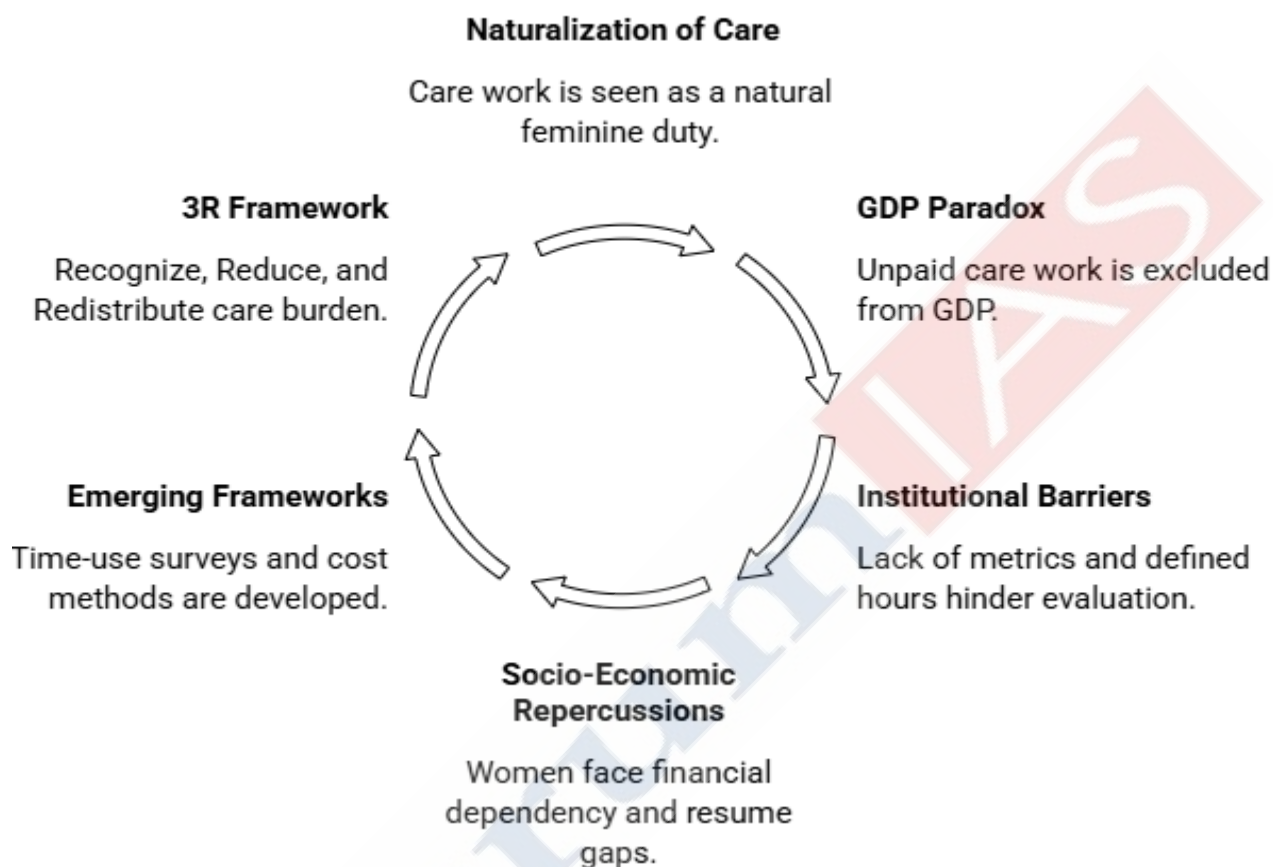
Recognising homemakers as economic entities, the Supreme Court's 2026 judgment aligns with Time Use Survey findings that women spend nearly three times more hours on unpaid work, exposing a long-ignored pillar of India's economy.

Socio-Economic Implications of the Judicial Recognition

- 1. Advancing Gender Justice and Constitutional Equality:** Reinforces substantive equality under Articles 14, 15 and 21 by acknowledging unpaid care work as productive labour. Challenges the patriarchal notion of homemakers as dependents. Strengthens constitutional morality envisioned by Dr. B.R. Ambedkar. Example: Gender justice.
- 2. Transforming Compensation Jurisprudence:** Supreme Court introduced a separate head of compensation loss of domestic care with a baseline valuation of ₹30,000 per month. Moves beyond arbitrary notional income calculations in accident and insurance claims. Ensures dignified compensation to surviving families. Example: Motor-Accident-Claims-Tribunal (MACT) reforms.
- 3. Correcting Macroeconomic Blind Spots:** NSO Time Use Survey shows women spend around 299 minutes daily on unpaid domestic work against 97 minutes by men. Unpaid care work sustains labour-force participation of earning members while remaining invisible in GDP. Encourages evidence-based policy on the care economy. Example: Care economy.
- 4. Strengthening Household Economics:** Recognises that domestic labour creates economic value through childcare, eldercare, budgeting and household management. Enhances women's bargaining power within families. Supports more equitable asset-sharing norms. Example: Intra-household equity.
- 5. Social and Human Capital Benefits:** Homemakers function as children's "first teachers", contributing to educational and behavioural outcomes. Improves recognition of caregiving as investment in human capital. Example: Child development.
- 6. Labour Market and Economic Dimensions:** Highlights the hidden subsidy unpaid work provides to the formal economy. Can influence debates on female labour force participation and care infrastructure. Supports NITI Aayog's emphasis on women-led development. Example: Women-led growth.
- 7. International and SDG Relevance:** Advances SDG 5 (Gender Equality) and aligns with global calls for recognising unpaid care work. Enhances India's standing in gender-sensitive economic policymaking. Example: SDG-5.

Structural Challenges in Monetary Valuation

Cycle of Care Work Evaluation Dilemma



1. **Economic:** Replacement-cost method undervalues multitasking care work. Opportunity-cost method may disproportionately favour highly educated homemakers.
2. **Legal:** Absence of a uniform statutory framework for valuation. Diverse judicial interpretations may create inconsistency.
3. **Measurement:** No standard metrics for caregiving quality, emotional labour or household management. Difficulties in quantifying non-market contributions.
4. **Social:** Risk of commodifying care and emotional relationships. Persistent gender norms may hinder implementation.

Policy Roadmap to Institutionalize the Valuation of Domestic Labor

1. **Create a National Care Economy Satellite Account:** Incorporate unpaid household work into national accounting through a Satellite Account System. Periodically estimate contribution to GDP. Example: Australia model.
2. **Enact Comprehensive Care Economy Legislation:** Provide statutory valuation guidelines for courts, insurance and compensation authorities. Establish standard assessment frameworks. Example: Uniform valuation.
3. **Reform Marital Property Laws:** Recognise homemakers' contribution in acquisition of marital assets. Move towards a community-of-property regime. Example: Shared ownership.

- 4. Universal Social Security for Homemakers:** Co-contributory pension, accident insurance and health coverage. Link with PM Jan Dhan and social protection architecture. Example: Pension security.
- 5. Expand Care Infrastructure:** Invest in crèches, daycare centres and elder-care facilities under women-centric schemes. Reduce unpaid care burden and expand economic choices. Example: Care services.
- 6. Technology-Enabled Time Use Monitoring:** Conduct periodic digital Time Use Surveys and care-work audits. Generate gender-sensitive policy datasets. Example: Data governance.
- 7. Fiscal Recognition:** Explore caregiver credits, pension points or targeted tax incentives. Reward socially productive unpaid labour. Example: Care credits.

Conclusion

Echoing President Droupadi Murmu's vision of women-led development and Dr B.R Ambedkar's commitment to substantive equality, valuing unpaid domestic labour is essential for building a just, inclusive and economically truthful India.

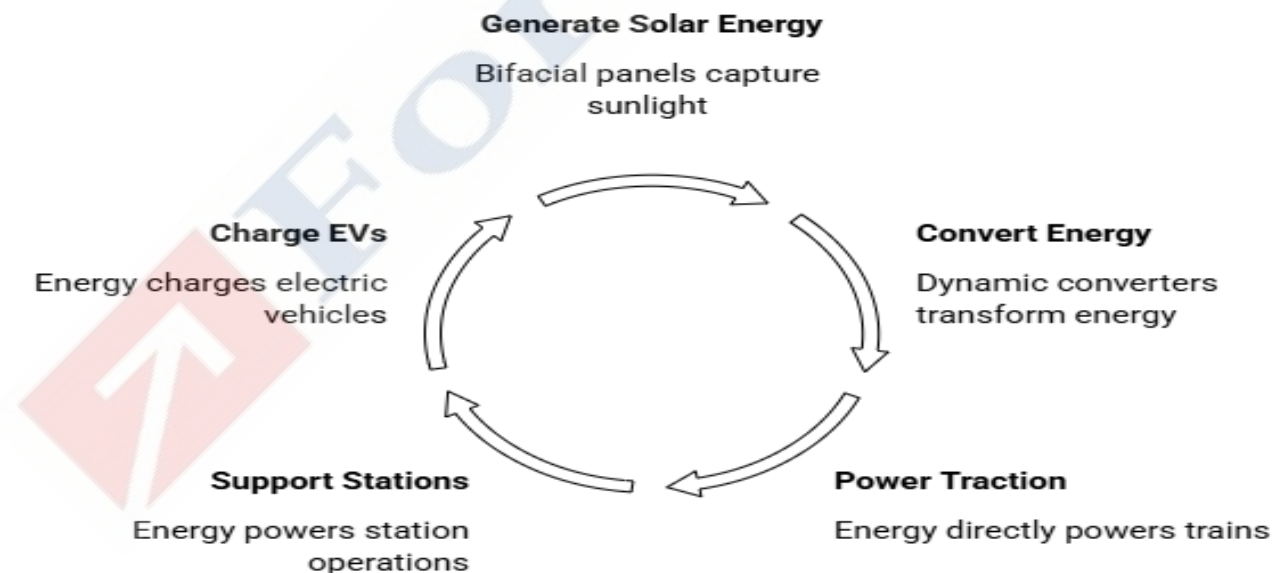
How solar-integrated rail and road infrastructure can power India's clean energy transition?

Introduction

With India's non-fossil capacity exceeding 51.9% by December 2025 and Budget 2026-27 strengthening green infrastructure, Rail/Road-Integrated Photovoltaics (RIPV) can transform transport corridors into decentralized clean-energy assets.

RIPV Converting Transport Infrastructure into Energy Infrastructure

RIPV Closed-Loop Energy Cycle



Strategic Significance for India's Energy Transition

- 1. Land-Neutral Renewable-Energy Expansion:** Addresses India's biggest renewable bottleneck-land acquisition. Utilizes medians, rail tracks, station roofs, viaducts and right-of-way corridors. Indo-

German Solar Partnership estimates 150+ GW RIPV potential (≈ 79 GW railways, ≈ 75 GW highways). Prevents land-use conflicts with agriculture. Example: Solar-on-Track.

2. Accelerating Net-Zero Railways: Indian Railways has achieved near-complete route electrification. Solar energy can directly feed traction substations and overhead electrification systems. Supports Indian Railways' Net-Zero-2030 target. Reduces dependence on thermal power. Example: Namo-Bharat-Corridor.

3. Decarbonizing Road Transport: Highway solar can power EV charging plazas and logistics hubs. Creates localized charging ecosystems for freight electrification. Reduces stress on rural distribution networks. Example: Delhi-Dehradun-Expressway.

Economic and Infrastructure Benefits

1. Reduced Transmission Losses: Electricity generated near consumption points which minimizes wheeling and transmission costs. Strengthens Distributed Renewable Energy (DRE) architecture. Example: Local Microgrids.

2. Infrastructure Productivity Enhancement: Converts passive assets into revenue-generating infrastructure. Enhances return on public capital expenditure. It aligns with PM GatiShakti's integrated infrastructure vision. Example: Multi-functional Corridors.

3. Long-Term Fiscal Efficiency: Avoids expensive land procurement, generates recurring revenue through power sales. Attracts PPP investments in transport-energy convergence. Example: Infrastructure InvITs.

Environmental and Climate Advantages

1. Lower Carbon Footprint: Replaces fossil-fuel-based electricity used in transport systems. Contributes to India's 2070 Net-Zero commitment. Supports National Green Hydrogen and decarbonization pathways. Example: Clean Mobility.

2. Resource Efficiency: Promotes circular infrastructure utilization and embodies Mission LiFE's sustainability principles. Enhances climate-resilient infrastructure. Example: Green Corridors.

3. Urban Environmental Gains: Solar noise barriers reduce sound pollution and canopies reduce urban heat absorption. Protect roads from UV degradation. Example: Netherlands NBPV.

Technological and Innovation Advantages

1. Advanced Solar Technologies: Bifacial modules capture reflected sunlight (albedo effect). Smart inverters enable real-time energy management and AI-enabled predictive maintenance improves efficiency. Example: Smart-Grid-Integration.

2. Energy Storage Integration: Coupling with Battery Energy Storage Systems (BESS) supports uninterrupted traction and EV charging. Economic Survey 2025-26 highlights rising storage requirements for renewable integration.

3. Indigenous Manufacturing Push: Boosts domestic solar manufacturing ecosystem, supports Atmanirbhar Bharat in renewable technologies and enhances supply-chain resilience. Example: Solar Modules.

Geopolitical and Strategic Relevance

1. Energy Security: Reduces imported fossil-fuel dependence and limits vulnerability to global energy shocks. Example: Oil Price Volatility.

2. Climate Leadership: Demonstrates innovative infrastructure-led decarbonization and strengthens India's position in the International Solar Alliance. Example: Global-South Leadership.

- 3. Strategic Infrastructure Resilience:** Distributed generation reduces risks from centralized grid failures. Improves energy availability along strategic transport corridors. Example: Freight-Corridors.

Challenges

| Challenge Area | Description |
|--------------------------------------|---|
| The Soiling & Dust Vector | Passing freight trains and vehicles create heavy aerodynamic turbulence, spraying micro-dust, oil residue, and debris onto flat-lying panels, dramatically diminishing conversion efficiency. |
| Extreme Mechanical Load | Pavement-integrated panels must endlessly endure harsh braking forces, heavy multi-ton truck axle weights, and relentless temperature cycling without cracking. |
| Strict Safety Guidelines | High mechanical and electrical safety guardrails are required; a crashing vehicle or train derailment cannot cause secondary explosive electrical arc flashes or structural collapse. |

Global & Indian Milestones

The immense macro-viability of this framework has triggered massive global interest:

- 1. The Global Scale:** Switzerland successfully rolled out removable solar panels between active railway lines. Concurrently, the Netherlands operates highly efficient solar noise barriers supplying green power directly to local communities.
- 2. The Indian Frontier:** Given India's vast 1.4 lakh km of national highways and 99,000 km of railway tracks, a study under the Indo-German Solar Partnership estimates a staggering 150+ GW of RIPV potential.
- 3. Active Pilots:** The NCRTC has deployed solar-on-track concepts across the Namo Bharat semi-high-speed network. Simultaneously, the NHAI is scaling up elevated solar setups along the new Delhi-Dehradun Expressway.

Conclusion

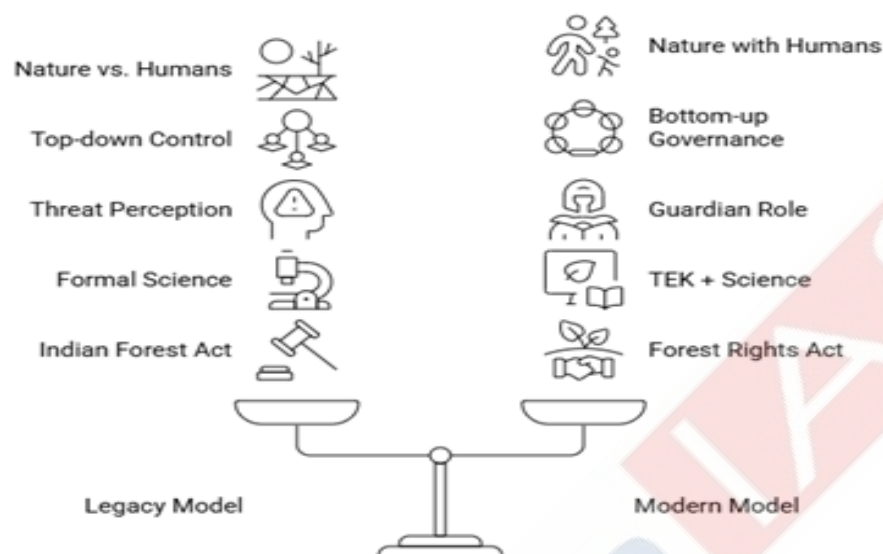
As Dr. A.P.J. Abdul Kalam wrote in Wings of Fire: "The ignited mind of the youth is the most powerful resource on earth." India's ignited infrastructure, every highway, every railway must now become its most powerful energy resource.

Critically Evaluate the Fortress Conservation Paradigm in Managing India's Forest Ecosystems. Discuss How Community-Led Governance Can Effectively Reconcile Biodiversity Protection with Tribal Livelihood Development.

Introduction

India hosts nearly 18% of the world's population but only 2.4% of global land area, while over 275 million people depend on forests. For decades, global and domestic environmental policies operated under the fortress conservation paradigm an exclusionary approach that viewed biodiversity preservation as a zero-sum choice between protecting nature and meeting human needs.

Shifting Conservation Paradigms for Co-existence



Critical Evaluation of the Fortress Conservation Paradigm

- 1. Social Justice Deficit:** Excludes Scheduled Tribes and forest dwellers despite centuries of coexistence with ecosystems. Forced displacement often results in livelihood loss and cultural disintegration. Violates principles of environmental justice and participatory governance. Example: Tiger Reserve Relocations.
- 2. Weakening Traditional Ecological Knowledge:** Indigenous communities possess valuable knowledge on biodiversity, fire management and sustainable harvesting. Exclusion creates a disconnect between conservation policy and ground realities. Example: Nyishi Hornbill Protection.
- 3. Poverty-Biodiversity Nexus Ignored:** Nature Sustainability study (2025) found forests with greater poverty and fuelwood dependence exhibited lower tree-species diversity. Poverty becomes a driver of unsustainable extraction when alternatives are absent. Example: Fuelwood Dependency.
- 4. Human-Wildlife Conflict Intensification:** Fragmented habitats and neglected corridors increase wildlife intrusion into settlements. Leads to crop loss, livestock depredation and retaliatory killings. Example: Elephant Corridors.
- 5. Administrative and Enforcement Limitations:** Alienated communities may not cooperate with conservation authorities. Forest departments lose critical local intelligence against poaching and illegal logging. Example: Anti-Poaching Networks.

Contributions of Fortress Conservation

A balanced assessment requires acknowledging its achievements:

- 1. Ecological Gains:** Recovery of flagship species through protected-area networks. Expansion of tiger numbers under Project Tiger. Protection of critical habitats and biodiversity hotspots. Example: Corbett Landscape.
- 2. Legal Protection:** Strengthened implementation of the Wildlife Protection Act, 1972. Established inviolate core habitats for endangered species. Example: Critical Tiger Habitats. However, ecological success has often come at significant social costs.

Community-Led Governance

1. **Constitutional and Legal Foundations: Forest Rights Act (FRA), 2006** recognizes Community Forest Resource (CFR) rights. PESA Act, 1996 strengthens Gram Sabha participation. Reflects Article 21's right to life and Directive Principles promoting environmental protection. Example: Mendha-Lekha Village.
2. **Community Forest Resource (CFR) Governance:** Empowers Gram Sabhas to regulate access, monitor forests and conserve biodiversity. Generates local ownership and accountability. Example: Gadchiroli CFR Model.
3. **Sustainable Livelihood Diversification:** Promoting value chains for Minor Forest Produce (MFPs). TRIFED's Van Dhan Vikas Kendras improve tribal incomes. Reduces destructive extraction pressures. Example: Tendu Leaf Enterprises.
4. **Community-Based Ecotourism:** Shares tourism revenue directly with local residents. Converts conservation into an economic asset. Example: Periyar Eco-development Committees.
5. **Payment for Ecosystem Services (PES):** Communities compensated for protecting watersheds, forests and carbon sinks. Aligns ecological outcomes with economic incentives. Example: Carbon Stewardship.
6. **Integrating Traditional and Scientific Knowledge:** Combines local ecological wisdom with GIS mapping, drones and biodiversity monitoring. Enhances adaptive ecosystem management. Example: Snow Leopard Conservancy.

Wider Developmental Benefits

1. **Economic:** Strengthens green livelihoods and tribal entrepreneurship. Supports SDG-1 (No Poverty) and SDG-15 (Life on Land).
2. **Environmental:** Improves species diversity and ecosystem resilience. Enhances climate adaptation and carbon sequestration.
3. **Governance:** Deepens participatory democracy through Gram Sabhas. Reduces conflict between communities and forest departments.
4. **Climate:** Community-managed forests act as significant carbon sinks. Supports India's Net-Zero 2070 commitment.

Way Forward

1. **Institutional Reforms:** Fast-track recognition of CFR rights. Strengthen Joint Forest Management through Gram Sabha leadership.
2. **Economic Incentives:** Expand Van Dhan and MFP value-addition chains. Introduce large-scale PES mechanisms.
3. **Landscape-Level Conservation:** Develop wildlife corridors with community participation. Promote agroforestry and buffer-zone livelihoods.
4. **Technology Integration:** Community-operated biodiversity monitoring using GIS, drones and mobile applications.
5. **Benefit Sharing:** Mandate revenue-sharing from ecotourism and carbon markets with local communities.

Conclusion

Echoing ecologist Madhav Gadgil's vision, India's forests cannot be conserved against people but with them. Empowered communities transform biodiversity protection from exclusionary control into sustainable ecological stewardship.

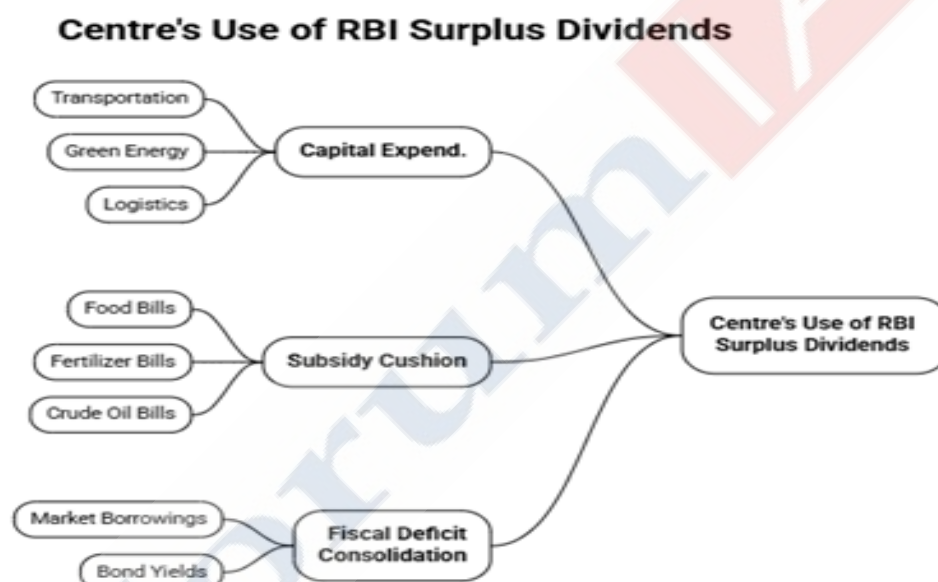
**Analyze the macroeconomic implications of RBI's record surplus transfers to the Centre.
Evaluate its impact on central bank autonomy and federal fiscal devolution.**

Introduction

With the RBI transferring a record ₹2.87 lakh crore surplus to the Centre in FY26, amid Budget 2026-27's fiscal-deficit target of 4.3% of GDP, debates on fiscal stability, autonomy, and federalism have intensified.

RBI's Growing Fiscal Role

1. Under Section 47 of the RBI Act, 1934, surplus profits are transferred to the Union Government.
2. The Bimal Jalan Committee (2019) introduced the Economic Capital Framework (ECF) and Contingent Risk Buffer (CRB) to balance payouts with financial stability.
3. FY26 witnessed a record ₹2.87 lakh crore transfer, supported by higher forex earnings, government securities income, and a growing RBI balance sheet.



Macroeconomic Implications of Record Surplus Transfers

1. **Strengthening Fiscal Consolidation:** Acts as a major non-tax revenue source, reducing pressure on taxation and borrowing. Supports the Union Government's fiscal-deficit target of 4.3% of GDP.
2. **Protecting CAPEX Momentum:** Enables continued investment in infrastructure, logistics and green energy without expenditure compression. Crowds-in private investment through multiplier effects. Example: Gati Shakti.
3. **Reduced Government Borrowing Requirement:** Lower market borrowing moderates G-Sec yields. Frees financial resources for private-sector credit. Example: Corporate bond market.
4. **Minimize Debt:** Help meet deficit targets without excessive market borrowing, containing bond yields. Example: Lower debt servicing..
5. **External Sector Stability:** Reflects robust earnings from foreign exchange reserve management. Enhances confidence in India's macroeconomic fundamentals. Example: Forex reserve operations.

6. **Risks of Quasi-Fiscal Financing:** Dependence on RBI profits may blur distinction between fiscal and monetary functions. Risk quasi-fiscal financing if used for consumption, potentially stoking inflation. Example: Subsidy cushioning.
7. **Inflationary Concerns:** Though surplus transfer itself is not money printing, excessive revenue spending from windfalls can fuel demand-side inflation. Requires prudent expenditure management. Example: Consumption subsidies.

Impact on Central Bank Autonomy

Positive

1. **Rule-Based Framework:** Adherence to Bimal Jalan Committee's Economic Capital Framework (ECF) maintains Contingent Risk Buffer (CRB) at 5.5-6.5%. Example: Risk buffer preservation.
2. **Operational Independence Intact:** RBI continues to independently determine: repo rate, inflation targeting, exchange-rate management and liquidity operations.

Concerns

1. **Pressure for Higher Future Transfers:** Record dividends may create expectations of recurring payouts. Risks politicisation of reserve management. Example: Fiscal stress years.
2. **Reduced Risk Buffers:** Over-extraction to the floor level limits resilience against; currency shocks, financial crises and dollar-volatility. Particularly relevant amid geopolitical uncertainties. Example: Commodity shocks.
3. **Institutional Credibility Risk:** Central bank independence is considered essential by: IMF, BIS and OECD. Perceived fiscal dominance can affect investor confidence. Example: Emerging-market experiences.

Key Implications on Federal Fiscal Devolution

1. **Fiscal Centralisation:** RBI Surplus is non-Tax Revenue; retained by centre. States receive no direct share despite contributing to economic growth.
2. **Vertical Fiscal Imbalance:** States undertake nearly two-thirds of developmental expenditure. Yet access a smaller proportion of revenue resources. Example: Health-education spending.
3. **Cooperative Federalism Concerns:** Growing reliance on: RBI surplus, cess-surcharges reduces the effective shareable revenue pool.
4. **State Development Constraints:** Lower untied resources can affect: welfare schemes, infrastructure projects and climate adaptation initiatives.
5. **Finance Commission Debate:** The issue may gain prominence before future Finance Commissions regarding broader resource-sharing mechanisms. Example: Fiscal federalism discourse.

Way Forward

1. **Strict Adherence to ECF:** Preserve rule-based surplus determination.
2. **Maintain Adequate Risk Buffers:** Prioritize long-term financial resilience over short-term fiscal gains.
3. **Productive Utilisation of Windfalls:** Channel transfers towards capital expenditure rather than revenue consumption.
4. **Strengthen Fiscal Federalism:** Explore mechanisms for compensating states when non-divisible revenues rise substantially.

5. **Enhance Transparency:** Publish detailed disclosures on surplus generation and reserve management.
6. **Diversify Government Revenue Sources:** Reduce dependence on exceptional central bank transfers through tax buoyancy and economic growth.

Conclusion

Echoing former President A.P.J. Abdul Kalam's vision of strong institutions powering national development, RBI surplus transfers must balance fiscal support with monetary independence and cooperative federalism to ensure sustainable, inclusive growth.

Examine how the Supreme Court gender-neutralized and formalized the economic value of unpaid domestic labor in tort compensation. Suggest policy steps to institutionalize this value.

Introduction

India's 2019 Time Use Survey found women spend nearly 299 minutes daily on unpaid domestic services versus 97 minutes by men. The Supreme Court's 2025 Shishupal v. Surjeet judgment transforms this invisible labor into legally recognized economic value.

Supreme Court's Formalization of Unpaid Domestic Labour in Tort Compensation

The Supreme Court's judgment in Shishupal @ Shish Ram v. Surjeet (2025) marks a paradigm shift from viewing homemakers as economic dependents to recognizing them as "**nation builders**" whose labour generates measurable economic value.

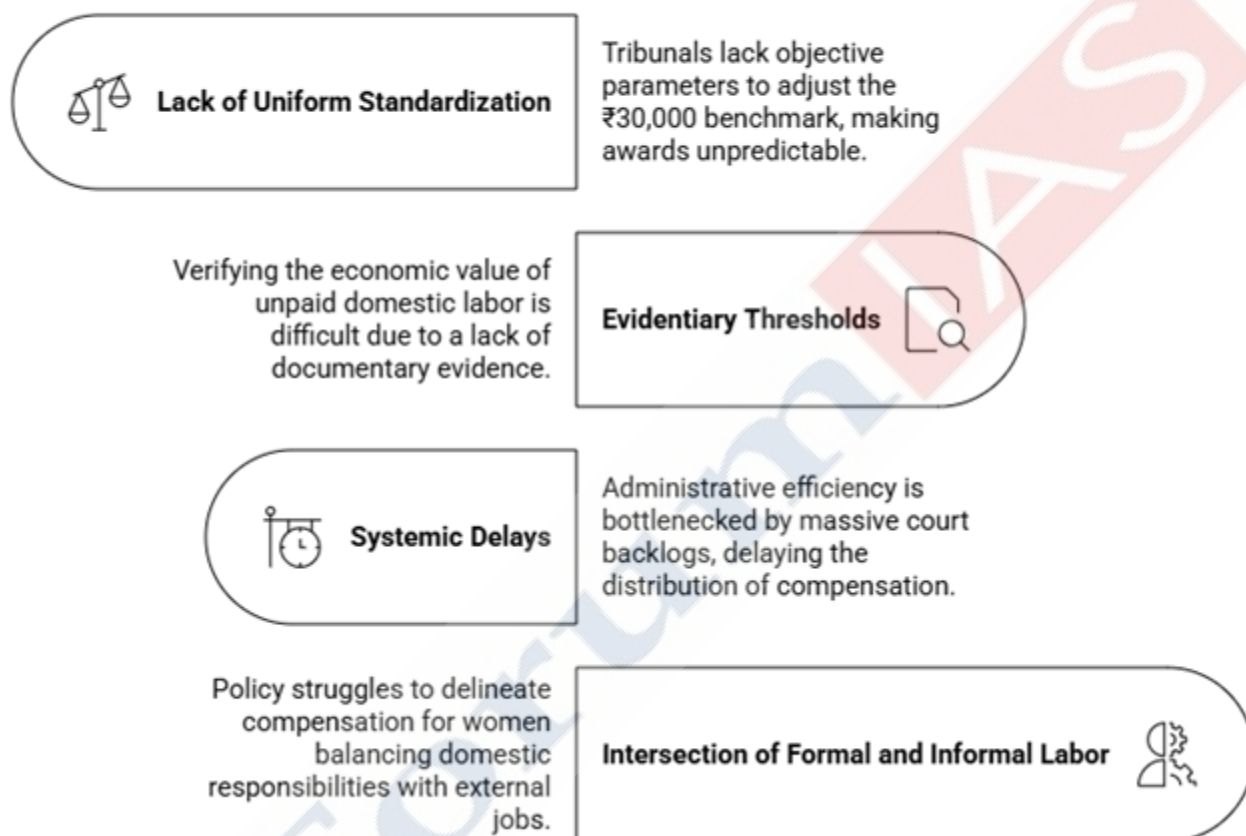
1. **Creation of a Distinct Head:** The Court introduced Loss of Domestic Care as an independent compensatory head under motor accident claims. Moves beyond the traditional "loss of dependency" framework. Recognizes emotional, caregiving, managerial and household functions. Example: MACT claims.
2. **Standardized Monetary Valuation:** Fixed a minimum notional income of ₹30,000 per month for non-earning homemakers. Directed 10% cumulative increase every three years, drawing from inflation-adjustment principles in Pranay Sethi. Example: Dynamic valuation.
3. **Recognition of Opportunity Cost:** Acknowledged that homemakers sacrifice: career opportunities, professional advancement and income generation prospects. Aligns with modern labour economics and care-economy frameworks. Example: Career sacrifice.
4. **Gender-Neutral Interpretation:** Court explicitly held that domestic labour is not exclusively female. Recognized that male homemakers can also perform unpaid caregiving work and deserve equal legal protection. Advances substantive equality under Articles 14 and 15. Example: Gender neutrality.

Significance of the Judgment

1. **Constitutional:** Upholds Article 14 (Equality) and Article 21 (Dignified Life). Advances Directive Principles promoting social justice. Example: Constitutional morality.
2. **Economic:** Corrects long-standing GDP underestimation of unpaid care work. NITI Aayog and several UN studies have highlighted the economic significance of the care economy. Example: Care economy.
3. **Social:** Challenges patriarchal assumptions that household work is non-productive. Enhances recognition of women's invisible labour. Example: Gender justice

- Legal:** Builds upon precedents such as: Lata Wadhwa (2001), Kirti v. Oriental Insurance (2021). Establishes greater uniformity in compensation awards. Example: Judicial consistency.
- International:** Aligns with SDG 5.4, which calls for recognition and valuation of unpaid care work. Reflects recommendations of UN Women and the ILO. Example: Global best practice.

Hurdles in Standardizing Economics of Care



Challenges in Institutionalizing Domestic Labour Valuation

- Absence in National Income Accounting:** Unpaid domestic work remains outside conventional GDP estimates.
- Lack of Uniform Family Law Standards:** Maintenance and alimony calculations continue to vary significantly.
- Social Perception Barriers:** Household labour is often treated as a natural duty rather than productive work.
- Weak Social Security Coverage:** Homemakers remain largely excluded from pensions and insurance systems.

Policy Steps to Institutionalize the Economic Value of Domestic Labour

- Integrate Unpaid Care Work into National Accounts:** Conduct regular Time Use Surveys through NSO. Develop Satellite Accounts under MoSPI to estimate unpaid care contributions. Example: Australia model.

- 2. Reform Matrimonial Property Laws:** Recognize marriage as an economic partnership. Ensure equitable division of matrimonial assets irrespective of direct income contribution. Example: Community property principle.
- 3. Standardize Maintenance and Alimony:** Frame judicial guidelines using the "Loss of Domestic Care" benchmark. Reduce arbitrariness in family court decisions. Example: Uniform maintenance norms.
- 4. Establish Social Security for Homemakers:** Introduce: universal pension schemes, accident insurance and health coverage. Recognize lifelong care contributions. Example: Care pension.
- 5. Amend the Motor Vehicles Act, 1988:** Statutorily incorporate Loss of Domestic Care. Ensure nationwide consistency in compensation awards. Example: Legislative codification.
- 6. Strengthen Financial Inclusion:** Promote: individual bank accounts, digital financial literacy and credit access for homemakers. Enhance economic agency. Example: Jan Dhan linkage.
- 7. Invest in Care Infrastructure:** Expand: crèches, eldercare centres and community care facilities. Reduce disproportionate care burdens. Example: Care economy mission.
- 8. Encourage Data-Driven Policymaking:** NITI Aayog and MoSPI should create a National Care Economy Index. Facilitate evidence-based welfare interventions. Example: Care metrics.

Way Forward

1. Institutionalize valuation of unpaid work through legislation.
2. Mainstream care-economy accounting into development planning.
3. Expand social security architecture for homemakers.
4. Ensure gender-neutral recognition of domestic labour across all laws.
5. Link judicial valuation principles with welfare and pension reforms.
6. Promote societal recognition of caregiving as productive economic activity.

Conclusion

Echoing President Droupadi Murmu's emphasis on women's contributions to nation-building, the Supreme Court's recognition of unpaid domestic labour must evolve into comprehensive legal, economic and social protection frameworks.

Examine how India can balance tactical cooperation with Washington while preserving its strategic autonomy amidst unpredictable shifts in US foreign policy.

Introduction

Amid rising trade fragmentation and geopolitical volatility, the Economic Survey 2025-26 highlights strategic autonomy as a pillar of economic sovereignty. Simultaneously, the India-US COMPACT initiative reflects deepening cooperation despite policy unpredictability.

India-US Relations: From Strategic Convergence to Strategic Hedging

1. India-US relations have evolved from the post-Cold War rapprochement to a Comprehensive Global Strategic Partnership encompassing defence, technology, trade, energy and Indo-Pacific security.
2. The launch of the India-US COMPACT and TRUST initiatives in 2025 reflects unprecedented institutionalisation of ties.
3. However, tariff actions, sanctions threats, H-1B uncertainties, divergent approaches on Russia and West Asia, and transactional diplomacy underline the need for calibrated engagement.

Why Tactical Cooperation with Washington Remains Necessary?

- 1. Strategic and Security Imperatives:** Indo-Pacific stability and maritime security through Quad cooperation. Defence interoperability via COMPACT, BECA, COMCASA and LEMOA frameworks. Intelligence sharing on terrorism and cyber threats. Example: Indo-Pacific maritime domain awareness.
- 2. Critical Technology Partnership:** Cooperation in AI, semiconductors, quantum computing, biotechnology and space. TRUST framework seeks resilient technology ecosystems and secure supply chains. Example: Semiconductor collaboration.
- 3. Economic and Investment Benefits:** Bilateral trade expansion under Mission-500 target. US remains a major source of FDI, venture capital and innovation ecosystems. Example: GCCs and digital economy.
- 4. Diaspora and Human Capital Linkages:** Over four million Indian-origin persons strengthen educational, technological and entrepreneurial ties. Example: Silicon Valley leadership.

India's Diplomatic Strategy Cycle



Why Strategic Autonomy Remains Non-Negotiable?

- 1. Historical:** Legacy of Non-Alignment and issue-based alignment. India avoids bloc politics and military alliances. Example: Strategic autonomy doctrine.
- 2. Geopolitical Multipolarity:** Simultaneous engagement with US, Russia, EU, Japan, ASEAN and Gulf countries. Preserves diplomatic flexibility during crises. Example: Multi-alignment policy.

- 3. Energy Security Considerations:** Diversified crude imports reduce vulnerability to sanctions regimes. Example: Russia-Gulf balancing.
- 4. Global South Leadership:** India's G20 presidency and G7 outreach emphasize inclusive development and equitable partnerships. PM Modi's IMPACT proposal reflects this approach. Example: Voice of Global South.
- 5. Economic Sovereignty:** Economic Survey 2025-26 warns of power-driven trade relations and technology restrictions, requiring stronger domestic capabilities. Example: Atmanirbhar Bharat.

Challenges Posed by Unpredictable US Foreign Policy

| Areas | Emerging Challenge |
|----------------|--|
| 1. Trade | Sudden tariffs and market access restrictions |
| 2. Defence | Policy shifts with changing administrations |
| 3. Technology | Export controls and supply-chain weaponisation |
| 4. Immigration | Visa uncertainties for skilled Indians |
| 5. Geopolitics | Pressure regarding Russia, Iran and China |
| 6. Maritime | Hormuz disruptions affecting energy flows |

Balancing Cooperation and Autonomy

- 1. Institutionalize Sector-Specific Cooperation:** Deepen defence, AI, semiconductor and space cooperation without alliance commitments. Example: COMPACT framework.
- 2. Diversify Strategic Partnerships:** Strengthen ties with EU, Japan, Australia, ASEAN and Gulf states. Example: India-EU FTA momentum.
- 3. Build Domestic Technological Capabilities:** Budget 2026-27 emphasis on AI, deep-tech and semiconductor manufacturing. Example: India AI Mission.
- 4. Strengthen Maritime Hedging:** Enhance SAGAR, Indo-Pacific Oceans Initiative and anti-piracy mechanisms. Example: Strait of Hormuz preparedness.
- 5. Preserve Strategic Decision-Making Independence:** Continue issue-based diplomacy rather than bloc alignment. Example: Russia-Ukraine peace advocacy.
- 6. Expand Multilateral Diplomacy:** Utilize Quad, I2U2, IMEC and technology coalitions. Example: Flexible coalitions.

Way Forward

1. Conclude a pragmatic Bilateral Trade Agreement while safeguarding sensitive sectors.
2. Build trusted technology supply chains through friend-shoring, not dependence.
3. Strengthen indigenous defence production under Defence Industrial Corridors.
4. Institutionalize strategic dialogues irrespective of political transitions in Washington.
5. Enhance Global South partnerships to prevent over-reliance on any single power centre.
6. Adopt multi-alignment with resilience as the core foreign-policy framework.

Conclusion

Echoing Dr. S. Jaishankar's The India Way, India's success lies in pursuing partnerships without dependence, cooperating with Washington where interests converge while preserving sovereign choices in an increasingly multipolar world.

NFHS-6 highlights that while health interventions drive progress, dietary shifting toward processed foods creates an illusion of diversity. Evaluate India's persistent nutritional challenges.

Introduction

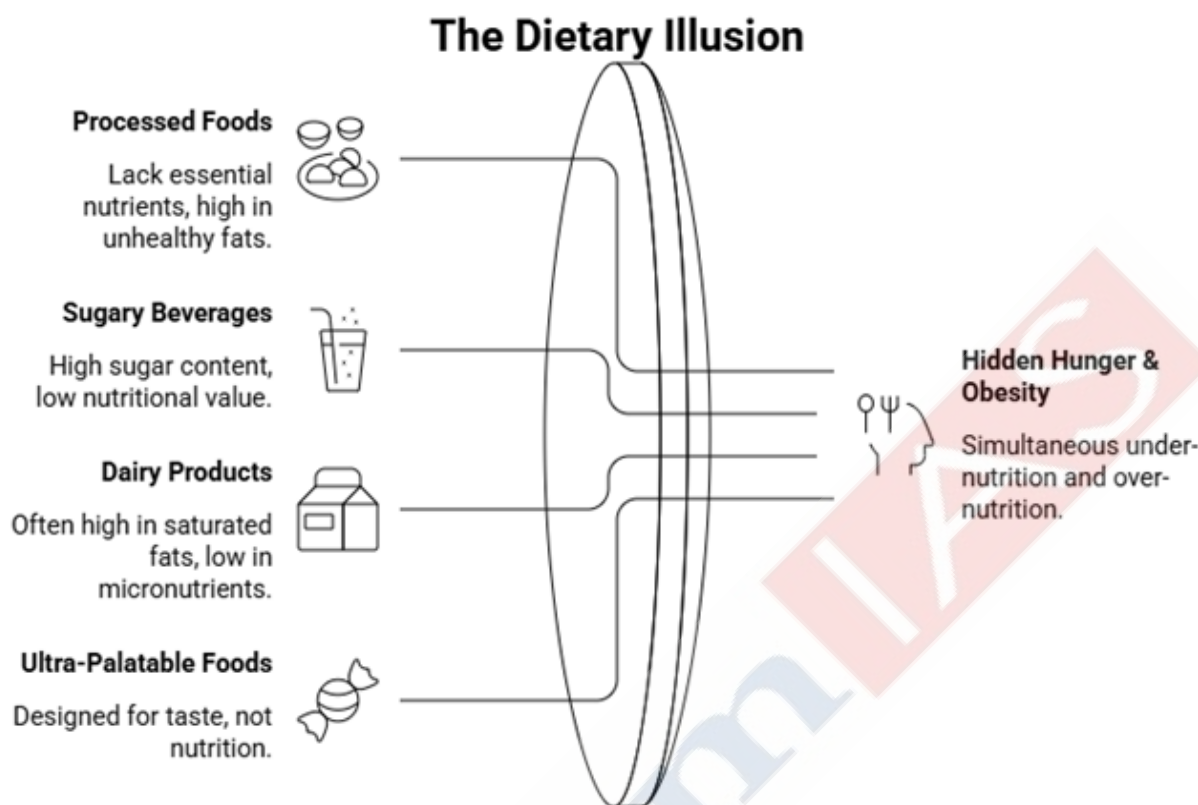
NFHS-6 (2023-24) reflects India's nutrition paradox: stunting declined to 29.3% and institutional deliveries crossed 90%, yet only 15.1% of children receive an adequate diet, exposing persistent dietary and micronutrient deficiencies.

India's Nutrition Paradox Health Gains Amid Dietary Insecurity

1. India has achieved notable improvements in maternal and child healthcare through POSHAN Abhiyaan, Mission Indradhanush, Anaemia Mukh Bharat, Jal Jeevan Mission, and strengthened frontline health networks.
2. However, NFHS-6 reveals that improved healthcare access alone cannot guarantee nutritional security.
3. The challenge has shifted from mere food availability to dietary quality, diversity, affordability, and behavioural practices.

Health Interventions Driving Progress

1. **Improved Maternal and Child Healthcare:** Institutional deliveries increased to 90.6%, skilled birth attendance exceeded 91%. Full immunisation reached nearly 87%. Example: Mission Indradhanush.
2. **Reduction in Chronic Undernutrition:** Stunting declined from 35.5% to 29.3%, severe wasting reduced from 7.7% to 5.2%. Reflects gains from sanitation, maternal education, and healthcare access. Example: POSHAN Abhiyaan.
3. **Better Public Health Infrastructure:** Expansion of Health and Wellness Centres. Improved antenatal and postnatal care coverage. Example: Ayushman Bharat.



The Illusion of Dietary Diversity

- 1. Shift Towards Processed Food Consumption:** Recent Consumer Expenditure Surveys indicate declining cereal consumption but increasing expenditure on: processed foods, sugary beverages, ultra-processed snacks and convenience foods. This creates an appearance of dietary diversification without nutritional adequacy.
- 2. Micronutrient Deficiency Amid Calorie Sufficiency:** Hidden hunger persists despite adequate calorie intake. Deficiencies in iron, zinc, Vitamin A, Vitamin B12 and folate remain widespread. Example: Persistent anaemia burden.
- 3. Double Burden of Malnutrition:** NFHS-6 highlights simultaneous prevalence of: undernutrition among children and obesity and NCDs among adults. Overweight/obese women increased from 24% to 30.7%; men from 22.9% to 27.3%. Example: Urban obesity surge.

Persistent Structural Nutritional Challenges

- 1. Maternal Time Poverty:** Working women face childcare constraints. Limited crèche facilities affect breastfeeding and complementary feeding. Example: Rural farm households.
- 2. Poor Infant Feeding Practices:** Exclusive breastfeeding declined from 63.7% to 55.8%. Only 15.1% children (6–23 months) receive adequate diets. Example: Delayed complementary feeding.
- 3. Affordability Gap:** According to the FAO's State of Food Security and Nutrition reports, nutritious diets remain unaffordable for large sections of the population. Fruits, vegetables, pulses and animal proteins remain costly. Example: Protein affordability crisis.
- 4. Regional Inequalities:** Economic growth alone has not improved nutrition outcomes. Gujarat records lower adequate child diet indicators than Jharkhand despite higher income levels. Example: Nutrition-growth disconnect.

5. **Cereal-Centric Food System:** MSP and procurement largely favour rice and wheat. Limited incentives for pulses, millets, fruits and vegetables. Example: Monoculture bias.
6. **Weak Nutrition-Sensitive Agriculture:** NITI Aayog's nutrition strategy advocates diversification toward nutrient-dense crops. Example: Millet Mission.
7. **Institutional and Governance Issues:** Nutrition requires coordinated action across: health, agriculture, women and Child Development and water and sanitation. Yet convergence remains inadequate. Example: Fragmented implementation.
8. **Data Utilisation Deficit:** Large-scale Anganwadi growth-monitoring data often remains underutilised for local interventions. Example: District nutrition planning.

Emerging Challenges

1. **Technological:** Aggressive digital marketing of ultra-processed foods targets children. Example: Online food advertising.
2. **Legal and Regulatory:** Delayed Front-of-Pack Labelling (FOPL) regulations. Weak restrictions on unhealthy foods. Example: FSSAI reforms pending.
3. **Human Capital:** First 1,000 days determine cognitive development. Malnutrition reduces productivity and learning outcomes. Example: Demographic dividend risk.

Way Forward

1. **Food System Reforms:** Diversify PDS with millets, pulses and fortified foods. Example: PM Poshan integration.
2. **Behaviour Change Communication:** Strengthen counselling by ASHAs, AWWs and ANMs. Promote breastfeeding and complementary feeding. Example: Annaprasana campaigns.
3. **Nutrition-Sensitive Agriculture:** Incentivise horticulture, pulses and bio-fortified crops. Example: Nutri-garden model.
4. **Regulatory Measures:** Implement Front-of-Pack Warning Labels. Restrict marketing of ultra-processed foods to children. Example: Chile model.
5. **Strengthen Care Infrastructure:** Expand community crèches and childcare centres. Reduce maternal time poverty. Example: NGO crèche models.
6. **Data-Driven Governance:** Deploy district nutrition analysts and digital monitoring systems. Example: Real-time growth tracking.

Conclusion

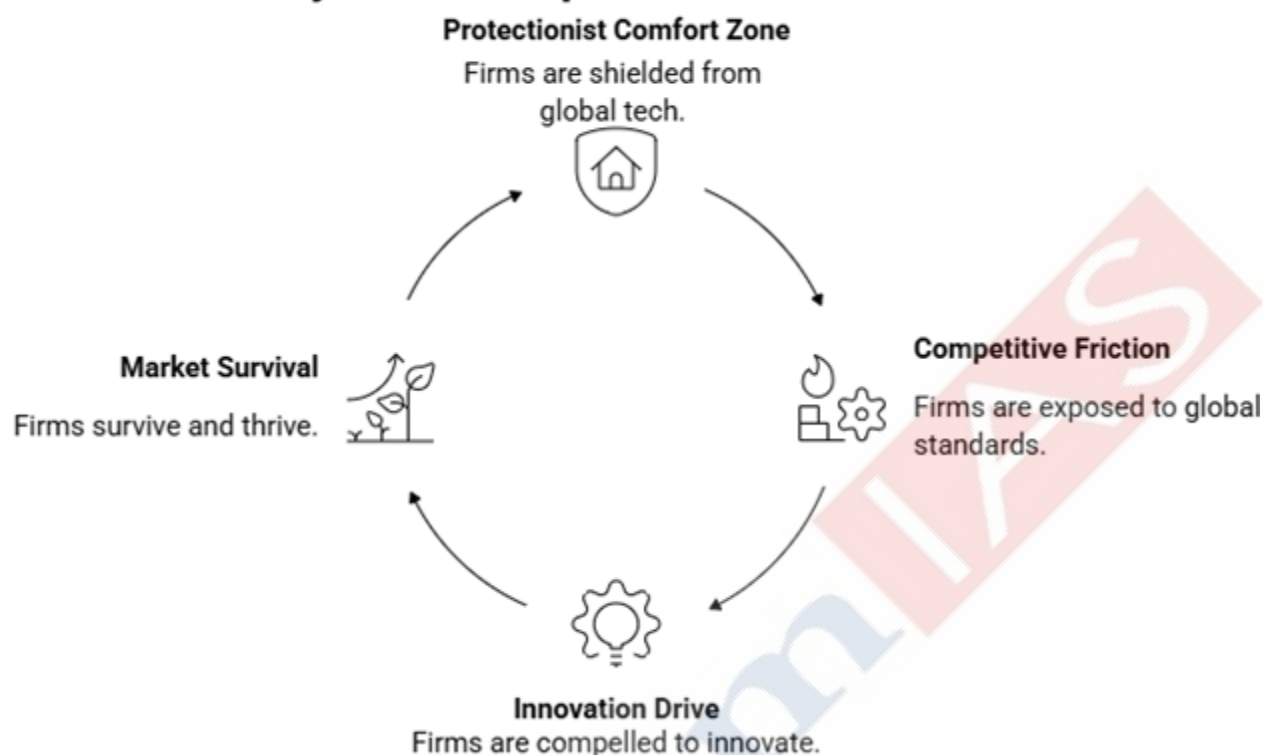
Echoing Dr. M.S. Swaminathan's vision that nutrition security is true food security, NFHS-6 reminds India that healthcare saves lives, but affordable, diverse and nutritious diets build human capital.

The missing ingredient in India's innovation story is not ambition. It is competition and better policy. Comment

Introduction

Economic Survey 2025-26 notes India's GERD remains only 0.64% of GDP, with private firms contributing merely 36% of R&D spending despite rising corporate investments, revealing that innovation deficits stem more from weak competitive pressures than lack of ambition.

The Cycle of Competition and Innovation



India's Innovation Potential and Ambition Is Not the Constraint

1. India has emerged as the world's 38th-ranked innovation ecosystem in the Global Innovation Index 2025, hosts nearly 2 lakh DPIIT-recognised startups, and is investing heavily in semiconductors, AI, green hydrogen, and space technologies.
2. Yet, innovation-led economies typically spend 2–5% of GDP on R&D, whereas India remains stuck at 0.64%, indicating a structural innovation gap.

Why Competition Remains the Missing Ingredient

1. **Protectionist Comfort Reduces Innovation Incentives:** Higher tariffs and Quality Control Orders often shield domestic firms from global competition. Firms can maintain profitability without investing in frontier technologies. Result: preference for assembly and adaptation over invention. Example: Import substitution without deep technology ownership.
2. **Large Domestic Market Creates Complacency:** India's expanding consumer base ensures demand even for technologically average products. Boards prioritize capacity expansion over uncertain R&D investments. Example: Infrastructure and petrochemical investments vs limited proprietary technology creation.
3. **Technology Adoption Over Technology Creation:** Many industries rely on imported patents, licensing, and technology transfer. This generates manufacturing capability but not intellectual property leadership. Example: Electronics assembly ecosystem.
4. **Weak Market Discipline:** Globally, innovation flourishes when firms face existential competitive pressure. South Korean and Taiwanese firms upgraded because they competed internationally. Example: Samsung, TSMC transformation.

Policy Bottlenecks Hindering Innovation

1. **Suboptimal R&D Investment:** High cost of capital discourages long-gestation research and venture funding remains concentrated in digital services rather than deep-tech. Example: Hardware innovation gap.
2. **Institutional Voids:** India faces a “Valley of Death” situation between laboratory research and commercialization. Weak academia-industry collaboration slows technology transfer. Example: Patent-rich but product-poor ecosystem.
3. **Permissionless vs. Permissive Frameworks:** Lowest-cost (L1) tendering penalizes innovative products and public demand rarely rewards indigenous technological breakthroughs. Example: Government procurement bias.
4. **Regulatory-Cholesterol:** Policy unpredictability discourages long-term R&D commitments. Frequent tariff and compliance changes create investment uncertainty. Example: Manufacturing sector planning risks.
5. **Human Capital:** NITI Aayog-backed Ease of Doing Research survey found 76% researchers report limited industry support for R&D. Industry-academia talent mobility remains weak. Example: Research commercialization deficit.

Why Better Policy Is Equally Important

1. **Budgetary Push:** Government has operationalised the Anusandhan National Research Foundation (ANRF) and announced a ₹1 lakh crore Research, Development and Innovation Fund to crowd-in private investment.
2. **Strategic Technology Missions:** National Quantum Mission, IndiaAI Mission, Semiconductor Mission and Green Hydrogen Mission these initiatives create enabling conditions, but innovation ultimately depends on private-sector risk-taking.

Way Forward

1. **Competition-Led Reforms:** Time-bound tariff rationalisation. integration into global value chains and competitive export orientation.
2. **Innovation Financing:** ANRF-industry co-funding mechanisms with deep-tech venture capital ecosystem and patent commercialization funds.
3. **Procurement Reforms:** Shift from L1 to Value-Based Procurement and prefer indigenous intellectual property.
4. **Research Ecosystem Reforms:** Industry-linked PhDs, university technology transfer offices and research parks and innovation clusters.
5. **Governance Reforms:** Stable regulatory environment, faster IP approvals and simplified compliance framework.

Conclusion

As former President A.P.J. Abdul Kalam argued in India 2020, nations achieve technological sovereignty through innovation, not imitation. Competition-driven reforms and enabling policies must transform India from technology consumer to creator.

How does weaponized technological interdependence impact sovereign strategic autonomy of India? Analyze the policy choices available for a country like India to achieve digital resilience.

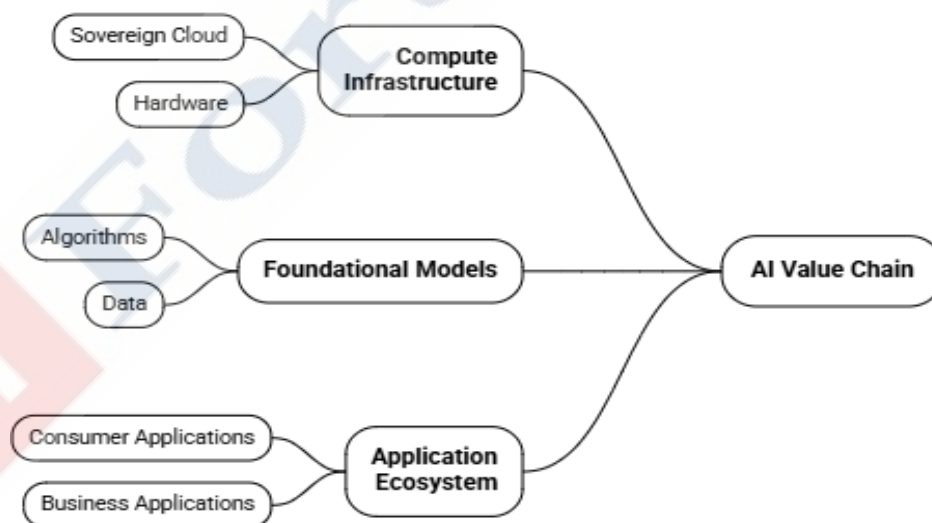
Introduction

With India's digital economy projected to contribute nearly 20% of GDP by 2030 and Budget 2026-27 reinforcing semiconductor and AI investments, technological sovereignty has become a strategic imperative amid rising geopolitical weaponization of technology.

Weaponized Technological Interdependence

- 1. Chokepoint Vulnerabilities:** Dependence on foreign AI models, cloud services, and semiconductor ecosystems creates risks of sudden denial of access. The Anthropic model restrictions illustrate how commercial access can be overridden by national-security considerations. Example: AI blackout risk.
- 2. Strategic and Geopolitical:** Technology is increasingly becoming a tool of statecraft alongside sanctions and military power. Export controls on advanced chips and AI hardware demonstrate the rise of techno-nationalism. Example: US-China chip war.
- 3. Economic:** Digital disruptions can affect fintech, IT services, manufacturing automation, and e-governance. Economic Survey 2025-26 notes that innovation-led growth requires stronger technological capabilities and reduced external vulnerabilities. Example: Supply-chain shocks.
- 4. National Security:** Critical sectors such as defence, cyber-security, power grids, and telecom depend on digital infrastructure. External control over strategic technologies may compromise operational continuity. Example: Critical infrastructure risk.
- 5. Data Sovereignty and Legal:** Article 21's evolving jurisprudence recognizes privacy as a fundamental right. Dependence on foreign-controlled platforms raises concerns regarding jurisdiction, surveillance, and data governance. Example: Cross-border data control.
- 6. Diplomatic:** Even trusted partnerships may not guarantee uninterrupted access to frontier technologies. Strategic autonomy requires diversification beyond any single technology bloc. Example: Multi-alignment diplomacy.

AI Value Chain and Strategic Resilience



Why Complete Technological Self-Reliance Is Not Feasible

- 1.** The AI ecosystem spans: semiconductor fabrication, compute infrastructure, foundational models, data ecosystems and application layers.

2. No country, including India, can efficiently dominate every layer. Excessive techno-protectionism may increase costs and reduce competitiveness. Example: Innovation slowdown.

Policy Choices for Achieving Digital Resilience

1. **Build Sovereign Digital Infrastructure:** Accelerate sovereign cloud initiatives and indigenous data centres. Ensure sensitive government and defence workloads remain under Indian control. Example: Sovereign cloud architecture.
2. **Strengthen Frontier Technology Capabilities:** Scale up the IndiaAI Mission, semiconductor mission, and National Quantum Mission. Focus on strategic sectors rather than attempting universal self-sufficiency. Example: Defence AI systems.
3. **Promote Open-Source Ecosystems:** Reduce dependence on proprietary foreign platforms. Encourage indigenous adaptation of open-source AI models. Example: Open-source LLMs.
4. **Increase Domestic R&D Investments:** India's GERD remains around 0.6-0.7% of GDP, far below major innovation economies. Operationalize ANRF and deepen academia-industry collaboration. Example: Deep-tech innovation.
5. **Secure Semiconductor and Compute Supply Chains:** Expand semiconductor manufacturing incentives. Diversify sourcing through trusted partnerships with Japan, Taiwan, Europe, and the US. Example: Trusted supply chains.
6. **Regulatory and Cybersecurity Preparedness:** Strengthen CERT-In, Digital Personal Data Protection implementation, and AI governance frameworks. Adopt sector-specific cyber resilience standards. Example: Cyber resilience.
7. **Strategic Multi-Alignment:** Leverage Quad, I2U2, Indo-Pacific partnerships, and Global South cooperation. Avoid dependence on a single technological ecosystem. Example: Diversified partnerships.

Way Forward

1. Identify critical technologies through a National Technology Security Strategy.
2. Adopt a strategic autonomy stack for AI, cloud, semiconductors, and cybersecurity.
3. Shift from mere digital consumption to innovation-led technological leadership.
4. Integrate NITI Aayog's AI-for-All vision with national-security priorities.
5. Develop trusted public digital infrastructure globally through the India Stack model. Example: DPI diplomacy.

Conclusion

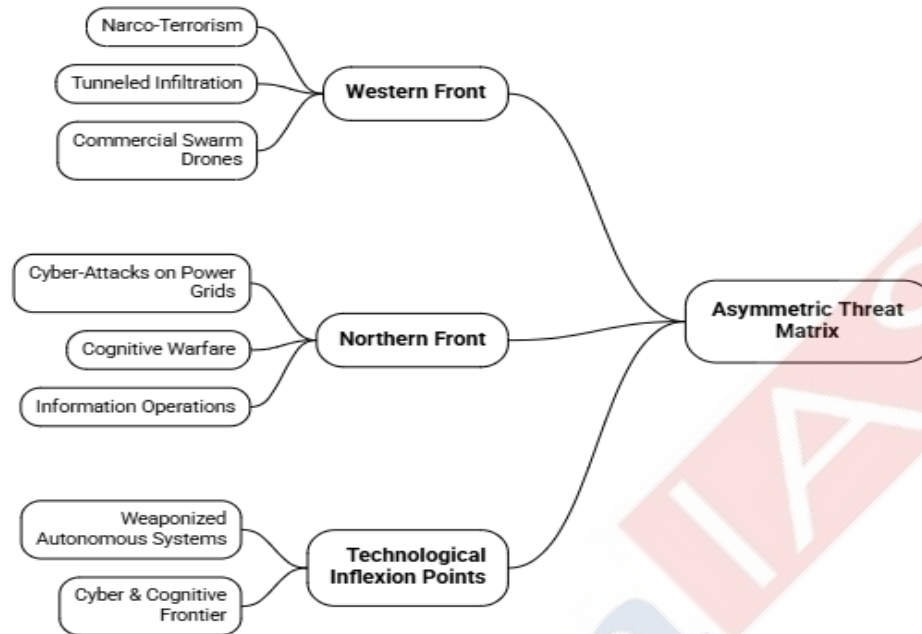
Echoing Dr. A.P.J. Abdul Kalam's vision in India 2020, genuine strategic autonomy in the digital age demands technological capability, resilient institutions, and innovation-driven sovereignty rather than dependence-driven efficiency.

Evaluate the impact of asymmetric warfare on India's national security. Discuss how advanced technology and cross-border proxy conflicts demand new defence doctrines.

Introduction

With defence allocations crossing ₹7 lakh crore in Budget 2026-27 and India emerging as a major digital economy, asymmetric warfare increasingly exploits technological vulnerabilities, demanding doctrinal transformation beyond conventional battlefield-centric security paradigms.

Asymmetric Threat Matrix: Proxies & Tech Collusion



Asymmetric Warfare Redefining India's Security Landscape

Asymmetric warfare refers to conflicts where state or non-state actors employ unconventional methods, proxy groups, cyber tools, drones, and information operations to impose disproportionate costs on a stronger adversary. India today confronts a persistent No War, No Peace (NWNP) environment across its western and northern frontiers.

Impact on India's National Security

1. **Threat to Territorial Sovereignty:** Cross-border terrorism, infiltration and narco-terror networks continuously challenge India's territorial integrity. Drone-assisted smuggling of weapons and narcotics across Punjab and Jammu has bypassed traditional border fencing. Example: Punjab drone drops.
2. **Internal Security Destabilisation:** Proxy actors exploit local grievances, radicalisation and social divisions. Hybrid warfare blurs distinctions between external aggression and internal unrest. Example: Social media radicalization.
3. **Economic and Infrastructure Vulnerability:** Critical infrastructure such as power grids, banking networks and communication systems face cyber threats. Economic Survey 2025-26 highlights cyber resilience as essential for sustaining digital economic growth. Example: Power grid attacks.
4. **Information and Cognitive Warfare:** Deepfakes, AI-generated propaganda and coordinated disinformation campaigns influence public perception. Adversaries attempt to weaken social cohesion and military morale. Example: Deepfake operations.
5. **Strategic and Geopolitical Challenges:** Adversaries deliberately operate below the threshold of conventional war, limiting traditional military responses. Grey-zone tactics complicate diplomatic and legal attribution. Example: Salami-slicing tactics.

How Advanced Technology Amplifies Asymmetric Threats

- 1. Drone and Loitering Munition Revolution:** Low-cost drones provide surveillance, logistics and precision-strike capabilities. Ukraine and West Asia conflicts demonstrate how inexpensive drones can neutralise expensive military assets. Example: Swarm drone attacks.
- 2. Cyber Warfare as a Strategic Weapon:** State-sponsored cyber groups target critical infrastructure and military networks. The Defence Cyber Agency increasingly views cyberspace as an active operational domain. Example: Malware infiltration.
- 3. AI-Enabled Information Warfare:** Artificial Intelligence facilitates automated misinformation, behavioural manipulation and psychological operations. NITI Aayog's AI strategy warns about emerging security implications of AI misuse. Example: Algorithmic influence campaigns.
- 4. Encrypted Communication Ecosystems:** Terror networks increasingly utilise encrypted platforms and dark-web channels. Intelligence gathering becomes significantly more challenging. Example: End-to-end encryption.

Need for New Defence Doctrines

- 1. Multi-Domain Operations (MDO):** Future conflicts require integrated operations across land, air, sea, cyber, space and cognitive domains. Joint Doctrine for Multi-Domain Operations reflects this transition. Example: Indian Maritime Doctrine 2025 (IMD-25).
- 2. Integrated Theatre Commands:** Theatreisation enhances jointness, resource optimisation and rapid response. Proposed Northern, Western and Maritime Commands seek unified operational control. Example: Theatre command model.
- 3. Counter-Drone and AI Defence Architecture:** Development of directed-energy weapons, smart air defence systems and AI-enabled surveillance. Indigenous anti-drone systems are becoming operational priorities. Example: Hard-kill systems.
- 4. Cyber and Space Preparedness:** Strengthening the Defence Cyber Agency (DCyA) and Defence Space Agency (DSA). Real-time Intelligence, Surveillance, and Reconnaissance (ISR) and cyber deterrence are becoming indispensable. Example: Space-based surveillance.
- 5. Atmanirbhar Defence Ecosystem:** Indigenous development of drones, EW systems, AI tools and missile technologies reduces strategic dependence. Defence startups under iDEX are accelerating innovation. Example: Indigenous UAVs.

Way Forward

1. Establish a comprehensive National Counter-Asymmetric Warfare Strategy.
2. Accelerate Integrated Theatre Commands and joint force structures.
3. Expand AI-enabled border surveillance and predictive intelligence systems.
4. Strengthen civil-military coordination through a Whole-of-Nation security framework.
5. Invest in indigenous cyber, drone, semiconductor and quantum technologies.
6. Enhance international cooperation on cyber norms and counter-terror financing.
7. Institutionalise cognitive warfare and information security capabilities.

Conclusion

For India, maintaining national security no longer means simply guarding physical borders, it requires dominating the electromagnetic spectrum, protecting digital networks, and possessing the structural agility to counter multi-domain threats before they escalate into open warfare.

How can unprincipled political defections be tackled when the Tenth Schedule's 2/3rd merger exception is routinely weaponized to legitimize engineered splits?

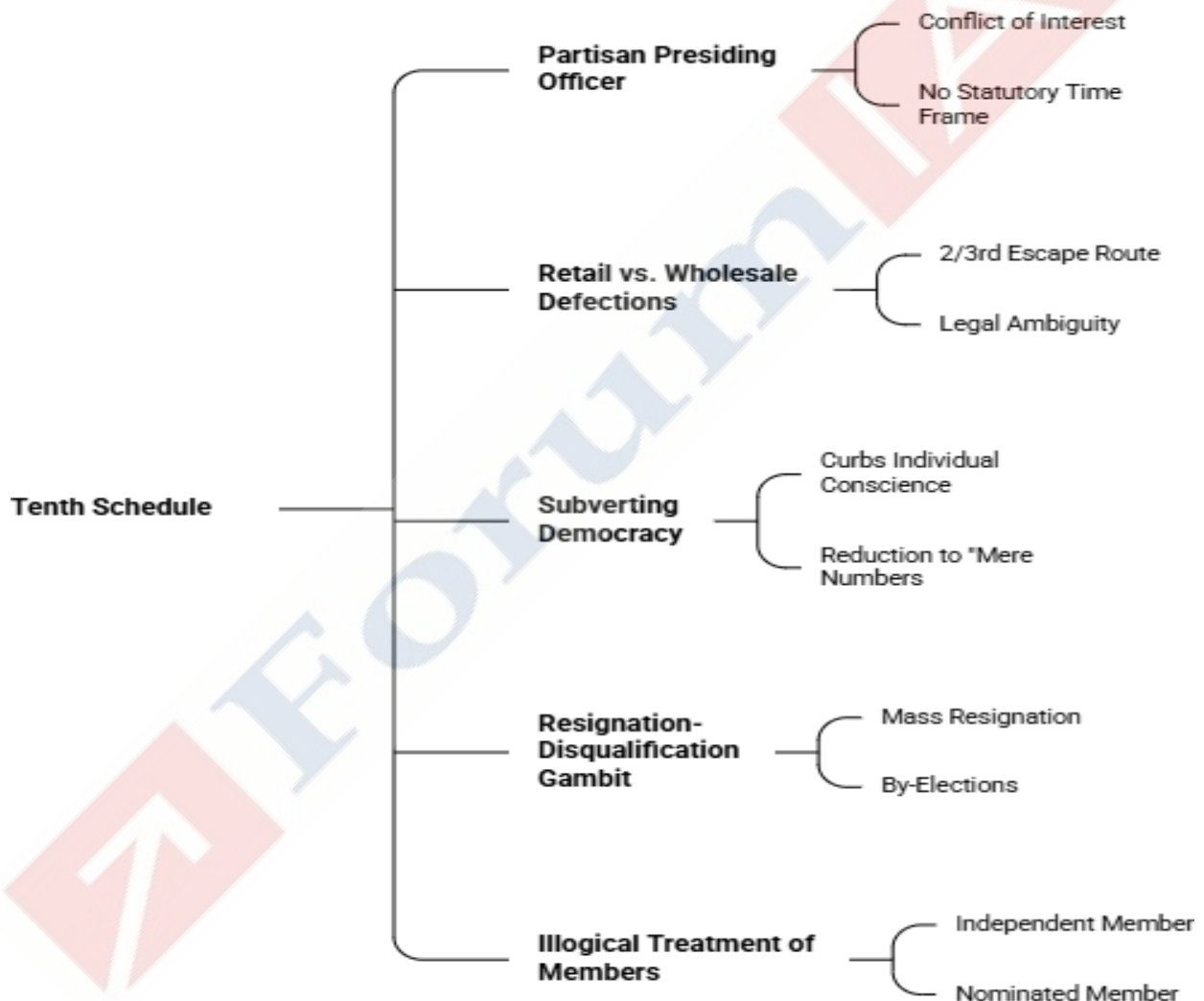
Introduction

Despite the anti-defection law, engineered political defections continue to destabilize governments. Recent parliamentary crossovers expose how the Tenth Schedule's 2/3rd merger exception has transformed a constitutional safeguard into a political loophole.

Unprincipled Political Defections and the Weaponisation of the 2/3rd Merger Exception

Constitutional Objective vs Political Reality

Tenth Schedule: Loopholes and Compromises



1. The **52nd Constitutional Amendment Act (1985)** inserted the Tenth Schedule to curb the infamous “Aaya Ram, Gaya Ram” culture and strengthen democratic stability.

2. The **91st Constitutional Amendment (2003)** removed protection for one-third splits but retained the two-thirds merger exception. However, instead of preventing defections, it has incentivized engineered mass defections disguised as mergers.

Why the Present Framework Fails?

1. **Distortion of the Merger Provision:** Paragraph 4 treats a two-thirds legislative split as a valid merger. Legislators often claim merger even when the parent political party continues independently. Converts defections into legally protected political transactions.
2. **Partisan Role of the Speaker:** Speaker acts as adjudicating authority despite political affiliations. Delayed decisions effectively become a “pocket veto”. Supreme Court in *Keisham Meghachandra Singh (2020)* criticized such delays. Example- Manipur case.
3. **Weak Democratic Accountability:** Defectors retain seats without seeking fresh public approval. Violates voters’ mandate and weakens representative democracy. Example: Mandate betrayal.
4. **Judicial Delays and Legal Ambiguity:** Pending constitutional questions regarding merger interpretation encourage opportunistic defections. Legal uncertainty creates incentives for political manipulation. Example: Constitutional vacuum.

Implications

1. **Political:** Frequent government collapses and instability. Encourages coalition blackmail and opportunistic politics.
2. **Constitutional:** Undermines constitutional morality and collective responsibility. Dilutes spirit of Articles 75 and 164 regarding stable governments.
3. **Governance:** Administrative paralysis during political crises. Development priorities get subordinated to survival politics.
4. **Economic:** Frequent regime changes affect investor confidence and policy continuity. Economic Survey repeatedly stresses institutional predictability for growth.
5. **Social:** Erodes public trust in democratic institutions. Strengthens perception of politics as transactional rather than ideological.
6. **Governance:** Encourages horse-trading, inducements and abuse of public office. Violates standards of probity in public life.

Judicial and Committee-Based Reforms

Key Judicial Principles

1. **Kihoto Hollohan (1992):** Speaker’s decision subject to judicial review.
2. **Ravi S. Naik (1994):** Conduct can imply voluntary resignation.
3. **Keisham Meghachandra Singh (2020):** Suggested independent tribunal and timely disposal.

Committee Recommendations

1. **Dinesh Goswami Committee:** Restrict disqualification mainly to confidence votes.
2. **NCRWC:** Three-month disposal limit and Speaker neutrality.
3. **2nd ARC & ECI:** Transfer adjudicatory power to President/Governor on ECI advice.

Way Forward:

1. **Independent Adjudication Authority:** Transfer powers from Speaker to an independent tribunal or ECI-based mechanism. Enhances neutrality and credibility.
2. **Strict Statutory Timeline:** Mandate disposal within 90 days. Automatic suspension from House proceedings upon prolonged delay.
3. **Strengthen the “Twin Test” for Merger:** Require merger of both: legislative party; and parent organizational party. Prevents factional hijacking of party identity.

- 4. Increase Cost of Defection:** Defectors should resign and seek re-election. Bar defectors from ministerial posts and remunerative offices for the remainder of the term.
- 5. Reform the Whip System:** Restrict whip only to confidence motions, no-confidence motions and Money Bills. Protects legislative deliberation while preventing instability.

Conclusion

As Dr. B.R. Ambedkar cautioned in the Constituent Assembly, constitutional success depends upon constitutional morality. Preserving democracy requires closing merger loopholes and restoring the Tenth Schedule's original purpose.

Examine the socio-economic and political challenges in implementing the Ecologically Sensitive Area (ESA) framework in the Western Ghats. Suggest a sustainable way forward.

Introduction

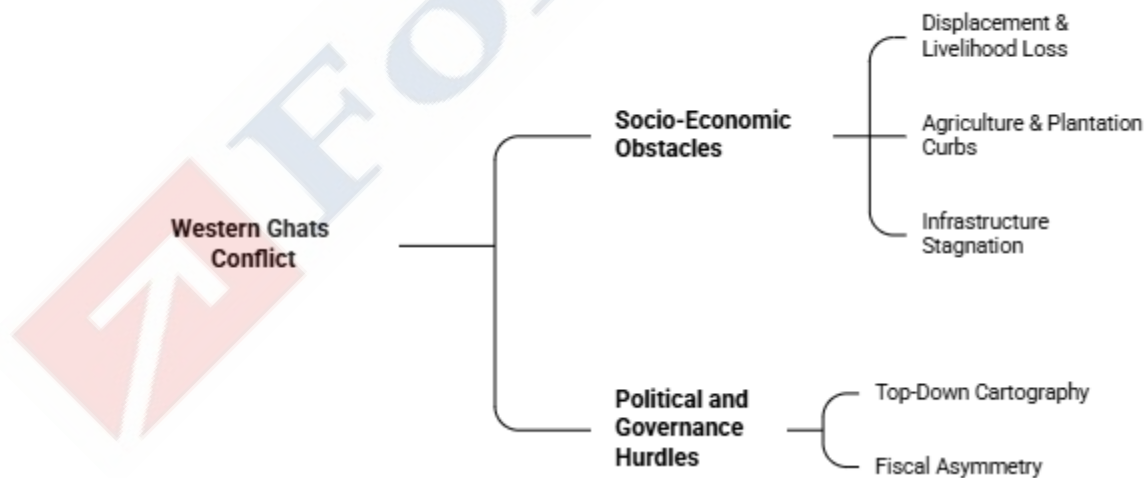
Recognised as a UNESCO World Heritage landscape and source of major peninsular rivers, the Western Ghats faces a 12-year ESA deadlock, reflecting the challenge of balancing ecological security, federalism, livelihoods and development.

The ESA Framework & Proposed Restrictions

Under Section 3 of the EPA-1986, the MoEFCC aims to declare approximately 56,000 km² across six states as an ESA. This framework relies on the K. Kasturirangan Committee report (2013), which recommended:

- 1. Complete Prohibitions:** A blanket ban on highly polluting Red-category industries, new mining/quarrying, thermal power plants, and large construction projects exceeding 20,000 m².
- 2. Regulated Activities:** Strict environment impact monitoring for infrastructure expansion, hydro-power, and large hospitality units.

Western Ghats Conflict: State and Local Opposition



Socio-Economic And Political Challenges

Socio-Challenges

1. **Livelihood and Settlement Concerns:** Millions depend on plantation agriculture, horticulture and allied activities within proposed ESA regions. Fear of restrictions on land-use conversion, housing expansion and commercial activities creates local resistance. Example: Cardamom Hills (Kerala).
2. **Impact on Regional Economies:** Restrictions on mining, quarrying and red-category industries may reduce state revenues and employment opportunities. Cash-crop economies such as coffee, tea, rubber and spices fear growth constraints. Example: Kodagu plantations.
3. **Infrastructure Deficit Risks:** Rural roads, power transmission lines, hospitals and tourism infrastructure may face procedural delays due to environmental clearances. Example: Hill connectivity projects.

Political and Governance Challenges

1. **Centre-State Federal Tensions:** States bear conservation costs while ecological benefits accrue nationally. Karnataka and Kerala have repeatedly sought revisions, highlighting fiscal asymmetry. Example: Karnataka Cabinet rejection.
2. **Contestation over Mapping:** ESA demarcation relied heavily on remote sensing and satellite imagery. States argue that revenue villages, plantations and settlements were wrongly classified as ecologically sensitive. Example: Ground-truthing disputes.
3. **Democratic Deficit:** Local communities perceive ESA decisions as top-down and technocratic. Limited Gram Sabha participation weakens legitimacy. Example: Wayanad protests.
4. **Constitutional and Legal: Article 48A** directs the State to protect the environment. Article 51A(g) imposes a citizen duty to safeguard nature. ESA notification derives legal authority from Section 3 of the EPA 1986. Balancing environmental protection with livelihood rights reflects the principle of sustainable development. Example: Vellore Citizens Case.

Environmental and Climate

1. **Rising Ecological Vulnerability:** Unregulated quarrying, slope modification and deforestation have increased disaster risks. Recent landslides and floods demonstrate ecosystem fragility. Example: Wayanad landslides.
2. **Ecosystem Service Loss:** Western Ghats sustains rivers such as Godavari, Krishna, Cauvery and Periyar, supporting agriculture, hydropower and drinking water. Ecosystem degradation threatens long-term water security. Example: Peninsular river systems.

The Need for Urgent Conservation

1. The economic anxieties must be weighed against escalating ecological vulnerabilities.
2. Recent climate anomalies, such as the catastrophic Wayanad landslides and frequent flash floods across the Konkan belt, serve as stark evidence that anthropogenic pressures (like illegal quarrying and slope modification) have severely destabilized the fragile Shola and mountain ecosystems.

Way Forward

1. **Participatory ESA Delineation:** Conduct village-level ground verification with Gram Sabhas, local bodies and state governments. Example: Community mapping.
2. **Green Fiscal Federalism:** Introduce Payments for Ecosystem Services (PES) and dedicated Finance Commission grants for conservation-performing states. Example: Ecosystem compensation.
3. **Promote Sustainable Livelihoods:** Incentivise agroforestry, organic farming, non-timber forest products and eco-tourism. Example: Community eco-tourism.

4. **Technology-Enabled Conservation:** Use GIS, LiDAR, AI-based monitoring and real-time ecological audits. Example: Digital ecosystem monitoring.
5. **Differential Regulation:** Distinguish between natural landscapes and cultural landscapes instead of uniform restrictions. Example: Landscape zoning.
6. **Cooperative Federalism Framework:** Establish a permanent Western Ghats Council involving Centre, States, scientists and local communities. Example: Inter-state coordination.

Conclusion

Ecological security cannot be sustained on public discontent. To safeguard the Western Ghats, India must pivot from a restrictive protectionist environmental outlook to a collaborative participatory model that balances human aspirations with ecological imperatives.

Examine how dependence on foreign digital infrastructure threatens India's strategic autonomy, and evaluate the policy measures required to ensure comprehensive digital sovereignty.

Introduction

With India's digital economy becoming a key growth engine and the Economic Survey 2025–26 emphasizing AI-led transformation, digital sovereignty has emerged as a strategic imperative amid rising techno-geopolitical rivalries and cyber vulnerabilities.



Why Dependence on Foreign Digital Infrastructure Threatens Strategic Autonomy

1. **National Security & Defence Risks:** Modern warfare is software-defined; foreign OEM-controlled code may create vulnerabilities through backdoors or remote restrictions. Dependence on foreign GPS systems exposed limitations during the Kargil War (1999). Risks to critical sectors—power grids, telecom, defence networks and financial systems.
2. **Data Sovereignty Challenges:** Critical government, fintech and enterprise data are stored on foreign-controlled cloud ecosystems. Extraterritorial laws such as the U.S. CLOUD Act can potentially create jurisdictional conflicts over data access. Leads to data colonialism where economic value generated from Indian data accrues abroad. Example: Cloud dependence.
3. **Technological Chokepoints:** Reliance on foreign operating systems (Android, iOS, Windows) and productivity suites creates strategic vulnerabilities. Export controls on advanced chips, GPUs and semiconductor equipment can derail domestic AI ambitions. US-China chip war demonstrates weaponization of technology supply chains. Example: Semiconductor controls.

- 4. Economic Vulnerability:** Vendor lock-ins increase costs and reduce bargaining power. Service disruptions can affect digital commerce, banking and governance. India's expanding services-led economy depends heavily on uninterrupted digital infrastructure. Example: Digital trade.
- 5. Cybersecurity Risks:** Foreign hardware and software reduce auditability of critical systems. Exposure to cyber espionage, ransomware and supply-chain attacks. CCTV security breaches linked to foreign software platforms highlight vulnerabilities. Example: Surveillance risk
- 6. Geopolitical:** Power Transition Theory suggests rising powers face technological containment by established powers. Technology sanctions increasingly serve as instruments of geopolitical coercion. Example: US-China rivalry.
- 7. Constitutional & Governance Concerns:** Digital sovereignty is linked to citizens' informational privacy under Article 21. Foreign control over digital ecosystems can weaken democratic accountability. Example: Privacy concerns.

India's Existing Efforts Towards Digital Sovereignty

- 1. Digital Public Infrastructure (DPI):** UPI, Aadhaar, DigiLocker, ONDC and RuPay have reduced dependence on foreign platforms. Widely recognized as global public digital goods. Example: UPI success.
- 2. Semiconductor & Electronics Push:** Semiconductor Mission and PLI schemes. Budget 2026–27 continued emphasis on domestic manufacturing and semiconductor ecosystem development. Example: Gujarat fabs.
- 3. AI & Frontier Technologies:** IndiaAI Mission aims to build domestic AI capabilities and technological sovereignty. National Quantum Mission and indigenous compute ecosystem. Example: IndiaAI Labs.
- 4. Data Governance:** Digital Personal Data Protection (DPDP) Act, 2023, CERT-In cyber security framework and Data Protection Board operationalization.

Policy Measures for Comprehensive Digital Sovereignty

- 1. Build Sovereign Digital Infrastructure:** Establish sovereign cloud architecture for government and strategic sectors. Mandatory domestic mirroring of critical national data. Promote indigenous platforms such as BharOS and domestic productivity suites.
- 2. Accelerate Semiconductor Self-Reliance:** Expand semiconductor fabrication, ATMP facilities and chip design ecosystem. Secure critical mineral supply chains through trusted partnerships. Strengthen iCET and Quad technology cooperation. Example: Micron project.
- 3. Create a National Technology Security Strategy:** Define strategic technologies and non-negotiable digital red lines. Integrate cyber, AI, telecom and semiconductor security under a unified framework. Similar to national security doctrines of major powers. Example: Tech security doctrine.
- 4. Invest in Indigenous R&D:** Raise R&D expenditure from below 1% of GDP toward global standards. Strengthen academia-industry-defence collaboration. Promote open-source ecosystems and national code repositories. Example: AI-OS ecosystem.
- 5. Strengthen Cyber Resilience:** Continuous audit of critical digital infrastructure. Indigenous encryption and cyber defence tools. Sector-specific cyber emergency protocols. Example: CERT-In strengthening.
- 6. Strategic Technology Partnerships:** Pursue trusted interdependence rather than isolation. Expand collaborations in semiconductors, AI and quantum technologies. Model: BrahMos joint development. Example: Technology co-development.

7. **Human Capital & Digital Skills:** Build AI, semiconductor and cybersecurity talent pipelines. Align Skill India with frontier technologies. Promote indigenous innovation ecosystems. Example: Deep-tech workforce.

Way Forward

1. Mandate sovereign cloud for all critical data. Example: Sovereign Cloud Stack.
2. Universalize the adoption of indigenous operating systems across all critical government and defense architectures. Example: BharOS.
3. Expand deep-tech venture funding and secure alternative supply lines through minilateral tech partnerships. Example: US-India iCET.
4. Create a dedicated, cross-ministry National Technology Security Strategy to formally draw non-negotiable "red lines" in trade and free-trade agreements (FTAs).

Conclusion

Complete isolationist self-sufficiency is an impossibility in a highly globalized technology ecosystem. Strategic autonomy in the digital age demands indigenous innovation, resilient institutions, and technological self-reliance without abandoning global cooperation.

Analyze how India can reconcile expanding industrial manufacturing and rising domestic consumption demands with its national emission reduction commitments.

Introduction

As India advances toward Viksit Bharat 2047, manufacturing expansion and rising consumption are accelerating energy demand. Simultaneously, India has reduced GDP emission intensity by 37.38% since 2005, highlighting the decarbonisation challenge.

The Development–Climate Trilemma

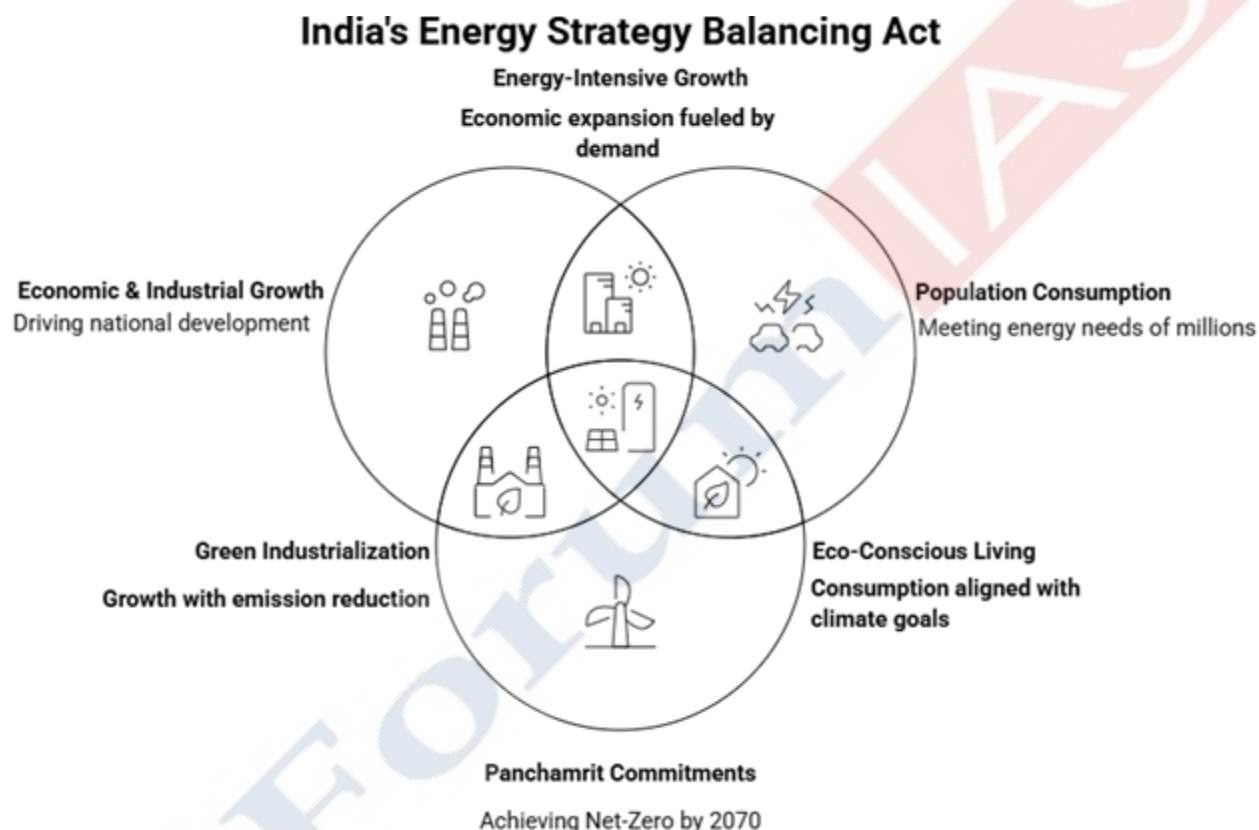
India must balance three competing imperatives:

1. Rapid industrialization through Make in India, PLI schemes and infrastructure expansion.
2. Rising consumption from a growing middle class demanding mobility, cooling and housing.
3. Climate commitments under Panchamrit, NDCs and Net-Zero 2070. The challenge is not limiting growth but decoupling emissions from growth.

Why the Challenge is Intensifying?

1. **Industrial Manufacturing as a Major Emission Source:** India's First Biennial Transparency Report (BTR-1) shows manufacturing industries and construction contribute a significant share of national emissions. Steel, cement, petrochemicals and fertilizers remain heavily dependent on fossil fuels. Hard-to-abate sectors lack commercially viable alternatives. Example: Blast-furnace steel.
2. **Rising Consumption-Driven Emissions:** Urbanization fuels demand for automobiles, air-conditioners, appliances and housing. Consumption growth often offsets efficiency gains achieved in production. Peak electricity demand is increasingly driven by cooling requirements. Example: Urban AC boom.

- 3. Coal-Dependent Energy Structure:** Coal remains crucial for industrial competitiveness and energy security. Renewable expansion alone cannot yet provide reliable baseload power. Storage and transmission gaps persist. Example: Grid intermittency.
- 4. MSME Decarbonisation Deficit:** MSMEs form the backbone of manufacturing but face capital and technology constraints. Lack of affordable green finance delays adoption of cleaner technologies. Example: Textile clusters.
- 5. Policy Coverage Gaps:** NITI Aayog's climate dashboard analysis indicates a large portion of industrial emissions falls under broadly classified "non-specific industries", often escaping targeted mitigation measures. This weakens sector-specific decarbonisation efforts. Example: Emission blind spots.



India's Emerging Strategy for Green Industrial Growth

- 1. Intensity-Based Decoupling Model:** India follows an emissions-intensity approach rather than absolute emission caps. Emission intensity reduced by 37.38% between 2005 and 2022. New NDC targets a 47% reduction by 2035. This allows GDP growth while reducing carbon emitted per unit of output.
- 2. Carbon Market-Based Regulation:** Transition from PAT Scheme to Carbon Credit Trading Scheme. Covers major sectors such as steel, cement, aluminium, petroleum and textiles. Rewards efficient firms and penalizes excessive emitters. Example: Carbon certificates.
- 3. Renewable Energy Expansion:** Non-fossil sources account for over 51.9% of installed power capacity. India achieved its 50% non-fossil capacity target ahead of schedule.
- 4. Green Hydrogen Mission:** Critical for steel, fertilizer and refinery sectors. Reduces dependence on imported fossil fuels. Example: Green steel.

5. **Energy Efficiency Measures:** Dynamic star-rating systems. Efficient cooling technologies. Smart buildings and appliances. Example: Energy-efficient Acs.
6. **Circular Economy and Resource Efficiency:** Recycling of steel, aluminium and plastics, extended producer responsibility (EPR) and waste-to-resource ecosystems. Example: Scrap-based steel and Mission LiFE.
7. **Industry 4.0 Integration:** AI-enabled energy optimization, smart manufacturing and digital twins and predictive maintenance reducing energy wastage. Example: Smart factories.
8. **Climate Finance Architecture:** Sovereign Green Bonds, blended finance instruments and dedicated low-interest green transition funds. Example: Green credit lines.

Way Forward

1. **Deepening the Carbon Market:** The ICM must expand to encompass the entire iron and steel value chain, supported by strict verification mechanisms.
2. **Demand-Side Management:** Implementing mandates like the LiFE (Lifestyle for Environment) initiative, paired with stricter dynamic star-ratings for consumer appliances, can help cool down consumption-driven energy surges.
3. **Blended Climate Finance:** Creating specialized sovereign green funds to offer low-interest loans directly to the MSME sector for clean technology adoption.

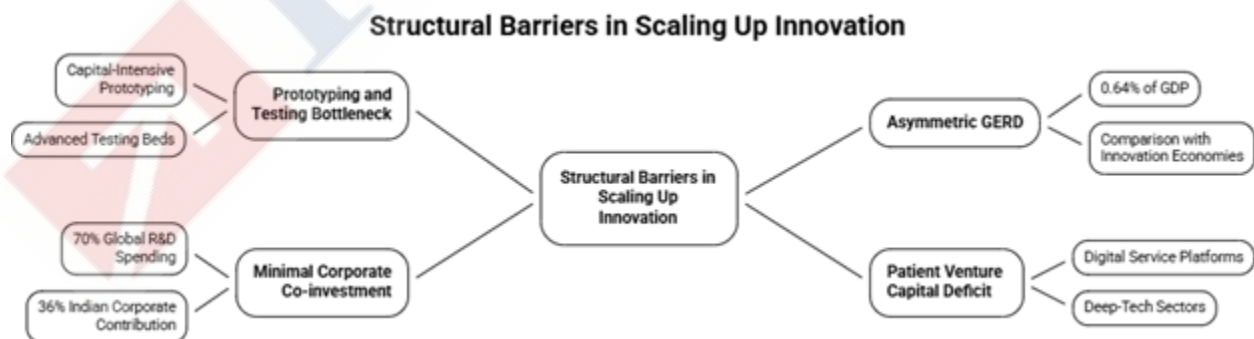
Conclusion

Echoing Prime Minister Narendra Modi's Panchamrit vision and the Economic Survey's development-centred climate framework, India must achieve green industrialization through innovation, efficiency and behavioural transformation, not growth restraint.

Evaluate the structural barriers in translating grassroots innovations into globally dominant technology enterprises in India. Discuss state policy initiatives required to cross this threshold.

Introduction

India ranks 38th in the Global Innovation Index 2025 and hosts the world's third-largest startup ecosystem, yet GERD remains only 0.64% of GDP, exposing a persistent commercialization gap between invention and global-scale enterprise.



Structural Barriers in Scaling Grassroots Innovation

1. **Innovation Valley of Death (TRL Gap):** India performs reasonably well in TRL 1–3 (Technology-Readiness-Levels) (research, proof-of-concept) but struggles in TRL 4–9 (prototype, pilot,

commercialization). Limited access to testing facilities, certification labs, fabrication units, and pilot-scale manufacturing delays market entry. Example: Simputer failed to evolve into a global platform despite technological foresight.

2. Low R&D Intensity and Funding Deficit: GERD remains 0.64% of GDP, far below Israel (~5%), South Korea (~4.5%) and the US (~3%). Research institutions often generate patents without commercialization pathways. Result: Knowledge-production paradox.

3. Weak Corporate Participation: Globally, private firms contribute over 70% of R&D expenditure; India's corporate contribution remains comparatively limited. Many firms focus on assembly, adaptation, and service delivery rather than frontier innovation. Example: Electronics manufacturing ecosystem.

4. Deep-Tech Capital Constraints: Venture capital is concentrated in fintech, e-commerce, and consumer platforms. Long-gestation sectors such as AI chips, biotechnology, quantum computing, advanced materials, and robotics face funding shortages. Result: Patient-capital deficit.

5. Fragmented Academia-Industry Linkages: Universities, CSIR labs, startups, and industry often operate in silos. Technology transfer offices remain underdeveloped. Public research rarely reaches commercial scale. Example: Laboratory-to-market disconnect.

6. Procurement and Market Access Barriers: Government procurement largely follows the L1 (lowest-cost) model. Innovative domestic products struggle against established global vendors. Startups face difficulty obtaining first large-scale customers. Example: Indigenous hardware procurement.

7. Intellectual Property and Regulatory: Patent filing costs, lengthy approvals, and weak commercialization support reduce incentives. Regulatory uncertainty in emerging sectors delays investment. Example: Health-tech approvals.

8. Manufacturing Ecosystem Weaknesses: Lack of semiconductor fabs, component ecosystems, precision manufacturing clusters, and supply-chain depth. Innovations often remain prototypes due to production bottlenecks. Example: Semiconductor Complex Limited (SCL).

9. Talent and Brain Drain: High-end researchers frequently migrate toward ecosystems offering better funding and commercialization opportunities. Creates a gap between scientific discovery and industrial deployment. Example: AI research migration.

10. Geopolitical and Scale Constraints: Global technology leadership increasingly depends on control over standards, supply chains, and critical minerals. Indian startups often lack access to global distribution networks. Example: Advanced chip ecosystem.

State Policy Initiatives Required

1. Operationalize the ₹1 Lakh Crore RDI Fund: Use milestone-based co-investment for TRL 4–9 projects. Share commercialization risks with private industry. Focus on strategic sectors such as semiconductors, AI, biotech, and space technologies.

2. Strengthen ANRF-Led Translational Research: Establish Translational Research Centres (TRCs) linking universities, startups, industry and convert patents into scalable products. Example: ANRF ecosystem.

3. Reform Public Procurement: Shift from L1 procurement to Value-Based Procurement. Provide preferential procurement for indigenous deep-tech products. Example: Defence iDEX model.

4. Create National Prototyping Infrastructure: Shared testing facilities, semiconductor fabs, biotech incubators, AI compute clusters and reduce commercialization costs. Example: Common technology platforms.

5. Incentivize Corporate R&D: Enhanced tax incentives, matching grants for industry-academia projects and mandate innovation spending in strategic sectors. Example: Mission-mode R&D.

6. **Expand Deep-Tech Financing:** Dedicated sovereign venture funds for quantum, AI, aerospace, and advanced materials. Encourage pension and insurance funds to participate. Example: Deep-tech fund-of-funds.
7. **Build Global Innovation Partnerships:** Leverage Quad, iCET, and semiconductor partnerships. Gain access to markets, technology standards, and supply chains. Example: India-US semiconductor cooperation.
8. **Strengthen IP Commercialization:** Fast-track patent examination, establish technology transfer offices in major universities. Example: Bayh-Dole inspired model.

Way Forward

1. Move from startup-centric to scale-up-centric policy.
2. Integrate National Manufacturing Mission, IndiaAI Mission, Semiconductor Mission, ANRF, and RDI Fund into a unified innovation architecture.
3. Promote mission-driven collaborations in AI, quantum technologies, critical minerals, biotechnology, and advanced manufacturing.
4. Create globally competitive technology clusters around universities and industrial corridors.

Conclusion

India's intensity-based strategy with robust policy support can harmonise manufacturing ambitions and consumption needs with climate commitments.

Analyze the structural factors compelling Grid India's seasonal reliance on gas-based power generation. Evaluate the challenges it poses to India's long-term energy transition.

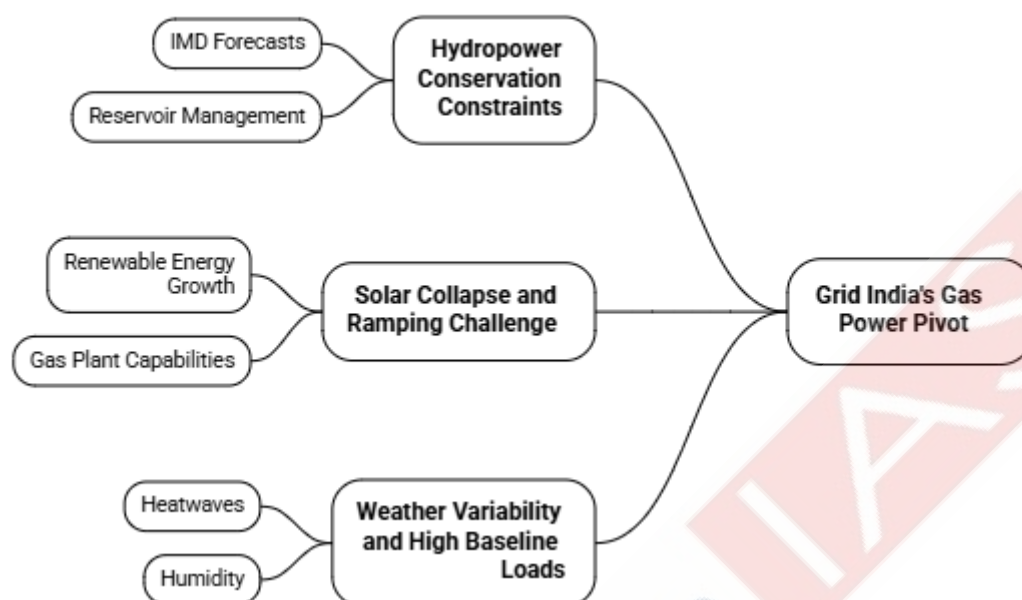
Introduction

Despite crossing 50% non-fossil installed power capacity ahead of its 2030 target, India's 2026 resource adequacy assessments reveal that gas-based plants remain indispensable for balancing seasonal demand, renewable intermittency, and hydrological uncertainty.

India's Power Transition Is Witnessing A Paradox

As renewable energy expands rapidly, the need for flexible balancing resources has increased. Grid India's June 2026 advisory directing gas stations to secure fuel reflects this emerging reality.

Structural Factors Behind Grid India's Gas Power Pivot



Why

Grid India Relies on Gas-Based Power Seasonally

- Renewable Intermittency:** Sharp solar collapse during evening peaks creates rapid ramping demand. Gas turbines possess fast-ramping capability and can quickly compensate for sudden renewable shortfalls. Example: Duck Curve Challenge.
- Hydropower Conservation During Weak Monsoons:** Below-normal monsoon forecasts compel hydro conservation for irrigation. Hydro stations reduce flexible peak-hour generation here gas plants fill the resulting balancing gap. Example: Reservoir management.
- Rising Cooling Demand and Weather Extremes:** Persistent high baseline loads from heat and humidity sustain demand. Demand remains high even during monsoon transition periods. Example: Cooling economy.
- Coal Plants Lack Operational Flexibility:** as plants provide essential flexibility absent in rigid coal or variable renewables. Fast-start capabilities balance intermittent solar and limited hydro. Example: Peak-hour support.
- Resource Adequacy and Grid Reliability Requirements:** Grid India's planning framework incorporates demand forecasts, renewable generation profiles, outages, and weather information. Gas generation acts as a reliability buffer during uncertain conditions. Example: Resource adequacy planning.
- Declining System Inertia in Renewable-Rich Grids:** Higher renewable penetration reduces conventional rotating generation. Gas plants provide ancillary services such as frequency regulation and voltage stability. Example: Grid stability support.

Challenges for India's Long-Term Energy Transition

- Energy Security and Geopolitical Vulnerability:** India relies heavily on imported LNG, West Asian conflicts and maritime disruptions constrain supplies and raise prices. Spot-market fuel procurement surges during shortages.
- Financial Stress on DISCOMs:** Spot gas prices have risen amid disruptions, expensive gas-based generation increases procurement costs for utilities this ultimately affects tariffs and DISCOM finances. Example: Tariff pressure.

3. **Carbon Lock-In Risks:** Though cleaner than coal, natural gas remains a fossil fuel. Prolonged dependence delay deep decarbonization pathways, weaken momentum toward Net-Zero 2070 goals. Example: Bridge-fuel dilemma.
4. **Delayed Storage Deployment:** Dependence on gas can postpone investment in utility-scale storage solutions. Battery Energy Storage Systems (BESS) and Pumped Storage Projects (PSPs) are essential for a renewable-dominated grid. Example: Storage substitution.
5. **Stranded Asset Concerns:** India possesses around 24 GW of gas-based capacity, much of which remains underutilized. Seasonal operation creates poor asset utilization and economic inefficiencies. Example: Idle infrastructure.
6. **Renewable Curtailment and Market Distortions:** Inadequate storage and transmission infrastructure force renewable energy curtailment during surplus periods. This reduces investor confidence and project viability. Example: Solar curtailment.
7. **Climate Commitment Challenges:** India's updated NDCs and Panchamrit commitments require sustained reductions in emission intensity. Excessive reliance on gas may complicate long-term decarbonization trajectories. Example: Net-Zero pathway.

Way Forward

1. **Accelerate Energy Storage Infrastructure:** Scale up BESS through VGF support and National Energy Storage Mission. Expand pumped-storage hydro projects. Example: Pumped storage hubs.
2. **Develop Market-Based Ancillary Services:** Strengthen real-time electricity markets and flexibility markets. Reward fast-response resources. Example: Ancillary service market.
3. **Repurpose Thermal Assets:** Convert ageing thermal plants into synchronous condensers for grid stability without emissions. Example: SYNCON conversion.
4. **Enhance Demand-Side Flexibility:** Time-of-day tariffs, smart meters, and industrial demand response programs. Example: Peak load shifting.
5. **Strengthen Transmission Infrastructure:** Expand Green Energy Corridors and interstate transmission networks. Example: National grid integration.
6. **Promote Green Hydrogen for Long-Duration Storage:** Integrate the National Green Hydrogen Mission with power sector balancing needs. Example: Hydrogen storage.

Conclusion

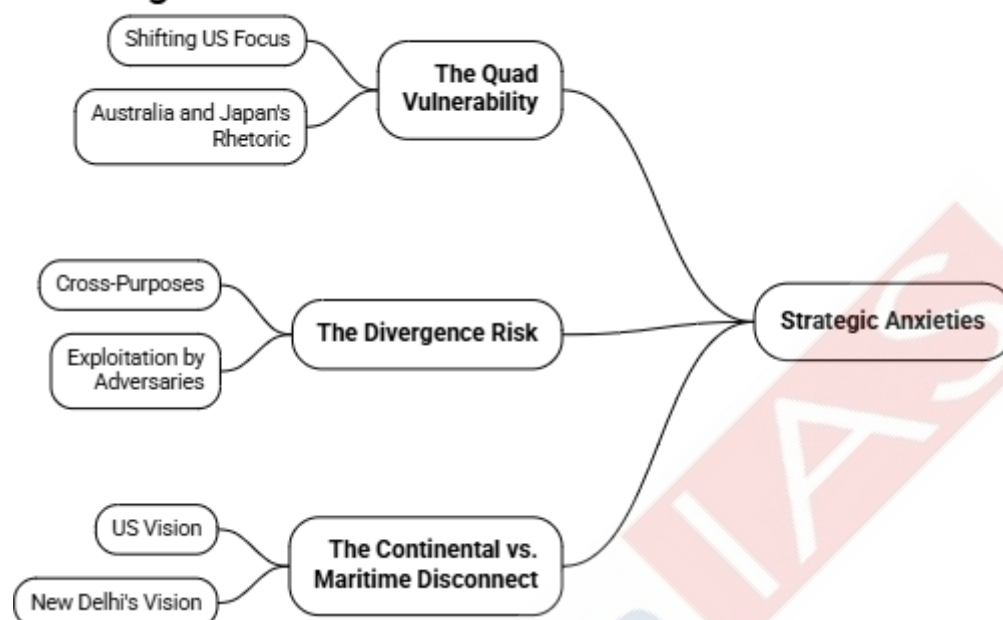
India's transition must move beyond temporary gas-based balancing toward storage-led flexibility, ensuring reliability, affordability, and climate-compatible growth simultaneously.

Examine the geopolitical implications of Washington reverting from INDOPACOM to PACOM. How should India recalibrate its strategic posture to safeguard its maritime interests?

Introduction

With nearly 95% of India's trade by volume moving through maritime routes and the Indo-Pacific driving global geopolitics, Washington's 2026 shift from INDOPACOM to PACOM raises critical questions regarding regional security architecture and India's maritime strategy.

Strategic Anxieties and Minilateral Platforms



Geopolitical Implications of Reverting from INDOPACOM to PACOM

- 1. Symbolic Dilution of the Indo-Pacific Construct:** The 2018 renaming acknowledged the strategic integration of the Indian and Pacific Oceans and India's growing role in regional security. Reversion to PACOM may signal a narrower U.S. prioritization of the Western Pacific over the broader Indo-Pacific theatre. Example: "Pacific-first" outlook.
- 2. Recalibration of U.S. Strategic Priorities:** Indicates concentration on immediate challenges posed by China's military expansion around Taiwan and the First Island Chain. Reflects growing U.S. preference for burden-sharing rather than extended security commitments. Example: Taiwan contingency.
- 3. Implications for the Quad:** Raises concerns regarding the long-term strategic coherence of the Quad involving India, Japan, Australia and the U.S. Creates perception of reduced American emphasis on India's centrality within regional security calculations. Example: Quad uncertainty.
- 4. Fragmentation of Maritime Security Architecture:** Weakens the conceptual linkage between the Indian Ocean Region (IOR) and Pacific Ocean envisioned by former Japanese Prime Minister Shinzo Abe through the "Confluence of the Two Seas". Adversaries may exploit operational and diplomatic gaps between the two theatres.
- 5. Geopolitical Signalling to China:** The nomenclature shift coincides with greater emphasis on direct U.S.-China competition within the Pacific theatre. May encourage Beijing to expand influence in the Indian Ocean where American engagement appears less pronounced. Example: PLAN deployments.
- 6. Strategic Autonomy Imperative:** Reinforces the classical realist lesson that great-power interests overlap but rarely coincide permanently. India cannot outsource Indian Ocean security to any external power.

Why the Shift Matters More for India

1. **Historical:** India's Indo-Pacific vision extends from Africa's eastern coast to the Western Pacific, unlike the narrower U.S. military definition. Demonstrates divergence between Indian and American geographical imaginations.
2. **Economic:** Around 80% of India's crude oil imports and substantial external trade pass through the Indian Ocean. Maritime insecurity directly threatens economic growth and energy security. Example: Hormuz dependence.
3. **Geopolitical:** Expanding Chinese presence through the "String of Pearls" strategy increases strategic pressure. Reduced Indo-Pacific emphasis may widen China's maneuvering space in the IOR.
4. **Security:** Maritime chokepoints such as Malacca, Bab-el-Mandeb, Lombok and Hormuz remain critical for India's security. Greater responsibility may increasingly fall upon India as the resident naval power.

How India Should Recalibrate Its Strategic Posture

1. **Strengthen Indigenous Maritime Power:** Fast-track construction of SSNs, aircraft carriers, unmanned maritime systems and anti-submarine warfare capabilities. Expand indigenous defence production under Aatmanirbhar Bharat. Example: Project-75I.
2. **Transform Andaman & Nicobar Command into a Forward Operating Hub:** Upgrade airstrips, logistics infrastructure and ISR assets. Enhance surveillance over Malacca Strait approaches. Example: Eastern gatekeeper.
3. **Deepen Maritime Domain Awareness (MDA):** Expand the role of Information Fusion Centre – Indian Ocean Region. Integrate satellite, drone and undersea sensor networks. Example: Real-time tracking.
4. **Diversify Minilateral Partnerships:** Strengthen IORA, Colombo Security Conclave, India-France-UAE cooperation and India-Japan-Australia trilateral. Reduce dependence on any single security architecture.
5. **Operationalise SAGAR 2.0:** Expand HADR, coastal radar networks, defence training and capacity-building for island nations. Consolidate India's role as a net security provider. Example: Mauritius patrol vessels.
6. **Preserve Strategic Autonomy:** Maintain defence interoperability with the U.S. through LEMOA, COMCASA and BECA while avoiding alliance entrapment. Continue multi-alignment with ASEAN, France, Japan and Gulf partners.
7. **Leverage Emerging Technologies:** Expand maritime AI, autonomous vessels, underwater drones and space-based surveillance. Align with the Economic Survey 2025-26 emphasis on strategic technologies and resilience.

Way Forward

1. Develop a comprehensive Indian Ocean Security Strategy integrating Navy, Coast Guard, Space and Cyber domains.
2. Institutionalise annual maritime threat assessments through National Security Council Secretariat.
3. Increase defence R&D expenditure and maritime infrastructure investments.
4. Position India as the indispensable stabilizing power of the Indian Ocean rather than a peripheral participant in Pacific-centric frameworks.

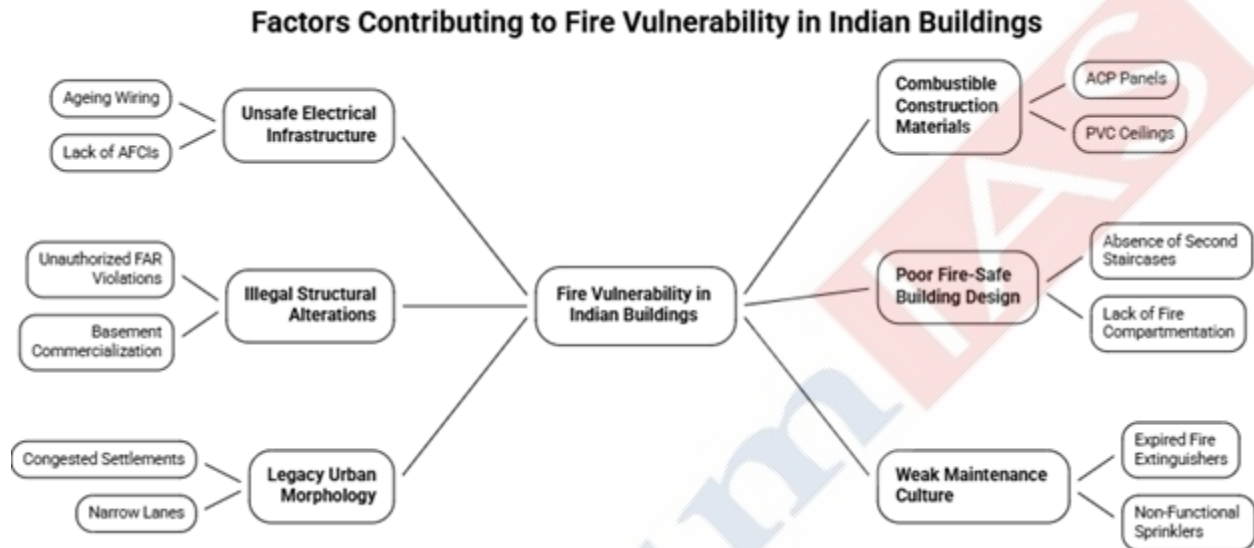
Conclusion

Strategic autonomy rests on indigenous capability. India must strengthen maritime power and regional leadership, ensuring security irrespective of shifting external alignments.

Why India's buildings are vulnerable to fire? Examine the problems faced in this regard and suggest improvements.

Introduction

With nearly 13,000–15,000 fire deaths annually (NCRB) and rapid urban densification, recurring tragedies expose that India's buildings remain structurally unsafe, demanding a shift from reactive firefighting to preventive fire-resilient urban planning.



Why are India's Buildings Vulnerable to Fire?

- 1. Aging Electrical Infrastructure:** ~70% of urban fires originate from electrical short circuits due to overloaded legacy wiring unable to handle modern electrical loads. Absence of Arc-Fault Circuit Interrupters (AFCIs) and smart electrical monitoring aggravates risks. Example: Coaching centres; Commercial complexes.
- 2. Unsafe Building Design:** Unauthorized FAR violations, sealed balconies, basement storage and single escape routes create death traps. Lack of compartmentalisation and second staircases accelerates fire spread. Example: Delhi B&B fire (2026).
- 3. Use of Combustible Materials:** Cost-cutting encourages plastic panels, ACP cladding, combustible false ceilings and synthetic interiors. External façade fires spread vertically (chimney effect). Example: Grenfell Tower lessons.
- 4. Rapid Urbanisation & Mixed Land Use:** Residential buildings illegally converted into warehouses, coaching centres or factories. Hazardous chemicals stored inside residential areas. Example: Old Delhi markets.
- 5. Climate Change & Heat Stress:** Rising temperatures increase AC usage, overloading electrical systems. Longer dry seasons elevate ignition risks. Example: IMD heatwave trends.

Problems in Fire Safety & Management

- 1. Weak Governance & Enforcement:** Fire services fall under State List (Seventh Schedule) resulting in fragmented regulations. Fire NOCs become one-time approvals instead of continuous compliance and weak municipal inspections. Example: Delhi's 450 red-flagged buildings.

- 2. Infrastructure Deficit:** According to Ministry of Home Affairs 97.6% shortage of fire stations, 96.3% shortage of firefighters and 80% shortage of modern equipment. Example: NDMA Fire Audit.
- 3. Non-binding National Building Code:** NBC Part IV provides comprehensive standards but becomes enforceable only after State adoption and uneven implementation across States.
- 4. Poor Urban Accessibility:** Narrow lanes, encroachments and illegal parking delay emergency response. Conventional fire tenders cannot access dense settlements. Example: Chandni Chowk; Burrabazar.
- 5. Low Public Preparedness:** Few evacuation drills, poor maintenance of extinguishers, sprinklers and weak fire-risk awareness. Example: Schools; Hospitals.

Way Forward

- 1. Strengthen Regulatory Framework:** Enact a Model National Fire Safety Law harmonising NBC standards across States. Digitise Fire NOCs using blockchain for transparent renewal. Example: Smart Governance.
- 2. Technology-led Prevention:** Mandatory AFCIs, smart smoke detectors, AI-based fire monitoring and IoT alarms. GIS-based emergency response systems. Example: Smart Cities Mission.
- 3. Retrofitting Existing Buildings:** Mandatory compartmentalisation, fire-resistant façade materials, smoke extraction systems and second staircases. Independent third-party fire audits every two years. Example: Hospitals; Coaching institutes.
- 4. Modernise Fire Services:** Implement 15th Finance Commission recommendations for modern fire equipment. Deploy mini fire tenders and motorcycle-mounted mist systems in congested areas. Example: Old city markets.
- 5. Risk-sensitive Urban Planning:** Integrate fire-risk mapping into Master Plans under AMRUT and Smart Cities. Ensure minimum road widths and dedicated emergency corridors. Example: Transit-oriented development.
- 6. Community-Centred Preparedness:** Expand Aapda Mitra, compulsory mock drills, school fire education and insurance-linked Fire Safety Scores. Promote Resident Welfare Association fire volunteers. Example: Community resilience.

Conclusion

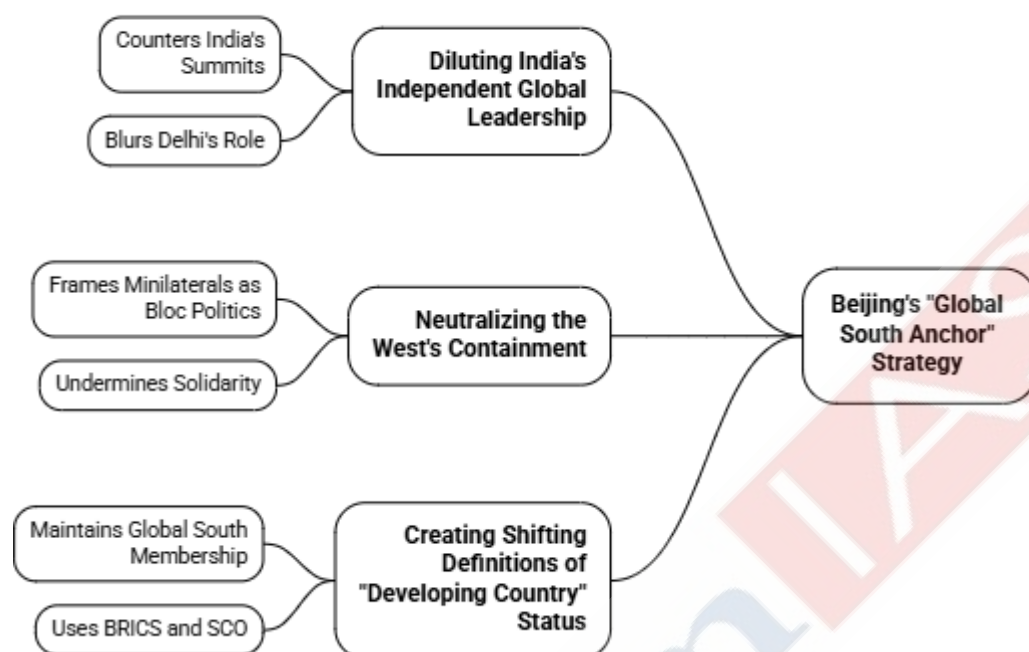
Envisioned a developed India founded on safe infrastructure, resilient cities require prevention over reaction, making fire safety an indispensable pillar of Viksit Bharat 2047.

Examine the geopolitical drivers behind Beijing's narrative of India and China acting as Global South anchors. How should India counter this strategic alignment?

Introduction

With BRICS expanding and the Economic Survey 2025-26 highlighting South-South cooperation as a growth driver, China's Global South anchor narrative reflects an emerging contest over leadership, norms and influence across developing economies.

Geopolitical Drivers Behind Beijing's "Anchor" Narrative



Geopolitical Drivers Behind Beijing's Global South Anchor Narrative

- 1. Consolidating Leadership of the Global South:** China seeks to project itself as the principal representative of developing countries despite being the world's second-largest economy. It portrays itself as championing reforms in global governance. Example: BRICS expansion.
- 2. Diluting India's Independent Leadership:** India's Voice of Global South Summits created an autonomous platform outside Chinese influence. The co-anchor narrative seeks to blur India's unique bridge between the Global North and South. Example: Voice of Global South.
- 3. Countering Western Strategic Coalitions:** Beijing portrays the Quad, iCET and Indo-Pacific initiatives as bloc politics. It seeks to discourage India's deeper strategic convergence with the US and its allies. Example: Quad narrative.
- 4. Legitimising China's Global Governance Vision:** China's Global Governance White Paper argues that China will always remain part of the Global South. It seeks greater influence in the UN, WTO, IMF and BRICS institutions. Example: Global Governance White Paper.
- 5. Expanding Economic Influence:** The narrative supports Chinese-led initiatives like BRI, AIIB and Digital Silk Road. It helps sustain market access and resource diplomacy across Africa, Asia and Latin America. Example: BRI corridors.
- 6. Managing Strategic Competition with India:** The "anchor" concept shifts attention away from unresolved issues like the LAC, military deployments and maritime competition. It attempts compartmentalisation of disputes. Example: Post-Galwan diplomacy.

Challenges in Beijing's Narrative

- 1. Credibility Deficit:** Win-win cooperation contrasts with debt distress in Hambantota (Sri Lanka) and fiscal pressures in CPEC (Pakistan).
- 2. Strategic Contradictions:** Simultaneous calls for cooperation alongside assertive actions in the South China Sea and Indian Ocean Region (IOR).

3. **Asymmetrical Partnership:** China's economic size risks reducing India to a junior stakeholder within a Beijing-led framework.

Strategic Framework for India's Counter-Response

1. **Preserve Independent Global South Leadership:** Institutionalise Voice of Global South Summit as an annual platform focused on development priorities. Example: Development diplomacy.
2. **Promote Democratic Development Partnerships:** Expand Digital Public Infrastructure (UPI, Aadhaar, CoWIN), capacity building and transparent development financing. Example: DPI exports.
3. **Strengthen Maritime Leadership:** Reinforce SAGAR, IFC-IOR, Colombo Security Conclave and humanitarian assistance to remain the preferred net security provider. Example: Indian Ocean.
4. **Deepen Multi-Alignment:** Simultaneously strengthen Quad, BRICS, SCO, G20 and ISA, reflecting India's policy of strategic autonomy. Example: Multi-alignment.
5. **Defend Rules-Based Order:** Continue insisting that normal bilateral relations require peace along the LAC, respect for sovereignty and adherence to international law. Example: Border stability.
6. **Build Alternative Economic Architecture:** Scale up India-Middle East-Europe Economic Corridor (IMEC), resilient supply chains and South-South development financing. Example: Connectivity diversification.
7. **Expand Soft-Power Leadership:** Promote affordable healthcare, pharmaceuticals, digital governance, climate finance and education partnerships. Example: Vaccine Maitri.

Way Forward

1. Create a Global South Development Fund focusing on climate adaptation and resilient infrastructure.
2. Expand NITI Aayog's Digital Public Infrastructure model globally.
3. Strengthen India-Africa, India-Pacific Islands and India-Latin America partnerships.
4. Position India as a trusted development partner, not merely a geopolitical balancer.

Conclusion

Cooperation succeeds only with mutual respect. India's Global South leadership must therefore rest on sovereignty, transparency, inclusivity and strategic autonomy not geopolitical subordination.

Examine the statutory distinction between 'travel identity' and 'legal citizenship' in India. Detail how citizenship is conclusively established under current legislative frameworks.

Introduction

During Passport Seva Divas 2026, the MEA reaffirmed that a passport is primarily a travel document—not conclusive proof of citizenship highlighting the constitutional distinction between identity documentation and legal nationhood under Indian law.

Statutory Distinction: Travel Identity vs. Legal Citizenship



Statutory distinction between Travel Identity and Legal Citizenship

- 1. Constitutional Angle:** Articles 5–11 empower Parliament to regulate citizenship through law. Citizenship is a legal status, whereas a passport merely facilitates exercise of the right to international travel. Example: Constitution Part-II.
- 2. Legislative Direction:** Passports Act, 1967, administered by MEA. Governs issuance of passports solely for international travel. Section 20 permits passports/travel documents even to non-citizens in public interest (e.g., stateless persons), proving that passport ≠ conclusive citizenship. Citizenship Act, 1955, administered by MHA. Sole legislation governing acquisition, determination and termination of citizenship.
- 3. Administrative:**

Passport = downstream identity document.
 Citizenship records = root legal documents based on birth, parentage or statutory grant.

- 4. Judicial Angle:** Maneka Gandhi v. Union of India (1978), passport reflects nationality for overseas protection but derives validity from citizenship. Lal Babu Hussein (1995), electoral roll creates only a rebuttable presumption of citizenship. 2026 SIR judgment, aadhaar establishes identity not citizenship.
- 5. International Dimension:** Most democracies distinguish **travel documentation** from **citizenship determination**, reducing fraud while preserving sovereign control. Example: **Stateless persons**.

How Citizenship is Conclusively Established in India

Unlike many Western nations, Indian jurisprudence recognizes citizenship as a legal status arising from specific historical facts, rather than a status proved by any single government-issued card. To conclusively establish citizenship under the Citizenship Act, 1955, authorities rely on a combination of birth dates, lineage, and official certificates:

| Applicant's Birth Window | Primary Legal Requirements for Citizenship | Conclusive Evidence | Documentary |
|--|---|--|-------------|
| Born between Jan 26, 1950, and July 1, 1987 | Citizenship by birth, irrespective of parental nationality. | Official Birth Certificate or verified entry in early Electoral Rolls. | |
| Born between July 1, 1987, and Dec 3, 2004 | Born in India, and at least one parent must be an Indian citizen at the time of birth. | Birth Certificate paired with parental ancestral records/land titles. | |
| Born on or after Dec 3, 2004 | Born in India, and both parents must be Indian citizens (or one parent is a citizen and the other is not an illegal migrant). | Certified parentage records and verified domestic birth certificates. | |

Mains Marathon Compilation June 2026

| | | |
|---|---|--|
| Non-Natural Citizens (Migrants/Foreigners) | Granted status through formal application pathways under specified statutory timelines. | Formal Certificate of Naturalisation or Certificate of Registration issued by the MHA. |
|---|---|--|

Documentary Matrix for Citizenship

| Document | Legal Value |
|-------------------------|--|
| Birth Certificate | Primary evidence |
| Parentage records | Establish lineage |
| Citizenship Certificate | Conclusive (Registration/Naturalisation) |
| Passport | Evidence of nationality; not conclusive |
| Aadhaar | Identity only |
| Voter ID | Electoral eligibility |
| Electoral Roll | Rebuttable presumption |

Challenges in Current Framework

1. **Legal:** No single universal citizenship document. Example: Documentation disputes.
2. **Administrative:** Multiple authorities (MHA, MEA, ECI, UIDAI). Example: SIR debate.
3. **Social:** Low public awareness about documentary hierarchy. Example: Passport controversy.
4. **Technological:** Legacy paper records hamper verification. Example: Old municipal registers.
5. **Federal:** Inconsistent birth registration quality across States. Example: Rural registrations.

Way Forward

1. Digitise civil registration through interoperable birth and death databases. Example: CRVS integration.
2. Strengthen Civil Registration System for universal birth registration. Example: Digital India.
3. Issue standard citizenship verification protocols for all agencies. Example: MHA guidelines.
4. Integrate e-governance databases while safeguarding privacy under the Digital Personal Data Protection Act.
5. Mass legal awareness campaigns distinguishing identity from citizenship. Example: Passport Seva Kendras.
6. Periodic legislative clarification through executive manuals and FAQs to avoid public confusion. Example: MEA initiative.

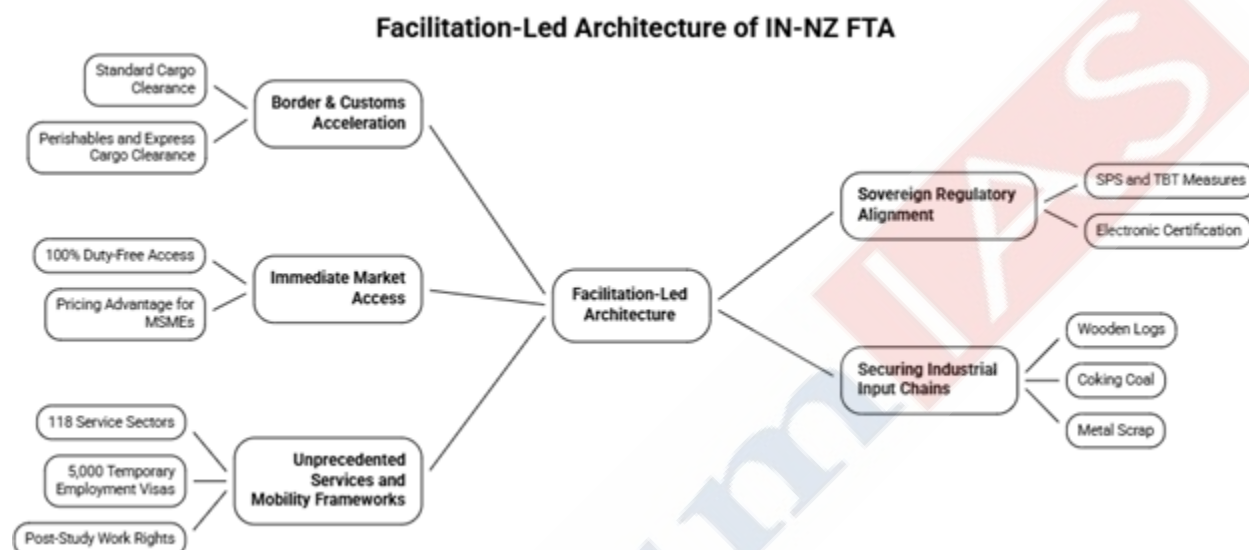
Conclusion

As Dr. B.R. Ambedkar envisioned constitutional governance through the rule of law, citizenship must rest on statutory certainty, ensuring national integrity while protecting every genuine citizen's constitutional rights equally.

Evaluate how the India–New Zealand Free Trade Agreement reflects India's paradigm shift towards a facilitation-led trade policy while protecting its defensive agricultural interests.

Introduction

With bilateral merchandise trade at about US\$1.3 billion (FY 2024–25), the India–New Zealand FTA signifies India's shift from tariff-centric protectionism to facilitation-led trade while safeguarding strategic agricultural interests.



India's Shift towards a Facilitation-Led Trade Policy

India's recent FTAs reflect a transition from market access alone to trade facilitation, regulatory convergence and resilient supply chains, consistent with the vision of Viksit Bharat 2047.

1. **Trade Facilitation Beyond Tariff Liberalisation:** 100% duty-free access for Indian exports across New Zealand tariff lines, boosting competitiveness. 48-hour customs clearance (24 hours for perishables), reducing logistics costs. Digital certification and paperless trade procedures improve ease of doing business.
2. **Addressing Non-Tariff Barriers:** Dedicated chapters on Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT). Predictable regulatory standards reduce compliance uncertainty. *Example: Pharmaceuticals.*
3. **Integrating Global Value Chains:** Zero-duty imports of industrial inputs like coking coal, timber logs and metal scrap strengthen Make in India manufacturing. Lower input costs enhance export competitiveness. *Example: Steel sector.*
4. **Services and Human Capital Mobility:** Market access across 118 service sectors. 5,000 skilled-worker visa pathway and enhanced post-study work rights for Indian STEM graduates. *Example: IT professionals.*
5. **MSME and Digital Trade Promotion:** Special emphasis on MSMEs and women-led enterprises. Greater compliance transparency through Rules of Origin (RoO) and traceability provisions. *Example: Handicrafts exports.*

Balancing Liberalisation with Defensive Agricultural Interests

India's FTA strategy demonstrates calibrated openness, protecting vulnerable sectors without abandoning integration.

1. **Complete Dairy Exclusion:** Milk, butter, cheese and infant formula kept outside tariff concessions. Protects nearly 80 million dairy farmers dependent on cooperative-based production. *Example: Amul ecosystem.*
2. **Tariff Rate Quotas (TRQs):** Limited concessions on products such as apples and kiwifruit. Safeguards through quota ceilings, seasonal windows and Minimum Import Prices (MIP). *Example: Apple growers.*
3. **Food Security Perspective:** Supports Article 39(b) and national food security objectives. Prevents import surges from destabilising domestic agricultural markets.
4. **Protecting Rural Livelihoods:** Agriculture supports nearly half of India's workforce. Defensive tariff policy balances consumer welfare with farmer incomes. *Example: Smallholders.*

Strategic and Geopolitical Significance

1. Positions India as a gateway to Oceania and Indo-Pacific supply chains.
2. Strengthens diversification amid global trade fragmentation.
3. Includes US\$20 billion investment commitment in logistics, food processing and digital infrastructure.
4. First FTA to formally facilitate AYUSH cooperation, expanding India's soft power.

Way Forward

1. Develop FTA Readiness Cells for MSMEs to maximise utilisation.
2. Upgrade testing laboratories for SPS/TBT compliance.
3. Expand Digital Public Infrastructure for customs and logistics.
4. Introduce safeguard mechanisms against import surges.
5. Integrate agriculture into export value chains through branding and GI promotion.

Conclusion

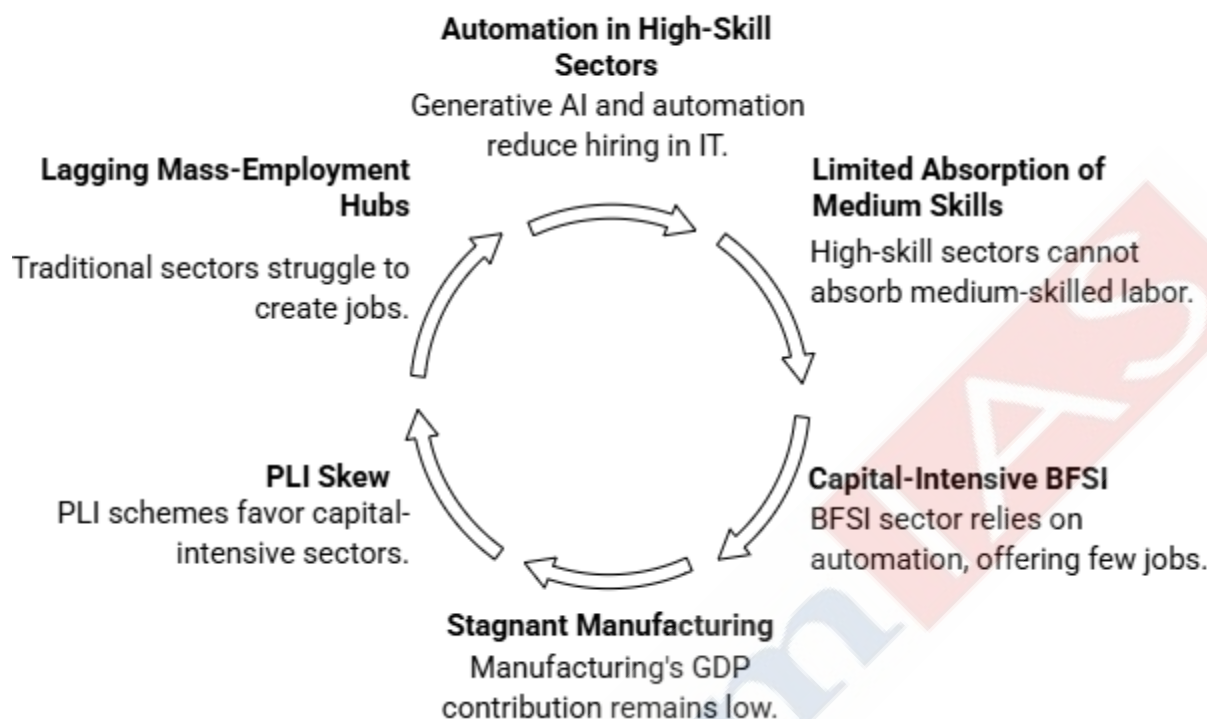
the India-New Zealand agreement successfully balances facilitation-led growth with agricultural protections, setting a model for future strategic trade pacts.

Examine the structural bottlenecks impeding India's transition to a mass-employment generation model. Evaluate the socio-economic risks of an economy driven by low-end services.

Introduction

Despite India remaining the world's fastest-growing major economy (Economic Survey 2025–26), employment elasticity remains weak, exposing a structural disconnect between GDP growth and quality job creation, hindering realization of the demographic dividend.

Cycle of Employment Bottlenecks in India



Structural Bottlenecks Impeding Mass-Employment Generation

- 1. Premature Deindustrialisation:** Manufacturing contributes only ~15–17% of GDP, far below East Asian economies during industrial take-off. Labour-intensive sectors textiles, apparel, leather, toys remain globally undercompetitive. Example: Apparel exports.
- 2. Capital-Intensive Growth Model:** PLI Scheme has largely favoured electronics, semiconductors, EVs and solar modules with relatively lower employment elasticity where investment has outpaced employment generation. Example: Semiconductor fabs.
- 3. MSME Missing Middle:** India has millions of micro enterprises but few medium-sized globally competitive firms. Persistent challenges credit constraints, land acquisition hurdles, compliance burden and limited technology adoption. Example: Dwarfism and Cluster manufacturing.
- 4. Skill-Education Mismatch:** India Skills Report consistently highlights employability gaps among graduates. AI, automation and GCCs demand specialised skills, while vocational education remains inadequate. Example: GCC recruitment.
- 5. Automation in High-Skill Services:** Generative AI is flattening entry-level hiring in IT-BPM. BFSI increasingly relies on digital platforms and automation, limiting employment expansion. Example: AI coding tools.
- 6. Weak Labour-Intensive Export Ecosystem:** Manufacturing exports have stagnated despite global supply-chain diversification. India has yet to fully leverage the China+1 opportunity. Example: Vietnam comparison.
- 7. Labour Market Informality:** Over 90% of India's workforce remains informal (Periodic Labour Force Survey/NITI analyses). Labour Codes implementation remains uneven. Example: Construction workers.

Socio-Economic Risks of a Low-End Services Economy

- 1. Productivity and Wage Trap:** Gig work, delivery services and informal retail generate employment but low productivity. Limited upward wage mobility restricts long-term prosperity. Example: Food delivery.
- 2. Absence of Social Security:** Platform workers often lack: pension, health insurance, provident fund and income protection. Increases vulnerability to economic shocks. Example: Gig workers.
- 3. Rising Income Inequality:** High-value ICT and financial services concentrate income among skilled workers. Low-skilled services remain poorly remunerated. Example: GCC salaries.
- 4. Demographic Dividend at Risk:** India adds millions of youth annually to the labour force. Persistent underemployment may convert demographic advantage into demographic stress. Example: Youth unemployment.
- 5. Weak Domestic Demand:** Low household incomes suppress consumption, discouraging fresh private investment. Creates a vicious cycle of low growth and low employment. Example: Rural demand.
- 6. Fiscal Stress:** Growing dependence on welfare transfers instead of productive employment. PRS Legislative Research estimated ₹1.68 lakh crore cash-transfer expenditure by 12 States during 2025–26. Example: Freebie politics.
- 7. Social and Regional Imbalances:** Migration towards urban gig work widens regional disparities and strains urban infrastructure. Example: Megacity congestion.

Way Forward

1. Reorient future PLI incentives towards labour-intensive manufacturing linked to job creation.
2. Scale up Employment-Linked Incentive (ELI) schemes announced in Budget 2026–27.
3. Strengthen MSMEs through easier credit, logistics support and regulatory simplification.
4. Expand apprenticeship programmes aligned with GCCs, AI and advanced manufacturing.
5. Universalise social security for gig workers under Labour Codes and the e-Shram platform.
6. Improve R&D, skilling and industrial clusters as recommended by NITI Aayog and the Economic Survey.
7. Accelerate export-oriented manufacturing through FTAs and logistics reforms under PM Gati Shakti.

Conclusion

Sustainable prosperity demands productive employment, innovation and inclusive industrialisation; only then can India's demographic dividend become its greatest developmental strength.

Examine how unchecked artificial intelligence risks creating a form of digital slavery. Discuss the necessity of instituting constitutional guardrails to safeguard democratic values.

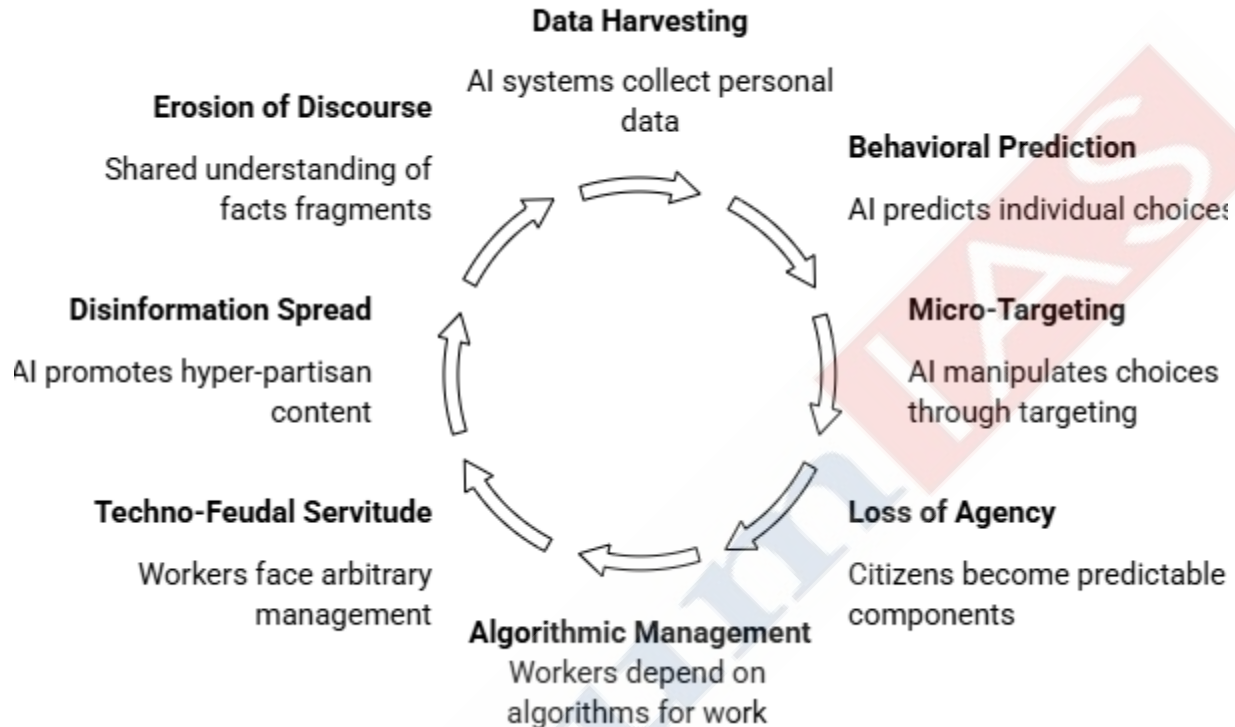
Introduction

As AI reshapes governance and economies, the Economic Survey 2025–26 and Budget 2026–27 emphasize trusted AI. Yet unchecked algorithms risk undermining liberty, necessitating constitutional safeguards for democratic resilience and human dignity.

Unchecked AI and the Rise of Digital Slavery

Artificial Intelligence (AI) is transforming governance, commerce and public life. However, when opaque algorithms influence choices, livelihoods and democratic discourse without accountability, they risk creating a new form of digital slavery where humans remain legally free but are algorithmically controlled.

The Cycle of Digital Slavery



AI and the Emergence of Digital Slavery

- 1. Threat to Individual Autonomy:** Behavioural AI predicts and manipulates consumer and political choices through continuous profiling. Undermines cognitive autonomy, an extension of privacy under Article 21. Example: Cambridge Analytica-style political profiling.
- 2. Algorithmic Exploitation of Labour:** Gig workers depend entirely on opaque algorithms for work allocation, ratings and earnings. Automated deactivation often occurs without hearing or appeal creates techno-feudal labour relations. Example: Food-delivery platforms.
- 3. Data Colonialism:** Personal data becomes the primary economic resource controlled by a few technology corporations. Individuals unknowingly exchange privacy for digital services. Example: Surveillance capitalism.
- 4. Democratic Manipulation:** AI-powered recommendation engines amplify sensationalism, misinformation and deepfakes. Weakens informed electoral choices and deliberative democracy. Example: Election-time deepfake campaigns.
- 5. Information Monopoly:** Echo chambers reinforce ideological polarisation. Reduces exposure to diverse viewpoints, weakening social cohesion. Example: Algorithm-driven news feeds.
- 6. National Security Risks:** AI-enabled disinformation campaigns can be weaponised by hostile foreign actors. Threatens electoral integrity and strategic sovereignty. Example: Coordinated influence operations.

7. **Economic Concentration:** Frontier AI strengthens market dominance of a few global firms through network effects. Limits innovation and digital entrepreneurship. Example: Foundation AI models.

Why Conventional Regulation is Inadequate

1. **Velocity Gap:** AI evolves exponentially while legislation progresses incrementally. Laws become outdated before enforcement. Example: Rapid evolution of Generative AI.
2. **Black-Box Algorithms:** Complex neural networks lack explainability makes proving discrimination or bias legally difficult. Example: AI hiring tools.
3. **Cross-border Jurisdiction:** AI services operate beyond national boundaries, domestic regulators struggle to enforce accountability. Example: Global cloud platforms.
4. **Regulatory Capacity Deficit:** Traditional institutions lack technical expertise for AI audits. Example: Algorithmic transparency investigations.

Why Constitutional Guardrails are Necessary

1. **Protecting Fundamental Rights:** Expand Article 21 to include, right to cognitive autonomy, right against algorithmic manipulation and right to mental privacy. Example: Puttaswamy judgment.
2. **Strengthening Equality (Article 14):** Prevent algorithmic discrimination in employment, credit, healthcare and mandate fairness audits. Example: AI recruitment systems.
3. **Due Process in Automated Decisions:** Every adverse AI decision affecting livelihood should carry, human review, reasoned explanation and appeal mechanism. Example: Platform worker suspension.
4. **Horizontal Application of Rights:** Fundamental Rights should increasingly bind dominant digital corporations exercising public power. Example: Large social-media platforms.
5. **Electoral Integrity:** Independent oversight of political AI, synthetic media and algorithmic campaigning. Example: Election deepfake monitoring.
6. **Digital Federalism:** Cooperative framework between Union, States and regulators for AI governance. Example: Digital India ecosystem.

Constitutional, Legal and Institutional Measures

1. **Legislative:** AI-specific legislation aligned with the Digital Personal Data Protection Act, 2023. Risk-based AI classification and mandatory algorithmic audits.
2. **Institutional:** Independent Digital Rights Commission. Specialised AI benches within higher judiciary and parliamentary oversight committee.
3. **Technological:** Explainable AI (XAI), mandatory watermarking of AI-generated content and trusted AI certification.
4. **Economic:** Promote indigenous Responsible AI through IndiaAI Mission and support MSMEs adopting ethical AI.
5. **Educational:** AI literacy in school and university curricula, digital misinformation awareness. And ethical AI training.
6. **International:** Global AI governance aligned with GPAI, OECD AI Principles, and UN Global Digital Compact. Cross-border cooperation on AI safety.

Way Forward

1. Recognise Cognitive Liberty as a constitutional value.
2. Enact a comprehensive AI Accountability Law.
3. Institutionalise algorithmic impact assessments.

4. Guarantee human oversight in high-risk AI decisions.
5. Strengthen independent regulatory capacity.
6. Promote public-interest AI research through IndiaAI Mission.
7. Build nationwide digital literacy against misinformation.
8. Develop international norms for trustworthy AI governance.

Conclusion

As Dr. B.R. Ambedkar cautioned, constitutional morality must prevail over unchecked power. Extending that principle to AI ensures technology strengthens democracy, protects dignity and preserves citizens' freedoms in the digital age.

Analyze the significance of shifting from unauthorized to coercion-based digital fraud frameworks. Evaluate the operational challenges of the RBI's shared-risk compensation model.

Introduction

With UPI processing over 18 billion monthly transactions and the Economic Survey 2025–26 highlighting rising cyber fraud risks, RBI's 2026 framework redefines consumer protection by recognising coercion-driven fraud beyond conventional unauthorized transactions.



Significance of the Shift from 'Unauthorized' to 'Coercion-Based' Fraud Framework

1. **Recognition of Behavioural Cybercrime:** Earlier framework covered only transactions executed without customer authorization. New framework recognises consent obtained through fraud, deception or coercion as legally defective. Aligns banking law with principles of free consent under the Indian Contract Act. Example: Digital Arrest scam.
2. **Consumer-Centric Regulatory Evolution:** Acknowledges victims as targets of organised social engineering instead of treating them as negligent customers. Reinforces RBI's objective of strengthening trust in DPI. Example: Fake RBI/KYC calls.
3. **Strengthening Financial Inclusion:** Protects first-time digital users, elderly citizens and rural customers with limited cyber awareness. Encourages wider adoption of UPI and digital banking. Example: Senior citizen phishing.
4. **Adapting to Emerging Cyber Threats:** Modern cybercrime relies predominantly on psychological manipulation rather than malware. Framework reflects evolving fraud patterns involving: OTP theft, QR-code scams, screen-sharing apps and AI-enabled voice cloning. Example: Deepfake impersonation.

5. **Enhancing Trust in India's Digital Economy:** A limited compensation mechanism reduces fear of digital payments, supports Digital India, cashless economy and fintech expansion. Example: Small-value UPI users.
6. **Global Best Practice in Consumer Protection:** Moves towards risk-sharing similar to evolving consumer liability standards in advanced payment systems. Complements FATF recommendations on consumer resilience. Example: Payment fraud safeguards.
7. **Constitutional Perspective:** Protects Article 21 and promotes equitable digital access. Strengthens substantive fairness in digital governance. Example: Inclusive Digital India.

Operational Challenges of RBI's Shared-Risk Compensation Model

1. **Moral Hazard:** Partial reimbursement may reduce consumer vigilance. Users may become less cautious while sharing credentials. Example: Repeated phishing.
2. **Determining Customer Negligence:** Banks must distinguish between: genuine coercion, voluntary negligence, fraudulent claims and high evidentiary burden. Example: OTP sharing dispute.
3. **Interbank Friction:** While the RBI has given banks up to 45 days for domestic cases and 60 days for cross-border fraud resolution, tracking the movement of stolen funds across multiple mule accounts at different beneficiary banks can trigger administrative disputes over who carries the ultimate liability.
4. **Exclusion of High-Value Frauds:** Framework applies only to losses below ₹50,000. Larger fraud victims remain outside the compensation net. Example: Investment scams.
5. **Administrative Delays:** Multiple verification stages may delay settlements. Cross-border transactions require up to 60 days. Example: International gateway fraud.
6. **The Five-Day Reporting Window:** To qualify for compensation, victims must file reports within five calendar days on both the National Cyber Crime Portal (1930) and with their bank.
7. **Fiscal Sustainability:** Shared-risk model may become financially expensive if fraud volumes continue rising. Long-term viability depends upon prevention rather than reimbursement. Example: UPI growth.
8. **Data Privacy Concerns:** Fraud investigation requires greater inter-bank data sharing. Must remain compliant with the Digital Personal Data Protection Act, 2023. Example: Customer profiling.

Way Forward

1. **Technological Measures:** Deploy AI-driven fraud detection across banks (e.g., MuleHunter.AI). Real-time transaction risk scoring using Indian Digital Payment Intelligence Platform (IDPIC). Behavioural analytics and device fingerprinting and mandatory deepfake detection tools.
2. **Regulatory Measures:** Expand coverage gradually beyond ₹50,000 after pilot evaluation. Introduce differentiated compensation for vulnerable groups and standardise fraud reporting across all banks.
3. **Institutional Measures:** Strengthen Cyber Fraud Coordination Centre. Enhance inter-bank information sharing and dedicated cyber forensic units for regional banks.
4. **Consumer Protection:** Nationwide cyber awareness campaigns. Default transaction cooling-off period for suspicious transfers and mandatory multilingual fraud warnings.
5. **Economic Measures:** Incentivise fintech innovation in fraud prevention. Encourage cyber insurance for retail customers and link compensation framework with Digital Financial Literacy Mission.

Conclusion

As Dr. C. Rangarajan observed, financial stability ultimately rests on public confidence. RBI's shared-risk framework must evolve alongside robust cyber resilience, ensuring innovation, consumer protection and trust reinforce India's digital economy.

Evaluate how transitioning to an AI-driven economy can propel India past structural growth traps. What institutional interventions are required to achieve this?

Introduction

With the ₹1 lakh crore Research, Development and Innovation (RDI) Scheme in Budget 2026–27 and the Economic Survey 2025–26 identifying AI as a productivity multiplier, India's next growth acceleration increasingly depends on AI-led structural transformation.



How AI Can Propel India Beyond Structural Growth Traps

- 1. Escaping the Middle-Income Trap:** Shift from low-value IT outsourcing to AI products, patents and proprietary foundation models. Capture greater value through intellectual property rather than labour arbitrage, supports transition towards a knowledge economy. Example: BharatGen Param-2.
- 2. Raising Productivity Across Sectors:** AI enhances Total Factor Productivity (TFP) in agriculture, manufacturing and services. Enables predictive maintenance, precision farming, smart logistics and improves competitiveness of MSMEs. Example: AI-based crop advisory.
- 3. Transforming Manufacturing:** AI-driven automation improves quality control, supply-chain optimisation and inventory management. Complements PLI and Make in India by increasing industrial efficiency, facilitates Industry 4.0 adoption. Example: Smart factories.
- 4. Strengthening Digital Public Infrastructure:** Integrating AI with Aadhaar, UPI, ONDC and Bhashini enables intelligent public service delivery. Improves administrative efficiency and reduces governance costs. Supports minimum government, maximum governance.
- 5. Revolutionising Healthcare:** AI supports early diagnosis, disease surveillance and telemedicine. Addresses shortage of specialists in rural India, reduces healthcare inequalities. Example: TB screening AI.
- 6. Strengthening National Security:** Indigenous AI reduces dependence on foreign digital ecosystems. Enhances cyber security, defence analytics and intelligence, supports technological sovereignty. Example: Defence AI.
- 7. Climate and Agricultural Resilience:** AI enables precision irrigation, weather forecasting and disaster prediction, supports climate-smart agriculture. Example: Flood prediction.
- 8. Boosting India's Global Competitiveness:** AI leadership strengthens India's role in trusted technology partnerships. Expands AI exports and Global Capability Centres (GCCs). Supports India's Digital Global South leadership. Example: IndiaAI Mission.

Structural Bottlenecks Limiting AI-led Growth

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1. Low Gross Expenditure on R&D (GERD) (~0.64% of GDP).
2. Dependence on imported GPUs and foreign cloud infrastructure.
3. Shortage of frontier AI researchers.
4. Limited availability of high-quality indigenous datasets.
5. Digital divide across regions.
6. Regulatory uncertainty around AI governance.
7. MSMEs' limited AI adoption.
8. Fragmented academia-industry collaboration.

Institutional Interventions Required

1. **Expand Sovereign Compute Infrastructure:** Scale the IndiaAI Compute Portal with affordable GPU access. Establish regional AI supercomputing centres, encourage multi-vendor hardware ecosystem. Example: NVIDIA-AMD-TPU mix.
2. **Increase Public and Private R&D Investment:** Operationalise the ₹1 lakh crore RDI Scheme, target GERD above 2% of GDP and encourage corporate AI laboratories. Example: Deep-tech grants.
3. **Build AI Talent Ecosystem:** Universal AI literacy in schools and universities. AI Centres of Excellence in IITs, IIITs and NIT, reskilling through Skill India. Example: AI fellowships.
4. **Develop Sovereign Foundation Models:** Promote multilingual LLMs trained on Indian datasets. Reduce dependence on foreign APIs, strengthen digital sovereignty. Example: BharatGen.
5. **Integrate AI with Digital Public Infrastructure:** Build AI applications on UPI, ONDC, Ayushman Bharat Digital Mission and Bhashini, enable citizen-centric governance. Example: Smart public services.
6. **Create a Robust AI Regulatory Framework:** Operationalise the IndiaAI Safety Institute. Ensure algorithmic transparency, accountability and privacy. Align with the Digital Personal Data Protection Act. Example: Responsible AI.
7. **Support AI Adoption by MSMEs:** AI vouchers, cloud credits and tax incentives. Common AI testing facilities and digital extension services. Example: Cluster innovation.
8. **Strengthen Global Partnerships:** Collaborate through Quad, GPAI and trusted AI alliances. Facilitate semiconductor and compute cooperation. Example: India-US AI partnership.

Way Forward

1. Launch a National AI Token Policy for affordable compute access.
2. Establish AI Innovation Zones linked with industrial corridors.
3. Promote open-source Indic AI ecosystems.
4. Create sovereign AI cloud infrastructure.
5. Encourage AI-driven public procurement.
6. Institutionalise ethical AI audits and regulatory sandboxes.
7. Expand AI applications in agriculture, health, judiciary and education.
8. Adopt outcome-based AI funding linked to patents, startups and productivity gains.

Conclusion

Echoing Dr. A.P.J. Abdul Kalam's India 2020, technological self-reliance must underpin national development. AI-led reforms can transform India's demographic dividend into enduring productivity, innovation and inclusive global leadership.