Monthly Editorial Consolidation

December 2025

C-171/2, Block-A, Sector-15, Noida

641, Mukherjee Nagar, Opp. Signature View Apartment, New Delhi

21, Pusa Road, Karol Bagh New Delhi

Tashkent Marg, Civil Lines, Prayagraj, Uttar Pradesh

Tonk Road, Vasundhra Colony, Jaipur, Rajasthan

Burlington Arcade Mall, Burlington Chauraha, Vidhan Sabha Marg, Lucknow

12, Main AB Road, Bhawar Kuan, Indore, Madhya Pradesh

Crystal Heights, Circular Road, Lalpur Chowk, Ranchi, Jharkhand

Shahi Lane, SP Verma Road, South Gandhi Maidan, Patna

E-mail : care@groupdrishti.in

Phone: +91-87501-87501

Content

Building Resilience in India'S Cyber Ecosystem

This editorial is based on "The strongest shield against cyber fraud lies in daily awareness" which was published in The Business Standard on 01/12/2025. The article brings into picture how India's digital revolution, while expanding financial inclusion, has also exposed vulnerable users to rising cyber frauds. It underscores that amid sophisticated scams, vigilant citizens practicing strong cyber hygiene form the most crucial line of defense.

Tag: GS Paper - 2, Government Policies & Interventions, GS Paper - 3, Cyber Security, Cyber Warfare, Challenges to Interna.l Security Through Communication Networks, Important International Institutions, Growth & Development

India's digital revolution has brought unprecedented financial inclusion, but it has also opened new frontiers for **cybercriminals.** From **phishing and fake apps to AI-driven deepfakes and digital arrest scams**, fraudsters are targeting the most vulnerable- senior citizens, first-time smartphone users, and rural populations. While banks invest in security infrastructure and government initiatives like **'RBI Kehta Hai!' raise awareness**, the weakest link remains the individual user. The **rise of mule accounts and sophisticated social engineering attacks** underscores that cyber hygiene must become as routine as personal hygiene. In this battle, an alert and informed citizenry is not just helpful, it is the first and most critical line of defense.

What is India's Current Cyber Security Architecture?

- **Strategic Core (Policy & Coordination): Ministry of Electronics and Information Technology** is responsible for formulating national policies related to information technology, including cybersecurity policies and strategies.
  - **National Cyber Security Coordinator (NCSC):** Coordinates between multiple agencies (military, intelligence, civilian) to prevent "siloed" responses. **The NCSC advises the PM on strategic cyber threats.**
- **"Shield" (Civilian & Critical Infrastructure Defense):** This layer protects the public internet, government networks, and critical sectors like banking and power.
  - **CERT-In (Indian Computer Emergency Response Team):** The "First Responder." It issues alerts, handles incident response, and mandates reporting of cyber incidents within **6 hours**.
  - **NCIIPC (National Critical Information Infrastructure Protection Centre):** Exclusively protects **"Critical Information Infrastructure" (CII)**, systems whose destruction would impact national security or the economy (e.g., Power Grid, Banking, Railways). Unlike CERT-In, it is not public-facing.
- **The "Sword" (Military & Intelligence):** This layer handles cyber warfare, espionage, and offensive capabilities.
  - **Defence Cyber Agency (DCA):** A tri-service command (Army, Navy, Air Force) operational since 2021. It focuses on both defensive (protecting military networks) and offensive (disrupting adversary networks) operations.
  - **NTRO (National Technical Research Organisation):** The technical intelligence agency. It conducts surveillance and monitoring of communication networks to detect external threats.
- **The Legal & Regulatory Framework:**
  - **Information Technology Act, 2000 (and 2008 Amendment):** The current primary law. It is widely considered outdated for modern threats like AI and quantum computing.
  - **Digital Personal Data Protection Act (DPDPA), 2023:** The new privacy law that mandates **how companies must protect user data, introducing heavy penalties for breaches.**
  - **Proposed: Digital India Act (DIA),** aims to replace the old IT Act to create a more comprehensive legal framework for India's digital ecosystem, focusing on online safety, user rights, and accountability for digital platforms.

What are the Most Pressing Cyber Threats Confronting India?

- **Digital Arrests & Psychological Siege:** The evolution of cyber extortion has moved from technical hacking to psychological siege, where fraudsters create a **"digital panopticon" to terrify victims.**
  - By impersonating enforcement agencies like the CBI or Narcotics Bureau over video calls, they exploit the fear of state authority to place victims under **"virtual house arrest."**
  - In late 2024, losses from "Digital Arrests" exceeded **₹120 crore** in just one quarter.
    - Recently, Maharashtra Cyber police arrested four more in a **₹58.13 crore** scam where a 72-year-old was duped by fraudsters posing as officials.
- **AI-Driven "Sophisticated" Fraud:** The democratization of Generative AI has lowered the barrier for high-end fraud, **allowing criminals to bypass traditional biometric security like Video KYC.**
  - This "sophisticated fraud" uses **deepfake voice clones and lip-synced videos** to trick not just individuals but also banking verification systems.
    - The **2025 Identity Fraud Report** found that a deepfake attack happened every five minutes in 2024, while digital document forgeries surged.
- **The "Mule Account" Epidemic:** India's financial system is currently battling a massive infrastructure of **"mule accounts",** rented bank accounts used to layer and launder stolen funds.
  - These accounts act as the **"smurfing" layer,** breaking down large stolen sums into untraceable micro-transactions before they exit the country.
  - Recently, an 8-member gang, including a private bank employee, that created over **120 mule bank accounts** and sold them to cyber fraudsters operating from outside the State has been arrested in a joint operation by **Hyderabad's cybercrime wing and the Commissioner's Task Force, East Zone.**
- **Supply Chain & Third-Party Risk:** The most critical vulnerability for Indian enterprises is no longer their own network, but the **"unsecured backdoors"** of their smaller, third-party vendors.
  - When a service provider is compromised, it creates a cascading **"domino effect"** that paralyzes major downstream financial or critical services.
  - In July 2024, a ransomware attack on **C-Edge Technologies** halted payments for **300+ banks** across India.
    - Reports indicate **52.6%** of Indian organizations suffered breaches via third-party vendors in 2024.
- **Ransomware Targeting Healthcare:** Healthcare has become the **"soft underbelly"** of India's critical infrastructure due to the high value of medical records (PHI) and the prevalence of legacy IT systems.
  - Attackers are shifting tactics from simple encryption to "double extortion", threatening to release sensitive patient data if the ransom isn't paid.
  - The **Star Health Insurance** breach (late 2024) compromised **31 million** customer records, including medical reports.
    - The Indian healthcare sector emerged as the most targeted industry for cyberattacks in 2024, accounting for **21.82% of total incidents.**
- **API & Endpoint Vulnerabilities:** As India races towards a **"API-first" economy (UPI, ONDC),** unsecured Application Programming Interfaces **(APIs)** have become the primary gateway for mass data exfiltration.
  - These **"leaky pipes"** often allow unauthorized access to vast databases without requiring complex hacks, just by manipulating endpoint requests.
    - For instance, in 2024, a flaw in **Hathway's API** exposed the personal data of **41 million** users.

- **Fake Trading & "Pig Butchering" Scams:** Investment fraud has industrialized into a transnational organized crime model, often run from **Southeast Asian "cyber-slavery" compounds.**
  - These scams use fake trading apps that **simulate high returns ("pig butchering")** to groom victims over months before stealing their life savings.
  - India lost approximately **Rs 11,333 crore** to cyber fraud in the first nine months of 2024, according to data compiled by the **Indian Cyber Crime Coordination Centre (I4C), a division of the Ministry of Home Affairs (MHA).**

What Measures are Needed to Enhance Cyber Hygiene in India?

- **National Cyber Hygiene Curriculum for All Public Interfaces:** Embedding short, multilingual cyber-safety modules across schools, colleges, CSCs, government offices, and public digital touchpoints can institutionalise awareness.
  - These micro-learning capsules must be interactive and scenario-based. This mainstreams **cyber hygiene as a life skill, not optional knowledge.**
  - A uniform curriculum enhances consistency across states. It also creates a pipeline of cyber-aware citizens across generations.
- **Mandatory Cyber-Safe Procurement Standards for Digital Hardware and Software:** Creating procurement guidelines that mandate minimal security benchmarks for all public and private-sector IT products ensures ecosystem-level hygiene.
  - This includes secured firmware, verified supply chains, and pre-validated apps. Such standards prevent vulnerabilities from entering systems at the source.
  - Institutionalising "**Security-First Procurement" reduces downstream risks.** It also incentivises vendors to align with national cyber safety objectives.
- **Zero-Trust Adoption Framework for MSMEs and Local Governance Bodies:** Creating simplified, low-cost Zero-Trust guidelines tailored for MSMEs and panchayat offices ensures security for often-neglected sectors.
  - This includes micro-segmentation of networks, identity-verified access, and continuous authentication.
  - **Such frameworks convert complex cybersecurity into actionable checklists**. It reduces attack surfaces at the grassroots institutional level. It also enhances confidence in digital public services.
- **AI-Driven Early Warning and Digital Behaviour Profiling for Citizens:** Deploying AI bots and mobile-based assistants can provide personalised safety alerts based on risky user behaviour patterns.
  - These systems can caution against suspicious links, insecure networks, or unsafe app permissions.
  - **Lightweight AI tools help individuals with low digital literacy.** They ensure proactive, user-specific cyber hygiene guidance. This transforms prevention from generic to adaptive.
- **Regulatory Push for "Minimal Data Footprint" Practices:** Mandating services to collect only essential data reduces exposure to potential breaches. Data-minimisation policies enforce disciplined storage and controlled retention cycles.
  - This shrinks the vulnerability surface of citizens. It encourages privacy-centric design across industries.
  - Such regulatory restraint aligns cyber hygiene with constitutional data-protection ideals.
- **"Algorithmic Behavior Locking" for Mule Accounts:** The current banking system relies on **"KYC" (Know Your Customer) at entry, but we need "KYB" (Know Your Behavior)** throughout the lifecycle.
  - Banks should implement dynamic risk scoring that flags accounts showing "mule behavior",

such as sudden high-velocity transfers in dormant accounts or rapid "money-in, money-out" patterns.

- **If an account's "risk score" spikes, it should be temporarily "locked" or placed in a "receive-only"** mode until biometric re-verification is done by the account holder.

- **Securing Critical Infrastructure with Sector-Specific CERTs:** Each critical sector, energy, transport, health, finance, should operate specialized CERTs with domain expertise.
  - These units must conduct continuous red-teaming, stress-tests, and penetration audits tailored to sectoral vulnerabilities.
  - **Inter-CERT coordination ensures resilience against cascading failures.** Strict cyber-contingency protocols should be embedded in disaster management plans. This ensures continuity of essential services during cyber shocks.
- **Encryption-First Public Digital Infrastructure:** All public digital platforms must adopt end-to-end encryption as the default rather than an add-on.
  - Encryption governance frameworks should mandate **regular key rotation, cryptographic updates, and quantum-resistant algorithms.**
  - Citizen-facing platforms should enforce mandatory secure log-ins. Cloud services used by government departments must follow encryption uniformity guidelines.
    - This enhances trust in Aadhaar, health systems, and digital payments architecture.

Conclusion:

Building cyber resilience in India now demands a **shift from reactive protection to proactive digital discipline embedded in every citizen's routine.** Strengthening architectures, tightening governance, and empowering users together create a layered defence against evolving threats. As digital fraud becomes more psychological and AI-driven, a**wareness must travel as fast as technology.** ***"In the age of invisible dangers, cyber hygiene is the new civic duty-practised quietly, yet protecting loudly."***

India'S Road to Resilient Economic Growth

This editorial is based on "Cautious optimism: On India and growth" which was published in The Hindu on 02/12/2025. The article brings into picture the contrast between India's impressive 8.2% GDP growth and concerns over its sustainability amid a record trade deficit and a low deflator. It highlights that the real challenge is ensuring this growth becomes broad-based, benefiting rural demand and labour-intensive sectors.

Tag: GS Paper - 3, Growth & Development, GS Paper - 2, Government Policies & Interventions

India's September-quarter GDP growth of **8.2% has exceeded expectations, driven by manufacturing (9.1%) and services (9.2%),** with private consumption rebounding to **7.9%.** However, this surge may be deceptive, **a record $41.68 billion trade deficit, potential export front-loading ahead of U.S. tariffs,** and an **unusually low GDP deflator below 1% raise questions about sustainability.** The growth remains concentrated in capital-intensive and formal sectors, while labor-absorbing industries and rural consumption continue to struggle. The challenge lies not just in maintaining growth rates, but in **ensuring they translate into broad-based economic prosperity.**

Which Factors are Shaping and Strengthening India's Current Economic Growth Trajectory?

- **Strategic Manufacturing Deepening (PLI Impact):** India is moving **beyond mere assembly to high-value component manufacturing,** driven by the maturity of Production Linked Incentive (PLI) schemes in electronics and pharmaceuticals.
  - This structural shift is reducing import dependency for critical intermediates like PCBs and active pharmaceutical ingredients, creating a resilient domestic industrial base that is less vulnerable to global supply chain shocks.
  - For instance, **Manufacturing grew at a robust 9.1% in Q2 FY26,** significantly outpacing the

general economy; PLI schemes have realized actual investments of over **₹1.46 lakh crore** as of August 2024, transforming India into a net exporter of mobile phones.

- **Rural-Led Consumption Resurgence:** A distinct **"decoupling" is visible where rural demand is currently outpacing urban consumption,** fueled by above-normal monsoons and stabilizing inflation which has restored purchasing power in the agrarian economy.
  - This revival is crucial as it broadens the consumption base beyond the metro cities, creating a more sustainable domestic demand engine for FMCG and two-wheeler sectors.
  - Rural consumption expanded by **7.7% in Q2 FY26**, the **highest in 17 quarters,** while **India's FMCG sector saw sales growth slow in Q3, with volume up 5.4% due to GST changes.**
    - **Rural markets led expansion at 7.7%,** effectively acting as the primary driver for private final consumption expenditure (PFCE) growth.
- **Capex-Led Infrastructure Multiplier:** The government's aggressive front-loading of capital expenditure continues to crowd in private investment, particularly in **logistics, railways, and defense, creating a high economic multiplier effect.**
  - This sustained public spending is removing historical supply-side bottlenecks, reducing logistics costs, and ensuring that industrial output can reach global markets competitively.
  - The **Union Government's** capital expenditure on key infrastructure sectors has grown at a **rate of 38.8% from FY20 to FY24**, signaling strong investment confidence despite global headwinds.
- **Digital Public Infrastructure (DPI) 2.0 & AI Integration:** The narrative has shifted from basic digital access to "intelligent" application, where AI and data analytics built on top of the **India Stack (UPI, ONDC)** are democratizing credit and market access for MSMEs.
  - This **"formalization via digitization"** allows small enterprises to access collateral-free loans and global markets, unlocking productivity in the massive informal sector.
  - As on **January, 2025**, **GeM** has clocked a GMV of **₹4.09 lakh crore**, which marks a growth of nearly **50% over the corresponding period last FY.**
  - With the **AI & analytics technology implementation rate of 54%, Indian companies are revolutionising their operational methodologies** using machine sensors, cloud technology, robotics and automation **(Invest India).**
- **Geopolitical "China Plus One" Realization:** India is actively capitalizing on the global diversification of supply chains, attracting high-quality FDI from firms seeking alternatives to China, particularly in tech and engineering.
  - While merchandise exports face global headwinds, this structural repositioning is turning India into a preferred **"friendly shore"** for advanced manufacturing, insulating it partly from Western demand slowdowns.
  - **India has overtaken China as the most attractive emerging market** for investing, according to **85 sovereign wealth funds and 57 central banks.**
- **Green Energy Transition as an Economic Driver:** The shift to renewables is no longer just environmental but economic, with **massive investments in solar and green hydrogen** reducing the long-term current account deficit caused by fossil fuel imports.
  - This transition is creating a new parallel economy of green jobs and manufacturing, specifically in solar modules and battery storage, decoupling growth from carbon emissions.
  - As of June 2025, the **country has already achieved 235.7 GW from non-fossil fuel sources,** comprising 226.9 GW of renewable energy and 8.8 GW of nuclear power, accounting for 49% of the total installed power generation capacity of 476 GW.

- This marks a significant step toward India's decarbonisation goals and its pledge to a sustainable future, **ensuring uninterrupted power for industrial growth.**

- **Financial Sector Resilience & Credit Expansion:** The **"Twin Balance Sheet" problem of the past decade** has been largely addressed, with banks now holding pristine books capable of funding the next leg of private corporate capex.
  - India's banking sector has witnessed continued improvement in asset quality, with the **gross non-performing assets (GNPA) ratio dropping to 2.6% of total advances in September 2024**, marking the lowest level in the past 12 years, according to the **Reserve Bank of India's (RBI) Financial Stability Report.**
  - This financial stability allows for sustained credit flow to productive sectors like infrastructure and housing without the risk of an immediate asset quality bubble.

What are the Major Bottlenecks Still Constraining India's Economic Growth?

- **Structural "Jobless Growth" & Skill Mismatch:** The core constraint remains the **inability of the manufacturing sector** to absorb the massive influx of workforce, exacerbated by a severe disconnect between academic output and **Industry 4.0 requirements.**
  - While GDP soars, the labor market faces **"structural hysteresis"** where millions of graduates lack the specific technical aptitude required for high-value roles, creating a paradox of high growth with stagnant quality employment.
  - Youth unemployment (15-29 years) remained stubbornly high at **14.6% in August 2025**, while reports indicate only **42.6% of graduates** were deemed employable for corporate roles due to non-technical skill deficits.
- **Private Investment (Capex) Lethargy:** Despite government front-loading infrastructure spending, private corporate capital expenditure has not fired on all cylinders, driven by **risk aversion and uncertain global demand.**
  - Corporations are deleveraged and profitable, yet **they are delaying greenfield expansion, relying instead on brownfield efficiencies**, which limits the creation of new productive capacity and jobs.
  - While new project announcements rose, actual private project completions **declined by 31% YoY in FY25**, and private capex contribution to new projects grew by a marginal **4%**, signaling a "wait and watch" approach.
- **Export Competitiveness & Tariff Walls: India's export engine is sputtering due to a rise in global protectionism and "tariff wars,"** particularly with the US and EU imposing non-tariff barriers and higher duties.
  - This external hostility is compounding domestic inefficiencies, causing labor-intensive sectors like textiles and gems to lose market share to agile competitors like **Vietnam and Bangladesh.**
    - **Merchandise exports showed a contraction of (-)11.8% in October 2025** (EY).
- **MSME Credit Rationing & Tech Deficit:** The growth recovery has been **"K-shaped," with Micro, Small, and Medium Enterprises (MSMEs) struggling to access affordable formal credit** despite digitization efforts.
  - High collateral requirements and the inability to adopt advanced digital tools rapidly have left this sector, which employs the vast majority of non-farm labor, stagnant and unable to scale up to global value chains.
  - The credit gap in the MSME sector is around **₹20 lakh crore to ₹25 lakh crore, with about 47% of MSME credit demand remaining unmet**, forcing small units to rely on expensive informal borrowing at 12-14% interest rates.
- **Chinese "Dumping" & Import Dependency:** A critical bottleneck is the flood of **cheap Chinese imports**, particularly in steel, chemicals, and electronics, which is undercutting domestic manufacturing viability.

- As China faces its own slowdown, it is **exporting its overcapacity to India,** creating an inverted duty structure where importing finished goods is often cheaper than manufacturing them locally.
- In India, **most of the electronic component imports came from China (nearly 40%),** followed by Hong Kong over (16%) in the first half of fiscal year 2025. Also, global reports confirm China is **dumping steel and chemicals** at predatory prices.

- **High Logistics & Transaction Costs:** India's logistics cost remains an **"invisible tax" on competitiveness,** hovering significantly higher than global benchmarks despite improvements in physical infrastructure (roads/ports).
  - Regulatory compliance burdens and slow turnaround times at hinterland depots continue to erode margins, **making Indian goods 10-15% more expensive than competitors in the global market.**
  - Logistics costs are estimated at **7.97% of GDP in 2025**, still above the global best practice, dragging down manufacturing competitiveness and **preventing deeper integration into Global Value Chains (GVCs).**

What Measures can India Undertake to Achieve Resilient and Sustainable Economic Growth?

- **Accelerate Green Industrial Transformation:** India must adopt a calibrated green-industrial strategy that nudges firms toward **low-carbon production through predictable regulatory pathways, green-technology clusters, and circular-economy norms.**
  - Strengthening domestic manufacturing of clean-tech components will reduce external vulnerabilities.
  - **Harmonising environmental clearances with real-time digital monitoring** can expedite compliant industries.
    - A **green-skills mission can prepare the workforce for emerging sectors.** Such calibrated greening ensures competitiveness without compromising growth momentum.
- **Build Shock-Resistant Supply Chains:** Enhancing supply-chain resilience requires diversification of sourcing, modern logistics corridors, and resilient warehousing linked through digital dashboards.
  - Encouraging multi-tier supplier mapping can pre-empt disruptions. **Policy support for local supplier development strengthens domestic value chains.** Embedding climate-risk assessments in infrastructure planning reduces exposure to extreme events.
  - This integrated design stabilises production cycles and boosts long-term growth certainty.
- **Deepen Quality of Human Capital:** Strengthening human capital calls for modular skilling aligned with evolving industry needs and continuous learning platforms integrated with local economies.
  - **Bridging foundational learning gaps through adaptive pedagogy will enhance long-term productivity**.
  - A wellness-oriented employment framework can reduce workforce attrition. Promoting research talent via flexible mobility between academia and industry strengthens innovation. **Such holistic human-capital deepening creates a durable productivity base.**
- **Fiscal Recalibration for Long-Term Stability:** A resilience-oriented fiscal policy demands broadening the **tax base, rationalising expenditure, and embedding outcome-based budgeting.**
  - Improving fiscal transparency through real-time dashboards strengthens investor confidence.
  - **Strategic prioritisation of green infrastructure multiplies long-term returns**. Phased consolidation coupled with counter-cyclical buffers enhances stability against global volatility. This calibrated stance preserves growth while managing macroeconomic risks.
- **Technology-Driven Governance and Public Service Efficiency:** Embedding digital public infrastructure across sectors ensures frictionless service delivery and reduces administrative leakages.

- **AI-assisted regulatory systems can enhance compliance, early-warning mechanisms, and sectoral supervision**.
- Interoperable data platforms promote targeted welfare delivery. Urban governance must adopt sensor-driven resource management to curb wastage. Such tech-enabled governance elevates productivity and resilience across the economy.

- **Boost Innovation-Led Growth Ecosystem:** A stronger innovation ecosystem requires **flexible regulatory sandboxes, deeper industry–research linkages, and mission-driven R&D programmes in frontier technologies.**
  - Incentivising domestic IP creation can accelerate commercialization cycles. Creating regional innovation districts linked with universities builds distributed innovation capacity.
  - **Streamlined startup compliance fosters experimentation**. An innovation-driven economy is inherently more adaptive and future-proof.
- **Strengthen MSME Competitiveness and Formalisation:** Enhancing MSME resilience requires **streamlined compliance, unified digital portals, and risk-based regulatory norms to reduce operational friction.**
  - **Cluster-based upgradation with shared technology centres** can boost productivity and innovation.
  - Strengthened credit-flow through cash-flow based lending and improved receivable management reduces vulnerability to liquidity shocks.
    - **Promoting formalisation via simplified taxation and digital bookkeeping deepens market access.**
    - A calibrated MSME-capability mission can transform them into engines of sustainable and inclusive growth.

Conclusion:

India's current growth momentum reflects a mix of structural strengths and emerging vulnerabilities. While strategic manufacturing, rural consumption revival, infrastructure investment, and digital integration are driving resilience, challenges like jobless growth, MSME credit gaps, and global trade headwinds persist. **Sustainable and broad-based prosperity will require deepening human capital, green industrialisation, supply-chain resilience, and innovation-led policies.** Targeted MSME support and technology-enabled governance can ensure that high GDP growth translates into inclusive, long-term economic strength.

India'S Path to Environmental Resilience

This editorial is based on "The dismal state of India's environment" which was published in The Hindu on 03/12/2025. The article brings into picture the escalating environmental crisis driven by sustained policy dilution, weakened safeguards, and a resource-first development model. It underscores the urgent need for a policy reset that restores protections, empowers communities, and rebuilds institutions for a sustainable future.

Tag: GS Paper - 3, Conservation, Environmental Pollution & Degradation, GS Paper - 2, Important International Institutions, Government Policies & Interventions

India is confronting **a deepening environmental emergency,** driven largely by a decade of **incremental policy dilution and regulatory weakening.** From the erosion of the Aravalli range due to relaxed mining norms to the **toxic air enveloping** major cities and reports of **uranium-tainted groundwater,** the country's ecological distress reflects a model that prioritises resource extraction over environmental stewardship. Amendments to foundational laws such as the **Forest Conservation Act** have sidelined essential safeguards, while chronic underfunding, procedural lapses, and the **growing use of post-facto clearances have undermined accountability.** India now requires a decisive policy course correction that **halts ecological degradation, reinstates robust protections, and strengthens institutions to ensure a genuinely sustainable future.**

What are the Key Strides India has Made in Environmental Governance?

- **Decentralized Energy Transition- PM Surya Ghar Muft Bijli Yojana:** This represents a structural shift from centralized power generation to a "prosumer" model, where households generate and consume energy, reducing sovereign debt burdens from power subsidies.
  - It creates a self-sustaining ecosystem that simultaneously tackles energy poverty and carbon intensity, turning the energy transition into a mass movement rather than just industrial policy.
  - The scheme has facilitated the installation of **4,946 MW of rooftop solar capacity till July 2025** across various states and Union territories
- **Global Wetland Leadership-Ramsar Sites Expansion:** India has aggressively **moved beyond "terrestrial obsession" (forests) to acknowledging "blue carbon" assets,** becoming the leader in wetland conservation in Asia to secure water tables and flood buffers.
  - This governance shift recognizes wetlands not as wastelands but as critical climate infrastructure for aquifer recharge and migratory flyways.
  - **India's Ramsar tally reached 94 sites in late 2025 (highest in South Asia).**
- **Green Credit Programme (GCP):** In an August 2025 notification, the **Indian Ministry of Environment, Forest and Climate Change (MoEFCC)** significantly amended the **Green Credit Programme (GCP) rules** for tree plantation, shifting the focus from simple "tree planting" to verifiable ecosystem restoration.
  - This demonstrates **"agile governance"**,quickly closing loopholes where companies might have claimed credits for saplings that died, ensuring credits are only tradeable for genuine ecological value.
  - **New 2025 guidelines mandate a minimum 40% canopy density after 5 years** for credit eligibility, removing the "plant-and-forget" loophole.
- **Institutionalizing Climate Finance-Sovereign Green Bonds:** The government has moved climate action **from "moral obligation" to "fiscal instrument" by integrating Green Bonds into its borrowing calendar,** creating a low-cost capital pipeline for public infrastructure.
  - This reduces the **"greenium" (cost difference)** for sustainable projects and signals to global investors that India's climate goals are backed by sovereign guarantees.
  - The Centre announced **₹20,000 crore** in Green Bond issuance for H2 of FY 2024-25.
- **Biodiversity Diplomacy- International Big Cat Alliance (IBCA):** India has elevated conservation to foreign policy, using its success in tiger recovery to lead the Global South in biodiversity protection, creating a diplomatic block for nature-based solutions.
  - This **institutionalizes India's "soft power" in the environment,** moving beyond being a rule-taker in global forums to a rule-maker and knowledge provider.
  - **IBCA** has secured Government of India's initial support of Rs. 150 crore for five years **(2023-24 to 2027-28)**
  - This builds on the success of **Project Tiger** to export technical expertise on anti-poaching and habitat management globally.
- **The "Waste-to-Wealth" Architecture- Digital EPR Enforcement:** Governance has transitioned from voluntary guidelines to mandatory, digitally tracked **Extended Producer Responsibility (EPR),** forcing manufacturers to internalize the cost of their plastic and e-waste.
  - This creates a formal circular economy market where waste certificates are traded, incentivizing recycling over dumping and formalizing the informal waste picker sector.
  - Plastic waste recycling capacity has effectively improved, with the CPCB imposing **environmental compensation fines** on non-compliant firms, ensuring enforcement.

- **Coastal Resilience-MISHTI Scheme Implementation:** Recognizing the threat of sea-level rise, the government launched a **targeted intervention for mangrove reforestation that combines NREGA labor with scientific conservation.**
  - This is a **"co-benefit" approach** that generates rural employment while **building biological sea-walls against cyclones,** shifting focus from concrete embankments to nature-based barriers.
  - For **FY 2024–25,** ₹17.96 crore has been allocated to **Andhra Pradesh, Gujarat, Kerala, Odisha, West Bengal, and Puducherry** for the treatment and restoration of 3,836 hectares of degraded mangroves.

What are the Major Environmental Challenges Confronting India?

- **Glacial Lake Outburst Floods (GLOFs) in the Himalayas:** The Himalayan cryosphere is undergoing a structural collapse where accelerated glacial melt is forming unstable new lakes, **creating "ticking time bombs" that threaten downstream energy infrastructure and strategic border connectivity.**
  - This is no longer just a climate issue but a national security and economic threat, as seen when sudden breaches wipe out years of hydropower investment in minutes.
  - Following the **2023 South Lhonak disaster,** the Centre launched a ₹150 crore mitigation program in late 2024 specifically targeting **some "high-risk" glacial lakes.**
- **Asymmetric Air Pollution- The "Bowl Effect":** The threat has evolved from a general pollution issue to a geographic crisis of **"atmospheric locking,"** where Northern India's landlocked topography traps pollutants under winter inversion layers, **creating a toxic "gas chamber" distinct from the better-ventilated South.**
  - This persistent exposure is now structurally stunting the lung capacity of an entire generation, creating a long-term public health burden that economic growth cannot offset.
  - While **Delhi's Jan-Nov 2025 AQI (187) was the "best" in 8 years**, it remains unsafe, with Northern cities like **Lucknow and Varanasi continuing to breach limits due to trapped pollutants.**
- **Structural Water Scarcity & Aquifer Collapse:** India is moving from **"water stress" to "structural scarcity"** where groundwater extraction exceeds recharge rates, driven by perverse agricultural subsidies and unplanned urbanization that paves over natural recharge zones.
  - This threat is **multidimensional** because it now risks sovereign credit ratings and industrial stability, as major tech hubs face **"Day Zero" scenarios that disrupt global business operations.**
  - By **2030**, the country's water demand is projected to be twice the available supply, implying severe water scarcity for hundreds of millions of people.
    - **Bengaluru's severe 2024 water crisis saw IT corridors reliant on tankers.**
- **"Green vs. Green" Land Conflict & Habitat Fragmentation:** A growing analytical threat is the conflict between **renewable energy expansion and biodiversity conservation,** where solar parks and power lines fragment the last remaining habitats of critically endangered megafauna.
  - This **"green dilemma"** forces a choice between **climate mitigation (net-zero goals) and ecological preservation,** leading to legal stalemates and increased human-wildlife mortality.
    - **Conflict intensified in 2024-25 with Great Indian Bustard (GIB) numbers dropping below 150 due to power line collisions**, despite a 2025 captive breeding breakthrough in Jaisalmer.
- **Coastal Erosion & The Compound Cyclone Threat:** India's coastline is facing a **"double whammy" of rising sea levels and intensifying cyclones** that don't just flood areas but permanently erode land mass, shrinking the country's sovereign territory.

- This is a critical development threat as it displaces dense coastal populations and salinizes freshwater sources, effectively rendering fertile agricultural deltas uninhabitable.
- **INCOIS study warns of a 0.5–1 metre sea level rise along Indian coastlines by 2100, posing significant climate risks,** significantly higher than global averages due to regional gravity anomalies.

- **The "Legacy Waste" & Microplastic Toxicity:** The failure to manage **"legacy waste" (old landfill mountains)** has created a toxic crisis where leaching heavy metals poison groundwater while microplastics enter the food chain, creating an invisible biological threat.
  - The crisis has shifted from simple **"littering" to a systemic failure of processing,** where rapid tourism growth in fragile ecologies (like islands/mountains) outpaces waste infrastructure, leading to ecological collapse.
  - I**ndia generates over 1.5 lakh tonnes of municipal solid waste (MSW) per day,** but only 83% of waste is collected and less than 30% is treated.
    - For instance, **Lakshadweep reported a "mounting waste crisis" in 2024-25** due to a tourism surge, with no functional incinerators to handle the non-biodegradable load.
- **"Warm Night" Phenomenon & Heat Stress:** While peak temperatures grab headlines, the multidimensional threat is the **rise in *minimum* night-time temperatures,** which prevents the human body from recovering, significantly increasing mortality risk in urban heat islands.
  - This **"silent killer" is exacerbated by concrete urbanization trapping heat,** turning cities into nocturnal ovens that disproportionately affect the poor who lack cooling access.
  - **2024 was confirmed as India's warmest year since 1901**, Delhi and Chandigarh recorded unprecedented "severe warm nights" in June 2024 where night temps stayed above 35°C.

What Steps can India take to Strengthen Environmental Resilience while Advancing Development?

- **Institutionalizing "Sponge City" Frameworks in Urban Master Plans:** India must move beyond concrete drainage to **Nature-based Solutions (NbS)** by legally mandating permeable surfaces and aquifer recharge zones in city master plans.
  - This measure creates a **"Blue-Green Infrastructure"** network that mitigates urban flooding while simultaneously recharging groundwater for dry seasons, effectively decoupling urbanization from water scarcity.
  - By integrating wetlands into the urban fabric, cities can lower **"Urban Heat Island"** effects, reducing cooling energy demand and boosting economic productivity during heatwaves.
- **Decentralized "Micro-Grid" Architecture for Energy Security:** Shifting from a monolithic centralized grid to a network of **distributed renewable energy (DRE)** micro-grids enhances resilience against climate-induced grid failures and blackouts.
  - This approach empowers local communities as **"Prosumers"**, reducing transmission losses and ensuring uninterrupted power for rural industries even during extreme weather events.
  - It fosters **"Energy Democracy"** and creates local green jobs in maintenance, aligning the goal of carbon neutrality with grassroots economic empowerment and industrial reliability.
- **Mainstreaming "Circular Bio-Economy" in Agriculture:** Transforming agricultural waste from a **liability (stubble burning) into an asset (compressed biogas/bio-manure)** through a **formalized circular supply chain** creates a new rural revenue stream.
  - This measure addresses air pollution and soil degradation simultaneously while providing a domestic alternative to imported fossil fuels and chemical fertilizers.

- It promotes **"Regenerative Agriculture"**, enhancing soil organic carbon—which acts as a critical carbon sink, thereby boosting crop resilience against climate shocks while securing food systems.

- **Strategic "Critical Mineral" Recycling and Urban Mining:** To secure the supply chain for the green transition, India should implement a rigorous **"Extended Producer Responsibility" (EPR)** regime specifically for E-waste and battery storage technologies.
  - Developing domestic **"Urban Mining"** clusters reduces dependency on volatile global import markets for lithium and cobalt, ensuring strategic autonomy in the renewable sector.
  - This turns the mounting waste crisis into a resource opportunity, fostering a **"Secondary Material Market"** that supports high-tech manufacturing and reduces the ecological footprint of virgin mining.
- **"Climate-Proofing" Critical Infrastructure Assets:** India needs to integrate mandatory **"Climate Risk Assessments"** into the initial tender process for all large-scale infrastructure projects (roads, bridges, ports).
  - Adopting **"Resilient Design Standards"** that account for projected 50-year flood lines and heat stress prevents the **"lock-in" of vulnerable assets that would require costly retrofitting later.**
  - This ensures **"Fiscal Sustainability"** by minimizing future disaster recovery costs and preventing supply chain disruptions, making the economy robust against increasing climate volatility.
- **Developing a Sovereign "Green Taxonomy" & Blended Finance:** Establishing a clear, legally binding **"Green Taxonomy"** helps distinguish genuine climate-positive investments from "**greenwashing**," attracting long-term institutional foreign direct investment (FDI).
  - By utilizing **"Blended Finance"** instruments, where public funds de-risk private capital, India can unlock trillions for high-risk but high-reward adaptation projects like coastal walls or drought-resistant irrigation.
  - This financial architecture aligns **"Sovereign Creditworthiness"** with climate performance, lowering the cost of capital for sustainable development projects.
- **Integrated Coastal Zone Management (ICZM) with "Living Shorelines":** Replacing hard concrete sea walls with **"Living Shorelines"** comprising mangroves and coral reefs offers a dynamic defense against sea-level rise and cyclonic surges.
  - This ecosystem-based approach protects coastal settlements more effectively than rigid structures, which often accelerate erosion in adjacent areas, while also nurturing fishery nurseries.
  - It secures the **"Blue Economy"**, safeguarding the livelihoods of millions of fisherfolk and ensuring the operational resilience of strategic ports and coastal economic zones.

Conclusion:

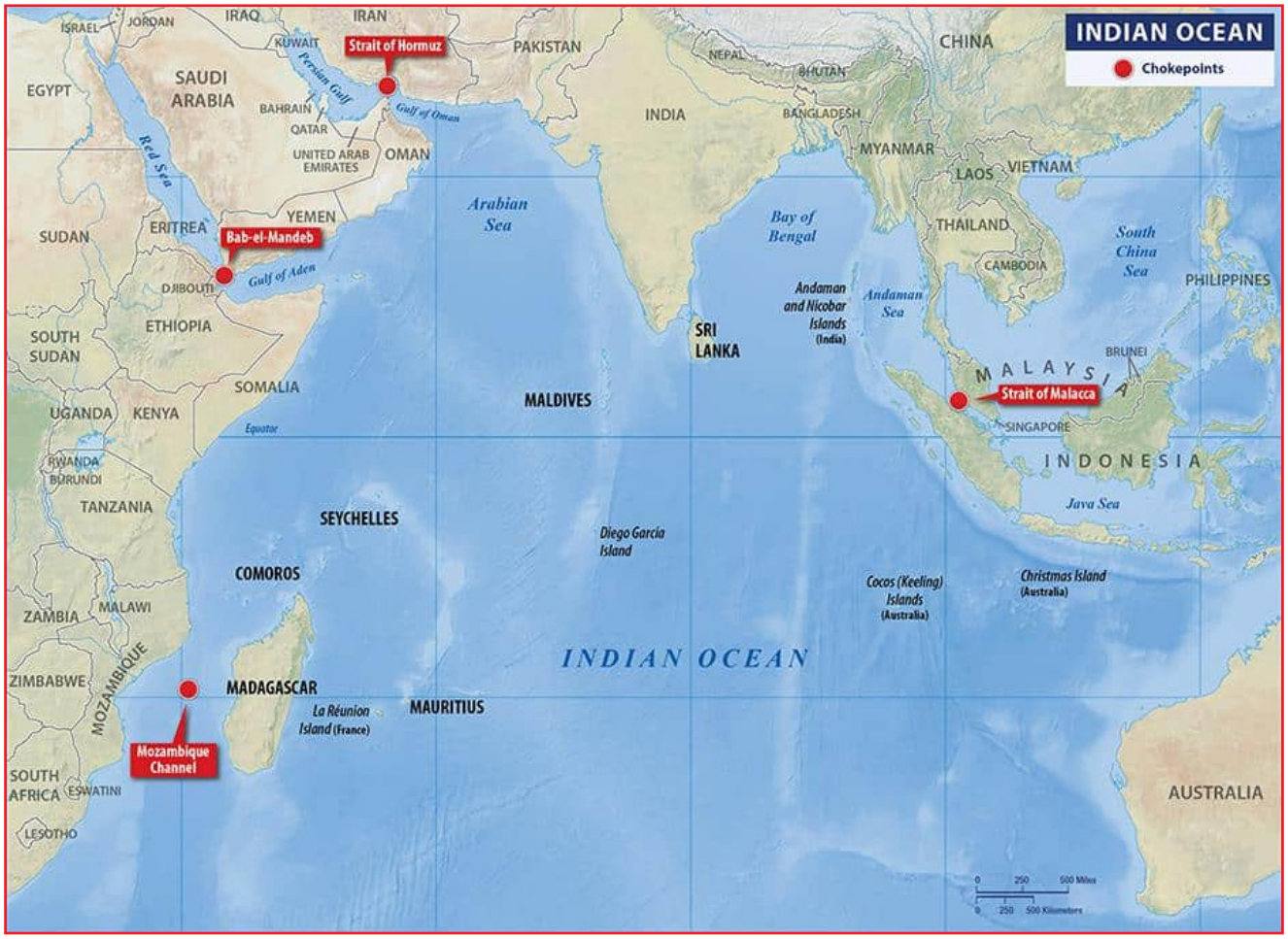
A decisive course correction in India's environmental governance must integrate stronger safeguards, resilient infrastructure, and community-centred ecological stewardship to reverse current degradation trends. By embedding sustainability into economic planning, India can pursue development that is not extractive but regenerative and risk-responsive. Such an approach directly advances **SDGs 6 (Water), 7 (Clean Energy), 11 (Sustainable Cities), 13 (Climate Action), 14 & 15 (Life Below Water & Life on Land).**

India'S Renewed Focus on Indian Ocean Region

This editorial is based on "A template for security cooperation in the Indian Ocean" which was published in The Hindu on 03/12/2025. The article brings into light India's renewed efforts to shape a cooperative security framework in the Indian Ocean through the expanding Colombo Security Conclave. Yet it also highlights how divergent threat perceptions, especially on China, and regional uncertainties demand stronger institutional cohesion for India's strategic stakes.

Tag: GS Paper - 1, Groupings & Agreements Involving India and/or Affecting India's Interests, Bilateral Groupings & Agreements, India and its Neighbourhood

The **7th NSA-level Colombo Security Conclave (CSC) summit in 2025** highlights India's renewed push to shape the emerging security architecture of the **Indian Ocean Region.** What began as a stalled trilateral in **2011** has now evolved into an expanded platform addressing **maritime security, counter-terrorism, trafficking, and cybersecurity.** As new members like Seychelles join, the CSC signals growing regional appetite for cooperative security. Yet differing priorities and domestic uncertainties among regional players **keep the security architecture fluid and unpredictable.** For India, these shifts reaffirm the centrality of the **Indian Ocean Region** to its economic security, strategic autonomy, and role as a net security provider in the region.



How does the Indian Ocean Shape India's Strategic Interests?

- **Geopolitical Leadership & Regional Cohesion:** India anchors its **"Neighbourhood First" policy** here to counter extra-regional influence (**China**) by institutionalizing security architectures that bind littoral states together.
  - This shifts India from a passive observer to an active **"norm-builder"** for regional stability.
  - In **November 2025**, India hosted the **7th Colombo Security Conclave (CSC)** where **Seychelles** joined as a full member, solidifying a 6-nation security bloc to counter Chinese naval entrenchment.

- **Role as "Net Security Provider" & First Responder:** The region acts as a **testing ground for India's humanitarian diplomacy,** where rapid disaster response builds immense **"strategic trust"** and soft power that outpaces rival financial checkbook diplomacy.
  - For instance, recently India launched **"Operation Sagar Bandhu"**, deploying **INS Vikrant, INS Udaygiri** and air assets to flood-hit Sri Lanka, while others were still deliberating aid.
- **Strategic Connectivity & Central Asian Access:** Bypassing hostile land borders, the ocean provides the **only viable corridor** to access resource-rich Central Asia and Afghanistan, creating an alternative trade artery to China's Belt and Road Initiative (BRI).
  - For instance, India secured a crucial **US sanction waiver (November 2025)** for Chabahar Port after signing a historic **10-year operation pact (May 2024)**, ensuring unhindered trade flows despite geopolitical friction.
- **Blue Economy & Deep-Sea Resource Rights:** The seabed offers a strategic reserve of **Poly-Metallic Nodules (PMN) and sulphides,** essential for India's transition to clean energy (EV batteries), reducing dependency on Chinese mineral monopolies.
  - India signed a landmark **15-year contract** with the International Seabed Authority **(September 2025)** for mining rights in the **Carlsberg Ridge**, unlocking potential access to **copper and zinc** deposits.
- **Technological Frontier & Scientific Prestige:** Mastering **deep-ocean technology** places India in an elite club of nations, signaling technological prowess that translates into hard military capability for submarine warfare and underwater surveillance.
  - The Samudrayaan Mission advanced with **Matsya-6000** prototypes undergoing **500m depth qualification trials** backed by a **₹4,077 crore** budget to achieve manned deep-sea capability by 2026.
- **Energy Security & SLOC Protection:** The ocean is the jugular of the Indian economy, hosting the **Sea Lines of Communication (SLOCs)** through which nearly all energy imports flow, choking these points would paralyze the nation's industrial engine.
  - More than **two-thirds of India's crude oil imports** and nearly **50% of its LNG imports** flow through the Strait of Hormuz, making it a vital route for our energy security.
  - Operation Sankalp was launched by the **Indian Navy t**o protect Indian merchant vessels sailing through the Strait of Hormuz and **other high-risk zones in the Persian Gulf.**

What Key Challenges Confront India in the Indian Ocean Region?

- **"Grey-Zone" Warfare & Scientific Espionage:** China has institutionalized the use of **"civilian" research vessels to map the Indian Ocean seabed (bathymetric data),** creating a submarine "**highway**" for future PLA-Navy deployments under the guise of scientific research, which legal frameworks like **UNCLOS fail to adequately restrict.**
  - Recently, a swarm of **4 Chinese vessels** entered the IOR just as India issued a **NOTAM for a missile test** (which was later postponed by India), actively gathering acoustic signatures of India's strategic assets.
- **The "Pendulum Politics" of Littoral States:** India's "Neighbourhood First" policy faces a structural challenge where smaller island nations leverage the **"China Card"** to extract concessions, oscillating between **"India First" and "India Out" regimes**, making long-term strategic alignment volatile and expensive.
  - The **"pendulum" swung sharply when the Maldives, facing sovereign default after a pro-China drift,** pivoted back to India.
  - India has extended support of **400 million dollars and a bilateral currency swap of 3,000 crore rupees to the Maldives,** effectively neutralizing an earlier defense pact Male had signed with Beijing.

- **Subsurface Nuclear Rivalry & Second-Strike Stability:** The IOR is transitioning into a **"nuclear-distinct" theater,** as China deploys advanced **SSBNs (nuclear-armed submarines**) for continuous deterrence patrols, India faces the pressure to rapidly mature its own triad to prevent a **"credibility gap"** in its second-strike capability.
  - Countering the threat of China's quieter **Type 096 submarines**, India accelerated the sea trials of **INS Aridhaman**, aiming to commission its third SSBN to ensure continuous underwater deterrence.
- **Weaponization of "Dual-Use" Infrastructure: China's Belt and Road Initiative (BRI)** ports are shedding their commercial veneer to become de-facto logistics bases, these **"civilian" facilities provide the PLA Navy with repair, replenishment, and intelligence capabilities** without the diplomatic cost of a formal military base.
  - Recent reports confirmed expanded "logistics facilities" at **Kyaukphyu (Myanmar)** and **Gwadar (Pakistan)**, capable of docking aircraft carriers, effectively flanking India's Andaman & Nicobar Command from both east and west.
- **Illegal Unregulated (IUU) Fishing & Resource Plunder:** Industrial-scale Chinese distant-water fishing fleets are depleting Tuna stocks and violating the **Exclusive Economic Zones (EEZs)** of littoral states, threatening the region's food security and creating friction points that could trigger localized naval skirmishes.
  - Satellite data from **2025** revealed over **600 Chinese trawlers** operating annually in the Western Indian Ocean, often "**going dark" (AIS off) to plunder stocks,** prompting India to enhance **Information Fusion Centre (IFC-IOR)** monitoring.
    - Alongside large-scale Chinese trawlers, India also faces an intensifying fisheries dispute with Sri Lanka in the Palk Bay.
- **Infrastructure Vulnerability to Climate Change:** Rising sea levels threaten the very existence of key island partners **(Maldives, Seychelles),** creating a "climate security" dilemma where India must prepare for mass migration crises and the loss of strategic radar stations located on low-lying atolls.
  - For instance, **Maldives** has the lowest terrain in the world with more than 80 per cent of its islands **being less than 1M above the mean sea level.**
  - Within India too, strategic maritime infrastructure is at risk, several installations in the Andaman & Nicobar Islands and naval airfields such as **INS Baaz (Campbell Bay)** lie in zones highly vulnerable to coastal erosion and storm surges, endangering both military readiness and regional surveillance capabilities.

What Steps Can India Take to Safeguard Its Strategic Interests in the Indian Ocean Region?

- **Strengthening SAGAR & Developmental Security:** India can **deepen its SAGAR vision** by prioritising capacity-building assistance such as patrol vessels, coastal radar networks, and disaster-response systems for IOR nations.
  - **Development-led security,** through Lines of Credit for ports, renewable energy grids, and fisheries, helps build trust with smaller island states.
  - By **reducing their dependence on external powers,** India strengthens a stable, India-centric security environment.
    - This also **reinforces the Neighbourhood First policy.** Collectively, it enhances India's role as a net security provider.
- **Institutionalizing "Minilateral" Security Architectures:** Instead of relying solely on broad consensus forums, India should cement the **Colombo Security Conclave (CSC)** into a formal treaty-based organization with a permanent secretariat and dedicated budget.
  - This creates a **"coalition of the willing" for rapid intelligence sharing** and joint patrols, effectively insulating the region's security architecture from extra-regional vetoes while binding smaller neighbors into a tight, India-led maritime interoperability framework.

- **Pan-Regional Underwater Domain Awareness (UDA):** To counter the **"sub-surface encirclement"** of hostile submarines, India must aggressively deploy a **Sound Surveillance System (SOSUS)** chain across the Indian Ocean seabed, partnering with friendly littorals to host hydro-acoustic sensors.
  - This shifts the focus f**rom visible surface policing to "transparent ocean" capabilities**, ensuring that no silent adversary can map the thermal layers of the Indian Ocean without being tracked, targeted, and deterred in real-time.
- **"Digital Ocean" & Critical Infrastructure Shield:** India needs to spearhead a new **"Submarine Cable Security Protocol"** for the IOR, treating undersea data cables as critical sovereign assets equivalent to borders.
  - By deploying **autonomous underwater vehicles (AUVs)** to patrol these digital lifelines and offering **"security guarantees"** for the cables of smaller island nations, India can prevent **"data hostage"** scenarios and position itself as the guarantor of the region's digital sovereignty against hybrid sabotage.
- **Deep-Sea "Blue Economy" Integration:** India must operationalize its deep-sea mining exploration licenses to create an **"IOR Rare Earths Supply Chain,"** offering littoral states technology transfers for sustainable resource extraction.
  - This economic integration offers a viable, transparent alternative to predatory extractive models, securing India's access to critical minerals like cobalt and nickel while weaving the region's economic future tightly with India's industrial growth engine.
- **Normative "Lawfare" & Hydrographic Diplomacy:** As the upcoming chair of Indian Ocean Rim Association (IORA), India should establish a **"Code of Conduct for Marine Scientific Research,"** explicitly banning **"dual-use" military surveys** disguised as civilian science.
  - By standardizing the legal norms for hydrographic data collection and offering its own survey capabilities to neighbors**, India can legally delegitimize foreign spy vessels and reclaim the narrative on "scientific transparency" in the region.**
- **Maritime Infrastructure & Strategic Islands Development:** Accelerating Sagarmala and coastal logistics improves India's maritime competitiveness and trade integration.
  - The **Andaman & Nicobar and Lakshadweep islands** hold immense strategic value and can serve as dual-use hubs for defence, tourism, and connectivity.
  - **Upgraded island infrastructure** enhances surveillance and rapid-response capacities.
    - This also promotes economic development among local communities. Overall, strong maritime infrastructure amplifies India's strategic depth in the IOR.

Conclusion:

India's strategic stakes in the Indian Ocean Region have never been higher, with the **CSC emerging as a pivotal platform shaping a cooperative security order.** As great-power competition deepens, **India must combine hard maritime capability with developmental partnerships** to retain strategic trust. Strengthening minilateral frameworks, technological dominance, and climate-resilient infrastructure will be key to safeguarding its interests.

Recalibrating India-Russia Relations

This editorial is based on "For India-Russia partnership, Moscow must do its fair share" which was published in The Indian Express on 05/12/2025. The article brings into picture the enduring significance of India-Russia ties, reaffirmed by Putin's visit despite the geopolitical strain of the Ukraine conflict. It argues that the partnership must evolve pragmatically so India can balance relations with both Russia and the West while preserving this strategic bond.

Tag: GS Paper - 2, Bilateral Groupings & Agreements, Groupings & Agreements Involving India and/or Affecting India's Interests, Effect of Policies & Politics of Countries on India's Interests, International Treaties & Agreements

Russian President Vladimir Putin's visit to India marks an important reaffirmation of a decades-old friendship that has weathered global upheavals. While the **Ukraine conflict** has complicated India's diplomatic balancing act, it has also **demonstrated New Delhi's commitment to maintaining strategic autonomy and nurturing time-tested partnerships**. Russia remains an indispensable partner for India, particularly in defense and energy cooperation, and both nations recognize the mutual value of their relationship. Moving forward, the challenge lies not in questioning the partnership's relevance but in **adapting it to contemporary realities where India engages meaningfully with both Russia and the West.** With goodwill and pragmatism on both sides, India and Russia can navigate current complexities while preserving the core strengths of their strategic partnership for mutual benefit.

What are the Key Areas of Cooperation Between India and Russia?

- **Defense-From 'Buyer-Seller' to Joint Production:** The defense partnership has structurally shifted towards **"Make in India"** and technology transfer to ensure India's strategic autonomy and maintain combat readiness amidst global supply chain disruptions.
  - This pivots from outright purchases to co-development, mitigating Western sanctions risk while ensuring long-term maintenance of India's Russian-origin arsenal.
  - The **2025 deal for RD-191M semi-cryogenic engine technology transfer** and the ongoing delivery of the remaining **S-400 Triumf regiments (worth $5.43 billion)** underscore this deep technical integration beyond mere sales.
- **Energy Security-Strategic Hydrocarbon Alignment:** India has aggressively leveraged discounted Russian crude oil to insulate its domestic economy from global inflation, effectively turning Russia into a premier energy guarantor despite geopolitical pressure.

- This cooperation is now expanding into long-term investments in the Russian Far East to secure equity oil and coking coal assets for India's steel industry.
- **Russia remained India's top oil supplier in 2024-25**, with bilateral trade hitting a record **$68.7 billion (FY25)**.

- **Connectivity-The Geoeconomic Maritime Corridors:** Both nations are operationalizing new logistical routes like the **Chennai-Vladivostok Maritime Corridor (CVMC)** to bypass the volatile Suez Canal and reduce freight costs, creating a direct **"energy bridge."**
  - This strategic diversification reduces transit time significantly, enhancing trade efficiency and integrating India into the Arctic and Pacific resource networks.
  - The **CVMC was declared operational in November 2024**, reducing transit time from **40 to 24 days (40% faster)** and cutting shipping distance to **5,600 nautical miles** compared to the European route.
- **Nuclear Energy-Clean Power & Technology Synergy:** Civil nuclear cooperation remains the most tangible high-tech collaboration, serving as a **pillar for India's net-zero goals** through the construction of large-scale reactors without the restrictive conditions often imposed by Western partners.
  - The partnership is stable and expanding, with Russia being the only country currently building nuclear plants in India.
  - Recently, **Russia's state-run nuclear corporation** delivered the first consignment of **nuclear fuel** for initial loading of the third reactor at the Kudankulam nuclear power plant in Tamil Nadu.
- **Space Sector- High-End Propulsion Technology:** Collaboration has graduated to critical strategic areas such as human spaceflight and cryogenic propulsion, filling crucial technology gaps in India's ambitious **Gaganyaan mission.**
  - This sector exemplifies **"trust-based" cooperation**, as Russia provides niche technologies like semi-cryogenic engines that are rarely shared by other space powers.
  - Astronauts for India's groundbreaking human spaceflight initiative, **Gaganyaan,** underwent comprehensive training in Russia's **Yuri Gagarin Cosmonaut Training Center**.
- **Fertilizer Security-Agricultural Supply Chain Stability:** Russia has emerged as the definitive supplier of soil nutrients for India, effectively **insulating Indian agriculture from global fertilizer price shocks and ensuring food security for 1.4 billion people.**
  - This reliable supply chain is critical given the volatility in global gas prices, which directly impacts domestic fertilizer production costs.
  - Russia supplied over **90% of India's mixed fertilizer imports** in 2024-25, and high-level talks in **August 2025 (IRIGC-TEC)** focused on locking in long-term supplies of **DAP and Urea** to stabilize Indian subsidy bills.
- **Trade Settlement & Financial Interoperability:** To circumvent sanctions and sustain trade momentum, both nations are vigorously refining rupee-ruble payment mechanisms and exploring the **India-Eurasian Economic Union (EAEU) Free Trade Agreement.**
  - The focus is now on fixing the trade imbalance by encouraging Russian reinvestment of accumulated rupees into Indian infrastructure and government securities.
  - India and Russia boost rupee-rouble payments despite U.S. sanctions**, aiming to reach a $100 billion trade target by 2030.**
- **Diplomatic Trust:**Beyond transactional ties, the **relationship is anchored in exceptional "leader-to-leader" trust** that transcends standard diplomatic engagement, acting as a geopolitical stabilizer against Western coercion and reinforcing India's commitment to strategic autonomy in a multipolar order.
  - This personalized diplomacy ensures that political will overrides bureaucratic inertia, keeping the partnership resilient despite external sanctions and ideological pressure.

- Exemplifying this unique rapport**, the Indian PM broke strict diplomatic protocol to personally receive President Putin** at the airport recently, a rare gesture signaling that **Russia remains a top-tier priority despite global isolationist narratives.**

What are the Key Areas of Friction Between India and Russia?

- **Defense Supply Chain Disruptions- Capability Gaps:** The ongoing Ukraine war has severely impacted Russia's ability to fulfill critical defense contracts, **creating capability voids for the Indian Armed Forces and forcing New Delhi to look elsewhere.**
  - This unreliability **risks India's operational readiness against China**, as Russia prioritizes its own frontline needs over export commitments, delaying vital air defense and naval platforms.
  - The remaining **two regiments of the S-400 system** have been delayed to **2026**, and the lease of the **Akula-class nuclear submarine** (worth $3 billion) is now pushed to **2028**, years behind the original schedule.
- **Trade Imbalance-The One-Way Economic Street:** Bilateral trade has become **unsustainably lopsided,** effectively turning India into a net capital exporter to Russia without reciprocal market access for Indian pharmaceuticals or manufacturing.
  - This structural deficit weakens the economic logic of the partnership, as Russia continues to import high-value goods from China while buying negligible amounts from India.
  - Official data shows that **India's exports to Russia in FY25 were only USD 4.88 billion,** while imports were much higher at USD 63.84 billion.
- **Strategic Divergence-The "Junior Partner" Syndrome:** India views Russia's deepening dependence on China with alarm, fearing that **Moscow is becoming a "junior partner" to Beijing,** which could compromise Russian neutrality in a potential Sino-Indian conflict.
  - This geopolitical realignment threatens to dilute Russia's utility as a strategic balancer for India in the Eurasian landmass.
  - China-Russia trade hits record high at $244.8 billion in 2024, amid deepening political ties and Western sanctions, and Russia's reliance on Chinese **dual-use technology** has made it increasingly beholden to Beijing's strategic interests.
- **Payment Crisis: The "Rupee Trap" Mechanism:** The suspension of standard banking channels due to sanctions has led to a payment crisis where billions of dollars in payments are either stuck or difficult to settle.
  - Russian exporters are reluctant to accumulate volatile Indian Rupees, leading to friction over exchange mechanisms and stalling future defense and energy contracts.
  - A lopsided trade relationship with India is forcing **Russia to accumulate up to $1 billion each month in rupee assets**.
- **Energy Economics- Erosion of Strategic Discounts:** The **economic windfall from discounted Russian oil** is shrinking rapidly as discounts narrow and Western sanctions on tankers and insurance tighten, raising the diplomatic cost for India without the previous high economic reward.
  - This reduces the incentive for India to brave Western pressure, as the price advantage over Middle Eastern crude diminishes.
  - Over about three years, **India saved 12.6 billion dollars from buying Russian oil, but notes that the discount shrank to its lowest level in 2024–25**, when Russian crude was only about 2.3 dollars per barrel cheaper than other imports on average.
- **Humanitarian Irritant- Indian Nationals in Russian Army:** A major diplomatic irritant has emerged regarding the **recruitment of Indian nationals into the Russian army**, often under false pretexts, leading to casualties and public outrage in India.
  - This issue has **strained people-to-people ties and forced the Indian Ministry of External Affairs** to issue stern demands for immediate discharges.

- As of Nov 2025, the MEA confirmed **44 Indians** were still serving in the Russian military despite promises of release.

- **Regional Friction-The Pakistan Factor:** Despite India's concerns, Russia continues to engage militarily with Pakistan, signaling a willingness to sell arms and conduct drills to diversify its partners in South Asia.
  - This **"hedging" strategy by Moscow irritates New Delhi**, which views any military strengthening of Pakistan as a direct security threat.
  - In **September 2025**, Russia and Pakistan conducted the **"Druzhba-2025"** joint military exercise, despite India's tacit objections.

What Measures can India Adopt to Advance its Relations with Russia?

- **Institutionalize a "Sovereign Value Chain" for Manufacturing:** India should propose a **"Sovereign Value Chain"** initiative that moves beyond simple trade to deep industrial integration, specifically targeting sectors where Russia faces Western sanctions.
  - By inviting Russian firms to set up exclusive manufacturing zones in India for critical components, like aerospace spares and precision engineering**, India can utilize the "trapped" rupee reserves for domestic industrial growth while solving Russia's supply chain crisis.**
  - This creates a symbiotic **"Make in India" loop** that serves both Russian maintenance needs and global export markets.
- **Operationalize a "Skilled Migration Corridor" to the Far East:** To address Russia's severe demographic decline and labor shortage**, India should negotiate a formal, state-backed "Skilled Migration Corridor" focused on the Russian Far East.**
  - This measure would involve harmonizing vocational standards and creating special visa regimes for Indian engineers, construction workers, and healthcare professionals to work in developing Siberian infrastructure.
  - This not only eases Russia's domestic pressure but also strategically implants an Indian demographic footprint in a region increasingly dominated by Chinese influence.
- **Establish a "Rupee-Ruble Reinvestment Treaty":** India needs to structure a formal "Reinvestment Treaty" that mandates Russian surplus rupees be invested into specific, high-yield Indian infrastructure bonds and corporate debt.
  - Instead of leaving funds idle in Vostro accounts, this mechanism would convert **Russia's trade surplus into long-term equity stakes in Indian ports, refineries, and highways.**
  - This financial engineering transforms a short-term payment hurdle into a long-term economic anchor, ensuring Russia has a vested interest in the stability of the Indian economy.
- **Co-Develop an "Arctic-Tropics" Maritime Grid:** India must elevate the **Chennai-Vladivostok Maritime Corridor** from a mere trade route to a joint **"Shipbuilding and Logistics Grid."**
  - This involves collaborative construction of ice-class merchant vessels in Indian shipyards using Russian cryogenic technology, specifically designed for the **Northern Sea Route**.
  - By integrating India's tropical maritime expertise with Russia's polar navigation dominance, both nations can control a new, sanction-proof global logistics artery that bypasses traditional Western-controlled choke points.
- **Create a "Critical Technology Exclusion Zone":** Both nations should establish a joint research ecosystem specifically for **"denied technologies"** such as quantum computing, high-grade metallurgy, and civilian nuclear propulsion.
  - By pooling resources in areas where both face potential or actual Western technology denial, they can create a **"Critical Technology Exclusion Zone"** that operates independently of global IP regimes.
  - This measure secures "technological sovereignty," ensuring that strategic advancements in space and defense are immune to external geopolitical blackmail.

- **Launch a "Third-Market" Defense Export Consortium:** India should push to transform the defense relationship **to a "Joint Export Consortium" targeting Africa and Southeast Asia.**
  - Using the **BrahMos model,** this measure would involve retrofitting and upgrading Soviet-era platforms in third countries using Indian software and Russian hardware.
  - This strategy monetizes the partnership globally, **allowing India to become a maintenance hub for Russian-origin equipment worldwide**, thereby keeping the Russian defense industry viable while expanding India's diplomatic reach.
- **Formulate an "Energy Equity" Acquisition Strategy:** Instead of relying on spot market oil purchases, India should aggressively pursue an **"Energy Equity"** strategy by swapping trade surpluses for upstream stakes in Russia's premier oil and gas fields.
  - This measure involves **acquiring equity in projects like Vostok Oil or Arctic LNG-2**, effectively locking in energy security at the source rather than the market price.
  - **This shifts the relationship from transactional trade to strategic asset ownership,** insulating India's energy needs from future global price volatility and supply shocks.

Conclusion:

India-Russia relations stand at a pivotal juncture where historical trust must be matched with strategic realism. As both nations confront shifting geopolitical and economic landscapes, the partnership must evolve through deeper technology, energy, and financial cooperation. As **India's EAM** aptly stated, ***"India-Russia ties have long been a factor of stability in international relations, and their growth and evolution are not only in the mutual interest of the two countries but also in the interest of the world."***

Strengthening Policing for India'S Future

This editorial is based on "Police reforms and the making of Viksit Bharat" which was published in The Hindustan Times on 04/12/2025. The article brings into picture the urgent need to shed colonial-era policing mindsets and build a citizen-centric, service-oriented force. This requires implementing Supreme Court-mandated reforms, ensuring autonomy, and modernising policing to restore public trust.

Tag: GS Paper - 2, Executive, GS Paper - 3, Various Security Forces & Agencies & Their Mandate

The **Indian Prime Minister's** recent call to transform public perception of India's police force highlights a critical challenge: 78 years after Independence, **we remain saddled with a colonial-era police system designed to serve imperial interests,** not democratic values. Building a developed India requires more than economic progress, it **demands solid foundations of law and order rooted in justice and public trust.** This transformation necessitates a **comprehensive, multi-pronged effort beginning with the police themselves**, who must replace colonial attitudes with a **service-oriented mindset marked by courtesy, professionalism, and responsiveness.** Equally crucial is implementing Supreme Court-mandated reforms to ensure **operational autonomy, eliminating political interference, and investing in modern infrastructure and technology.**

What Key Transformations Define the Evolution of the Police System in India?

- **The Legislative "Decolonization" (2023-24):** For over 160 years, Indian policing was anchored in the **Indian Penal Code**, **Evidence Act,** and **Code of Criminal Procedure.**
  - The most significant recent transformation is the repeal of these colonial laws in favor of the **"Bharatiya" codes,** marking a symbolic and procedural shift from "Punishment" (*Dand*) to "Justice" (*Nyaya*).

- The new laws, **Bharatiya Nyaya Sanhita (BNS)**, **Bharatiya Nagarik Suraksha Sanhita (BNSS)**, and **Bharatiya Sakshya Adhiniyam (BSA)** **mandate the use of forensics in all crimes punishable by 7+ years**, recognize electronic records as primary evidence, and introduce community service as a penalty.
- This **forces the police to move away from "confession-based" investigation (often leading to third-degree torture) to "evidence-based" policing**, requiring a massive upgrade in scientific capabilities.

- **The "Prakash Singh" Watershed (Judicial Activism):** The single most defining moment for structural reform was the **Supreme Court's 2006 judgment in *Prakash Singh vs. Union of India*.**
  - Before this, police reforms were largely academic discussions in committee reports (like the **National Police Commission, 1977**).
  - The Court bypassed legislative lethargy and issued **key binding directives** to insulate the police from political pressure.
    - **Fixed Tenure:** Ensuring DGPs and SPs serve a minimum of 2 years to prevent politically motivated transfers.
    - **Separation of Wings:** Mandating a separate **"Investigation" wing (for crime solving) from the "Law & Order" wing (for crowd control),** though implementation remains patchy.
    - **Police Establishment Boards (PEB):** Taking transfer decisions out of the hands of politicians and giving them to senior police officers.
- **The Digital Leap- From "Thana Records" to CCTNS:** Historically, Indian policing was disconnected; a criminal in one district was unknown to the police in the next. The aftermath of the 26/11 Mumbai attacks triggered a massive digital transformation.
  - **Networked Policing:** The creation of the **Crime and Criminal Tracking Network & Systems (CCTNS)** connected over 17,000+ police stations into a single digital grid.
  - **Data-Driven Intelligence:** This evolved into the **Inter-operable Criminal Justice System (ICJS)**, which now integrates police, courts, prisons, and forensics data.
    - **This shift allows for "predictive policing"** and instant background checks, a far cry from the manual registers of the 20th century.
- **Centralization of Specialized Policing:** While "Police" is a State subject under the Constitution, the **nature of modern crime (terrorism, money laundering)** respects no borders.
  - A key transformation has been the **federalization of investigation** through specialized central agencies.
  - The rise of the **National Investigation Agency (NIA)** (post-2008) and the empowered **Enforcement Directorate (ED)** represents a shift where high-stakes policing is increasingly handled by the Centre, bypassing state police limitations.
- **The Paradigm of "Smart Policing":** In 2014, the Prime Minister introduced the acronym **SMART** (Strict and Sensitive, Modern and Mobile, Alert and Accountable, Reliable and Responsive, Techno-savvy and Trained).
  - **Soft Skills & Community:** This marked a doctrinal shift from "Force" to "Service."
    - Experiments like **Janamaithri Suraksha (Kerala)** and **Friends of Police (Tamil Nadu)** moved policing towards community engagement.
  - **Technology Integration:** It pushed for the adoption of **body cameras, drones for crowd monitoring, and AI-based facial recognition systems** , attempting to reduce human error and bias.

Police Reforms in India

CONSTITUTIONAL STATUS

- Police and Public Order: State subjects (7th Schedule)

NEED FOR REFORM

- Colonial Law
- Custodial Death
- Lack of Accountability
- Political Interference
- Poor Gender Sensitivity
- Communal/Caste Bias
- No Anti-Torture Law

RELATED DATA

- Police-People Ratio: 153 police/100,000 people (Global benchmark: 222 police /100,000 people)
- Custodial Deaths: 175 in 2021-2022 (as per MHA)
- Women's Share: 10.5% of entire force (India Justice Report 2021)
- Infrastructure: 1 in 3 police stations is equipped with CCTV (India Justice Report 2021)

IMPORTANT COMMITTEES/COMMISSION

RELATED INITIATIVES

- SMART Policing (pan-India)
- Automated Multimodal Biometric Identification System (AMBIS) (Maharashtra)
- Real Time Visitor Monitoring System (uses AI and blockchain) (Andhra Pradesh)
- CyberDome (Tech R&D Centre) (Kerala)

CHALLENGES WITH POLICING

- Low Police-Population Ratio
- Political Superimposition
- Unsatisfactory Police-Public Relations
- Infra Deficit
- Corruption
- Understaffed/Overburdened

WAY FORWARD

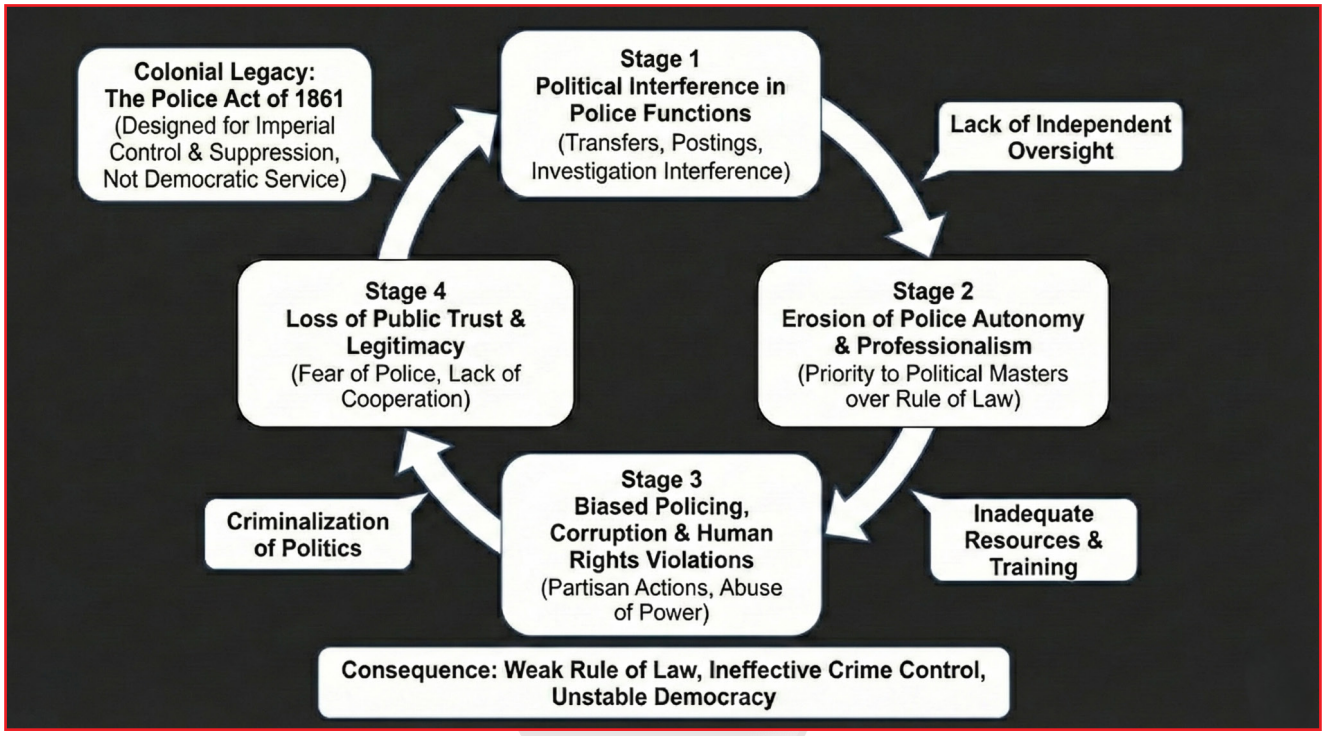
- ↑Police Budget, Resources
- ↑Recruitment Process
- Implement Measures to Reduce Corruption
- ↑Skills of Policemen
- Better Representation (Women, Minorities)

Drishti IAS

What Systemic Issues Hold Back Effective Policing in India?

Politicization and Lack of Operational Autonomy: The police force remains heavily compromised by the **"transfer-posting industry,"** where political executives manipulate tenure to control investigations and suppress dissent, **violating the Supreme Court's *Prakash Singh* directives.**

- This lack of functional autonomy forces officers to prioritize political loyalty over the rule of law, eroding public trust and impartial justice delivery.
- For instance, in **October 2024,** a **Tamil Nadu DSP investigating the sensitive Armstrong murder case was abruptly transferred** (stayed by the Supreme Court), drawing criticism for political interference.



- **Chronic Personnel Deficit and Overburdened Workforce:** India's **police-to-population ratio** remains abysmally low, creating a reactive rather than proactive force that is perpetually exhausted, leading to poor quality investigations and delayed justice.
  - This manpower crunch forces the existing staff to work inhumane hours, directly impacting their efficiency and ability to engage in community policing or intelligence gathering.
  - The India Justice Report 2025 highlights that actual police strength sits at roughly **155 per 100,000 population, well below the sanctioned strength of 197**
    - **Over 5.3 lakh vacancies exist across state police forces as per government's 2021 report.**
- **Toxic Work Culture and Mental Health Crisis:** The **"constabulary culture"** treats lower-ranking personnel as subservient labor rather than professional assets, subjecting them to **14-hour workdays, denied leaves, and abusive hierarchies.**
  - This systemic neglect has triggered a severe mental health crisis, where stress and burnout are normalized, leading to high rates of suicide and fratricide within the uniformed forces.
  - For instance**, a sub-inspector in Karnataka died of stress-induced cardiac arrest in August 2024** after alleged harassment over a transfer, sparking state-wide outrage.
    - **While CISF reported a dip in suicides in 2024, CAPF and state police suicide rates remain alarming.**
- **Gender Disparity and "Masculine" Policing Structure:** Policing in India remains deeply patriarchal, with women largely relegated to desk jobs or **"women's help desks" rather than active combat or investigative roles,** limiting the force's ability to handle gender-sensitive crimes.

- The systemic bias in recruitment and posting ensures that the force does not reflect the diversity of the society it serves**, hindering effective communication with 50% of the population.**
- For instance, **Karnataka has only 8.91% women in its police force**, well below the national average of 12.73%, and far behind States like **Bihar**, which has the highest share at 23.66%.
  - This is **despite Karnataka reserving 25% of posts for women**, a project study by the National Law School of India University (NLSIU), Bengaluru.

- **Infrastructure Gaps vs. "Smart Policing" Rhetoric:** While the government pushes for **"Smart Policing" and AI integration,** the ground reality is a crumbling infrastructure where basic forensic tools, vehicles, and cyber-labs are missing in rural and semi-urban stations.
  - This digital divide renders the **new criminal laws (implemented July 2024**), which mandate video recording of evidence, **practically unimplementable in many districts due to lack of cloud storage and devices.**
  - Recent government data state that **63 police stations in the country do not have any vehicles at their disposal, 628 police stations do not have a landline telephone connection**, and 285 police stations function without a wireless set or mobile phone.
    - At the beginning of 2017, 273 police stations across the country did not possess a single transportation vehicle.
- **Custodial Violence and Lack of Accountability:** A culture of impunity persists where **"third-degree" torture** is viewed as a legitimate investigative tool, driven by the pressure to produce quick "results" in the absence of scientific interrogation skills.
  - **Internal accountability mechanisms are weak**, and the refusal to ratify the **UN Convention Against Torture** allows these human rights violations to continue unchecked, alienating marginalized communities.
  - The *Status of Policing in India Report 2025* revealed a disturbing trend where **38% of personnel still justify extrajudicial punishments for minor offenses.**
    - The **National Human Rights Commission** reported over 2150 cases of deaths in judicial custody and 155 deaths in police custody in 2021-22.
- **Colonial Legal Legacy and Stalled Reforms:** Despite the introduction of the **Bharatiya Nyaya Sanhita in 2024,** the core administrative structure remains tethered to the colonial **Police Act of 1861,** designed to rule subjects rather than serve citizens.
  - The persistent refusal of states to adopt the **Model Police Act 2006** or **separate the "investigation" wing from "law and order"** ensures that policing remains a tool of state control rather than a professional service.
  - A 2020 report stated that **no Indian state is fully compliant with 14-year-old Supreme Court directives for police reforms.**

What are the Key Committees on Police Reforms in India?

Committee/ Commission	Reforms Proposed
Malimath Committee (2003)	Suggested strengthening forensic and investigative machinery, establishing a federal agency for grave national crimes, and introducing a robust witness protection framework.
Gore Committee (1971)	Advocated for a shift towards a more professional and citizen-centric police force, with strong emphasis on human rights sensitization and ethical standards in police training.
Ribeiro Committee (1998) & Padmanabhaiah Committee (2000)	Reiterated earlier reforms, calling for independent police complaints authorities, improved training systems, and promoting community-based policing.

National Police Commission (NPC) (1977–1981)	Recommended separating investigation from law-and-order duties, ensuring fixed tenures for senior officers, and drafting a modern Police Act to replace the colonial-era 1861 Act.

What Measures can India Adopt to Move Towards Effective Transformation of Policing?

- **Structural Decoupling of Investigation and Law & Order:** To prevent the dilution of justice by daily urgencies, states must enforce a strict **functional separation** between the "Law and Order" wing (crowd control, VIP security) and the "Investigation" wing.
  - This involves creating a dedicated **detective cadre** that is immune to diversion for bandobast duties, ensuring that crime-solving remains a specialized, uninterrupted focus.
  - By **professionalizing the investigative arm with distinct hierarchy and resources**, the police can ensure higher conviction rates and scientific case management without the distraction of political rallies or festivals.
  - **Transitioning to a commissionerate system** further reinforces accountability and efficiency, with clear demarcation between executive policing and investigative functions.
- **Institutionalizing "Algorithmic Accountability" and Predictive Policing:** Moving beyond basic digitization, the force must adopt **predictive policing models** that utilize AI to analyze crime hotspots and recidivism patterns from the CCTNS database.
  - This transition to **data-driven decision making** allows for the pre-emptive deployment of resources rather than reactive scrambling, effectively preventing crime before it occurs.
  - Integrating **inter-operable criminal justice data** ensures that officers on the ground have real-time intelligence on suspects, transforming the beat constable into a smart, informed first responder.
- **Mandatory Forensic-First Investigative Protocols:** With the new Bharatiya Nagarik Suraksha Sanhita (BNSS) mandating forensic evidence, there must be a massive, decentralized rollout of **Mobile Forensic Units** to every district.
  - The reform requires a shift from "confession-based" investigation to **"evidence-based" prosecution**, where scientific collection of DNA and ballistics becomes the primary tool, rendering third-degree torture obsolete.
  - This necessitates equipping every station with basic **forensic kits** and trained scientific officers to preserve the "chain of custody" from the crime scene to the courtroom.
- **Community-Led "Participatory Security" Architecture:** Reforming the police-public interface requires institutionalizing **community policing** not just as a soft initiative but as a core operational strategy.
  - By creating statutory **Citizen-Police Liaison Committees** at the ward level, the police can crowdsource intelligence and de-escalate local tensions before they flare into riots.
  - This **collaborative security model** transforms the citizenry from passive subjects into **active "prosumers" of safety,** bridging the trust deficit and acting as a force multiplier for the overburdened constabulary.
- **Operational Insulation via Independent Establishment Boards:** To break the nexus between crime and politics, the power of transfers and postings must be strictly vested in independent **Police Establishment Boards (PEB)** rather than the political executive.

- This ensures that officer tenure is secured against political whims, allowing honest officers to enforce the rule of law without fear of punitive transfers.
- Granting **functional autonomy** to the police leadership in operational matters is critical to fostering a culture of professional integrity and neutral law enforcement.

- **Human Capital Optimization and Psychological Resilience:** A transformative reform must address the "invisible crisis" of burnout by mandating a **shift system** ensuring an 8-hour workday and weekly offs for the constabulary.
  - Integrating **psychological health support** and regular stress management workshops into the service rules will reduce the alarming rates of fratricide and suicide.
  - Treating the lower ranks as **skilled professionals** rather than unskilled labor involves upgrading their housing, allowances, and dignity, which directly correlates to their behavior with the public.
  - In the capacity development front, **Mission Karmayogi is driving this transformation by training officials to move from a rule-based approach to a role-based mindset.**
- **Cyber-Capability Integration at the Station Level:** As crime migrates to the digital realm, every police station must be upgraded into a **Cyber-First Responder** node, capable of handling digital financial fraud and social media crimes.
  - This involves creating a specialized **Cyber-Desk** in every Thana staffed by technically proficient personnel, rather than funneling all cases to a central cyber cell.
  - Empowering local police with **digital forensic tools** and cloud-based evidence management systems ensures that the force stays relevant in an era of hybrid warfare and online threats.

Conclusion:

India stands at a decisive moment where policing must shift from colonial control to democratic service. Meaningful transformation will require professional autonomy, scientific investigation, community partnership, and humane working conditions. As new criminal laws and digital systems reshape the justice landscape, implementation must match ambition. Only then can India build a police force that not only enforces the law but also earns the nation's trust.

Unlocking India'S Bioeconomy Potential

This editorial is based on "India can build a $1.2-trillion bioeconomy by 2047" which was published in The Hindu on 08/12/2025. The article brings into picture the rapid rise of India's bioeconomy and contrasts it with China's successful biotech overhaul driven by capital access and strong regulation. It highlights that with similar reforms, India's growing strengths in genomics and biomanufacturing can position it as a global biotech leader by 2047.

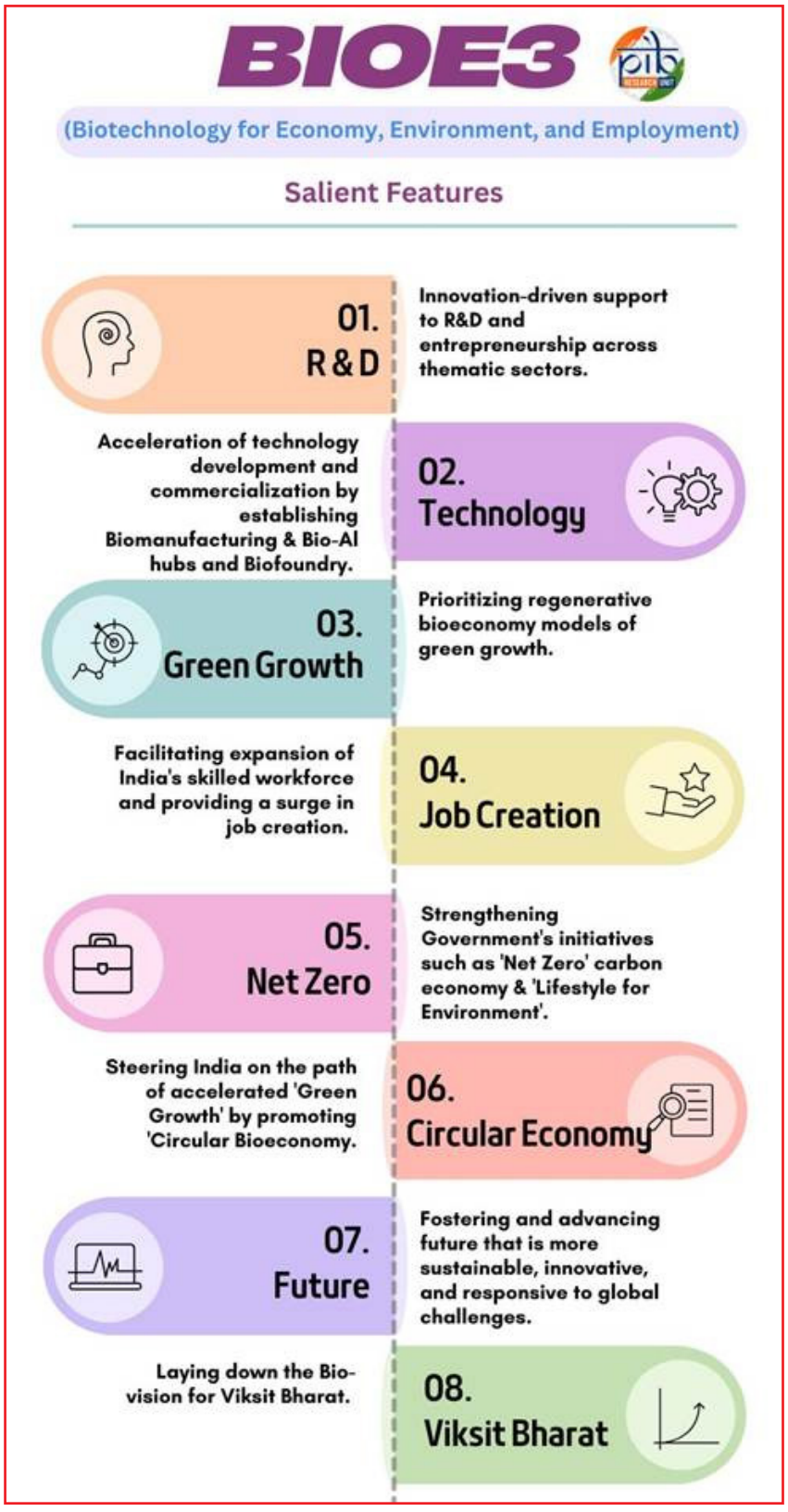
Tag: GS Paper - 2, Government Policies & Interventions, GS Paper - 3, Conservation

India's bioeconomy has surged from **$10 billion to $165 billion** over the past decade, yet reaching the **$1.2 trillion target by 2047** requires transformative reforms beyond scientific capability. China's decade-long transformation through dedicated biotech listing boards and a restructured, science-led regulatory authority demonstrates the blueprint, attracting **$45 billion in venture capital** and spawning over **200 globally competitive biotech firms.** India's biotech sector stands on the brink of a breakthrough, with strengths in **genomics, biopharma, and bio-manufacturing** positioning it to lead the next wave of global innovation. With regulatory

modernisation and deeper capital access, India can evolve into a world-scale biotech powerhouse by 2047.

What are the Major Advancements India has Made in its Bio-economy?

- **Exponential Expansion of Bioeconomy:** India has successfully transitioned from a nascent **biotech player** to a global powerhouse by decoupling growth from fossil dependency and integrating **circular bio-resources into the core GDP**, growing at a pace that significantly outstrips global averages.
  - India's bioeconomy has grown from **$10 billion in 2014 to $165.7 billion in 2024**, with a target of $300 billion by 2030.
- **Strategic Policy Shift- BioE3 Framework:** The Cabinet-approved **BioE3 Policy** marks a structural shift towards **"High-Performance Biomanufacturing,"** aiming to industrialize biology by replacing chemical-based processes with **Bio-Foundries** and **Bio-AI Hubs** to create a self-reliant bio-manufacturing ecosystem.
  - Targets **6 thematic sectors** (e.g., smart proteins, precision biotherapeutics) and establishes a network of **Bio-Enabler Hubs** to support India's **Net-Zero 2070** climate goals.
- **Genomic Sovereignty & Precision Medicine:** India has secured **"Genomic Sovereignty"** by completing the **Genome India Project**, creating a distinct indigenous reference genome that corrects the **Euro-centric bias** in global medical databases and enables precision medicine tailored to India's unique ethnic diversity.
  - For instance, Indian scientists complete whole genome sequencing of **10,000 individuals,** revealing population specific variations and variants related to diseases.
- **Global Biopharma & Vaccine Leadership:** Moving beyond volume dominance as the **"Pharmacy of the World,"** India is climbing the value chain into **novel biologics and biosimilars**, strengthening R&D capabilities to reduce import reliance for critical immunotherapies and high-value drugs.
  - India broke into the **Top 10 of Cytiva's Global Biopharma Index 2025**. Serum Institute of India is now the world's largest vaccine manufacturer by number of doses produced and sold globally **(more than 1.5 billion doses).**
- **Energy Security via Bio-Fuel Integration:** The country has aggressively operationalized bio-energy to create a robust **agrarian-energy nexus,** effectively utilizing agricultural waste (parali) to lower crude oil imports and carbon emissions while boosting farmer incomes.
  - India achieved **20% Ethanol Blending (E20) in 2025**, 5 years ahead of the original 2030 target, saving approx. **₹1.44 lakh crore in forex** and substituting **244 Lakh Metric Tonnes** of crude oil.
- **Deep-Science Startup Ecosystem:** The innovation landscape has matured from academic research to commercial viability, driven by **BIRAC's "lab-to-market" funding**, creating a deep-science pipeline that attracts private equity and solves grassroots challenges in health and agriculture.
  - The number of biotech startups has skyrocketed from just 50 in 2014 to nearly 9,000 as of February 2025, making India a global hub for biotech innovation.
  - Also**, India has 12 DBT-supported biotechnology parks and 95 BIRAC-supported bio-incubators** (75 Bio-NEST and 20 E-Yuva centres), as of August 2025.
- **Resilience in Agricultural Biotechnology:** Despite regulatory caution, the **Bio-Agri sector** is advancing towards technology-driven food security through the development of **climate-resilient GM crops and bio-stimulants,** balancing productivity needs with environmental sustainability.
  - For instance, the **GM mustard hybrid DMH-11,** developed in India, is projected by experts to raise mustard yields by about **25–30% compared with existing varieties.**



What are the Major Challenges Confronting India's Bio-economy?

- **Stagnant R&D Investment:** India's bio-innovation ecosystem is stifled by chronic underinvestment, creating a "resource trap" where researchers lack funds for high-risk moonshots.
  - The private sector's reluctance to share the R&D burden forces heavy reliance on government grants, limiting the scale of breakthrough discoveries compared to global peers.
  - **India's Gross Expenditure on R&D (GERD) stagnates at 0.64-0.7% of GDP** compared to the global average of **1.8%**.
- **Regulatory Gridlock in Agri-Biotech:** The agricultural biotechnology sector is paralyzed by policy unpredictability and judicial deadlock, specifically regarding the commercialization of Genetically Modified (GM) crops.
  - This **"regulatory freeze"** deters foreign investment and denies farmers access to climate-resilient seeds, keeping India dependent on edible oil imports despite having indigenous solutions.
  - Despite GEAC approval, **GM Mustard (DMH-11)** remains stalled by **Supreme Court split verdict**, leaving **Bt**

Cotton (2002) as India's only commercialized GM crop for over two decades.

- **Critical "Import Addiction" in Supply Chains:** The **bio-pharma and medtech sectors** face a massive vulnerability due to reliance on external supply chains for upstream raw materials and high-end equipment.
  - This dependence on imported **Key Starting Materials (KSMs)** and advanced diagnostics compromises national health security and erodes profit margins for domestic manufacturers.
  - India imports **70-80% of its medical devices** and relies on China for over **70% of critical APIs**, despite recent PLI schemes attempting to bridge this gap.
- **The "Valley of Death" in Funding:** Deep-science startups face a lethal funding gap between proof-of-concept and commercialization, where risk capital evaporates.
  - While **early-stage grants (BIRAC)** are plentiful, the lack of patient late-stage venture capital forces promising biotech firms to either shut down or sell their IP abroad before reaching industrial scale.
  - This pattern is described as resulting in Indian biotech companies contributing talent and intellectual property to foreign economies instead of scaling domestically, reinforcing the **"forced to sell IP or move out before industrial scale" narrative.**
- **Bio-Manufacturing Infrastructure Void:** The ambition of the BioE3 policy clashes with the reality of fragmented and insufficient bio-manufacturing infrastructure. The acute lack of industrial-scale fermentation tanks **("Bio-Foundries")** and pilot plants creates a bottleneck where lab-proven technologies cannot be mass-produced domestically, forcing outsourcing to contract manufacturers.
  - India holds just **1.5% of the global MedTech market** due to infra gaps, and high-end bio-manufacturing remains limited to a few clusters like **Genome Valley**, delaying the **$300 Bn bioeconomy target**.
- **The Innovation-Commercialization Paradox:** There is a glaring disconnect between **"Academic Output" and "Commercial Impact,"** where India produces high volumes of research papers but low numbers of globally granted patents.
  - This means Indian taxpayer-funded research often fails to translate into marketable products, leading to a "Brain-to-Paper" cycle rather than a "Lab-to-Market" pipeline.
  - Despite ranking **39th in the Global Innovation Index 2024**, India lags significantly in **"knowledge impact"** and IP creation.
- **Talent Mismatch in High-End Bio-Sciences:** The sector battles a **"Quality-Quantity Mismatch"** in human capital, producing thousands of graduates who lack practical skills in emerging fields like synthetic biology or AI-driven drug discovery.
  - This talent gap necessitates expensive retraining or improved academia-industry linkages to make the workforce "industry-ready" for the BioE3 era.
  - Industry reports highlight a critical shortage of specialized talent in **bioinformatics and biologics**, with the **BioE3 policy (2024)** specifically citing this skill gap as a major hurdle for establishing **Bio-AI Hubs**.

What Steps can India take to Strengthen and Accelerate the Growth of its Bio-economy Sector?

- **Operationalize "Plug-and-Play" Bio-Foundries:** To bridge the critical gap between lab-scale innovation and industrial production, India must aggressively establish a network of shared **Bio-Foundries** and **Pilot-Scale Facilities** accessible to startups on a pay-per-use basis.
  - This infrastructure-as-a-service model will lower the capital expenditure barrier for deep-tech firms, allowing them to validate technologies at a pre-commercial stage without incurring the massive cost of building private fermentation or downstream processing plants, thus directly **solving the "scale-up bottleneck."**

- **Institutionalize a "Science-First" Regulatory Sandbox:** The regulatory framework needs a paradigm shift from a "policing" model to a "facilitating" model by creating **Regulatory Sandboxes** specifically for synthetic biology and gene editing.
  - By allowing parallel processing of clinical trial phases and separating scientific assessment from administrative licensing, the government can drastically reduce the "time-to-market" for novel biologics.
  - This creates a predictable policy environment that encourages risk-taking and attracts foreign direct investment into cutting-edge research.
- **Create a Dedicated "Biotech Innovation Board" for Capital:** To solve the "Valley of Death" funding crisis, financial regulators should introduce a specialized **Biotech Innovation Listing Board** on stock exchanges, similar to global models that allow pre-revenue R&D companies to list based on intellectual property value rather than profit history.
  - This would **unlock domestic "Patient Capital"** from retail and institutional investors who understand the long gestation periods of deep science, reducing the sector's over-reliance on government grants and fickle foreign venture capital.
- **Mandate "Bio-AI" Integration in Workforce Skilling:** The current skills gap requires an immediate overhaul of the academic curriculum to integrate **Artificial Intelligence** and **Data Science** directly into biotechnology programs.
  - By fostering a hybrid workforce proficient in **"Computational Biology"** and **"In-silico Drug Discovery,"** India can create a talent pool capable of leveraging big data to accelerate research.
  - This moves the workforce beyond traditional bench-work, preparing them for the high-value, tech-driven demands of the BioE3 era.
- **Incentivize Domestic Production of Key Starting Materials (KSMs):** To insulate the bio-economy from geopolitical shocks and supply chain disruptions, the government must extend **Production Linked Incentive (PLI)** schemes specifically to the upstream manufacturing of biological raw materials and bioreactor components.
  - Reducing import dependence for these critical inputs will not only secure national health security but also improve the profit margins of Indian biopharma exporters, making them globally competitive against dominant market players.
- **Establish "Technology Transfer Offices" (TTOs) in Academia:** There is an urgent need to professionalize the commercialization interface between research institutes and industry by mandating dedicated **Technology Transfer Offices** in all major universities.
  - These units should be staffed with industry veterans rather than academics, focused solely on patent valuation, IP licensing, and spinning off academic research into viable startups.
  - This measure effectively converts India's high volume of research publications into tangible economic assets and marketable products.
- **Leverage "Genomic Data Sovereignty" for Precision Care:** India should monetize its vast genetic diversity by treating the **Indian Biological Data Centre (IBDC)** as a strategic asset for global pharmaceutical partnerships.
  - By creating a secure, privacy-compliant framework for accessing this genomic data, India can attract global R&D centers to develop **"Precision Medicine" tailored to non-European populations.**
  - This positions India not just as a manufacturing hub, but as an indispensable partner in the global discovery value chain for next-generation therapeutics.

Conclusion:

India's bio-economy stands at a decisive inflection point-armed with strong scientific capabilities, a booming startup ecosystem, and ambitious policy frameworks like

BioE3. Yet unlocking its full potential demands bold regulatory reform, deeper capital access, and world-class bio-manufacturing infrastructure. With strategic investments in **talent, technology, and genomic sovereignty,** India can shift from being a biotech participant to a global innovation leader. If these transformative steps are sustained, India is well-positioned to emerge as a $1.2 trillion bio-economy powerhouse by 2047.

Multi-Alignment and India'S Strategic Edge

This editorial is based on "India's multi-alignment to the fore in Putin visit" which was published in The Hindu Business Line on 08/12/2025. The article brings into picture India's firm assertion of strategic autonomy, highlighted by its engagement with Russia despite Western pressure. It shows how New Delhi balances major powers while charting an independent, multi-aligned foreign policy path.

Tag: GS Paper - 2, India and its Neighbourhood, Effect of Policies & Politics of Countries on India's Interests, Groupings & Agreements Involving India and/or Affecting India's Interests, Non-aligned Movement (NAM)

India's recent welcome to the Russian President amid Western sanctions signals a bold **assertion of strategic autonomy in global affairs**. Despite US tariff pressures and Europe's isolation campaign against Russia, **New Delhi has chosen independent multi-alignment over bloc politics.** With high-profile Western visits lined up and **India assuming BRICS chairmanship in 2026**, the message is clear to all powers- ***India charts its own course***. This diplomatic tightrope walk demonstrates how emerging powers can leverage relationships across competing blocs to advance national interests.

What are the Main Pillars of India's Multi-alignment in Global Affairs?

- **Strategic Autonomy & Aggressive Hedging:** India prioritizes **national interest over rigid blocs,** engaging rival powers like the US and Russia simultaneously to maximize leverage.
  - This **"principled pragmatism"** allows New Delhi to secure advanced technology from the West while maintaining continental stability and energy security with Eurasia.
  - For instance, India imported **~40% of its crude oil from Russia** in 2024 despite sanctions, concurrently deepened US ties via **iCET and Artemis Accord**.
- **Championing the Global South:** Positioning itself as a **"developmental bridge,"** India aggressively advocates for the developing world's concerns on debt, food security, and climate finance.
  - This shifts its role from a passive rule-taker to an active rule-shaper, ensuring the "Global South" is not sidelined in great power rivalry.
  - **For instance,** Hosted the **3rd Voice of Global South Summit (August 2024)** with 123 nations. Also, India successfully championed the **African Union's permanent G20 membership** under its presidency.
- **Geo-Economic De-risking & Resilience:** Countering global fragmentation, India is forging **Free Trade Agreements (FTAs)** with complementary economies to integrate into resilient supply chains **("friend-shoring").**
  - This strategy aims to attract high-tech investment and reduce economic dependency on volatile or hostile neighbors.
  - For instance, India has signed a **$100 billion free trade agreement** with a four-member European bloc (**EFTA**) and will lift most import tariffs on industrial products from these countries.
    - Also, India finalized the **UAE Inter-Governmental Framework** to operationalize the IMEC corridor.
- **Integrated Deterrence via Aatmanirbharta:** Moving from import dependency to a domestic military-industrial complex, **India is reducing external blackmail potential through "Make in India."**
  - This dual-use strategy boosts domestic manufacturing capacity while diversifying

defense procurement away from single-source reliance.

- For instance, **India's defence exports have surged to a record high of Rs 23,622 crore in the FY 2024-25.**
  - Also, **India has provided BrahMos supersonic cruise missiles to the Philippines**, making it the first country to receive this advanced Indo-Russian joint venture missile system under a $375 million deal signed in 2022.

- **Energy Realpolitik & Green Transition:** Energy security is treated as a non-negotiable sovereign right, balancing fossil fuel affordability with a massive green transition.
  - This pragmatic duality ensures economic stability against volatile global oil shocks while meeting international climate commitments.
  - For instance, **India inked a USD 78-billion agreement to extend LNG imports from Qatar for another 20 years**, up to 2048, at prices lower than current rates, despite strains in bilateral ties.
    - On the green transition front, **India continues to advocate a 'phase-down' rather than 'phase-out' of coal, arguing that developing countries need policy space for growth.**
- In global environmental forums, it consistently pushes for a just and equitable energy transition, anchored in **India's LiFE (Lifestyle for Environment) approach**, which stresses sustainable consumption and responsible lifestyles.
- **Digital Diplomacy & Tech-Sovereignty:** India leverages its **"Digital Public Infrastructure" (DPI)** as a soft power tool, offering an open-source, scalable alternative to Big Tech monopolies.
  - This creates a unique **"tech-diplomacy" footprint**, exporting governance solutions to developing nations to build lasting goodwill.
  - For instance, India linked **UPI with UAE's Aani** and Nepal's payment networks (2024). Also, India signed DPI partnerships to share **"India Stack"** with nations like Trinidad & Tobago.
- **Minilateralism & Issue-Based Coalitions:** Departing from unwieldy multilateralism, India now utilizes agile, **purpose-driven groups (QUAD, I2U2)** to address specific security and tech challenges.
  - This allows for flexible, functional cooperation on maritime security and critical minerals without the constraints of formal military alliances.
  - For instance, India joined the US-led **Mineral Security Partnership (MSP)** in **June 2023** for lithium access and expanded **QUAD Maritime Domain Awareness to combat "dark shipping"**

Multilateralism vs Minilateralism: A Strategic Comparison

Parameter	Multilateralism	Minilateralism
Core Philosophy	**"Universal Legitimacy"** – Seeks broad participation and global consensus to create widely accepted norms.	**"Strategic Efficiency"** – Focuses on faster outcomes through small, capable coalitions of like-minded partners.
Membership Structure	**Large & Inclusive** – Often near-universal (e.g., UN members); open to all states irrespective of capacity or alignment.	**Small & Exclusive** – Limited to a select few (usually 3–5) with shared interests and complementary strengths.
Decision-Making	**Consensus-Driven & Slow** – Prone to deadlock due to diverse interests and veto powers (e.g., UNSC).	**Agile & Flexible** – Quick decisions as members share common strategic goals; action-oriented.
Scope & Focus	**Broad & Norm-Setting** – Addresses large global issues like climate change, human rights, and global trade through formal treaties.	**Narrow & Task-Oriented** – Targets specific challenges like maritime security, tech cooperation, or supply chains.

Institutional Form	**Formal & Bureaucratic** – Backed by large secretariats, charters, and structured processes (e.g. WTO, WHO).	**Informal & Adaptive** – Typically without permanent secretariats; functions through summits and working groups (e.g., I2U2, AUKUS).
Primary Limitation	**"Crisis of Relevance"** – Often ineffective due to delays, procedural complexity, and great-power rivalry.	**"Crisis of Legitimacy"** – Criticized for being exclusive and bypassing universal multilateral norms.
Key Examples	UN, WTO, World Bank, WHO.	Quad, BRICS, I2U2.

What are the Key Issues Associated with India's Multialignment Approach?

- **Stress on Strategic Autonomy from US Transactionalism:** The shift in Washington from a strategic partnership to **"transactional pressure"** challenges India's ability to maintain independent foreign policy choices without economic coercion.
  - This friction exposes the limits of shared values when core US geopolitical interests, like isolating Russia, are not fully met by New Delhi.
  - For instance**, India's S-400 deal with Russia went ahead despite CAATSA**, forcing Washington into an **India-specific waiver** and periodically reviving sanctions threats whenever Russia tensions spike.
    - More recently, The US imposed **50% tariffs** on select Indian goods in Aug 2025.
- **Diminishing Returns from the Russia Pivot:** While the "Russia pivot" secured **energy security**, the economic viability is eroding due to payment settlement failures and tightening Western sanctions on Moscow's financial ecosystem.
  - India faces a dual challenge: **maintaining defense supply lines from a distracted Russia while its discounted oil advantage evaporates**.
  - For instance, Russian oil imports dropped to **~600,000 bpd** in Dec 2025 (lowest in 3 years), the **RuPay-Mir payment link** remains non-operational despite repeated summit announcements.
- **The "China Normalization" Trap & Trade Asymmetry:** Despite the October 2024 border patrol pact, the **"trust deficit"** remains high, yet economic dependence on Chinese industrial inputs continues to deepen, **undermining "Aatmanirbharta."**
  - This uneven normalization risks India becoming a dumping ground for Chinese goods while the border threat is merely managed, not resolved.
    - China has planned and is constructing around **600+ "Xiaokang" (well-off) border defence villages** along India's border with the Tibet Autonomous Region, including opposite Ladakh and Arunachal Pradesh.
  - On the trade front, **India's exports to China fell nearly 33% between 2020–21 and 2024–25**, even as imports from China rose by almost 74% over the same period.
- **Neighborhood "Delivery Deficit" & Anti-India Sentiment:** India's "Neighbourhood First" policy struggles against a **"delivery deficit" in infrastructure projects**, fueling accusations of being a "Big Brother" rather than a benevolent partner.
  - **Political instability in partner nations** often leads to sudden reversals in ties, as new regimes pivot to China to balance India's influence.
  - **For instance,** Post-2024 political turmoil in Bangladesh has seen India pause or slow key connectivity projects, despite years of rhetoric on **seamless North East–Bay of Bengal links.**
    - Major schemes like the **Akhaura–Agartala rail link and the Dhaka–Tongi–Joydebpur rail expansion** have faced delays, cost overruns.
- **Widening Trade Deficits with FTA Partners:** India's rush to sign Free Trade Agreements (FTAs) for

geopolitical bonding has inadvertently hurt domestic manufacturing, as imports from partner nations outpace India's export growth.

- This **"geopolitics over economics"** approach risks de-industrialization in sensitive sectors without securing reciprocal market access.
- NITI Aayog reported a **23% YoY rise** in trade deficit with FTA partners to **$26.7bn** in Q2 FY25.
  - For instance, in 2024, **India's imports from the UAE surged by 70.37% to USD 7.2 billion,** resulting in a trade deficit of USD 3.5 billion.

- **Resource Asymmetry in the Global South:** India's claim to Global South leadership is contested by its limited financial capacity compared to **China's deep-pocketed investment-led diplomacy.**
  - While **India offers "voice" and rhetorical support,** it struggles to match the tangible, rapid (albeit debt-heavy) infrastructure delivery that developing nations urgently demand.
  - India's "development compact" prioritizes low-cost, high-impact "soft power" assets, like digital infrastructure, capacity building, and policy advocacy, because it lacks the deep capital surplus required to fund the massive "hard infrastructure" projects that developing nations crave.
    - This fiscal reality forces a **pragmatic division where Global South nations look to New Delhi for "leadership and norms" but inevitably turn to Beijing for "steel and concrete,"** limiting India's strategic leverage.
    - At the **September 2024 FOCAC Summit, China pledged $50.7 billion to Africa**, dwarfing India's aid.

What Steps can India take to Strengthen its Multilateral Engagement amid Global Uncertainties?

- **Institutionalizing "Reformed Multilateralism" via G4 Solidarity:** India must pivot from rhetorical demands to aggressive "text-based negotiations" for UNSC reform by consolidating the **G4 (Brazil, Germany, India, Japan) and the L.69 group of developing nations.**
  - The strategy should focus on offering a pragmatic "interim model" with long-term permanent seat assurances to bypass immediate P5 veto deadlocks.
  - This **moves the narrative from entitlement to "functional necessity," positioning New Delhi as the only credible stabilizer** capable of bridging the paralyzing North-South divide in global governance.
- **"DPI Diplomacy" as a Strategic Foreign Policy Asset:** New Delhi should formalize **"Governance-as-a-Service"** by exporting its Digital Public Infrastructure (DPI) like UPI and the India Stack to the Global South as an open-source alternative to Big Tech monopolies.
  - By establishing a **"Global DPI Repository" managed by Indian technocrats, India can create a "digital non-aligned movement"** that fosters technological sovereignty in developing nations.
  - This builds deep, regime-agnostic institutional goodwill and integrates partner economies into Indian digital standards, creating long-term strategic stickiness.
- **Championing a "Permanent Secretariat" for the Global South:** To move beyond episodic summits, India should propose and fund a permanent "Global South Secretariat" based in New Delhi to systematically track and articulate developmental challenges.
  - This institutional mechanism would function as a policy lab, converting vague grievances on debt and climate finance into **"actionable policy papers"** for the G20 and UN.
  - This **transforms India's role from a mere "voice" or postman to a "policy arbiter"** and agenda-setter for the developing world.
- **Integration into Critical Mineral Supply Chains:** India must aggressively pursue "Critical Mineral Partnerships" (like the MSP) by leveraging its

manufacturing potential to offer "value-addition" processing rather than just seeking raw material access.

- By **co-developing processing technologies with Australia and Africa, India can position itself as the "indispensable mid-stream node"** in the global green transition.
- This creates "**mutual vulnerability**" and interdependence, ensuring that Western powers remain invested in India's economic stability to protect their own supply chain resilience.

- **Operationalizing "SAGAR" via Defense Exports:** The "Security and Growth for All in the Region" (SAGAR) doctrine needs to evolve from maritime awareness to "capacity building" through the export of affordable defense platforms like **Tejas and BrahMos.**
  - Providing credit lines for defense procurement to Indian Ocean littoral states creates a **"security architecture"** reliant on Indian hardware and maintenance.
  - This shifts India from **being a passive "net security provider" to an active "security guarantor,"** countering hostile naval encirclement with its own web of defense partnerships.
- **Norm-Shaping in "AI Governance" and Cyber-Ethics:** India should lead the formulation of a "Global South AI Framework" that prioritizes **"sovereign data ownership"** and prevents algorithmic colonization by Western or Chinese models.
  - By aggressively participating in the **Global Partnership on Artificial Intelligence (GPAI) and setting the stage in upcoming Impact AI Summit 2026,** India can embed its **"ethical AI" principles into international law.**
  - This ensures that future global digital rules respect the specific socio-economic contexts of developing nations, preventing a new form of "technological apartheid."
- **Leveraging the Diaspora for "Smart Power" Lobbying:** India needs to transition from viewing its diaspora merely as cultural ambassadors to utilizing them as strategic "pressure groups" in their host countries' legislatures.
  - By facilitating formal **"Diaspora Consultative Committees,"** New Delhi can channel this high-skilled demographic to lobby for favorable trade and visa policies in capitals like Washington and London.
  - This **converts passive "soft power" into active "smart power,"** creating a sophisticated, decentralized diplomatic buffer against political friction.

Conclusion:

India's multi-alignment is not a diplomatic tightrope but a deliberate strategy to turn geopolitical friction into strategic opportunity. As global blocs harden and multilateralism weakens, New Delhi's calibrated autonomy showcases how emerging powers can engage all without becoming captive to any. In this evolving order, India's foreign policy reflects a simple truth: ***"Nations rise not by choosing sides, but by choosing their own path with clarity and courage."*** With this approach, India positions itself as a bridge, a balancer and increasingly, a rule-shaper of the new global order.

India'S Push for A Fairer, Consumer-First Economy

This editorial is based on "IndiGo meltdown has exposed a harsh truth: Passengers absorb damage while companies walk away" which was published in The Indian Express on 09/12/2025. The article brings into picture how IndiGo's meltdown over new fatigue norms exposes corporate negligence and the dangers of a near-monopoly in aviation. It also highlights how shrinking competition—echoing the telecom duopoly—forces passengers to suffer, testing the state's regulatory resolve.

Tag: GS Paper - 3, Statutory Bodies, Quasi Judicial Bodies, Capital Market, Liberalisation

The **recent operational meltdown of IndiGo,** triggered by the enforcement of new pilot fatigue norms, has left thousands stranded, exposing **severe corporate negligence**

despite ample regulatory lead time. This crisis, however, is merely a symptom of a deeper malaise: the **crystallization of a "Too Big to Fail" monopoly in Indian aviation**. It mirrors alarming trends in sectors like **telecom**, where the rise of **duopolies** and the **erosion of consumer choice** signal a shift from a **competitive market to one defined by structural dominance**. As passengers pay the price for this lack of alternatives, the state's role as a regulator faces its ultimate test.

What is India's Existing Regulatory Framework for Monitoring and Controlling Market Power?

India's current framework acts primarily as a **"referee" rather than a "gatekeeper."** It is designed to punish foul play *after* it happens (Ex-Post) rather than preventing a player from becoming too strong in the first place (Ex-Ante).

- **The Core Legislation: The Competition Act, 2002-** This is the primary legal weapon against market dominance. It replaced the older MRTP Act (which frowned upon monopolies per se).
  - **Section 4 of the Competition Act, 2002,** bans companies from abusing their dominant power, through **unfair pricing, limiting supply, blocking market access, or imposing unfair terms.**
  - It regulates misuse of dominance, not dominance itself, ensuring fair competition for consumers and other businesses. It prevents:
    - **Predatory Pricing:** Selling below cost to kill competition (often cited in Telecom).
    - **Limiting Production/Supply:** Intentionally reducing flights or services to manipulate prices.
    - **Denial of Market Access:** Preventing new players from entering (e.g., hoarding airport slots).
  - **Section 5 & 6 (Regulation of Combinations):**
    - **Merger Control:** Any merger (like Air India + Vistara or PVR + Inox) must be approved by the CCI.
    - **The AAEC Test:** The CCI evaluates if the merger will cause an **"Appreciable Adverse Effect on Competition" (AAEC)** in India.
  - If yes, it can block the deal or demand "remedies" (e.g., forcing them to give up some airport slots).
  - The Enforcer: Competition Commission of India (CCI):
    - **Powers:** It can impose massive penalties (up to 10% of the average global turnover of the last three years) and order companies to "Cease and Desist."
    - **The "Ex-Post" Limitation:** The CCI acts **after** the damage is done. For example, it fined Google ₹1,337 crore *after* it had already monopolized the Android market.
- **Sectoral Regulators (The Conflict of Jurisdiction)**
  - Telecom **(TRAI):** The Telecom Regulatory Authority of India regulates tariffs and quality.
  - ***Conflict:*** In the **CCI vs. Bharti Airtel (2018)** case, the Supreme Court ruled that the CCI must wait for the sectoral regulator (TRAI) to finish its technical findings before it can investigate predatory pricing. This delays action against cartels.
  - **Aviation (DGCA & AERA):**
    - Directorate General of Civil Aviation**:** Focuses on safety and licensing (e.g., pilot fatigue norms). It has little power to check economic monopolies.
    - Airports Economic Regulatory Authority of India**:** Sets airport tariffs but does not control airline market share.
    - ***Gap:*** There is no specific regulator mandated to ensure that *airline routes* remain competitive.
- **Recent Evolutions (Trying to Fix the Gaps)**
  - Recognizing that the 2002 Act is too slow for the digital age, the government has introduced two major shifts:
  - **Competition (Amendment) Act, 2023:**
    - **Deal Value Thresholds:** Introduced to **catch "Killer Acquisitions"** (where big tech buys small startups just to kill them) even if they don't meet asset/turnover targets.
    - **Settlements & Commitments:** Allows companies to close cases faster by agreeing to fix the problem without a long legal battle.

- **Draft Digital Competition Bill (The "Ex-Ante" Shift):**
  - Proposed to regulate **Systemically Significant Digital Enterprises (SSDEs)** (like Google, Amazon).
  - **Ex-Ante Approach:** Unlike the current law, this *would* impose rules beforehand **(e.g., "You cannot favor your own products")** rather than waiting for a complaint. This is currently stalling in discussions.

How is Rising Market Consolidation Across India's Key Sectors Creating a Systemic "Too Big to Fail" Risk?

- **Operational Fragility & Moral Hazard (Aviation):** Hyper-concentration in aviation creates a **"Single Point of Failure,"** where corporate mismanagement instantly escalates into a national mobility crisis.
  - This dominance fosters **Moral Hazard**, as the market leader knows the state cannot allow it to fail without collapsing the country's transport network, leading to riskier operational bets like under-staffing.
  - **For instance, according to the DGCA, IndiGo carried 83.14 lakh passengers in August 2025, accounting for a 64.2% market share, its** recent pilot roster failure disrupted thousands of flights, leaving passengers with no alternatives and causing spot fares on other airlines to spike by **300-400%**.
- **Tacit Collusion in a Non-Contestable Market (Telecom):** The telecom sector has shifted from hyper-competition to a stable **Oligopoly**, characterized by **Tacit Collusion** where dominant players **synchronize tariff hikes rather than competing on price.**
  - High entry barriers (spectrum costs, infrastructure) render the market **non-contestable**, stripping consumers of bargaining power and choice.
  - For instance, **In 2024, Airtel's share rose to 38.6%, while Jio's increased to 41.6%,**, both hiked tariffs by **10-25% almost simultaneously**, effectively ending the era of low-cost data for Indian consumers.
- **Systemic Risk in Digital Payments (Fintech):** A dangerous **Duopoly in the UPI ecosystem** creates a systemic risk where a technical glitch at one provider paralyzes nearly half of the nation's digital transactions.
  - This **"Winner-Takes-Most"** dynamic creates a **"Kill Zone"** for innovation, as new entrants cannot burn cash to compete with the incumbents' network effects.
  - **PhonePe and Google Pay process over 80% of all UPI volumes**, the NPCI was forced to defer its **30% market cap volume cap** implementation again, admitting that no viable alternative exists to de-risk the ecosystem.
- **Supply Chain Sovereignty & Infrastructure Monopolies (Logistics):** The consolidation of critical gateways **(Ports & Airports)** under single conglomerates creates **Vertical Integration** risks, where private monopolies can dictate trade costs and logistics efficiency.
  - This unchecked **Pricing Power** over public infrastructure allows dominant players to cross-subsidize and squeeze out smaller logistics competitors.
  - **For instance,** In India, the **consolidation of container terminal operations at some major ports** has led to scenarios where a **few private terminal operators set stevedoring charges and storage fees.**
    - **Smaller logistics companies struggle to compete,** while large exporters and importers often negotiate preferential rates, highlighting the risks of concentrated control without government regulation.
- **The "Too Big to Save" Dilemma (Banking/D-SIBs):** Mergers creating mega-banks increase **Systemic Contagion Risk**, where the failure of one institution could destabilize the entire economy, forcing taxpayer-funded bailouts.
  - This consolidation creates **Domestic Systemically Important Banks (D-SIBs)** that may encourage risky lending behavior under the implicit assumption of a sovereign safety net.

- For instance, Post-merger, **HDFC Bank's weightage in the Nifty 50 spiked to ~14%**, the **RBI continues to classify SBI, HDFC, and ICICI as D-SIBs**, requiring them to maintain higher Common Equity Tier 1 (CET1) capital buffers to mitigate risk.

- **Homogenization of Information (Media & Entertainment):** Horizontal consolidation in the media sector threatens media plurality, creating a **Content Giant** capable of dictating advertising rates and controlling the narrative.
  - This reduces the **"Marketplace of Ideas"** to a corporate monologue, where a single entity controls both the content creation (studios) and distribution (streaming/TV) pipelines.
  - **For instance,** The **Reliance-Disney merger** created an entity controlling **~40% of the TV/ Streaming viewership** and key cricket broadcasting rights, raising concerns about ad-rate monopolization and content diversity.

- **Regulatory Lag vs. Ex-Ante Necessity (Policy):** The speed of market consolidation outpaces **Ex-Post** enforcement (fines after the crime), rendering penalties merely a "cost of doing business" for giants.
  - Without **Ex-Ante Regulations** (preventative rules like the **Digital Competition Bill**), regulators are left fighting a losing battle against **Gatekeeper Platforms** that have already permanently distorted the market.
  - **For instance,** despite lengthy CCI investigations, **Walmart-owned Flipkart continues to hold the top position in India's e-commerce market, boasting a 48% market share and outpacing industry growth**
  - The proposed **Digital Competition Bill** remains stalled, leaving smaller sellers vulnerable to algorithmic bias and deep discounting.

"Too Big to Fail" Dynamics

Dynamic / Mechanism	How It Works	Why It Is Dangerous (The Fallout)	Sectoral Manifestation (India)
The Moral Hazard Paradox	When a company becomes so critical that its collapse would cripple the nation, it assumes the government *must* save it. Consequently, it takes reckless operational risks (e.g., under-staffing, aggressive expansion) knowing it has an implicit sovereign safety net.	**Privatized Profits, Socialized Losses.** The entity keeps the profits from risky behavior, but the taxpayer pays the price (via bailouts or chaos) when things go wrong.	**Aviation:** IndiGo running lean on pilot reserves, assuming its network is too vital to be grounded, leading to mass cancellations.
High Barriers to Entry (The Moat)	Incumbents hoard critical finite resources—Airport Slots, Spectrum, or Data—creating an "Economic Moat" that makes it impossible for new, smaller players to enter the market.	**Innovation Stagnation.** The market becomes "Non-Contestable." Without the threat of new rivals, incumbents have zero incentive to improve service quality or innovate.	**Infrastructure:** Control over prime morning slots at Mumbai/Delhi airports by legacy carriers prevents new airlines (like Akasa) from competing for business travelers.
Regulatory Capture & Lag	The regulated entity becomes larger and more powerful than the regulator. The cost of enforcement (legal battles) becomes trivial for the giant, or the regulator fears that strict action might disrupt essential services.	**The "Toothless Watchdog" Syndrome.** Regulations become "Ex-Post" (fines after the damage) rather than "Ex-Ante" (preventing the damage), turning penalties into a mere "cost of doing business."	**E-Commerce:** Platforms paying fines for anti-competitive practices while continuing the same deep-discounting models that wipe out small retailers.

Supply Chain Squeeze (Monopsony)	The giant isn't just a monopoly seller, but a monopoly *buyer* (Monopsony). It dictates terms to suppliers, airports, or logistics partners, squeezing their margins to fund its own dominance.	**Ecosystem Erosion.** Small vendors and ancillary industries (e.g., ground handling, tower companies) are starved of profits, leading to a hollowed-out supply chain that relies solely on one client.	**Retail/FMCG:** Large quick-commerce or retail giants dictating razor-thin margins to FMCG distributors, forcing smaller distributors out of business.

What Measures can Help Prevent Market Concentration and Ensure Greater Consumer Safety and Choice?

- **Institutionalize "Asymmetric Ex-Ante" Regulation:** Instead of the current "one-size-fits-all" approach, regulators must adopt an **Asymmetric Regulatory Framework** that places stricter compliance burdens solely on "Systemically Significant Enterprises" (SSEs).
  - By proactively prohibiting **Self-Preferencing** and **Bundling** for dominant players while leaving smaller challengers unregulated, the state can artificially lower entry barriers.
  - This **shifts the paradigm from "punishing abuse" to "structuring fair play,"** ensuring that market leaders cannot leverage their size to crush nascent competition before it creates a **Contestable Market**.
- **Enforce the "Essential Facilities Doctrine" in Infrastructure:** To prevent vertical monopolies, critical infrastructure, such as airport slots, telecom towers, and payment gateways, must be legally classified as **"Common Carrier" Utilities**.
  - This mandates that dominant owners provide open, non-discriminatory access to competitors at regulated rates, preventing **Gatekeeper Bottlenecks**.
  - By unbundling the ownership of infrastructure from the delivery of service, the state ensures that a private monopoly cannot weaponize its control over physical assets to exclude rivals from the digital or service economy.
- **Operationalize "Dynamic Price Collars" & Algorithmic Audits:** To curb the exploitation of consumer helplessness during supply shocks, regulators should implement **Dynamic Price Collars** that **cap "surge pricing"** multiples based on historical averages, preventing **Predatory Volatility**.
  - Furthermore, mandatory **Algorithmic Audits** for airline and telecom pricing engines are essential to detect and dismantle **Tacit Collusion** mechanisms.
  - This ensures that AI-driven pricing models serve to optimize efficiency rather than extract rent through synchronized price hikes that mimic cartel behavior.
- **Sunset "Grandfather Rights" for Dynamic Asset Reallocation:** The perpetual retention of prime assets, such as peak-hour airport slots, under "Grandfather Rights" must be replaced with a **Performance-Linked Reallocation Regime**.
  - Regulators should introduce **"Use-It-or-Share-It"** clauses where a percentage of prime slots are periodically clawed back and auctioned exclusively to new entrants or smaller players.
  - This prevents the fossilization of market share and ensures that public resources are continuously churned to favor **Competitive Efficiency** rather than historical dominance.
- **Mandate "Frictionless Interoperability" & Data Portability:** To destroy the **"Lock-in Effect"** that sustains duopolies in telecom and fintech, the state must mandate **Frictionless Interoperability** and real-time **Data Portability**.
  - If a consumer can switch service providers instantly without losing their transaction history, number, or loyalty benefits, the **Switching Cost** drops to near zero.
  - This forces incumbents to compete on service quality rather than relying on the captivity of their user base, effectively commoditizing the platform and empowering the user.

- **Deploy the State as a "Strategic Market Balancer":** Rather than purely retreating from business, the state should strategically deploy public utilities, like **Vande Bharat** trains or **BSNL**, as **"Price Anchors"** in sectors prone to cartelization.
  - By maintaining a high-quality, subsidized public alternative on high-density routes, the government creates a **"Ceiling on Rational Pricing"** that private monopolies cannot breach without losing market share.
  - This ensures that the public sector acts not as a monopoly itself, but as a permanent check against private profiteering.
- **Fiscal Rationalization via "Input Tax Neutrality":** The government must eliminate inverted duty structures by bringing critical inputs, such as **Aviation Turbine Fuel (ATF)** and **Natural Gas**, under the **GST Regime**.
  - Currently, high state-level taxes disproportionately cripple smaller players with thinner capital buffers, while deep-pocketed giants absorb the cost.
  - A **uniform, input-tax-credit-enabled regime creates a Level Playing Field**, ensuring that survival in the market is determined by operational efficiency rather than the ability to sustain regulatory arbitrage and tax burdens.

Conclusion:

India's unfolding duopolies signal not just market failure but regulatory complacency that society can no longer afford. Preventing a "Too Big to Fail" future requires shifting from reactive penalties to proactive structural safeguards. A fair marketplace must be designed, not discovered. As the saying goes, ***"When power concentrates, freedom evaporates — unless regulation steps in to restore the balance."***

Reimagining Health Access for A Viksit Bharat

This editorial is based on "Road map for universal health coverage in India" which was published in The Hindustan Times on 10/12/2025. The article brings into picture India's push toward UHC by 2030 amid rising pressures from ageing populations, rapid urbanization, and climate change. It highlights the need for stronger care linkages, multi-sectoral coordination, and a Right to Health law to shift from Universal Health Coverage to Universal Health Assurance.

Tag: GS Paper - 2, Health, Government Policies & Interventions, GS Paper - 3, Government Budgeting, Planning

India will observe **Universal Health Coverage(UHC) Day** on December 12, marking a critical juncture in its journey toward **UHC by 2030 and Viksit Bharat by 2047.** The nation's health system must become **agile, adaptive, and anticipatory** to deliver equitable healthcare while addressing emerging challenges from demographic shifts, rapid urbanization, and climate change. With **193 million Indians expected to be over 65 by 2030** and 40% living in urban areas, the healthcare infrastructure faces unprecedented pressure. The path forward demands **bridging gaps between primary, secondary, and tertiary care**. Success ultimately requires multi-sectoral collaboration backed by strong legislation**, to transform the vision of Universal Health Coverage into Universal Health Assurance.**

How has India Progressed Towards Achieving Universal Health Coverage?

- **Financial Democratization via PM-JAY:** The **Pradhan Mantri Jan Arogya Yojana (PM-JAY)** has effectively decoupled healthcare quality from financial status, functioning as a critical safety net against **catastrophic health expenditure (CHE)**.
  - By expanding coverage to **senior citizens (70+)** regardless of income in late 2024, it has transitioned from a pro-poor scheme to a broader social security entitlement, ensuring equitable access to secondary and tertiary care.
  - As of **July 2025**, over **41 crore Ayushman Cards** have been created and more than 9.84 crore hospital admissions worth over Rs. 1.40 lakh crore have been authorized under the scheme.

- **Primary Care Transformation (Ayushman Arogya Mandirs and Tele-MANAS):** India has shifted its health paradigm from **"illness to wellness"** by upgrading Sub-Centres into **Ayushman Arogya Mandirs (AAMs)**.
  - These centers bridge the rural-urban divide by providing **Comprehensive Primary Health Care (CPHC)**, moving beyond maternal care to include screening for **non-communicable diseases (NCDs)** like **cancer and diabetes** closer to community doorsteps.
  - By **October 2025**, India operationalized **1.80 lakh AAMs**, surpassing targets. These centers have conducted over **38.79 crore screenings for hypertension**, acting as the first line of defense.
    - As of November 2025, **36 States/ UTs have set up 53 Tele-MANAS Cells.** Also, Tele-MANAS services are available in 20 languages based on the language opted by the States.
- **Digital Health Backbone (ABDM):** The **Ayushman Bharat Digital Mission (ABDM)** is revolutionizing the ecosystem by creating a **Unified Health Interface (UHI)**, making patient records interoperable and portable.
  - This **"Digital Public Infrastructure"** approach eliminates fragmented data, enabling longitudinal health history tracking and facilitating seamless **telemedicine** access for remote populations.
  - As of **August 2025**, **79.91 crore ABHA IDs** (health accounts) have been created. **eSanjeevani has facilitated over 43 crore teleconsultations,** expanding digital health access nationwide through the integration of ABHA and ABDM, serving as the world's largest government-owned telemedicine network.
- **Pharmaceutical Affordability (PMBJP):** The **Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP)** has aggressively tackled the **high cost of medicines,** which constitutes the bulk of out-of-pocket expenditure.
  - By scaling up the network of dedicated outlets, the government has standardized the availability of high-quality **generic drugs** at prices significantly lower than branded equivalents, ensuring treatment adherence.
  - As of **June 2025**, over **16,000 Janaushadhi Kendras** are functional across all districts.
    - Also, Jan Aushadi outlets have saved about **Rs 38000 crore for the citizens over the last 11 years.**
- **Aggressive Disease Elimination (TB Mukt Bharat):** Adopting a **"mission mode"** approach, India has demonstrated global leadership in disease elimination, particularly with the **National TB Elimination Program**.
  - By leveraging **AI-assisted diagnostics** and community engagement (**Ni-Kshay Mitras**), India is reducing incidence rates faster than the global average, addressing the social determinants of health through nutritional support.
  - India's TB incidence dropped by **21% (2015-2024)**, double the global decline rate. **Treatment coverage increases to 92%**, placing India ahead of other high-burden countries.
- **Supply-Side Augmentation (Medical Education):** To correct the historical **doctor-population skew**, the government has implemented structural reforms in medical education, including the **establishment of new AIIMS and deregulation of college setups.**
  - This ensures a sustainable pipeline of healthcare professionals (doctors and nurses) to meet the **WHO recommended ratios** in the coming decade.
  - **Number of MBBS seats increased by 118% from 51,000 before 2014 to more than 1.12 lakh recently**.
    - Additionally, **157 new nursing colleges** were recently approved to strengthen the allied healthcare workforce in underserved districts.

- **Health Infrastructure Resilience (PM-ABHIM):** Post-pandemic, the PM Ayushman Bharat Health Infrastructure Mission (PM-ABHIM) focuses on building long-term resilience against future outbreaks.
  - By establishing **Critical Care Blocks (CCBs)** and **Integrated Public Health Labs** at the district level, the state is decentralizing critical care, ensuring that robust testing and treatment facilities are available without traveling to metros.
  - With an outlay of **₹64,180 crore**, the mission is setting up **730 Integrated Public Health Labs** in all districts.

What Critical Roadblocks Impede India's Journey to Universal Health Coverage?

- **The "Urban Vacuum" & Workforce Skew:** While **India has technically achieved a WHO-compliant doctor-population ratio of 1:811,** this aggregate number masks a **"national inequity**" where medical professionals are hyper-concentrated in urban metros, creating an **"urban vacuum" that sucks talent away from the hinterland.**
  - This structural imbalance leaves rural Community Health Centers (CHCs) critically understaffed, functioning merely as referral points rather than treatment centers.
  - As of 2025, while Goa enjoys a doctor density of **1:335**, Bihar lags severely. Recent Rural Health Statistics indicate an **80% shortfall of specialists** (surgeons, pediatricians) in rural CHCs, forcing patients to travel 50-100km for basic secondary care.
- **The "Missing Middle" & Outpatient Burden:** Current insurance models like PM-JAY focus heavily on secondary/tertiary **hospitalization**, largely ignoring outpatient (OPD) care which constitutes the bulk of daily medical expenses.
  - This leaves the **"missing middle"**, the economically vulnerable class just above the poverty line who don't qualify for PM-JAY but cannot afford private insurance, exposed to poverty-inducing spending on diagnostics and medicines.
  - As per the Economic Survey 2024-25, **India's OOPE stands at 39.4%,** with outpatient care, diagnostics, and medicines emerging as the primary contributors.
    - Roughly **55-60 million Indians** are pushed into poverty annually due to these uncovered medical costs.
- **Dual Disease Burden:** India is fighting a war on two fronts: it has not yet fully conquered infectious diseases **(TB, Malaria)** while simultaneously facing an explosion of **"lifestyle"** Non-Communicable Diseases (NCDs) like diabetes and cancer.
  - This **"epidemiological transition"** requires a health system capable of managing acute infections *and* expensive, lifelong chronic care, straining resources originally built only for the former.
  - NCDs now account for **63% of all deaths** in India. They are also expected to cost India $3.55 trillion in lost economic output between 2012 and 2030.
    - In 2024, India was dubbed the **"Cancer Capital of the World,"** with incident cases rising faster than the global average.
  - Also, Antimicrobial resistance (AMR) has become a major health issue, **with around 6 lakh lives lost in India each year due to resistant infections.**
- **Stagnant Public Spending & Fiscal Federalism:** Despite repeated policy commitments **(National Health Policy 2017)**, India's public health expenditure has failed to break the **2.5% of GDP** ceiling, hovering stubbornly lower.
  - This chronic underfunding forces states, who bear the primary constitutional responsibility for health, to **rely on "mission-mode" central grants (like NHM)** rather than building permanent, autonomous state health capacities.
  - In 2023-24, public health spending stood at roughly **1.9% of GDP**. Consequently, India has just **1.3 hospital beds per 1,000 population**.
- **The "Digital Divide" in Digital Healthcare:** The **Ayushman Bharat Digital Mission (ABDM)** aims to

create a seamless digital backbone, but it faces a hard "**analog reality**" where digital illiteracy and infrastructure gaps in rural India create an exclusionary wall.

- Without universal smartphone access and connectivity, "app-based" healthcare solutions risk becoming a privilege for the urban elite rather than a tool for rural equity.
- While more than 79.91 crore ABHA IDs exist, active usage remains low in Tier-3 towns due to frequent server down-times and lack of digital readiness at PHC levels.

- **Unregulated Private Sector Dominance:** The private sector provides nearly **70% of healthcare services** in India but operates in a regulatory "**Wild West**" with weak enforcement of the Clinical Establishments Act.
  - This leads to rampant price variation, irrational treatments, and **"supply-induced demand" (unnecessary surgeries/tests)**, which the government struggles to control without a unified payer monopoly.
  - The World Health Organization (WHO) recommends that the percentage of cesarean deliveries should not exceed 10% to 15% in any nation. However, in the private sector in India, **these numbers stand at 43.1% (2016) and 49.7% (2021), meaning that nearly one in two deliveries in the private sector is a C-section.**
- **Governance & Implementation Fragmentation:** Health is a state subject, but policy is often centrally designed, leading to **"implementation fragmentation"** where schemes like **PM-JAY face resistance or modification by states (e.g., West Bengal)**.
  - This lack of a **"One Nation, One Health System**" approach results in non-portable benefits and disjointed surveillance systems that fail to talk to each other during outbreaks.
  - **Several states still run their own parallel health schemes with different software,** preventing full portability of PM-JAY benefits for migrant workers.

What Measures can India Adopt to Achieve Universal Health Coverage?

- **Mandatory "Gatekeeper" Referral Mechanism:** India must institutionalize a strict **"Graduated Referral System"** where primary care centers **(Ayushman Arogya Mandirs) act as the mandatory entry point for non-emergency care.**
  - This filters out minor ailments at the local level, preventing the choking of tertiary hospitals with secondary cases and optimizing specialist resource allocation.
  - By enforcing this triage, **the state ensures that high-cost hospital infrastructure is reserved for critical care**, significantly improving system efficiency and reducing waiting times.
- **Strategic Purchasing & Value-Based Care:** The government must shift from being a passive payer to an active **"Strategic Purchaser"** of health services from the private sector.
  - Instead of fee-for-service models that encourage unnecessary tests, the state should adopt **"capitation-based" or "bundled payment"** models that reward providers for patient recovery outcomes rather than the volume of procedures.
  - This aligns private sector incentives with public health goals, capping cost escalation while leveraging private infrastructure for public coverage.
- **Task Shifting to Mid-Level Health Providers (MLHPs):** To bypass the chronic shortage of MBBS doctors, the system must aggressively implement **"Task Shifting"** by legally **empowering Community Health Officers (CHOs) and nurse practitioners to prescribe basic medicines and manage routine chronic diseases.**
  - Creating a dedicated cadre of **"Rural Medical Practitioners"** with bridge courses allows for the decentralization of clinical care to the sub-centre level.
  - This ensures that essential health services reach the "last mile" without being held hostage by the reluctance of specialists to serve in rural hinterlands.

- **"Health in All Policies" (HiAP) Framework:** UHC must move beyond the Health Ministry by adopting a **"Health in All Policies"** legislative framework that mandates Health Impact Assessments (HIA) for large-scale projects in transport, urban planning, and agriculture.
  - This inter-sectoral convergence addresses the **"Social Determinants of Health"**, such as air quality, road safety, and nutrition, at the source.
  - By treating health as an ecological outcome of development, the state reduces the downstream clinical burden on hospitals.
- **Urban Health Mission 2.0 (Poly-Clinics):** A dedicated focus is needed on the "invisible urban poor" through a revitalized **National Urban Health Mission** that establishes evening-shift "Mohalla Clinics" or Polyclinics tailored to the working hours of daily wage earners.
  - Unlike the rural tiered structure, urban health requires high-density, easily accessible outpatient units that integrate sanitation and vector control. This closes the coverage gap for slum populations who currently rely on quacks due to the overcrowding of major government hospitals.
- **"Continuum of Care" Integration:** The digital health mission must evolve from simple record-keeping to a **"Predictive Phygital Ecosystem"** that uses AI to flag high-risk patients for proactive home visits by frontline workers (ASHAs).
  - By integrating wearable technology data with the public health stack, the system can transition from **"episodic curative care" to "continuous preventive monitoring."**
  - This digital tether allows for real-time surveillance and remote specialist interventions, breaking the geographical barriers of healthcare access.
- **Towards One Health Approach & Community Oversight:** India must adopt a **One Health framework** that integrates human, animal, and environmental health to prevent zoonotic outbreaks and antimicrobial resistance.
  - This should be **complemented by social audits through Jan Arogya Samitis and Rogi Kalyan Samitis,** enabling local communities to monitor hospital performance, service delivery, and resource utilization.
  - By **combining ecological health monitoring with grassroots accountability**, the system ensures preventive care, improves trust in public health institutions, and strengthens Universal Health Coverage at the community level.

Conclusion:

India stands at a defining moment where the promise of Universal Health Coverage must evolve into Universal Health Assurance—guaranteeing not just access, but continuity, quality, and financial protection. The path ahead demands bold reforms: strengthening primary care, bridging rural–urban gaps, regulating the private sector, and institutionalizing a rights-based approach through robust legislation. If backed by sustained political will and multi-sectoral collaboration, India can transform its healthcare ecosystem into one that is equitable, resilient, and future-ready—**laying the foundation for a truly healthy and Viksit Bharat by 2047.**

India'S Roadmap to Transform Maoist-Affected Areas

This editorial is based on "Message to Maoists, from one of their own: Violence doesn't work" which was published in The Indian Express on 05/12/2025. The article shows the limitation of a violence based movement to achieve social justice and inclusive development. Further it shows the multifaceted approach of the government to eliminate the Red Terror.

Tag: GS Paper - 3, Internal Security, Left wing Extremism, GS Paper - 2, Government Policies & Interventions

In recent years, the armed insurgency has witnessed a dramatic erosion of strength and influence. What once spanned over **200-plus districts across the so-called "Red Corridor"** has now shrunk to 11 districts largely confined to small pockets in central India (Red Pocket). Compared

to the period of 2004-14, the period of 2014–24 saw a **73% reduction in security personnel deaths and a 74% reduction in civilian deaths**. In 2024, the highest number of Naxalites (290) were neutralized in a single year. These trends clearly illustrate a significant erosion of the Naxal movement itself, marked by dwindling cadre strength, shrinking territorial presence, and weakening ideological mobilisation

What is the History of the Naxal Movement in India?

- **Origins and Ideological Roots**
  - **Birth of the Movement (1967):** Naxalism, officially termed Left-Wing Extremism (LWE), originated from the peasant uprising in Naxalbari village, West Bengal, led by Charu Majumdar, Kanu Sanyal, and Jangal Santhal.
  - **Ideological Foundation:** The movement drew inspiration from Mao Zedong's doctrine of a prolonged "people's war," advocating armed struggle against the state.
- **Socio-Economic Context**
  - **Deep Structural Inequalities:** Early Naxalism emerged from severe socio-economic distortions such as unequal land ownership, bonded labour, caste oppression, forest-land dispossession, and chronic political marginalization of tribal communities.
  - **Failure of Land Reforms:** Inadequate implementation of land reforms in the 1950s–60s further aggravated rural distress.
  - **Neglect of Tribal Regions:** The state's limited presence in remote tribal districts created a vacuum, enabling radical groups to mobilize discontent.
  - **Armed Revolt as a Perceived Solution:** For the poorest cultivators and landless labourers, armed resistance came to be viewed as the only path to justice.
- **Early Expansion and Escalation (1970s–1980s)**
  - **Peak Violence in 1971:** Independent India witnessed a high point with 3,620 violent incidents linked to Naxalism.
  - **Spread Across States:** During the 1980s, the People's War Group expanded operations into Maharashtra, Madhya Pradesh, Andhra Pradesh, Telangana, Chhattisgarh, Uttar Pradesh, Jharkhand, Bihar, and Kerala.
- **Consolidation of LWE Groups**
  - **Mergers and Unification:** After the 1980s, various Left-wing extremist groups began merging.
  - **Formation of CPI (Maoist) in 2004:** The unification of major factions led to the creation of the CPI (Maoist), intensifying violence and organizational strength.

What Strategies Has India Implemented to Address Maoist Insurgency?

- **SAMADHAN Framework:** It is MHA's integrated, multi-dimensional strategy to counter Left Wing Extremism through coordinated security action, technology, leadership, and development. It combines policing reforms with targeted operations and denial of Maoist finances.

- **Surrender and Rehabilitation Policy:** Offers Naxal/ Maoist cadres a dignified exit: if they lay down arms they receive financial aid, vocational-training, monthly stipend or lump sum grants, and social reintegration support.

- In 2025 alone, official police data shows over 1,040 cadres have surrendered so far.

- **Security Measures**
  - **Operation Steeplechase:** In the early 1970's during the President's rule, **Operation Steeplechase, a joint Army-CRPF-Police operation**, was launched against the Naxalites in the bordering districts of **West Bengal, Bihar, and Orissa, which were worst affected.**
  - **Salwa Judum Movement**: The Salwa Judum movement was the counter-Naxal operation that ran from 2004 to 2009.
    - Under this, a force of volunteers was trained by the security forces for the defence of villages in Naxal-affected areas and to offer an alternative to the youths who were being compelled by the CPI-Maoist cadres to join them.
  - **Operation Green Hunt:** It was launched in 2009 against insurgents in Chhattisgarh, the epicentre of violence between Maoist fighters and security forces. The Operation dealt a severe blow to the Naxal insurgency and practically cleansed Andhra Pradesh of CPI-Maoist footprints.
  - **Operation Octopus(2022):** Targeted CRPF-led operation focused on Burha Pahar / Garhwa / other corridor strongholds to clear heavily mined Naxal pockets.
  - **Operation Double Bull:** Intensive multi-day CRPF operations targeted at disrupting Naxal funding/logistics. Numerous caches seized, arrests made leading to reduction in local Naxal activity.
  - **Operation Black Forest (April 2025):** A decisive campaign on the Chhattisgarh–Telangana border (**Kareguttalu/Kurraguttalu hills / Abujhmad fringe)** that "cleared" key terrain and targeted top Maoist commanders.
- **Infrastructure & Connectivity:** Between 2014 and 2024, **12,000 kilometers of roads** have been constructed in Left-Wing Extremism–affected states, budgets have been approved for 17,500 roads, and **5,000 mobile towers** have been installed at a cost of ₹6,300 crore.
  - The government's infrastructure initiatives i**n Left-Wing Extremism (LWE)-affected areas include road, rail, and telecom projects to improve connectivity and administration.**
    - Key schemes are the **Road Connectivity Project for LWE Areas (RCP–LWE), Pradhan Mantri Gram Sadak Yojana (PMGSY) with LWE focus, and LWE Special Infrastructure Scheme (LWE-SIS),** along with special rail projects in Jharkhand, Chhattisgarh, and Odisha.
    - Additionally, telecom expansion through BharatNet (Optical Fibre to Gram Panchayats) and LWE mobile towers ensures high-speed broadband and communication in remote tribal regions.
- **Governance Measures: Panchayat Extension To Scheduled Areas Act (PESA) and Forest Rights Act 2006:** PESA strengthens tribal self-governance through empowered Gram Sabhas, while FRA secures land and forest rights, including control over Minor Forest Produce. Together, they enhance tribal autonomy and reduce vulnerability to Naxal influence.

What Factors Continue to Make India Vulnerable to Maoist Insurgency?

- **Tactical Asymmetry and "Contactless" Warfare:** The insurgency has shifted from direct guerilla confrontations to "invisible enemy" tactics, **heavily relying on Improvised Explosive Devices (IEDs)** and potential drone usage to negate the numerical superiority of **security forces (SFs).**
  - This asymmetrical warfare allows a shrinking cadre to inflict disproportionate psychological and physical damage while avoiding direct engagements.
  - In **January 2025,** an **IED explosion in Bijapur** resulted in the death of 8 security personnel, highlighting the continuing threat of Left-Wing Extremism in central India.
- **Governance Deficit in Tribal Land Rights (FRA & PESA):** Vulnerability stems from the **"trust deficit" created by the poor implementation of the Forest**

Rights Act (FRA) and PESA, where rejection of land claims and delays in community rights recognition feed the Maoist narrative of "state exploitation."

- The perception that the state prioritizes corporate mining over tribal welfare remains a potent recruitment tool for the rebels.
- For instance, over 38% of all claims over land made under the Forest Rights Act (FRA), 2006 till November 2022, have been rejected.
  - Recent protests in the **Hasdeo Arand region** highlight continuing tribal anxiety over displacement and resource extraction.

- **Historical Socio-Economic Deprivation: Chronic poverty and social exclusion** in tribal belts create fertile ground for insurgent mobilisation.
  - For instance, over **40–50% households** in core LWE districts fall under deprivation indicators.
  - Backward districts like **Sukma, Malkangiri and Gadchiroli** rank among India's poorest, sustaining resentment against the state.
  - Persisting poverty and exclusion can lead to dilution of gains made .
- **Difficult Terrain and Inadequate State Penetration: Dense forests, hilly terrain and porous state borders** create natural safe havens and facilitate mobility.
  - For example the **Dandakaranya region** spanning **Chhattisgarh–Maharashtra–Odisha** remains a key guerrilla base due to its difficult terrain.
- **Inter-State Coordination Challenges**: LWE areas straddle multiple states, complicating **intelligence sharing and joint operations**.
  - For instance, The **2013 Darbha Valley attack** exploited gaps between Odisha–Chhattisgarh coordination.
- **Youth Unemployment and Lack of Livelihood Options**: Limited non-farm opportunities and skill training may push youth towards re-recruitment.
  - As per NITI Aayog, Core LWE districts have **higher than national average youth unemployment**.

How Can India Transform Maoist-Affected Areas into Thriving Development Hubs?

- **Hyper-Localized "Smart" Governance via PESA Integration:** To bridge the trust deficit, the state must move beyond symbolic representation to active "Digital Sovereignty" for tribal bodies by empowering Gram Sabhas under PESA with real-time digital dashboards for fund utilization.
  - **Implementing a "Bottom-Up" planning model allows local communities to veto or approve development projects**, ensuring that infrastructure aligns with tribal ecological values rather than perceived corporate greed.
  - This digital democratization transforms the narrative from **"state imposition" to "participatory development,"** effectively neutralizing the Maoist propaganda of state exploitation.
- **"Forest-to-Market" Value Chain Sovereignty:** Economic transformation requires shifting from raw material extraction to local value addition by establishing a dense network of **Van Dhan Vikas Kendras (VDVKs) equipped with processing technology for Minor Forest Produce (MFP).**
  - By creating a **"Tribal-Start-up Ecosystem"** that brands and exports products like Mahua and wild honey directly to global markets, the state can ensure wealth retention within the community.
  - This **"Bio-Economy" approach** dismantles the exploitative middleman structure that insurgents often leverage for levies, replacing it with sustainable, community-owned wealth generation.
- **Transparent and Participatory Mining & Resource Management:** Introduce **fair compensation, R&R** and **share of mineral royalties** to local communities through the **DMF (District Mineral Foundation)**
  - Also Encourage community-led monitoring to prevent displacement grievances exploited by Maoists.
- **Encouraging Private Investment and Public–Private Partnerships:** Offer risk guarantees, tax

incentives, and infrastructure support to attract industries in agro-processing, textiles, food parks, and renewable energy.

- For instance, **Dantewada's Steel Slurry Pipeline** and **NMDC-based industrial corridor** catalysed local jobs and services.

- **Leveraging Technology for Governance and Development:** Use **GIS mapping, drones, and e-governance platforms for service delivery and monitoring.**
  - Expand digital payments and DBT to eliminate leakages, building trust in state institutions.
- **Reconciliation, Trust-Building, and Reintegration:** Strengthen surrender and rehabilitation policies by promoting uniform policies across states with assured livelihoods, housing, and skill training.
  - Over **1,600 Maoists surrendered in Chhattisgarh and Jharkhand (2018–2023)** due to improved welfare incentives.

Conclusion:

Accelerated **settlement of land and forest rights,** credible grievance redress, and strict enforcement of welfare entitlements are **vital to rebuilding state legitimacy.** Strengthening PRIs, empowering Gram Sabhas, and widening access to justice through legal-aid clinics can deepen democratic participation. Ultimately, **durable peace will rest on a participatory, tribal-sensitive governance framework** that addresses structural inequities while preventing the re-emergence of insurgent influence.

India'S Big Leap in Nuclear Energy

This editorial is based on "Fission & fusion" which was published in The Financial Express on 12/12/2025. The article brings into picture India's renewed nuclear push as legal amendments open the sector to private players and a ₹20,000-crore mission accelerates SMR and PWR development through global partnerships.

Tag: GS Paper - 1, Mineral & Energy Resources, GS Paper - 3, Nuclear Technology

India is poised for a decisive shift in its nuclear energy journey, with **Parliament set to amend key laws to allow private participation across the entire value chain.** Backed by the Indian PM's push for long-term energy security and CO_2 reduction, the government has launched a **₹20,000-crore Nuclear Energy Mission focused on Small Modular Reactors and advanced Pressurized Water Reactors.** Global collaborations, from the US to Russia, are accelerating technology access and fuel-cycle support. Yet **India's nuclear capacity remains just 8.8 GW, far short of the 100-GW target for 2047**, demanding huge capital infusion and systemic reforms. A dual strategy of SMRs and thorium-based reactors can enable India to build a resilient, self-reliant, and future-ready nuclear ecosystem.

How has India Advanced its Nuclear Energy Capacity and Technology in Recent Years?

- **Indigenous Fleet Standardization (PHWRs):** India has successfully transitioned from experimental reactor designs to a standardized **"fleet mode"** construction strategy, significantly reducing per-unit costs and gestation periods for domestic energy security.
  - This shift to serial production of **indigenous Pressurized Heavy Water Reactors (PHWRs)** allows for rapid scaling without reliance on volatile foreign supply chains or intellectual property constraints.
  - For instance, **Kakrapar Unit-4** commenced full commercial operations in March**, 2024**.
    - The government has approved **10 additional** 700 MWe units for fleet mode construction to be completed progressively by 2031-32.
- **Operationalization of Stage II of Nuclear Program (Fast Breeder Tech):** The nuclear program is currently crossing its most critical technological threshold by operationalizing the **Prototype Fast Breeder Reactor (PFBR)**, which unlocks the capability to use spent fuel and eventually Thorium.
  - This move **effectively ends the "fuel constraint"** era by closing the nuclear fuel cycle, multiplying the energy potential of

domestic uranium reserves by nearly sixty times.

- The **500 MWe PFBR** at Kalpakkam commenced core loading in **March, 2024**, targeting criticality to trigger the start of India's vast Thorium utilization phase.

- **Strategic Policy Shift to Small Modular Reactors (SMRs):** Recognizing that large plants cannot decarbonize captive industries or remote grids, India has aggressively pivoted its policy to develop **"Bharat Small Reactors" (BSRs) by repurposing existing 220 MWe designs.**
  - This decentralization strategy aims to replace captive thermal power plants in steel and cement industries, directly addressing hard-to-abate industrial emissions.
  - The Union Budget **2025-26** allocated **₹20,000 crore** for a new Nuclear Energy Mission focused on SMRs.
    - The target is to deploy at least **five indigenous SMRs** by 2033 to support the net-zero 2070 goal.
- **Institutional Innovation via Joint Ventures (ASHVINI):** To bypass the fiscal limitations of the Department of Atomic Energy, the government has restructured implementation models by **allowing cash-rich Public Sector Undertakings (PSUs) to form Joint Ventures with NPCIL.**
  - This **"financial engineering"** allows the nuclear sector to leverage the balance sheets of power giants like NTPC, tripling the investment capacity available for new projects.
  - The **NPCIL-NTPC Joint Venture "ASHVINI"** was operationalized to execute the **Mahi Banswara project (4x700 MW)**.
- **Resilience in International Cooperation (Kudankulam):** India has successfully insulated its critical Russian-led projects from global geopolitical sanctions, ensuring continuity in high-capacity VVER reactor construction.
  - By securing **long-term fuel contracts and localizing component manufacturing,** India has maintained momentum on its largest foreign-collaborated site despite supply chain disruptions in Eastern Europe.
  - For instance, undeterred by global pressures, Russia commenced lifecycle nuclear fuel deliveries for **Kudankulam Unit 3** under a new sovereignty-proof contract.
- **Private Sector Entry and Legislative Reform:** Breaking a decades-old state monopoly, the **government is amending the Atomic Energy Act (1962)** to legally permit private players to participate in nuclear generation, not just as suppliers but as partners.
  - This deregulation is calculated to attract high-volume private capital and efficiency, mirroring the success seen in India's renewable energy and space sectors.
  - The **2025 Budget** speech explicitly proposed amendments to the **Atomic Energy Act** and **Civil Liability Act**.
    - This aims to unlock an estimated **$26 billion** in private investment to help reach the **100 GW target by 2047**.
- **Record Generation and Carbon Avoidance:** The operational efficiency of existing Indian reactors has hit historic highs, functioning as a stable baseload anchor to balance the intermittency of the rapidly expanding solar and wind grid.
  - This reliability is proving analytically crucial for grid stability, allowing for a higher penetration of renewables without risking blackouts during peak demand.
  - NPCIL achieved a record generation of **56,681 Million Units (MUs)** in **FY 2024-25**.
    - This output effectively prevented approximately **49 million tonnes** of CO_2 emissions.

What Major Challenges Continue to Restrict the Growth of Nuclear Energy in India?

- **Liability Law Ambiguity (The Supplier's Dilemma):** The **Civil Liability for Nuclear Damage Act (CLND),2010** specifically Section 17(b), remains the single biggest legal blockade, as **it holds suppliers liable for accidents, deviating from global norms that channel liability solely to operators.**

- This **"recourse"** clause spooks international vendors and domestic manufacturers alike, who fear unlimited financial exposure, stalling mega-projects despite diplomatic breakthroughs.
- The **Jaitapur Project** (EDF, France) remains unsigned in **late 2025** primarily due to liability pricing disagreements.
  - Westinghouse's **Kovvada project** has seen **zero ground progress** for over a decade due to this statutory deadlock.

- **The "Capital Cost" Disadvantage vs. Renewables:** Nuclear energy faces a severe **"economic viability gap" as its high upfront capital expenditure (CapEx)** and long gestation periods make it fiscally unattractive compared to the plummeting costs of solar and wind energy.
  - According to the **U.S. Energy Information Administration, the LCOE for advanced nuclear power was estimated at $110/MWh in 2023 and forecasted to remain the same up to 2050**, while solar PV estimated to be **$55/MWh in 2023 and expected to decline to $25/MWh in 2050.**
  - Discoms are reluctant to sign long-term Power Purchase Agreements (PPAs) for nuclear power when renewable tariffs are significantly cheaper and faster to deploy.
- **Chronic Execution Delays (Time Overruns):** India's nuclear sector suffers from systemic project management inefficiencies, where complex engineering and regulatory hold-ups lead to massive time overruns that **inflate "Interest During Construction" (IDC), destroying project economics.**
  - The inability to adhere to construction timelines erodes investor confidence and delays the realization of energy security targets.
  - **For instance, Prototype Fast Breeder Reactor (PFBR) in India faced significant delays, stretching well over a decade from its original 2010 target**, with technical issues (especially sodium coolant systems) and procurement challenges pushing its commissioning
- **Land Acquisition & The "NIMBY" Syndrome:** Securing large, contiguous land parcels for **"Nuclear Parks"** is increasingly difficult due to stiff **"Not In My Backyard" (NIMBY)** resistance from local communities fearing displacement and radiation risks.
  - This socio-political friction often leads to protracted litigation and protests, paralyzing pre-project activities for years before a single brick is laid.
  - **Gorakhpur Haryana Anu Vidyut Pariyojana (GHAVP)** faced significant delays, with farmer protests over inadequate land compensation and resettlement issues delaying the project.
    - The **Mithi Virdi project** (Gujarat) was effectively **abandoned** and shifted to Andhra Pradesh due to intense local opposition.
- **Domestic Supply Chain Constraints:** The indigenous heavy industry currently lacks the depth to support the simultaneous construction of the "Fleet Mode" (10 reactors) and SMRs, facing a bottleneck in high-precision forgings and specialized component manufacturing.
  - Reliance on a monopoly of few qualified vendors (**like L&T, BHEL**) restricts the ability to scale up production rates to meet aggressive 2047 targets.
  - Only **few Indian firms** are certified to manufacture critical **Reactor Pressure Vessels**.
    - The industry struggles to meet the requirement of special steel forgings annually for the accelerated fleet.
- **Geopolitical & Technology Denial Regimes:** Despite the civil nuclear deal, India's exclusion from the **Nuclear Suppliers Group (NSG)** continues to restrict access to **cutting-edge technology transfers and creates unpredictability in fuel supply chains.**
  - China's consistent veto in the NSG prevents India from fully integrating into global nuclear commerce, forcing reliance on bilateral deals that are subject to geopolitical shifts.

- **China has been blocking India's entry into the NSG**, which controls the world's nuclear commerce even though India has the backing of majority of the members
  - This **forces India to maintain Uranium stockpiles as a buffer against potential sanction-led supply shocks**.

- **Manpower & Skill Deficit:** The Department of Atomic Energy (DAE) faces an acute "human capital crunch" as it struggles to attract top engineering talent who prefer the lucrative IT or renewable sectors.
  - The **retirement of the older generation of nuclear scientists,** combined with a slow intake of specialized youth, creates a knowledge gap critical for operating advanced Fast Breeder and Thorium systems.
  - For instance, a Parliamentary Standing Committee report noted nearly **three in five of the posts sanctioned for scientific personnel** at one of India's top institutes for basic science research, the Tata Institute of Fundamental Research (TIFR), are lying vacant.
    - Moreover, a **quarter of the sanctioned posts at India's key atomic energy research institutions** and nuclear power plants are vacant.

How can India Upgrade its Nuclear Energy Ecosystem for Long-term Growth?

- **Rationalizing the Civil Liability Framework:** To unlock global technology transfers, the government **must clarify the "Right of Recourse" under the Civil Liability for Nuclear Damage (CLND) Act** by capping supplier liability or creating a **state-backed "Nuclear Insurance Pool" that effectively absorbs high-risk premiums.**
  - Harmonizing domestic laws with the Convention on Supplementary Compensation (CSC) will mitigate the **"unlimited liability" fear** that currently deters top-tier global vendors and private domestic manufacturers from entering the high-value reactor market.

- **Inclusion in Sovereign Green Taxonomy:** The Ministry of Finance should explicitly **classify nuclear energy as a "sustainable" investment** within India's Sovereign Green Bond framework, mirroring the European Union's taxonomy to attract massive global **ESG (Environmental, Social, and Governance) capital.**
  - By formally **labelling nuclear power as a "transition fuel" essential for Net Zero,** India can lower the cost of capital for new projects, granting NPCIL and private partners access to low-interest "Green Finance" rather than expensive commercial debt.

- **Production Linked Incentive (PLI) for Nuclear Components:** The government should introduce a specialized PLI scheme for the manufacturing of critical nuclear components like **heavy forgings, reactor pressure vessels, and specialized steel alloys to reduce import dependence and gestation period**s.
  - Incentivizing the domestic supply chain will transform India from a buyer to a global **"manufacturing hub" for Small Modular Reactors (SMRs),** allowing Indian industries to scale up production capacities that are currently insufficient for fleet-mode expansion.

- **Adopting the Hybrid Annuity Model (HAM):** To mitigate the risks associated with long gestation periods, the government should adopt the Hybrid Annuity Model, successfully used in the highway sector, where the state shares the initial capital cost while the private player handles construction and operations.
  - This **risk-sharing mechanism insulates private developers from revenue volatility and regulatory delays**, making the sector **"investible" for risk-averse** private equity firms who are currently wary of the high upfront risks in nuclear infrastructure.

- **Strategic International Uranium Equity:** India must shift from **merely buying fuel to acquiring "equity stakes"** in overseas uranium mines in friendly nations (like **Kazakhstan, Canada, or Namibia**) to insulate its fleet from geopolitical supply shocks and price volatility.

- Creating a **"Strategic Uranium Reserve"** similar to the **Strategic Petroleum Reserve** will ensure fuel security for decades, allowing the domestic fleet to operate at high capacity factors regardless of fluctuations in the global nuclear fuel market.

- **Pre-Licensing Generic Design Assessment for SMRs:** To accelerate the deployment of Small Modular Reactors (SMRs), the regulator should implement a **"Generic Design Assessment" (GDA) protocol t**hat approves a reactor design once for multiple sites, eliminating the need for repetitive site-specific licensing.
  - This **"Type-Certification" approach** would drastically cut down the pre-project regulatory timeline, allowing for the rapid, standardized rollout of SMRs across industrial clusters and captive power plants without bureaucratic redundancy.

Conclusion:

India stands at the threshold of a transformative nuclear expansion, with **legal reforms, SMR innovation, and global partnerships redefining its clean-energy trajectory.** Yet achieving the 100-GW vision will demand clarity in liability laws, deeper capital pools, and a stronger domestic manufacturing base. Strengthening supply chains, investing in human capital, and securing long-term fuel resilience are now non-negotiable. **With the right mix of policy ambition and technological foresight, nuclear power can become the backbone of India's low-carbon, energy-secure future.**

Electoral Reforms in India: Safeguarding the Democratic Ethos

This editorial is based on A deep cleaning of India's electoral rolls which was published in The Hindu on 10/12/2025. The article brings into picture how electoral reforms through special intensive revision are being done to strengthen the electoral process.

Tag: GS Paper - 2, Constitutional Bodies, Quasi Judicial Bodies, Governance, Election

India's electoral architecture stands as **one of the world's largest democratic engineering feats,** blending constitutional ideals with intricate institutional design. From universal suffrage to an autonomous Election Commission, the system aspires to translate the will of over 960 million voters into legitimate authority. Yet, beneath this vast machinery lies a dynamic interplay of law, technology, and political behaviour that constantly tests the integrity of elections. Over the decades, reforms from voter ID cards to VVPAT-backed transparency have strengthened public trust.

What Are The Reforms That Have Been Taken?

- **1950s–1960s: Foundation-Building Phase:**
  - **Key Mandate of the Era :** Build voter rolls, create constituencies, and set norms for free and fair elections
  - **Steps Taken**
    - Representation of the People Acts, 1950 & 1951
    - **Election Commission Structure Formalised:**Set up roles of Chief Election Commissioner and field machinery.
    - **Delimitation Commission (1952, 1963):** Reduced malapportionment and created uniform constituency sizes.
  - **First General Election (1951–52)**
    - Conducted by the newly formed ECI; established credibility despite low literacy and huge logistics.
- 1970s–1980s: Preventing Misuse of Power & Improving Integrity
  - **Key Mandate of the Era:** Curb misuse of power, reduce political instability, improve voter participation, and strengthen electoral fairness.
  - **Steps taken**
    - **Election Symbols Order, 1968:** Prevented disputes arising out of splitting of parties. Eg, Congress(O) and Congress (R).
    - **Anti-Defection Law (1985):** Prevented MLAs/MPs from switching parties for personal gain (Horse Trading); stabilised governments especially the coalition ones.

- **Lowering Voting Age (61st Amendment, 1988):** Expanded youth participation by reducing age from 21 to 18.
- **Delimitation Commission (1973):** Adjusted boundaries to match population changes of 1971 Census.
- **42nd Constitutional Amendment (1976): froze the delimitation of constituencies** till after the 2001 Census to encourage population control preventing states with successful family planning from losing seats.

1990s: Electoral Activism & Modernisation Phase

- **Key Mandate of the Era:** Clean up elections, reduce money/muscle power, modernise identity verification, and strengthen ECI authority.
- **Steps Taken**
  - **ECI Activism under T.N. Seshan (1990–96):** Introduced Voter photo ID cards, Strict enforcement of MCC; crackdown on booth capturing and illegal expenditure.
  - **Indrajit Gupta Committee on State Funding (1998):** Recommended partial state funding for recognised parties; emphasised transparency.
  - **Common Cause vs. Union of India(1996):** The Supreme Court held that political parties are legally required to file income tax returns and maintain accurate accounts. It delineated the Election Commission of India's (ECI) power under Article 324 of the Constitution to scrutinize the accounts of expenditure incurred by political parties during elections
  - **Dinesh Goswami Committee on Electoral Reforms (1990)**:Recommended curbs on government advertisements, expenditure control, opinion poll regulation,

2000s: Structural Reform & Technological Deepening Phase:

- **Key Mandate of the Era:** Update constituencies, expand transparency, strengthen institutional checks, and integrate technology.
- **Steps Taken**
  - **NCRWC (2000) Recommendations:** Proposed barring candidates with serious criminal charges; suggested permanent ECI secretariat.
  - **Disclosure Reforms:** Union of India vs. Association for Democratic Reforms **(ADR 2002) case**, the judgement required **mandatory disclosure of criminal cases, educational qualification, assets**.
  - **Delimitation Commission (2002–08):** Updated boundaries based on 2001 Census; adjusted SC/ST reserved seats.
  - **Mandatory Use of EVMs (2004):** Eliminated invalid votes and sped up the counting process.
  - **Paid News & Expenditure Monitoring :** ECI started real-time expenditure surveillance and media certification rules to curb money power.

2010s: Transparency, Technology & Accountability Phase

- **Key Mandate of the Era:** Increase voter trust, improve transparency of funding, enhance verification, and clean political processes.
- **Steps Taken:**
  - **Introduction of VVPAT (2013; universalised in 2019):** Allowed voters to verify their vote, enhancing trust.
  - **Disqualification :** In **Lilly Thomas Case, SC** invalidated Section 8(4) of the Representation of People Act. This provision allowed a three-month period for convicted legislators to appeal before disqualification, leading to instant disqualification of legislators if convicted for two or more years.
  - **NOTA Provision:** Allowed voters to cast their disapproval against the fielded candidates.
  - **ERONet & NVSP (2015– onwards):** Digitalised voter verification, reduced duplication and fake entries.

- **Electoral Bonds (2017):** Attempt to formalise donations; later struck down by SC in 2024 **(ADR & Anr v. UOI case)** for lack of transparency.
- **Fast-Track Courts for MPs/MLAs: Ashwini Kumar Upadhyay vs. Union of India** SC directed the establishment of special courts to exclusively handle criminal cases against MPs and MLAs.
- **Remote Voting Proposals (2020 onwards)** : Develop systems for migrant workers; still in pilot stage.
- **High-Level Committee on One Nation, One Election (2023–24):** Recommended phased implementation of simultaneous polls with constitutional and legal amendments.
- **ECI Modernisation:**GPS-enabled EVM tracking, digital nomination forms, inclusion services for PwDs and senior citizens.
- **The CEC and Other ECs (Appointment, Conditions of Service and Term of Office) Act 2024**: Laid the process of selection and appointment of CEC and other ECs through a selection committee.

What Are The Major Challenges that Still Persist in India's Electoral System?

1. **Criminalisation of Politics:** The entry of individuals with criminal backgrounds into the legislative arena remains a critical concern, signaling the entrenchment of "muscle power."
   - According to the **Association for Democratic Reforms (ADR)**, **47%** of Ministers (Union and State Cabinets) have declared criminal cases against themselves.
   - Of these, **27%** face serious criminal charges, undermining the sanctity of lawmaking bodies.
2. **Unregulated Money Power & Financial Opacity:** Elections in India are becoming increasingly expensive, creating an uneven playing field.
   - **Skyrocketing Expenditure:** The Centre for Media Studies (CMS) estimated the total expenditure for the **2024 Lok Sabha Elections at ₹1,00,000 crore**, nearly doubling from 2019.
   - **Regulatory Loophole:** While the Election Commission of India (ECI) caps expenditure for *candidates*, there is **no limit on spending by political parties**, disproportionately disadvantageing smaller regional parties.
   - **Lack of Compliance:** Many parties delay submitting expenditure statements (delays ranged from 1 to 232 days post-election), and some failed to report altogether after the 2024 General Elections.
3. **Exclusion and Disenfranchisement of Migrants:** The current electoral framework lacks flexibility, leading to the systemic exclusion of internal migrants.
   - **Rigid Registration:** Voter registration is tied to "ordinary residence." Migrant workers often remain enrolled in their native constituencies but cannot travel home to vote due to cost, distance, and loss of wages.
   - **Absence of Remote Voting:** The Representation of the People Acts (1950 & 1951) generally mandate in-person voting. Despite successful pilots of postal ballots during COVID-19, these mechanisms have not been scaled up for the general migrant population.
   - **Voter Deletion:** During the Special Intensive Revision (SIR) in Bihar, nearly **3.5 million voters** (4.4% of the electorate), mostly migrants, got deleted from rolls.
4. **Technological Disruptions & Manipulation:** The integrity of the voter's free will is under threat from unregulated digital interference.
   - **Micro-targeting:** Emerging use of data analytics and AI for voter segmentation raises concerns, drawing parallels with global cases like Cambridge Analytica.
   - **Misinformation:** The spread of **deepfakes** and fake news on social media distorts public perception and voter behavior.
5. **Structural and Federal Challenges:**
   - **Delimitation Freeze:** The freeze on delimitation (until 2026) has created a representation imbalance. Southern states, having successfully controlled

their populations, face a shrinking share of political power relative to the populous Northern states.
  - Delimitation based on population is frozen **until after the first Census conducted post-2026**.
  - Since Census has been delayed, delimitation is **effectively postponed beyond 2026**.
- **Weak Internal Democracy:** Political parties often lack transparent internal elections. Leadership selection is centralized, making intra-party democracy merely symbolic and leading to grassroots disillusionment.
- **Misuse of Machinery:** Incumbent governments frequently utilize public resources, bureaucratic apparatus, and advertisements to influence voters, often skirting the Model Code of Conduct (MCC).

6. **Stagnating Participation:**
- **Voter Apathy:** Analyses of Election Commission data show that in roughly 27–33% of Lok Sabha constituencies, the absolute number of votes cast in 2024 was lower than in 2019, despite overall votes nationally increasing.

What More Reforms Needed ?

1. **Curb Money Power & Ensure Transparency**
- **State Funding (Indrajit Gupta Committee, 1998):** Introduce partial state funding for recognized national and state parties to level the playing field.
- **Audit & Disclosure (Law Commission, 2015):** Mandate the disclosure of *all* donations (regardless of size) and enforce strict independent audits of party accounts.
- **Post-Electoral Bonds (after SC Verdict 2024):** Establish a fully transparent donation mechanism to replace the now-scrapped Electoral Bonds scheme.

2. **Decriminalisation of Politics**
- **Bar Candidates (NCRWC, 2002 & Law Commission, 2015):** Candidates should be disqualified if charges for serious crimes have been **framed by a court**, rather than waiting for a final conviction (which often takes decades).
- **Fast-Track Courts:** Establish special courts to expedite cases against sitting MPs and MLAs.
- **ECI Proposal:** Amend the Representation of the People Act to mandate disqualification upon framing of charges for heinous offences

3. **Strengthen ECI's Independence**
- **Autonomy (Goswami Committee, 1990 & 255th Law Commission Report):** The Election Commission should have an **independent budget** (charged to the Consolidated Fund of India) and a permanent independent secretariat to reduce reliance on the government.

4. **Internal Democracy in Political Parties**
- **Structural Reform (NCRWC):** Mandate regular internal elections and maintain transparent membership records.
- **Deregistration Powers (Law Commission):** Grant the ECI the power to **deregister** parties that violate democratic norms or financial regulations.

5. **Combat Digital Manipulation**
- **Digital Campaigning Code:** Formulate a specific code to regulate:
  - AI-generated deepfakes and synthetic media.
  - Algorithmic micro-targeting of voters based on caste/religion.
  - Paid political content and "shadow" advertisements.
- **Collaboration:** ECI must partner with tech platforms for real-time monitoring and takedown of disinformation.

6. **Voter Accessibility & Migrant Inclusion**
- **Remote Voting:** Pilot and evaluate **Remote Electronic Voting Machines (RVMs)** before phased implementation to allow internal migrants to vote for their home constituencies from their place of work.
- **Clean Rolls:** Ensure the **Special Intensive Revision (SIR)** of electoral rolls is diligent and transparent to prevent the wrongful deletion of migrant voters.

7. **Rationalise Delimitation**
- **Federal Balance:** The post-2026 delimitation exercise must balance the principle of "one person, one vote" while protecting the political weight of Southern states that effectively implemented population control measures.

8. **Strengthen Model Code of Conduct (MCC)**
   - **Legal Backing (Goswami Committee):** Amend the Representation of the People Act (RPA) to make the MCC (or parts of it) **legally enforceable**.
   - **Strict Penalties:** Introduce statutory penalties for hate speech, communal appeals, and the misuse of government machinery during elections.

Conclusion:

India's electoral architecture is among the world's most extensive and credible, yet **persistent challenges like money power, criminalisation, digital manipulation, and weak internal party democracy, threaten the democratic ethos**. A comprehensive reform approach is essential to modernise laws, strengthen institutions, and introduce clean and transparent practices. Implementing the recommendations of various committees and the Supreme Court's directives can ensure elections remain **free, fair, participatory, and truly reflective of the people's will**.

India-West Asia Strategic Reset

This editorial is based on "India's new idiom for ties with West Asia" which was published in The Hindustan Times on 15/12/2025. The article brings into perspective India's transition in West Asia from narrow economic engagement to a consolidated, multi-pillar strategic partnership, built through sustained high-level diplomacy.

Tag: GS Paper - 2, Groupings & Agreements Involving India and/or Affecting India's Interests, Effect of Policies & Politics of Countries on India's Interests, International Treaties & Agreements

The **Indian Prime Minister's West Asia diplomacy** has evolved from **breakthrough to consolidation,** transforming **India's regional engagement** beyond oil and remittances into a comprehensive strategic partnership. Through sustained high-level visits and reciprocal exchanges, **India has positioned itself as a stabilizing force amid regional turbulence**, balancing relationships with all major powers without alienating any ally. The approach blends economic pragmatism, **evidenced by $178.56 billion in India-Gulf Cooperation Council trade**, with civilizational diplomacy that leverages India's pluralist identity and cultural soft power. Energy security, connectivity initiatives like **IMEC, defense cooperation, and diaspora welfare** now form the pillars of this multifaceted engagement.

What are the Key Strides in India-West Asia Relations?

- **Strategic De-hyphenation & High-Stakes Diplomacy:** India has mastered **"strategic de-hyphenation,"** engaging fiercely with **Arab nations (UAE, Saudi Arabia)** while maintaining robust ties with **Israel and Iran,** insulated from regional conflicts.
  - This maturity was tested during the **Israel-Hamas war,** where India balanced counter-terror support with humanitarian aid to Palestine, securing its interests without taking sides.

- The 2nd India-Saudi Strategic Partnership Council (SPC) meeting (April 2025) deepened security ties independent of broader regional turbulence.

- **Institutionalized Economic Integration**: Moving beyond "buyer-seller" oil relations, India is locking in long-term economic interdependence through Comprehensive Economic Partnership Agreements (CEPA).
  - The success of the UAE pact has created a template for the region, catalyzing faster negotiations with Oman and the GCC to boost non-oil trade and investment flows.
  - For instance, Bilateral trade between India and the UAE surged from $50 billion in 2021 to approximately $85 billion in 2024.
    - **In December 2025** Cabinet approved the **India-Oman Free Trade Agreement** that marks the next big milestone.
- **Energy Security 2.0-From Hydrocarbons to Green Hydrogen:** India is future-proofing its energy basket by securing long-term gas contracts while simultaneously co-developing green energy frameworks with **Gulf monarchies.**
  - This dual strategy ensures immediate fuel stability while leveraging the Gulf's capital for India's National Green Hydrogen Mission and renewable transitions.
  - For instance, in **February 2024**, India signed a **$78 billion** deal with Qatar to import **7.5 million tonnes** of LNG annually for 20 years (until 2048).
    - Also, Agreements with **UAE** and **Saudi Arabia** on **Green Hydrogen** and grid interconnection target zero-carbon supply chains.
- **Strategic Connectivity Architecture**: India is aggressively building alternative trade corridors to bypass Pakistan and counter China's BRI, exemplified by the operational control of Chabahar port and the IMEC vision.
  - Despite West Asian instability, **India solidified its "Gate to Central Asia" to ensure supply chain resilience and access to Eurasian markets.**
  - **For instance,** in **May, 2024**, India signed a historic **10-year contract** to operate the **Shahid Beheshti Terminal** at Chabahar Port, Iran.
    - India committed **$120 million** in equipment investment and a **$250 million** credit line to upgrade the terminal's capacity.
- **Defense "Minilateralism" & Security Net Provider**: New Delhi has graduated to a **"first responder" and security partner in the Gulf,** moving from passive observer to active participant in naval security and defense manufacturing.
  - Regular high-complexity military exercises signal a shared intent to police the Arabian Sea and protect critical sea lanes of communication.
  - For instance, India participated in Exercise Desert Flag-10 in **UAE** (**April 2025**) and Exercise Cyclone with Egypt to enhance interoperability.
    - Ongoing sales discussions for **BrahMos missiles** and **Pinaka rockets** to regional partners mark India's rise as a net security exporter.
- **Fintech Diplomacy & Soft Power Projection:** India is seamlessly integrating its Digital Public Infrastructure (DPI) with West Asian financial systems to benefit its massive diaspora and facilitate seamless cross-border transactions.
  - This "fintech diplomacy" reduces remittance costs and cements the Indian Rupee's global footprint alongside cultural milestones.
  - **For instance,** UPI (Unified Payments Interface) is now live in **UAE** and **Qatar**, enabling instant payments for Indian travelers and NRIs.
  - Also, the inauguration of the **BAPS Hindu Mandir in Abu Dhabi** stands as a monumental symbol of cultural acceptance and soft power.
- **I2U2 & The Food Security Corridor: The** I2U2 grouping **(India, Israel, UAE, USA) has successfully operationalized a food security corridor,** leveraging Gulf capital and Israeli agritech to transform India's agricultural output into a reliable supply base for West Asia.

- This strategic interdependence proactively insulates the region from global supply chain shocks and creates a unique "food-for-energy" security balance.
- For instance, the **United Arab Emirates has pledged $2 billion to help develop a series of "food parks" in India** to tackle food insecurity in South Asia and the Middle East.

What are the Key Areas of Friction Between India and West Asia?

- **The "Strategic Neutrality" Stress Test (Israel-Hamas Fallout)**: India's **"de-hyphenated"** stance faces severe strain as the prolonged Gaza conflict alienates the **"Arab Street,"** even if ruling monarchies remain pragmatic.
  - **New Delhi's refusal to explicitly condemn Israeli actions as "genocide"** creates a values-gap with the Global South and West Asian public opinion, complicating its soft power projection in the Islamic world.
  - For instance, **India in April 2024 abstained on a resolution at the Human Rights Council that called on Israel for an immediate ceasefire in Gaza** and called on states to implement an arms embargo, which was adopted by the 47-member Human Rights Council.
    - Though recently, India was among the 142 nations that voted in favour of the resolution titled **'Endorsement of the New York Declaration on the Peaceful Settlement of the Question of Palestine and the Implementation of the Two-State Solution'.**
- **Sanctions Uncertainty & The Chabahar Dilemma**: The persistent threat of US sanctions on Iran cripples **India's ability to fully operationalize the Chabahar Port**, turning a strategic asset into a diplomatic liability.
  - The vacillating **US waiver policy forces India to walk a tightrope,** delaying the International North-South Transport Corridor (INSTC) and allowing China to entrench its presence in Iranian infrastructure.
  - In **September 2025**, the US briefly revoked the Chabahar waiver before reinstating a **6-month exemption in October 2025**, creating investment paralysis.
- **The OIC "Kashmir" Irritant vs. Bilateral Warmth**: A structural disconnect exists where individual **Gulf nations (UAE, Saudi) embrace India**, but the **Organisation of Islamic Cooperation (OIC)** acts as a hostile multilateral bloc.
  - Pakistan's leverage within the OIC ensures regular, harsh resolutions on Kashmir and Indian minority rights. For instance, The **OIC Contact Group on Jammu & Kashmir** issued a statement condemning "demographic changes" in the region , forcing **New Delhi to constantly expend diplomatic capital to "manage" these statements.**
- **Widening Trade Deficit & Energy Asymmetry** Despite **Free Trade Agreements (FTAs),** the trade relationship remains heavily skewed in favor of West Asia due to India's inelastic demand for hydrocarbons.
  - The **"Oil-for-Goods" equation hasn't shifted fast enough,** Indian non-oil exports struggle to offset the massive import bill, leading to a recurring balance of payments pressure.
  - Oil/Gas still constitutes **~60% of India's import basket** from the region. Also, more than 18% of India's crude oil imports are sourced from Saudi Arabia (IBEF).
- **Labor Rights & The "Kafala" System Legacy**: The structural exploitation of India's blue-collar workforce remains a sensitive humanitarian friction point, exacerbated by occasional tragedies.
  - While **"Mobility Pacts" exist on paper**, the practical enforcement of safety standards and wage protection under the **"Kafala" (sponsorship) system is slow,** leaving low-skilled workers vulnerable to abuse.
  - **For instance,** the **Kuwait Mangaf fire (June 2024)** killed more than 40 Indians, exposing sub-standard labor housing enforcement across the GCC.

- **Red Sea Security & Houthi Asymmetry**: The Houthi militia's attacks on commercial shipping have exposed the limits of India's role as a **"Net Security Provider"** in the region.
  - India faces a dilemma**: it must protect its merchant fleet (deploying destroyers) but cannot join the US-led "Operation Prosperity Guardian"** coalition to avoid looking like a Western military ally, leading to operational friction.
  - For instance, **India has deployed over 10 warships with marine commandos in the Arabian Sea and Gulf of Aden,** showing its naval presence to deter piracy and drone strikes, but refused to join the US-led coalition, leading to coordination gaps.
- **The "China Factor" & Mediation Monopoly**: China has successfully positioned itself as the primary political mediator in West Asia (e.g., Saudi-Iran deal), while India is seen largely as an economic partner.
  - This **"Diplomatic Deficit" restricts India's strategic maneuverability,** Beijing's ability to guarantee security deals (which India cannot) makes it the preferred partner for long-term strategic alignments.
  - In 2020, **China replaced the European Union (EU) as the GCC's largest trading partner.**
    - Recently, the **Secretary General of the GCC highlighted the importance of strong relations with China.** Trade between the two reached over 288 billion dollars in 2024., that dwarfs India's trade with GCC.

What Measures can India Adopt to Enhance ties with West Asia?

- **Institutionalize "Strategic Engagement" via 2+2 Dialogues**: India must graduate its diplomatic engagement from leader-centric summitry to institutionalized, bureaucratic consistency by establishing **"2+2 Ministerial Dialogues" (Foreign + Defense) with key pillars like Saudi Arabia and the UAE**.
  - This structural mechanism would insulate bilateral ties from regional volatility, ensure continuous high-level strategic communication, and facilitate real-time coordination on counter-terrorism and maritime security**, mirroring India's robust frameworks with the US and Japan.**
- **Recalibrate IMEC Focus to the "Eastern Corridor"**: Given the geopolitical instability in the Levant/ Mediterranean impacting the full India-Middle East-Europe Economic Corridor (IMEC), **India should aggressively operationalize the "Eastern Leg" (India to Arabian Peninsula) first.**
  - By **prioritizing digital and energy grid connectivity with UAE and Saudi Arabia immediately,** India can lock in supply chain integration and reduce logistics costs for its exports, ensuring the project remains viable and strategically potent even while the northern transit routes stabilize.
- **Pivot to a "Green Energy Interdependence" Framework**: New Delhi needs to proactively align its National Green Hydrogen Mission with the Gulf nations' "Vision 2030" diversification strategies to transition from a buyer-seller oil relationship to a co-production partnership.
  - Establishing **joint ventures for Green Hydrogen manufacturing and exploring "One Sun One World One Grid" interconnections will create deep, structural economic dependencies** that are immune to oil price shocks and position India as a critical partner in the region's post-carbon future.
- **Transition from "Manpower" to "Human Capital" Harmonization**: To counter labor market nationalization (Nitaqat) policies, India must implement comprehensive **"Skill Harmonization Programs" that map Indian certification standards directly to GCC industry requirements.**
  - By establishing skill-finishing schools in India tailored to high-tech, nursing, and engineering demands of West Asia, India can move up the value chain, ensuring its diaspora remains indispensable while securing higher remittance inflows through **"white-collar" migration.**

- **Leverage "Fintech Diplomacy" for Economic Integration:** India should aggressively push for the integration of its Unified Payments Interface (UPI) with local platforms (like **Saudi's SADAD)** to create a seamless cross-border remittance corridor.
  - Reducing transaction costs for the massive Indian diaspora and enabling local currency trade settlements **(Rupee-Dirham/Riyal)** will reduce dependence on the **US Dollar,** shield bilateral trade from western currency fluctuations, and cement India's financial soft power in the region.
- **Offer "Defense Solutions" over Security Guarantees**: Recognizing it cannot replace the US as a security guarantor, India should instead position itself as a reliable "Defense Solutions Provider" by accelerating the export of cost-effective, combat-proven platforms like **BrahMos missiles and Akash air defense systems.**
  - Strengthening joint manufacturing ecosystems and **offering maintenance, repair, and overhaul (MRO) facilities for naval vessels** can create a sticky security partnership that respects "strategic autonomy" while deepening military trust.
- **Establish a "Space & Cyber" Diplomacy Corridor** India should aggressively market its "New Space" ecosystem by offering ISRO's cost-competitive commercial launch services and satellite manufacturing expertise to support the burgeoning space ambitions of Saudi Arabia and the UAE.
  - Creating specific **"Joint Working Groups" for cyber-security training and interplanetary missions** will align India with the region's futuristic **"Vision"** documents, fostering a partnership rooted in scientific prestige rather than traditional hydrocarbon dependency.

Conclusion:

India's evolution from transactional engagement to strategic "de-hyphenation" in West Asia **marks a masterclass in realist diplomacy**, successfully insulating vital economic corridors from regional turbulence. By pivoting from hydrocarbon dependency to **"existential interdependence"**—anchored in food security, fintech, and defense—New Delhi has future-proofed its interests against geopolitical shocks. As the global order fractures, this solidified partnership will not just fuel **India's $5 trillion ambition but stand as a decisive pillar of stability for the wider Global South.**

India'S Digital Ecosystem- Between Scale and Stability

This editorial is based on State should reclaim its role, shape digital markets which was published in The Indian Express on 10/12/2025. The article brings into picture India's regulatory hurdles that curtails the state to fairly regulate the digital sphere. Moreover it also provides suggestions that can be adopted to strengthen the regulatory policy framework.

Tag: GS Paper - 3, Economy, Digital public infrastructure, GS Paper-2, Digital Governance

India's digital economy has emerged as a strategic growth engine and a major structural shift in the country's development trajectory. According to the **Government's "Estimation and Measurement of India's Digital Economy" (State of India's Digital Economy 2024),** the digital economy contributed **nearly 11.74% of national income in FY 2022–23** and is projected to rise rapidly, approaching **~20% of GVA by FY 2029–30**. Also, India's digital economy, employing **~14.67 million workers** (~2.55% of the labour force) with high productivity, leads globally in **digital payments and ICT exports**, with **49% of global real-time transactions via UPI**.

What Factors are Driving India's Emergence as a Global Leader In Digital Transformation?

- **Digital Public Infrastructure (DPI) as a Growth Multiplier:** India's unique stack of digital public goods, **Aadhaar, DigiLocker, FASTag, CoWIN, ONDC, Account Aggregator, e-KYC**, has created a low-cost, interoperable digital backbone unmatched globally.
  - It **reduces transaction costs**, enables **real-time service delivery**, and offers a **plug-and-play digital architecture** that catalyses private innovation.

- According to **World Bank-linked reports**, India's **financial inclusion rate jumped from about 25% in 2008 to over 80% of adults in the past six years** largely due to JAM-enabled infrastructure.

- **Explosive Digital Payment Adoption:** The **IMF has officially recognised** India's UPI as the world's largest real-time retail payment system far ahead of **Brazil, Thailand and China, due to its unique feature of** zero-cost payments,interoperability,and mobile-based access.
  - This has boosted **financial inclusion** and **reshaped consumption behaviour**, directly expanding the digital market size.
    - **For example**, UPI has enabled even **small kirana stores, street vendors, and self-employed workers** across India to accept **instant, zero-cost digital payments** through smartphones.
- **Affordable Smartphones & Low-Cost Data**: Affordable smartphones and low-cost data have positioned India as a mobile-first economy, enhancing access to online education, digital payments, and entertainment.
  - For example, India has one of the **cheapest mobile data prices in the world at Rs 18.5 or $0.26 for 1GB compared to the global average of $8.53 or around Rs 600 per GB.**
  - The average price a consumer pays for a smartphone is lower in India (**$250 - $294**) compared to the global average of **$357 - $370.**
  - Also, India has dramatically transformed its mobile phone sector, becoming a major exporter with **USD 20.5 billion in exports** in 2024.
- **Rapid Expansion of ICT Services & Digital Exports**: India hosts **55% of the world's** Global Capability Centres**(GCCs)**, which provide essential services like IT support, R&D, and business process management.
  - State Governments are adopting dedicated policy to establish GCCs. For instance, **Madhya Pradesh became the first state** in the country to have a **dedicated policy for GCCs**, **Uttar Pradesh has a similar initiative**.
- **Formalisation and Platformisation of the Economy:** The digital economy has accelerated the **formalisation by expanding digital compliance, e-governance and traceable transactions.**
  - GST, e-way bills and digital invoicing **have brought over 1.51 crore GST Taxpayer into a unified indirect tax network,** enhancing transparency and revenue buoyancy.
  - Digital marketplaces such as **ONDC and GeM** have integrated small sellers into national markets, while platform-based work in logistics, mobility and food delivery employs **over 7.7 million gig workers** as per NITI Aayog (2022).
    - Together,formalisationandPlatformisation are creating a more transparent, scalable and productivity-driven economy, strengthening India's digital growth trajectory.
- **Rising Digital Skills and Employability:** Status of India's Digital Economy (SIDE) report 2024 shows over **14.6 million workers** already in digital jobs, with rapid migration from low-skill to tech-enabled occupations.
  - Growth in AI/ML, cybersecurity, cloud computing, data analytics, and IT services is increasing employability and productivity across sectors.
    - With this, India's digital economy is emerging as a significant contributor to its economic growth, accounting for **11.74% of the GDP in 2022-23.**
- **Policy Push and Investment Momentum:** Government programmes like **Digital India**, **IndiaStack expansion, PLI schemes for Electronics/ Semiconductors, IndiaAI Mission, and start-up innovation fund** have created a supportive ecosystem.
  - India has become a leading start-up hub with **over 100 unicorns**, many in **digital-first sectors.**

- Major hubs like **Bengaluru, Hyderabad, Mumbai and Delhi-NCR** have been at the forefront of this transformation, while smaller cities are increasingly contributing to the momentum **with over 51% of the startups emerging from Tier II and Tier III cities.**

- **Consumer Behaviour Shift Post-Pandemic:** The pandemic served as a massive catalyst for digital adoption, fundamentally rewiring consumer habits toward e-commerce, digital payments, remote work, telemedicine, and EdTech.
  - Far from being a temporary disruption, this behavioral pivot has become structural, permanently widening the addressable digital market and entrenching a "digital-first" preference across demographics.
  - For example, the **Indian e-commerce market is projected to grow** from **US$ 125 billion in 2024** to **US$ 345 billion** in **2030** and is expected to touch **US$ 550 billion by 2035**.

What are the Major Regulatory Challenges Confronting India's Rapidly Expanding Digital Ecosystem ?

- **Digital Platform Monopolisation and Anti-Competitive Conduct:** Digital markets are increasingly dominated by integrated platform ecosystems, combining operating systems, app stores, and data control, leading to entry barriers, user lock-ins, and **winner-takes-all outcomes.**
  - Traditional tools (competition law, data protection) act after harm has occurred (Ex-Post Regulation)
  - **For instance**, the **Competition Commission of India fined Google ₹1,337.76 crore** for abusing its dominant position by leveraging the Android ecosystem, underscoring concerns over **algorithm-driven exclusion, user lock-ins, and erosion of platform neutrality**.
- **Risks within Digital Public Infrastructure (DPI):** Possibility of ***re-monopolisation*** **if private actors dominate discovery, delivery or data layers of DPI.**
  - For instance, UPI's dominance leading to virtual duopolies among service providers, showing DPI can centralise power despite public purpose.
    - **PhonePe and Google Pay consistently command over 80% of the total UPI transaction volume and value**, creating a significant market concentration that **poses systemic risks.**
  - **Gatekeeping may shift from platforms to logistics**, payment gateways or identity layers.
- **Governance and Data Sovereignty Risks in PPP-Based DPIs:** PPP-led DPIs increasingly rely on private partners for technical standards, cloud infrastructure, and AI tools, creating accountability gaps in data stewardship and weakening state control.
  - **For example**, with **AWS, Microsoft Azure, and Google Cloud controlling nearly 65–70% of the global cloud market**, public DPIs that run on such private cloud infrastructure risk creating a model of **"sovereignty as a service"**, where critical public data and digital functions depend on external platforms.
- **Monetisation of Public Data:** Existing data protection laws do not address risks of commercialising public data generated through DPIs.
  - It involves lack of clarity on **rights, consent, and usage limits for data emerging from public platforms.**
  - Significant gaps exist in the DPDP Act as it **excludes non-personal and public data, permits broad state use through deemed consent,** and provides **no framework for consent, ownership, or limits on commercial reuse of DPI-generated data.**
- **Weak Oversight and Accountability:** Fragmented regulation across sectoral regulators leads to enforcement gaps.
  - **Sectoral fragmentation:** Reports highlight overlapping and inconsistent enforcement across **MeitY, CCI, RBI, TRAI, and the nascent Data Protection Board.**

- The proliferation of deepfakes has outpaced detection mechanisms, creating a regulatory lag where "accountability" for AI-generated misinformation remains elusive despite new guidelines.
- The core friction lies in enforcing **"originator traceability" on encrypted platforms without compromising user privacy, a technical deadlock that emboldens bad actors**.

- **DPDP Act governance concerns:** Lack of full autonomy for the **Data Protection Board is raising accountability fears.**

- **Existential Crisis in Online Gaming (Taxation vs. Ban)** The regulatory stance on online gaming has oscillated between **high taxation and outright prohibition, creating a volatile investment climate that fails to distinguish "skill" from "gambling.**
  - The dual blow of the highest GST slab and the new prohibitive legislation effectively **incentivizes the grey market, driving users to offshore, unregulated betting sites that ignore local laws**.
  - The **Promotion and Regulation of Online Gaming Act banned "online money gaming**," rendering the 28% GST on face-value bets moot for legal operators.
- **Satcom Spectrum: Administration vs. Auction:** The battle over satellite communication (Satcom) spectrum allocation remains a fierce policy divide, pitting global satellite giants against domestic telecom operators.
  - **The "administrative allocation"** method favors rapid satellite internet rollout but is fiercely opposed by telcos who paid billions for terrestrial spectrum, arguing it creates an uneven playing field and revenue loss for the exchequer.
  - **The Telecommunications Act 2023** favored administrative assignment for satellite spectrum, **triggering legal challenges from telcos**.
- **Escalating Data Breaches and Cybersecurity Vulnerabilities:** India's rapidly expanding digital ecosystem is increasingly exposed to large-scale data breaches, ransomware attacks, and state-sponsored cyber intrusions, revealing critical gaps in cyber governance and enforcement capacity.
  - The proliferation of DPIs (Aadhaar, UPI, DigiLocker), fintech platforms, health-tech systems, and cloud-based public services has exponentially increased the volume and sensitivity of data vulnerable to cyberattacks.
  - **Cybersecurity incidents in India rose from 10.29 lakh in 2022 to 22.68 lakh in 2024**. Union Budget 2025-2026 allocated ₹782 crore for cybersecurity projects.

What Measures Can India Adopt To Strengthen And Future-Proof Its Digital Ecosystem?

- **Shift from Ex-Post Regulation to Institutional Market Design:** Ex-post tools like the Competition Act work after harm occurs, often when dominance is already entrenched.
  - A **pre-emptive approach(Ex-Post) can prevent market tipping before damage happens.**
    - For instance, **the European Union's Digital Markets Act (DMA)** designates "gatekeepers" (big tech) with proactive obligations (e.g., interoperability, no favouring own services) to ensure contestability before harm occurs.
  - The state must act as an **architect** shaping the rules, architecture, and incentives of digital markets.
- **Strengthen and Expand Digital Public Infrastructure (DPI):** Use DPI as **open, interoperable, low-cost public rails** that allow multiple providers to innovate without dependence on private gatekeepers.
  - **For example: UPI's zero-cost model** reinforces open access and prevents fee-based monopolisation.
  - **Namma Yatri of ONDC,** an open-protocol mobility aggregator, innovated pricing models by using open DPI, competing with incumbents without high entry barriers.

- **Build Safeguards Against Re-Monopolisation:** To prevent DPIs from creating new bottlenecks, they should be designed so that all users and participants are treated equally, with no special advantages for any party.
  - Encourage **Participatory governance** to prevent capture by any single private actor. A multistakeholder model fostering legal interoperability and inclusive governance in global cyberspace ,a reference for participatory digital governance.
- **Improve Governance of PPP-Based DPI:** Clear contractual obligations for accountability, transparency, and audit mechanisms.
  - Prevent **private partners from informally controlling standards or operational layers.**
  - Strengthen Data Sovereignty and Reduce Cloud Dependence. For example, **Gaia-X (Europe)** a federated data infrastructure project ensures data control, transparency, and sovereignty across cloud services.
- Encourage **public or nationally governed cloud infrastructure** for critical DPIs. Mandate **interoperability** and **data portability** to avoid lock-in with global cloud giants.
  - Include **fiduciary clauses** ensuring public-interest use of data.
- **Enhance Regulatory Capacity and Coordination:** Enhance Regulatory Capacity and Coordination: To manage the complexity of AI and digital platforms, the state must move beyond generalist bureaucracy to specialized technical governance.
  - This requires establishing a **cadre of "techno-legal" auditors** capable of conducting **algorithmic audits to detect bias and opacity in black-box models**.
  - **Furthermore,** dismantling the current siloed approach, where issues overlap between the CCI, MeitY, and RBI, is critical.
    - A **unified "Digital Regulator" or inter-agency mechanism** is needed to harmonize enforcement, reducing compliance burdens and ensuring that agile digital markets are not stifled by fragmented, contradictory rulings.
- **Safeguard Public Value and Prevent Commercialisation of Public Data:** India must pivot from "unrestricted open data" to a **"Managed Public Commons" framework,** ensuring that private entities (especially Large Language Models) accessing sovereign datasets for training are **bound by "reciprocal value licenses" that prevent exclusive commercial capture.**
  - This **stops the "socialization of data production and privatization of profit,"** ensuring that the economic surplus from public data reinvests into national digital infrastructure rather than fueling Big Tech monopolies.
- **Foster Open, Non-Discriminatory Digital Ecosystems:** India must rigorously enforce "interoperability mandates" to dismantle digital silos and **prevent the formation of "walled gardens"** where dominant platforms lock in users.
  - The **"public" in DPI must signify a legally binding "Open API" architecture,** ensuring that infrastructure remains neutral rather than becoming a moat for specific vendors.
  - The success of ONDC (Open Network for Digital Commerce) illustrates this, having reduced the market concentration.
- **Resolving the Taxation–Ban Paradox in Online Gaming:** India needs a clear central law to distinguish games of skill from gambling, based on judicial tests, to end regulatory confusion.
  - The **28% GST on face-value bets** should be moulded with a **tax on platform commission (GGR model)** for skill-based games to prevent capital flight and curb the grey market.
- **Bridging Administration vs Auction Divide in Satcom Allocation**: Adopt a hybrid allocation model: **administrative assignment with transparent usage fees to speed up satellite internet rollout while ensuring fairness.**
  - Introduce **spectrum usage charges or revenue-sharing** to protect exchequer interests and level the playing field with terrestrial telcos.

- Ensure **policy certainty and investment confidence** through regular stakeholder consultations and clear tech-neutral obligations for all operators.

- **Strengthening Cyber Resilience:** India must adopt a whole-of-state cybersecurity framework by mandating real-time breach reporting, time-bound disclosure, and graded liability for data fiduciaries across sectors.
  - **Public DPIs must follow security-by-design standards, including regular third-party audits, zero-trust architecture, and indigenous cryptographic tools.** Clear compensation norms for affected users and strict penalties for negligence will improve accountability.
  - Finally, strategic investment in domestic cyber capabilities and cloud infrastructure is essential to reduce systemic dependence and enhance digital sovereignty.

Conclusion:

India's digital journey shows that the **state can shape markets, not just regulate them**. DPIs have expanded inclusion and reduced dependence on closed private platforms.However the **challenge now is to prevent re-monopolisation, fix fragmented accountability in PPP systems, and strengthen digital sovereignty amid reliance on global cloud and AI infrastructure**. The next phase must build interoperable, transparent, purpose-limited data systems and a strong, unified tech regulator.

Rethinking India'S Education System

This editorial is based on The stark reality of educational costs in India which was published in The Hindu on 12/12/2025. The article brings into picture the rising cost of the schooling system despite legally guaranteed rights for education. It highlights how structural gaps in the schooling system have created an ecosystem of private institutions that are creating financial burden on poor families leading to further inequality.

Tag: GS Paper - 1, Society, GS Paper-2, Governance, Fundamental Rights, DPSP

Education is the foundation of India's demographic dividend and long-term economic growth. While the **Constitution mandates free and compulsory education for children aged 6–14 years under Article 21A**, and the NEP 2020 expands this vision from ages 3 to 18, **ground realities reveal a widening gap between policy intent and lived experience.** Rising **dependence on private schools and coaching,** coupled with uneven public school quality, is transforming education from a social right into a market-driven commodity.Yet, with NEP 2020, a strong constitutional mandate, and a young population, India has the opportunity to restore education as a public good. **Renewed investment in public schools and equity-driven reforms can turn its demographic potential into lasting national strength.**

What are the Key Reforms Transforming India's Education System?

- **Right to Education (RTE) Act, 2009 – Universal School Access:** The **Right to Education Act** operationalised **Article 21A**, guaranteeing free and compulsory education for children aged **6–14 years**.
  - Helped achieve **near-universal enrolment at the primary level**, with enrolment ratios exceeding **95%**.

- **National Education Policy (NEP) 2020 – Structural Overhaul:** India adopted the **National Education Policy 2020, replacing the 34-year-old NEP 1986,** to shift the focus from rote learning to conceptual understanding, flexibility, and multidisciplinary education.
  - Introduced **the 5+3+3+4 curricular structure,** covering ages 3–18.
  - Aims to raise **Gross Enrolment Ratio (GER) in higher education to 50% by 2035**, up from around **28–30%.**
  - NEP 2020 introduced major reforms in higher education to improve flexibility and quality.
    - **Multiple entry–exit system** and **Academic Bank of Credits (ABC)** for lifelong learning.

- Promotion of **multidisciplinary universities** and phase-out of single-discipline colleges.
- Establishment of the **Higher Education Commission of India (HECI)** to streamline regulation.

- **Samagra Shiksha Abhiyan(SSA) – Integrated School Education: Samagra Shiksha** provides holistic support from **pre-primary to Class 12**.
  - It focuses on infrastructure upgrades, teacher training, digital classrooms, and inclusion of disadvantaged groups.
  - The scheme covers 1.16 million schools, over 156 million students and 5.7 million Teachers of Govt. and Aided schools.
- **NIPUN Bharat Mission – Foundational Learning Reform:** The **National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN Bharat)** aims to ensure **foundational literacy and numeracy by Grade 3 by 2026–27**.
  - Focuses on early-grade pedagogy, teacher support, and learning outcomes.
- **Expansion of Digital Education Infrastructure:** India has invested heavily in **Digital Public Infrastructure (DPI)** for education.
  - **DIKSHA platform** has over **200 million users**, supporting teachers and students with digital content.
  - **SWAYAM** hosts more than **5,000 online courses**, expanding access to higher education.
  - **PM eVIDYA** integrates TV, radio, and online platforms to reach students without internet access.
- **Increased Focus on Inclusion and Social Justice:** Targeted schemes aim to reduce **educational inequality.**
  - **Kasturba Gandhi Balika Vidyalayas** support girls' education in educationally backward blocks.
  - **Scholarships and hostels** for SC& ST (eg, Post-Matric Scholarship), **OBC (eg, PM-YASASVI)**, minority (eg, **Begum Hazrat Mahal National Scholarship)**.
  - **Eklavya Model Residential Schools** provide free, quality residential education to Scheduled Tribe students in remote and tribal areas, on the lines of Navodaya Vidyalayas.
  - Female GER in higher education has steadily increased, reaching **around 48%** in recent years.

What are the Key Issues Associated with India's Education System?

- **Inadequate Funding and Budget Constraints**: One of the biggest challenges is insufficient investment in education. India spends only around **3–3.5% of GDP on education** whereas, **National Education Policy (NEP) 2020 recommends 6% of GDP on education.**
  - Because of low funding, **many schools can't build or maintain facilities like science labs, libraries, toilets, drinking water, or digital learning tools.**
  - Poor infrastructure slows learning and sometimes keeps kids from even going to school.
- **Low and Uneven Gross Enrolment Ratios (GER):** While India has expanded access to higher education, **GER remains unevenly distributed.**
  - Some States **(e.g., Tamil Nadu: ~47% GER)** outperform others, while many **states like Bihar are below national average.**
  - This disparity reflects regional and socio-economic inequality in access to higher education.
- **Digital Divide in Education:** As per the Observers Research Foundation, only 32.4% of India's **1.47 million schools have access to functional computers**.
  - And only 24.4% have smart classrooms to aid teaching new-age skills. This gap disproportionately affects rural and government schools, reinforcing educational inequality.
  - It weakens students' exposure to digital literacy, coding, and problem-solving skills essential for a modern economy.

- Consequently, the **promise of NEP 2020's tech-enabled and competency-based education remains unevenly realised.** Bridging this divide is critical to convert India's demographic dividend into a future-ready workforce.

- **Commodification of Education**: Education increasingly functions as a market good rather than a public service.
  - Household income now strongly determines access to "**quality" education**. This violates the spirit of **Article 21A** and the mandate of social justice.
  - Households with children in private schools **spend an average of ₹25,002 per student per year, nearly 9× the ₹2,863 spent for government school students,** highlighting the heavy financial burden of private schooling
- **Research and Innovation Deficit in Higher Education:** India's expenditure on research and development (R&D) consistently remains among the lowest globally, at around **0.64–0.65% of GDP, compared to China (≈2.4%), the United States (≈3.5%), and Israel (≈5.7%),** constraining research infrastructure and long-term scientific capacity.
- **Teacher Shortages & Poor Teaching Quality:** Many schools, especially in rural areas, have huge teacher vacancies and a high pupil-teacher ratio.
  - Over 33 lakh students across the country are enrolled in **more than one lakh single-teacher schools**,according to the Ministry of Education's statistics.
- **Infrastructure & Basic Facility Gaps:** Large sections of India's public schools still suffer from inadequate classrooms, poor sanitation, lack of drinking water, and unsafe buildings, particularly in rural and remote areas.
  - Shortages of laboratories, libraries, playgrounds, and hostels weaken holistic learning. These infrastructural deficits directly affect enrolment, retention, and educational equity.
    - For instance **1.52 lakh schools still lack functional electricity.**
    - **Government schools account for the majority, with 9.12 lakh out of 10.17 lakh government schools having functional electricity.**
- **The "Transition Crisis"-The Funnel Effect in Education:** While the R**ight to Education (RTE) Act successfully created a "pull factor" for primary enrollment, the system suffers from poor "Internal Efficiency**", meaning it brings children in, but fails to retain them as they transition to higher grades.
  - This phenomenon is often described as the **"Funnel Effect,"** where a wide base of primary students narrows drastically at the secondary level due to specific structural and socio-economic bottlenecks:
  - Policies like **"automatic promotion" (up to Class 8)** ensure high retention in early years, often without ensuring commensurate learning outcomes.
  - When students enter Class 9, they face a sudden spike in academic rigor and standardized testing. **Because their foundational literacy and numeracy are often weak (the "learning deficit"),** they cannot cope with the curriculum and lead to dropout.
    - Dropout rate at secondary level **stands at 8.2% in 2024-25, as per UDISE+ data.**
- **The "Recall over Reasoning" Trap**: The Indian education system currently operates on a "Factory Model," prioritizing the efficient replication of information over the messy, time-consuming process of critical inquiry.
  - This creates a **disconnect where a student can be "academically successful" (high grades) yet "intellectually stunted."**
  - Also, **when success is measured solely by a high-stakes, end-of-year exam, the goal shifts from learning to clearing.**
    - Teachers and students optimize for the path of least resistance: memorizing model answers and predicting question patterns rather than debating concepts.

What Measures can India Adopt to Transform its Education Sector?

- **Enhancing Public Investment and Financing in Education:** Gradually increase public expenditure on education to **at least 6% of GDP, with a clear focus on school infrastructure, teacher recruitment, and training.**
  - Introduce outcome-linked and need-based grants for States to upgrade laboratories, libraries, sanitation facilities, and digital classrooms in government schools.
  - Countries such as South Korea and Finland, w**hich invest over 5–6% of GDP in education, have developed strong public schooling systems** with **minimal dependence on private education.**
  - Case studies from **Delhi and Kerala** show that high-quality public schools can regain community trust and draw students back from private institutions.
- **Improving Access and Equity in Higher Education Enrolment:** Expand public universities and degree colleges in low-GER States through targeted central assistance.
  - Strengthen scholarships, hostels, transport facilities, and digital access for rural and first-generation learners.
  - Replicate **State-level best practices such as Tamil Nadu's long-term investment in public higher education** and social inclusion policies.
- **Reducing Household Financial Burden and Re-centring Education as a Public Good**: Improve quality and credibility of government schools to reduce forced migration to private institutions.
  - States can follow the **Tamil Nadu Fee Regulation Committee model** to prevent arbitrary fee hikes and ensure fairness for parents.
  - Annual fee disclosures, online portals, and parent committees can make school finances more accountable.
- **Strengthening Research Capacity and Innovation Ecosystems in Higher Education:** Enhancing India's global competitiveness requires a robust research and innovation ecosystem within universities. For this:
  - Increase public funding for university-based research and doctoral programmes.
  - Promote industry–academia collaboration and mission-oriented research in emerging technologies.
  - Develop research-intensive universities on the lines of global models such as U.S. and East Asian research institutions.
- **Strengthening Teacher Availability and Teaching Quality:** India needs to fill teacher vacancies through regular recruitment and rational deployment across regions.
  - Make **in-service training mandatory** with digital modules through **DIKSHA, NISHTHA,** etc
  - Draw from international best practices such as Finland's emphasis on teacher quality, training, and professional autonomy.
- **Upgrading School Infrastructure and Basic Facilities**: Use UDISE+ data for targeted **infrastructure planning and monitoring.**
  - Converge education initiatives with schemes like **Jal Jeevan Mission** and rural electrification programmes.
  - Create a **technology-enabled dashboard** to track infrastructure gaps (toilets, electricity, digital access, boundary walls, safe buildings).
- **Preventing Dropouts and Strengthening Secondary Education Retention:**Expand scholarships, conditional cash transfers and residential schooling facilities.
  - Strengthen **secondary schools in rural and aspirational districts. Scale up** proven interventions such as the **Kasturba Gandhi Balika Vidyalaya scheme.**
  - Strengthen **PM-POSHAN (Mid-Day Meal)** to improve meal quality, nutrition norms, and hygiene.
- **Promoting Conceptual Learning and Reducing Rote-Based Education:** Reform assessment

systems to test conceptual clarity, analytical ability, and real-world application. The **Yashpal Committee** highlighted the burden of rote-based schooling and recommended making learning experience-based.

- Build competency-based assessments, reduce textbook load, and revise State curricula **using NCF 2023 guidelines**.
- Adopt international best practices such as **OECD countries' application-oriented assessment models.**

- **Integrate Vocational Education & Life Skills Training:** The **Kothari Commission stressed that education must be linked with work and practical skills.**
  - Introduce vocational subjects from **Class 6 onwards** as proposed by NEP 2020.
  - Collaborate with local industries, artisans, and skilling institutions (like **ITI/PMKVY**) for hands-on exposure.
- **Boost Digital Learning:** Provide **Internet connectivity, ICT labs, smart classrooms**, and digital libraries in government schools.
  - Train teachers in blended learning and use of platforms like **DIKSHA**, **SWAYAM**, and **PM e-Vidya**.
  - Ensure **low-cost devices** and community digital learning centres in disadvantaged regions to ensure no child is left behind.

Conclusion:

India's education system stands at a critical juncture. While access has expanded, rising private costs and growing dependence on coaching risk transforming education from a **constitutional right under Article 21A into a market privilege**, undermining social justice and long-term economic growth. Recommitting to strong public institutions, equitable financing, and learning-centred reforms across school and higher education is essential. Only by doing so can India realise **SDG-4 (Quality Education)** and ensure that education becomes a genuine instrument of **social mobility, inclusive growth, and national development**.

Uniform Civil Code- Promise Of Equality, Challenge Of Pluralism

This editorial is based on "Uttarakhand Governor returns UCC and religious conversion amendment Bills" which was published in The Hindu on 17/12/2025. The article brings into picture the states push towards adopting UCC to provide common personal laws. This comes into conflict with the religious freedom guaranteed under the constitution.

Tag: GS Paper II, Indian Constitution, Fundamental Rights, DPSPs

Uttarakhand Governor has returned the Uniform Civil Code and religious conversion amendment Bills, citing technical and punitive inconsistencies, requiring redrafting and fresh legislative approval. The **Uniform Civil Code**, envisioned under **Article 44 of the Directive Principles of State Policy**, seeks to replace diverse personal laws with a common set of civil laws governing marriage, divorce, inheritance, adoption, and succession. Rooted in the ideals of **equality before law and gender justice**, the UCC remains one of the most debated constitutional goals, owing to concerns related to **religious freedom, cultural diversity, and federalism**. Recent developments have revived this debate, underlining the need to assess whether the pursuit of uniformity strengthens constitutional values or risks undermining India's pluralistic fabric.

What Necessitates the Adoption of a Uniform Civil Code in India?

- **Advancing Gender Justice and Women's Rights:** Several personal laws continue to contain provisions that place women at a disadvantage in matters of **inheritance, divorce, maintenance, guardianship, and adoption**.
  - For instance, practices such as **unequal inheritance rights, unilateral divorce, or limited maintenance entitlements have historically affected women across communities.** Judicial interventions, such as in

the **Shah Bano case (1985)**, have highlighted these inequities and the need for reform.

- A Uniform Civil Code can provide a **gender-neutral legal framework**, ensuring that civil rights flow from citizenship rather than religious identity.
  - State-level codifications like **Goa's Civil Code** illustrate how uniform personal laws can coexist with religious freedom while ensuring relatively equal rights for women.

- **Upholding Equality Before Law:** The coexistence of multiple personal laws leads to **differential legal treatment of citizens** based solely on religion or community, raising concerns under **Article 14** of the Constitution.
  - For example, individuals in similar civil situations, such as marriage dissolution or succession, are governed by different legal standards depending on their faith.
  - A UCC seeks to establish **uniform civil obligations and entitlements**, reinforcing the constitutional principle that all citizens are equal before the law.
    - The gradual harmonisation of laws through judicial interpretation, as seen in cases like **Sarla Mudgal (1995)**, reflects this constitutional aspiration.

- **Simplifying the Civil Justice System:** India's plural personal law regime adds significant complexity to the legal system, often resulting in **lengthy litigation, conflicting interpretations, and jurisdictional confusion**.
  - Courts are required to interpret religious texts alongside statutory law, increasing the scope for ambiguity and inconsistency.
    - There are **currently over 950+ functional Family Courts** across India. Despite their specialized nature, **the volume of fresh filings (institutions) often outpaces disposals.**
  - A common civil code would streamline civil adjudication by providing a **clear, secular, and codified set of rules**, enhancing legal certainty and reducing judicial burden.
    - The experience of States that have codified family laws, such as Goa, demonstrates how legal simplicity can improve accessibility and predictability for citizens.

- **Reinforcing Constitutional Morality Over Social Practices**: The UCC is rooted in the principle of **constitutional morality**, which requires that laws and **governance be guided by the values enshrined in the Constitution rather than by discriminatory customs or social hierarchies**.
  - Certain traditional practices, even if culturally entrenched, may conflict with constitutional ideals of **dignity, liberty, and equality**.
  - By prioritising individual rights and legal equality, a UCC seeks to align civil laws with constitutional values.
    - The **Supreme Court** has repeatedly underscored that constitutional morality must prevail when social practices violate fundamental rights.

What are the Key Concerns in Implementing the Uniform Civil Code in India?

- **Tension Between Religious Freedom and Cultural Autonomy:** Personal laws in India are deeply intertwined with **religious beliefs, rituals, and cultural identity**. For many communities, matters such as marriage, inheritance, and succession are not merely legal arrangements but expressions of faith and tradition.
  - A rigid or hastily imposed Uniform Civil Code may therefore be perceived as infringing upon the **freedom of religion guaranteed under Article 25**, which protects the right to profess, practise, and propagate religion, subject to public order, morality, and health.
  - Judicial pronouncements, including observations in cases like **Shirur Mutt (1954)**, have emphasised the need to respect essential religious practices, underscoring the

constitutional sensitivity involved in reforming personal laws.

- **Diversity of Customs Within and Across Communities:** India's social diversity extends far beyond differences between religions, significant variations exist **within communities across regions, castes, and tribes**.
  - For instance, customary **inheritance practices among tribal communities differ substantially from codified personal laws**.
    - While most of India follows a patrilineal inheritance system under the **Hindu Succession Act**, the Khasi, Jaintia, and Garo tribes of Meghalaya practice matriliny.
    - Among the Khasis, ancestral property passes to the **youngest daughter (Ka Khadduh)**, sharply contrasting with the largely patrilineal structure of codified Hindu law, where daughters gained equal inheritance rights only in 2005
  - **Since family and marriage fall under the Concurrent List, States have exercised flexibility in regulating them**. While State-level initiatives like Goa's civil code demonstrate the potential of decentralised reform, **uneven adoption of the UCC raises concerns about balancing national uniformity with India's federal and cultural diversity.**
  - A **one-size-fits-all approach risks ignoring these social realities**, leading to resistance and uneven implementation.
- **Perception of Majoritarian Bias and Minority Trust Deficit:** One of the most persistent concerns surrounding the **UCC is the fear that it may reflect the norms and practices of the majority community, thereby marginalising minority traditions**.
  - Past debates, including those following the **Shah Bano case (1985)**, reveal how personal law reform can become politically polarising if not accompanied by consensus-building.
    - In **Pannalal Bansilal v. State of Andhra Pradesh (1996),** the Supreme Court observed that the Uniform Civil Code should be implemented **gradually and in a piecemeal manner, as social uniformity in personal laws cannot be imposed abruptly without consensus.**
  - If sections of society perceive the UCC as an instrument of cultural dominance rather than constitutional equality, it may erode trust and social cohesion. Hence, the legitimacy of the UCC depends critically on **neutral drafting, inclusive consultation, and transparency**.
- **Legal and Administrative Complexity:**The sheer scale of consolidating thousands of uncodified and codified laws into a single framework presents a massive **"legislative nightmare." I**ndia lacks a centralized database of all customary practices across its 700+ recognized tribes and various sub-sects.
  - Beyond marriage and divorce, **the UCC must address complex issues like taxation (e.g., the Hindu Undivided Family or HUF status), adoption, and maintenance.**
    - **Scrapping the HUF status, for instance,** would have significant **implications for the revenue department and the financial planning of millions of citizens.**
- **Impact on LGBTQ+ Rights and Non-Binary Recognition:**A major modern concern is whether the UCC will be truly "progressive" or just "uniform."Current personal laws are **almost entirely binary, focusing on "husband" and "wife."**
  - There is a fear that the **UCC might simply codify a "heteronormative" standard (one man, one woman) across all religions,** thereby **missing the opportunity to recognize same-sex marriages or non-binary gender identities**.
  - If the UCC is drafted **based on "traditional family values"** to gain political consensus, **it might legally solidify the exclusion of the LGBTQ+ community for decades, making future reforms even harder.**

Judicial Views on the Uniform Civil Code (UCC)

Case	Issue	Judgement in Brief
Shah Bano Case (1985)	• Maintenance for divorced Muslim woman	• Ruled in favour of maintenance; • Stressed the need for a **Uniform Civil Code**
Sarla Mudgal Case (1995)	• Bigamous marriage after religious conversion	• Conversion cannot bypass law; • Called for implementation of **UCC**
John Vallamattom Case (2003)	• Discriminatory inheritance laws for Christians	• Struck down discriminatory provisions; • Reaffirmed Article 44 as a constitutional mandate
Shayara Bano Case (2017)	• Triple Talaq (instant divorce)	• Declared Triple Talaq unconstitutional; • Emphasised gender equality
Sabarimala Case (2018)	• Women's entry into Sabarimala temple	• Upheld women's right to equality; • Asserted constitutional morality
Jose Paulo Coutinho Case (2019)	• Praised Goa's UCC	• Praised Goa's UCC; • Stated uniform laws ensure **equality**

What Should be the Roadmap for Effective Implementation of the Uniform Civil Code in India?

- **Adopt a Phased, Incremental, and Consultative Reform Strategy:** Rather than pursuing an abrupt or comprehensive overhaul, India should follow a **phased approach** to civil law reform. Initial efforts can focus on **removing clearly discriminatory provisions**, such as unequal inheritance rights or gender-biased divorce practices, across existing personal laws.
  - This mirrors India's own reform history, where gradual interventions (e.g., **Hindu Code Bills of the 1950s**) ensured social acceptance over time. Incremental reform reduces resistance and allows society and institutions to adapt.
- **Prioritise Gender-Neutral Civil Laws Over Religion-Specific Uniformity:** The core objective of the UCC should be **gender justice**, not cultural homogenisation. Reform should therefore centre on **gender-neutral and rights-based civil laws** applicable to all citizens, irrespective of religion.
  - For example, the Supreme Court's ruling in **Shayara Bano (2017)** demonstrates how targeted judicial intervention can eliminate gender discrimination without dismantling entire personal law systems.
  - This approach ensures alignment with **Articles 14 and 15** while minimising concerns over religious freedom.
- **Institutionalise Broad Stakeholder Consultation and Social Dialogue:** Successful reform requires **inclusive consultation**, particularly with women's organisations, minority community representatives, legal experts, and civil society.
  - Experiences from law reform commissions globally show that **participatory law-making** enhances legitimacy.
  - In India, the **Law Commission's consultative processes** on family law reforms provide a template for building trust and consensus, ensuring that reforms reflect lived realities rather than abstract legal ideals.

- **Codify Best Practices from Existing Personal Laws and State Models**: India can adopt a **"best-of-all-systems" approach**, selectively codifying progressive provisions already present in various personal laws.
  - For instance, **equal succession rights** under Hindu law, protections for women under the **Special Marriage Act**, and elements of Goa's civil code can serve as reference points. Such selective codification reinforces the idea that the UCC is an **evolution of existing laws**, not their erasure.
- **Ground Implementation in Constitutional Morality and Fundamental Rights:** Any movement toward the UCC must be firmly anchored in **constitutional morality**, as emphasised in cases like **Sabarimala (2018)**.
  - This ensures that **individual dignity, equality, and freedom take precedence over discriminatory customs**. Importantly, **reform must be insulated from political expediency and electoral considerations,** reinforcing the judiciary's consistent stance that the UCC is a **constitutional goal best realised through principled legislation**.
- **Enable State-Level Experimentation Within a National Framework:** Given India's federal structure, States can act as **laboratories of reform**, piloting harmonised civil law provisions suited to their social context, while adhering to national constitutional standards.
  - This bottom-up approach allows learning from successes and challenges before broader adoption, balancing uniformity with diversity.

Conclusion:

The **Uniform Civil Code** represents a constitutional aspiration to harmonise **equality, dignity, and justice** in India's civil laws. If pursued through a **phased, consultative, and rights-based approach**, it can advance gender justice without eroding cultural diversity. Anchoring reform in **constitutional morality** rather than majoritarian impulses is essential to preserve social trust. A balanced UCC would strengthen **rule of law and legal certainty**, while respecting India's pluralism. In doing so, it would also contribute to the achievement of **SDG 5 (Gender Equality).**

Tourism Sector As A Growth Engine for India

This editorial is based on "Why India's tourism sector needs a regulatory rethink" which was published in The Hindustan Times on 18/12/2025. The article brings into picture the gap between India's strong tourism potential and the regulatory bottlenecks limiting investment and competitiveness, arguing that streamlined regulation is essential to unlock the sector's full economic and developmental impact.

Tag: GS-3, Sustainable development, GS-2, Government Policies and Interventions

Tourism is a high-employment, service-led growth sector for India. As per the **Economic Survey**, tourism contributes around **5% to GDP** and supports nearly **7.6 crore jobs**, making it a key driver of inclusive and regional development. India **accounts for 1.5% of international tourist** arrivals. According to the World Travel and Tourism Council (WTTC) 2024-25 report, India is the **8th largest tourism economy, contributing USD 231.6 billion.** The **Union Budget** has also emphasised destination development and infrastructure support to boost the sector. However, despite strong demand and policy intent, India's tourism potential remains under-realised due to **fragmented, overlapping and time-consuming regulatory frameworks**.This calls for a **regulatory rethink** to improve **ease of doing business**, **attract investment** and make India globally competitive in tourism.

How is India Reforming and Regulating Its Tourism Sector?

- **Visa Reforms:** In the **Union Budget 2025–26,** the government has proposed a **streamlined e-Visa system** along with **visa-fee waivers for select categories of foreign tourists** to enhance India's global tourism competitiveness.
  - The reform aims to **simplify procedures, reduce documentation requirements, and ensure faster processing of visa applications**.

- By lowering entry barriers for international visitors, especially for leisure, medical, and cultural tourism, these measures seek to improve ease of travel to India.
- Such visa liberalisation is significant as **procedural delays and costs have historically discouraged potential tourists, despite India's strong cultural and natural appeal.**

Homestay and MSME Support: To strengthen grassroots tourism and promote inclusive growth, financial support mechanisms **such as MUDRA loans** are being **extended to homestay operators and small tourism enterprises.**

- This initiative aims to improve formalisation, credit access, and business sustainability for MSMEs that form the backbone of India's tourism ecosystem.
- By enabling **local entrepreneurs, women-led enterprises, and rural households** to participate in tourism, the reform helps distribute tourism income more evenly while preserving local culture and traditions. **Increased formalisation also improves compliance with safety, quality, and service standards.**

Travel for LiFE" and Sustainable Certification: Under the Travel for LiFE initiative, India is regulating the environmental impact of tourism by introducing "Green Rankings" and certifications for hospitality units.

- Hotels and resorts are now being incentivized to adopt sustainable practices like zero-waste management, rainwater harvesting, and renewable energy usage.
  - This regulatory shift **aligns the Indian tourism industry with global climate goals and caters to the rising international demand** for responsible travel.

Specialized Tourist Police and Safety Standards: To address safety concerns, the Ministry of Tourism is working with State Governments to deploy dedicated Tourist Police units in major hotspots. **This reform is supported by a 24/7 multi-lingual toll-free helpline available in 12 languages, including 10 international ones.**

- These measures aim to standardize safety protocols across states, providing a more secure environment that is critical for attracting solo and female international travelers.

Swadesh Darshan 2.0 and Theme-Based Circuits: The government has revamped its flagship scheme into Swadesh Darshan 2.0, moving away from scattered projects to a **"destination-centric" approach** for 50 selected sites.

- This reform focuses on developing integrated thematic circuits—such as spiritual, domestic, and eco-tourism, ensuring that entire regions, rather than just isolated monuments, are equipped with world-class facilities.
  - This data-driven selection process prioritizes sustainability and local community involvement to ensure long-term site viability.

What are the Major Challenges Facing India's Tourism Sector?

- **Fragmented and Overlapping Regulatory Framework:**Tourism businesses are governed by multiple central, state and local laws- covering land use, environment, fire safety, labour, liquor, food safety and municipal permissions.
  - A single hotel or restaurant often requires **15–20 separate licences**, many of which duplicate each other, increasing compliance costs and discouraging formalisation.
  - For instance, **Coastal Regulation Zone (CRZ) Notification, 2019** requires Eco-friendly resorts to face restrictions similar to ports.
- **Delays in Project Approvals and Clearances:** Tourism infrastructure projects face lengthy approval timelines, particularly for environmental, coastal and heritage-related clearances.
  - For example ,tourism projects are subject to **Environment Impact Assessment (EIA)** procedures meant for large industrial projects, however, even **medium-sized hotels, resorts and tourism infrastructure** may require screening, public hearing etc.
- **Weak Ease of Doing Business for Small Operators:** Small hotels, homestays and tour operators struggle with compliance, inspections and renewals, pushing many into informality.
  - **Restrictive homestay norms**, such as low room caps and compulsory owner residence, which limit scale and income generation. Compliance costs are **fixed**, irrespective of size, making small units economically unviable.
    - For example,a **5–10 room guesthouse** must obtain FSSAI licence, fire NOC, municipal trade licence etc.
- **Rapid and Unregulated Tourism Growth:** Unregulated tourism growth in ecologically sensitive zones like the Himalayas and coastal belts is causing irreversible environmental degradation and resource depletion.
  - The lack of **"carrying capacity" assessments leads to over-tourism**, which strains local water supplies and waste management systems, ultimately destroying the very natural beauty that attracts visitors.
    - For instance, **in 2024–25, hill stations in Himachal Pradesh and Uttarakhand faced acute water shortages;** additionally, over-tourism in reserves like **Ranthambore** has led to an increase in human-wildlife conflict incidents.
- **Last-Mile Connectivity and Infrastructure Gaps:** While major **"Incredible India" hubs are well-connected**, many high-potential spiritual, rural, and eco-tourism sites remain inaccessible due to poor road quality and lack of reliable **"last-mile" transport.**
  - Fragmented infrastructure—such as inadequate sanitation and intermittent electricity in remote circuits—significantly dampens the visitor experience for international tourists accustomed to seamless travel.
  - Ministry of Tourism estimates suggest that **less than 30% of domestic tourist circuits currently possess adequate integrated road connectivity** and world-class sanitation facilities as of 2023.
- **Centre–State–Local Coordination Gaps:** Tourism is a state subject, but it depends heavily on **central ministries (MoEF&CC,Ministry of Culture, Civil aviation) and urban local bodies, leading to coordination failures.**
  - This fragmentation by showing how multiple authorities regulate the same activity, slowing implementation and accountability.
    - For instance, a fire incident at a cliff-top resort in Varkala, Kerala, where poor safety infrastructure and **unclear responsibility between municipal authorities, forest/environment regulators, and emergency services severely hampered the response.**
  - States promote tourism, but **cannot control critical approvals**, causing coordination delays.

- **Underutilisation of Tourism's Employment Potential:** Despite being labour-intensive, tourism has not reached its full job-creation potential due to regulatory bottlenecks and investment uncertainty.
  - Regulatory rigidities prevent tourism from becoming a **mass employment generator**, especially in rural and ecologically sensitive regions.
  - A WTTC report warns that India **faces a shortfall of 11 million workers in travel and tourism by 2035.**
- **Global Competitiveness Deficit**: India's premium tourism products—especially heritage and beach destinations—are increasingly outpriced by Southeast Asian neighbors who offer superior luxury at lower costs.
  - **High domestic aviation fuel taxes and hotel GST rates (up to 18%)** make a vacation in Goa or Rajasthan more expensive for an Indian or global traveler than an all-inclusive trip to Thailand or Vietnam.
  - **Due to this**, **India accounts for only 1.5% of global international tourist arrivals** despite its size; meanwhile, **Thailand offers visa-free access to 90+ countries compared to India's limited visa-free reciprocity.**

What Measures Are Needed to Strengthen India's Tourism Sector?

- **Rationalising and Harmonising the Regulatory Framework:** A unified, **single-window digital clearance system** should be established **for tourism projects,** integrating approvals related to land use, environment, fire safety, labour, food safety, excise, and municipal permissions.
  - Overlapping licences should be merged through **deemed approvals and mutual recognition**, especially where compliance requirements are similar.
  - Sector-specific differentiation must be introduced so that **eco-friendly resorts, homestays, and small hotels are not regulated on par with ports or heavy infrastructure**, including rationalisation of CRZ norms for low-impact tourism projects. This would significantly reduce compliance costs and incentivise formalisation.
- **Fast-Tracking Project Approvals and Clearances**: Tourism infrastructure should be placed under a **lighter, risk-based clearance framework**, distinct from heavy industrial projects. The EIA process needs reform by introducing **standard operating procedures, fixed timelines, and size-based exemptions** for medium and small tourism projects.
  - Public hearings and detailed assessments should be limited to projects with demonstrable ecological impact, while green-certified or low-footprint tourism projects should receive **automatic or fast-track approvals**. Digitisation and concurrent clearances can further reduce delays and investor uncertainty.
- **Improving Ease of Doing Business for Small Operators:** A differentiated compliance regime based on **scale and risk** should be adopted for small hotels, homestays, and tour operators. Low-capacity units should be brought under **self-certification and periodic random audits** instead of frequent inspections.
  - **Homestay guidelines** need liberalisation **by relaxing room caps, removing mandatory owner-residence conditions, and standardising norms across states**.
  - **Compliance costs** must be made proportional to size to ensure that small operators remain economically viable and are encouraged to operate within the formal system.
- **Strengthening Centre–State–Local Coordination:** An institutionalised coordination mechanism should be created through an **Inter-Ministerial Tourism Facilitation Council**, involving the Ministry of Tourism, MoEF&CC, Culture, Civil Aviation, and Urban Development.
  - **States should be given greater operational control** or binding consultation powers over clearances affecting tourism projects within their jurisdictions. Clear accountability frameworks and shared digital dashboards can

reduce duplication among authorities and ensure time-bound decision-making across levels of government.

- **Unlocking Tourism's Employment Potential:** Regulatory simplification and policy certainty should be leveraged to attract sustained private investment, particularly in **rural, heritage, and eco-tourism clusters**, where employment multipliers are high.
  - **Labour regulations** relevant to hospitality need flexibility to accommodate seasonal and gig-based employment, **while skill development programmes must be aligned with local tourism needs.**
  - **Encouraging community-based tourism** through easier registration and credit access can convert tourism into a mass employment generator without compromising sustainability.
- **Enhancing Global Competitiveness:** India should benchmark its tourism regulatory framework against globally competitive destinations and adopt best practices in **speed of approvals, cost efficiency, and investor facilitation**.
  - **Dedicated tourism investment cells, time-bound clearances, and infrastructure status for hotels** can significantly improve investor confidence.
  - Improvements in regulatory efficiency are essential to complement India's strong performance in cultural and natural resources and to translate these assets into higher tourist inflows, longer stays, and increased spending.
- **Scientific Carrying Capacity–Based Visitor Management:** Tourism growth in ecologically sensitive areas must be regulated through **scientific carrying-capacity assessments** that evaluate ecological, infrastructural, and social limits of destinations.
  - Based on these assessments, **permit-based systems, daily visitor quotas, and timed-entry mechanisms** should be introduced to prevent overcrowding, especially during peak seasons.
  - These limits should be dynamically enforced using **digital tools such as real-time visitor tracking, GIS mapping, online permits, and destination dashboards**, enabling authorities to monitor tourist flows, water use, and waste generation.
    - Such an integrated, technology-enabled approach—successfully adopted at destinations like **Machu Picchu and national parks worldwide**—can ensure that tourism remains within sustainable limits while protecting fragile ecosystems and local livelihoods.

Conclusion :

Addressing regulatory and institutional bottlenecks in India's tourism sector is essential to unlock its full economic and social potential. By leveraging its rich **cultural heritage, biodiversity, and living traditions**,

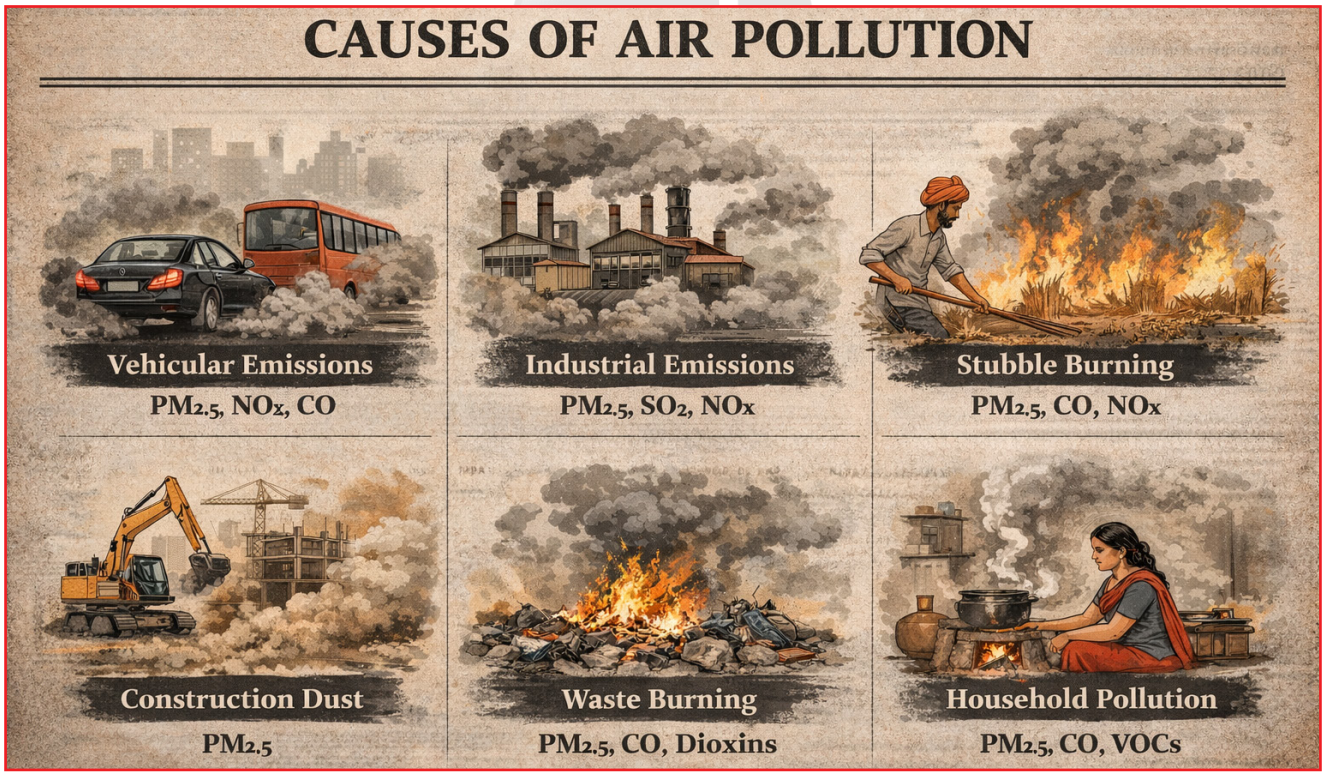
tourism can also strengthen India's **soft power and global cultural presence**. With coherent regulation and sustainable practices, tourism **can emerge as a catalyst for inclusive growth,** heritage conservation, and India's civilisational outreach to the world.

Reforming India'S Air-Quality Governance

This editorial is based on "India's pollution crisis is also about inclusion" which was published in The Indian Express on 20/12/2025. The article brings into picture how Air pollution disproportionately hampers the poor and marginalized classes. Further it highlights how policies around pollution have transferred institutional responsibility to individual innovation.

Tag: GS-3, Environment, Pollution and degradation, GS-1, Society, Health

Air pollution continues to pose a serious public-health and governance challenge in India, with **PM2.5 levels in many cities still 5–8 times above WHO limits,** despite policy interventions. Recent winter episodes in the NCR triggered GRAP-IV measures as AQIcrossed 400, disrupting schools, transport and economic activity. **While national data indicate a ~25% decline in particulate pollution since 2019 under the National Clean Air Program,** episodic spikes from vehicles, construction dust and stubble burning persist. Encouragingly, tighter enforcement, real-time monitoring and regional coordination signal a gradual shift from crisis management to structural air-quality governance.



What Current Steps are Being Implemented in India to Manage and Control Air Pollution?

- **National Clean Air Programme (NCAP)**: NCAP (launched 2019) was strengthened and has been revised toward **an overall ~40% reduction in PM levels by 2026 for NCAP cities**, backed by central funding to municipal/state agencies for specific interventions.

- Further 130+ cities given city-wise annual reduction targets (3–15% per year) and central grants to support actions.
- Independent tracking and government releases indicate **~25–27% reduction** in **particulate matter (PM) levels nationally in the 2019–2024 window,** with NCAP cities showing similar improvement ranges.

- **Graded Response Action Plan (GRAP):** GRAP is a stage-wise emergency framework to control severe air pollution in the Delhi–NCR region. It mandates pre-defined measures linked to **AQI levels,** enabling timely, automatic restrictions on pollution sources such as construction, transport, and industry, under the supervision of the **Commission for Air Quality Management (CAQM).**

Graded Response Action Plan (GRAP)

GRAP Stages

State	Category	AQI	AQI Color Code
Stage 1	Poor	201-300	
Stage 2	Very poor	301-400	
Stage 3	Severe	401-450	
Stage 4	Severe plus	451 and above	

- Unlike earlier, GRAP now uses **air-quality modelling and forecasts** to **automatically trigger actions in advance**, instead of waiting for pollution to peak.
  - This allows **pre-emptive steps** such as **stopping construction work, implementing odd–even traffic rules, closing schools, and restricting diesel generators**.
  - For example, in **December 2025**, the **Commission for Air Quality Management (CAQM)** activated **Stage IV measures** when Delhi's AQI crossed **430–440**, even before it touched the extreme severe mark, to prevent further deterioration.

- **Monitoring, Data & Forecasting**: India has strengthened air-pollution control through **expanded real-time monitoring and forecasting**. The **Central Pollution Control Board (CPCB)** has widened the **CAAQMS/NAQI network**, providing live AQI data via national dashboards that help authorities trigger **GRAP actions** in time.
  - Improved **air-quality forecasting and modelling**, developed through CPCB collaborations with the **India Meteorological Department(IMD)** and research institutions, enables **early warnings and dynamic GRAP activation**.
  - In addition, **low-cost sensors and citizen-led monitoring** now complement official stations, improving local coverage and public awareness.
- **Transport & Vehicular Emissions**: Cities have tightened control over vehicular pollution through **strict PUC enforcement** and the **"no-PUC, no-fuel" rule**, especially in **Delhi**.
  - Real-time checks led to a sharp rise in compliance; **PUC issuance jumped by about 46% in just one day**. In parallel, **older vehicles are being phased out**, with fuel denied to **diesel vehicles older than 10 years and petrol vehicles older than 15 years (from July 2025)**, alongside tighter inspections to reduce on-road emissions.
- **EV Push, Charging Infrastructure & Municipal Plans:** Urban bodies are accelerating the shift to **electric mobility** by expanding charging infrastructure and reforming parking policies.
  - For example, the **Municipal Corporation of Delhi (MCD)** plans to scale up **EV charging stations from about 422 to nearly 994**, aiming to cut congestion and idle emissions.
  - This local push is supported by **central and state incentives** that subsidise EV adoption and the **electrification of public transport**, strengthening cleaner urban mobility.
- **Industrial & Power Sector Controls:**Industrial pollution control has been tightened through **updated consent and emissions guidelines (2025)**, which introduce **stricter timelines, clearer procedures, and closer monitoring** by state-level committees to improve compliance.

- In the power sector, the **Central Pollution Control Board (CPCB)** and the **Ministry of Environment, Forest and Climate Change (MoEFCC)** are enforcing **tougher emission norms for coal-based plants**, including **ESP upgrades and SOx/NOx controls**. These measures, supported under the **National Clean Air Programme (NCAP)**, aim to reduce industrial and power-sector emissions at the city level.
- For example, the **Performance Achieve and Trade (PAT) scheme** incentivises the industries to use energy efficient technologies.

- **Agriculture / Crop-Residue (Stubble) Burning Solutions:** To curb stubble burning, governments are **scaling up in-situ residue management** through subsidies for machines like **happy seeders and straw mulchers**, backed by **financial incentives and procurement support** under state action plans.
  - **Satellite-based monitoring** enables quick detection of fire hotspots, allowing **targeted enforcement, penalties, and timely incentives** during peak burning months (Oct–Nov).
    - As a result, the **stubble burning in Punjab and Haryana has reduced by 50% this season as compared to 2024.**
  - These combined measures, used more actively in **2024–25** alongside **GRAP warnings**, aim to reduce open burning while offering farmers viable alternatives.
- **Interventions to Curb Dust and Waste-Related Air Pollution**: Urban local bodies are tightening **dust-control measures** through **mechanized road sweepers, covered construction sites, wheel-wash facilities for trucks, and regular debris removal**.
  - For example, the **Municipal Corporation of Delhi (MCD)** has earmarked funds for sweepers and construction-dust control in its annual plans.
    - **1,000 water sprinklers and 140 anti-smog guns** are deployed across the city to combat dust pollution, particularly at the 13 identified air pollution hotspots.
  - At the same time, cities are focusing on **landfill management and preventing waste burning**, including measures to **stabilize and remediate major dumpsites** like **Okhla, Bhalswa, and Ghazipur,** which are major contributors to winter smog.
- **Public Health & Social Measures:** Air-pollution response now places stronger emphasis on **public health protection**, especially for **children, the elderly, and patients**.
  - Under **GRAP**, authorities issue **health advisories**, allow **school closures or indoor activities**, and alert hospitals during high-AQI episodes; some cities have also installed **air purifiers in schools and hospitals**, such as Delhi's **"Breathe Smart"** classrooms initiative.
  - At the same time, **research on PM2.5 exposure and disease burden** is increasingly used under the National **Clean Air Programme (NCAP)** to link cleaner air with long-term health benefits and guide policy decisions.
- **Domestic Fuel & Household Emissions:** India continues to reduce household pollution by promoting **clean cooking fuels**, with the **Pradhan Mantri Ujjwala Yojana** expanding **LPG access** and lowering reliance on biomass and coal, especially among vulnerable households.
  - City action plans under NCAP also address **domestic emission sources** where they remain significant.
  - In addition, **targeted indoor air-quality measures**, such as installing **air purifiers in government-school classrooms** during high-AQI periods, aim to protect **children's health** during severe pollution episodes.
- **Technology, Innovation & Private-Sector Engagement :**India is leveraging **air-quality technologies** such as **advanced forecasting, low-cost sensors, and satellite analytics**, with strong support from **private firms and NGOs**.
  - These platforms provide **hyperlocal pollution maps**, helping cities target interventions more precisely.

- For example, **Project SAMEER (Science & Technology Alliance for Mitigation of Environmental Risks)**, leverages technologies such as **Internet of Things (IoT)–**based sensors to monitor and mitigate Delhi's air pollution by bringing together academia (Indian Institute of Technology Delhi), industry, and government for real-time, data-driven solutions and public awareness initiatives

- **Financing & Institutional Coordination:** Air-pollution control is being strengthened through **dedicated funding and better coordination**.
  - Cities receive **targeted grants under the XV Finance Commission and the National Clean Air Programme (NCAP)** for projects like monitoring, dust control, public transport, and green cover.
  - At the institutional level, coordination among the **Commission for Air Quality Management (CAQM)**, **Central Pollution Control Board (CPCB)**, state pollution control boards, and municipal bodies has improved, with **dynamic GRAP triggers and mandatory monthly reviews** to ensure accountability and timely action.

What are the Key Issues Hindering the Effectiveness of Air Pollution Control Measures in India?

- **Weak Urban Implementation Capacity:** Despite clear targets under the National Clean Air Programme, several cities face shortages of trained staff, technical expertise, and project-management capacity.
  - According to **MoEFCC/NCAP review reports**, many cities have been unable to fully utilise central funds on time, delaying measures such as mechanised road sweeping and pollution source apportionment studies.
    - As a result, annual PM-reduction targets (3–15% per year) are often missed despite funding availability.
- **Fragmented Governance and Poor Regional Coordination:** Air pollution transcends administrative boundaries, but regulation remains fragmented across states and agencies.
  - For instance, **Delhi's winter smog is significantly influenced by emissions from neighbouring states**, yet enforcement responsibility is uneven.
  - Even bodies like the **Central Pollution Control Board primarily play a coordinating and advisory role, limiting their ability** to ensure uniform compliance. This weak coordination reduces the effectiveness of region-wide responses such as GRAP.
- **Seasonal and Episodic Pollution Peaks:** India's air pollution is highly seasonal. CPCB data show that **PM2.5 levels in NCR nearly double during October–December,** driven by temperature inversion, stubble burning, and increased emissions.
  - For example, in **November 2024–25, AQI crossed 400 (Severe) on multiple days despite year-round controls.**
  - Emergency actions like **construction bans offer short-term relief** but do not tackle structural sources behind these recurring spikes.
- **Monitoring–Enforcement Mismatch:** India has rapidly expanded real-time air-quality monitoring—over 900 continuous monitoring stations nationwide—but enforcement capacity has not grown proportionately.
  - The "No PUC, No Fuel" drive in Delhi **led to a ~46% spike in PUC demand in a single day, temporarily overwhelming systems and exposing enforcement bottlenecks**.
  - Data generation thus outpaces the ability of agencies to act consistently on violations.
- **Economic and Livelihood Constraints:** Pollution-control measures often impose immediate economic costs. **Farmers face ₹2,000–3,000 per hectare costs for residue management without assured market linkages**, leading to continued stubble burning despite subsidies.
  - Similarly, restrictions on older vehicles disproportionately affect informal workers dependent on private transport.

- These **livelihood pressures weaken compliance** and create resistance to regulatory measures.

- **Limited Behavioural Change and Public Compliance:** Behavioural sources like private vehicle use, open waste burning, and firecrackers,**remain significant contributors.**
  - CPCB assessments show that **transport and dust together contribute over 40% of urban PM pollution in many cities**.
  - Awareness campaigns alone **have not translated into sustained behavioural change**, indicating the need for stronger incentives and nudges.
- **The "Industrial Data Gap"**: While India has mandated Online Continuous Emission Monitoring Systems (OCEMS) for highly polluting industries, the system is plagued by data reliability issues.
  - A recent assessment by the CEEW found that **approximately 81% of monitored industrial stacks experienced more than 1,000 hours of missing data annually.**
  - Also, OCEMS data is often **used only for "alerts."** It is not yet widely accepted as primary legal evidence in courts to penalize industries, meaning State Pollution Control Boards **(SPCBs) still rely on manual inspections, which are infrequent.**

What Measures are Needed to Effectively Tackle the Issue of Air Pollution in India?

- **Build City Implementation Capacity**: Create **dedicated Air Quality Cells (AQCs)** in municipal corporations with full-time engineers, GIS/ monitoring analysts and project managers; fund posted positions from NCAP/XVFC grants so cities aren't hiring ad-hoc contract staff.
  - **Standardise project templates and procurement packs** (for sweepers, sensors, CHC machines) so cities can deploy money fast without bespoke tender delays.
  - **Offer "capacity-building vouchers" (central funding for third-party project management/ technical assistance) for small cities**,short-term consultants to prepare DPRs, run procurement, and monitor outcomes.
    - For instance, EU structural funds link grants to technical assistance for absorptive capacity.
- **Strengthen Regional & Inter-State Coordination** : Formalise **interstate Pollution-Reduction Compacts** with binding action schedules (emission inventories, mutually agreed milestones) for metro regions (e.g., NCR). Use a secretariat with legal mandate to track compliance and disburse conditional funds.
  - CAQM's region-level reviews show **fewer fire counts when states coordinate**; formal compacts would make this routine.
  - **Adopt a regional data-sharing platform + joint GRAP triggers** so a hotspot in State A automatically triggers agreed actions in States B/C (construction halt, transport curbs).
    - ***Global model:*** Europe's Convention on Long-range Transboundary Air Pollution and the Gothenburg approach use joint modelling and common rules.
  - **Use conditional central funding**: release parts of NCAP/XVFC grants only when joint targets (e.g., cross-border emission reduction milestones) are met — proven to improve cooperation where financial incentives exist.
- **Prevent And Mitigate Seasonal/Episodic Spikes:** Scale preventive measures ahead of known seasons (**pre-winter readiness**): pre-position road sweepers, extra public transport capacity, temporary odd-even or congestion pricing trigger thresholds, and free public-transport days when forecasts show rising AQI.
  - **Aggressively expand in-situ crop-residue solutions before harvest** (custom hiring centres, subsidised happy-seeders, biomass aggregation) to cut stubble burning.
- **Close the Monitoring & Enforcement Gap**: Link real-time monitors, PUC databases, and industrial consents to automated notice-generation and fine collection systems so detected breaches trigger follow-up inspections within 24–72 hours.

- **No-PUC, No-Fuel exposed backend overloads**, a scalable IT architecture and distributed testing rather than central choke points avoids collapse.
- **Scale mobile enforcement teams and rapid response units** (truck-mounted samplers; mobile PUC vans) funded by NCAP for peak months so data leads to timely action.
  - For Example, **London's mobile enforcement for idling/engine checks improved on-street compliance.**

- **Address Economic & Livelihood Trade-Offs :** Support small bio-refineries, pellet plants and biogas units near farming clusters (**capital grant + purchase guarantees)** so residue becomes an input, not waste.
  - Retirement **buyouts/vouchers for old-vehicle owners**, subsidised retrofit programs for last-mile delivery three-wheelers, and time-limited financial support to drivers transitioning to electric vehicles.
    - For example, **Stockholm congestion pricing** used revenues to subsidise public transport and protect low-income commuters.
- **Drive Sustained Public Behavioural Change**: Apply fiscal nudges and disincentives: congestion/low-emission zones, parking reform, higher waste-burning fines, and subsidies for cleaner home heating and cookstoves.
  - Mandatory **'Clean-Air Days' protocols,** indoor air filters for vulnerable institutions, and incentivised tele-work during severe episodes.
  - Engage schools, ASHA workers, and municipal bodies **to conduct door-to-door and ward-level sensitisation.** Integrate alerts with mobile apps and public display boards suggesting daily behaviour changes (e.g., avoid waste burning, use public transport on high-AQI days).
  - Such targeted, evidence-based awareness drives create behavioural change rather than mere information dissemination.

Conclusion:

India's air pollution challenge is no longer one of policy absence but of **execution, coordination, and social transition**. Measurable declines in particulate pollution since 2019 show that regulatory and technological interventions can work when implemented effectively. However, **lasting improvement demands stronger city capacities, regional cooperation, livelihood-sensitive transitions, and behavioural change alongside enforcement.** Moving from **episodic crisis management to preventive, region-wide governance is essential.** With sustained political will and citizen participation, clean air can shift from an emergency aspiration to a durable public good.

Deepening India–Africa Engagement

This editorial is based on "Unlocking the potential of India-Africa economic ties" which was published in The Hindu on 22/12/2025. The article brings into picture the key areas of convergence and friction in India–Africa relations and outlines a strategic roadmap to deepen trade, investment, and development cooperation in the coming decade.

Tag: GS-2, Groupings & Agreements Involving India and/or Affecting India's Interests", India and Its Neighbourhood, Bilateral relations.

India and Africa share a deep historical relationship shaped by **anti-colonial solidarity, South–South cooperation, and strong people-to-people ties**. In the contemporary phase, Africa has become a central pillar of India's foreign policy owing to its **strategic location, demographic dividend, resource potential, and rising geopolitical importance**. India–Africa **bilateral trade has crossed USD 100 billion**, though it remains significantly lower than **China–Africa trade of over USD 200 billion**, highlighting both the gap and the opportunity. Guided by principles of **mutual respect, non-interference, capacity building, and development partnership**, India aims to **double trade with Africa by 2030**, positioning itself as a long-term, people-centric partner rather than a purely extractive or transactional actor.

How Have India–Africa Relations Evolved Over Time?

- **Ancient and Early Historical Contacts:** India–Africa relations date back to **ancient times**, primarily through **maritime trade across the Indian Ocean**.
  - Indian traders from the western coast, especially Gujarat and the Konkan region, had regular commercial links with the eastern coast of Africa **(present-day Kenya, Tanzania, and Mozambique).**
  - Using the monsoon wind system, they exchanged Indian textiles, spices, and beads for African goods such as gold, ivory, and timber.
    - These interactions were largely peaceful and based on mutual benefit, leading to **cultural exchanges** that influenced the **Swahili civilization** in language, architecture, and social practices.

- **Importantly, these early contacts were commercial and cultural in nature, not driven by conquest or territorial control.**

- **During the Colonial Period:** During this period, India and Africa came under European domination, creating a shared experience of exploitation and racial discrimination.
  - Large numbers of Indians were taken to Africa as **indentured labourers**, traders, and clerks, especially to South and East Africa, forming lasting diaspora communities.
  - This phase also marked a deep political connection, as **Mahatma Gandhi's struggle against racial discrimination in South Africa (1893–1914)** shaped both Indian nationalism and African resistance movements.
    - The colonial experience fostered a common political consciousness based on **anti-imperialism, equality, and self-respect,** laying the foundation for post-independence solidarity between India and African nations.
- **Post Colonial Engagement:** India and newly independent African nations forged close ties based on shared anti-imperialist struggles and common developmental challenges. India emerged as a strong supporter of **African decolonisation**, extending diplomatic and moral backing to liberation movements across the continent.
  - Platforms such as the **Asian–African Conference at Bandung (1955)** and the Non-Aligned Movement (NAM) brought India and African states together in pursuit of strategic autonomy, peace, and cooperation outside Cold War power blocs.
  - In the early post-independence period, India–Africa relations **focused on capacity building and people-centric cooperation rather than trade**. India provided **technical assistance, scholarships, and professional support** in areas such as agriculture, healthcare, and administration.
  - Though economic exchange was limited, this phase built lasting trust that later enabled deeper economic and strategic engagement.

What are the Key Areas of Convergence in India–Africa Relations?

- **Trade and Economic Cooperation:** India–Africa trade has grown significantly, with **bilateral trade crossing USD 100 billion in 2024–25**, and India becoming one of the **top five investors in Africa**.
  - India aims to **double trade by 2030** by focusing on value addition, technology-driven agriculture, renewable energy, healthcare, and services.
  - India's exports include pharmaceuticals, machinery, textiles, and automobiles, while Africa supplies crude oil, minerals, and agricultural commodities.
- **Development Partnerships and Capacity Building:** Development cooperation remains a core area of convergence.
  - India has extended **concessional Lines of Credit (LoCs)** to African countries for infrastructure, water supply, and industrial projects.
    - For instance, India offered a US$170 Million Line of Credit (LoC) for the **Conakry Water Supply Project to the Republic of Guinea**.
  - At the **India–Africa Forum Summits**, India committed significant financial and technical support, including vocational training centres and support for SMEs.
- **Education and Human Resource Development:** Educational and skill development cooperation is central to India-Africa ties.
  - Programs like the **Indian Technical and Economic Cooperation (ITEC)** and scholarship schemes have trained thousands of African professionals in areas such as agriculture, healthcare, and administration.
  - Initiatives like establishment of Indian institutes in Africa **(e.g.**, IIT Madras campus in Zanzibar) strengthen people-to-people and institutional links.
- **Technology and Digital Cooperation:** India has promoted digital cooperation through projects like

the **Pan-African e-Network** for tele-education and tele-medicine, and is exploring wider digital public infrastructure collaboration.

- For example, **Namibia** is the first African country officially **adopting India's UPI to build its own sovereign payment system**.
- Also, recently, India agreed to set up a new **State-of-the-Art Data Centre for the Ministry of Foreign Affairs in Ethiopia**.
- Such initiatives foster shared technology solutions in governance, connectivity and innovation.

- **Health and Pharmaceuticals:** India's pharmaceutical industry is a major supplier of affordable medicines and vaccines to African countries.
  - During the COVID-19 pandemic, India supplied vaccines under initiatives like **"One Earth One Health"**, strengthening health diplomacy and building goodwill in public health cooperation.
  - With about **20% of India's pharma exports going to African countries,** Indian pharma companies become crucial for medical upliftment in Africa.
- **Strategic and Maritime Security Cooperation:** Strategic convergence has grown through joint defence engagements and maritime exercises like the **Africa-India Key Maritime Engagement (AIKEYME)** involving several African navies, enhancing interoperability and regional security in the Indian Ocean.
- **Energy, Clean Technology, and Sustainable Development:** Both India and Africa are working together on energy security and renewable energy initiatives, including cooperation under the **International Solar Alliance** and shared goals in green hydrogen and clean technologies. Such cooperation aligns with sustainable development goals and mutual growth strategies.
- **Global Advocacy and Multilateral Cooperation:** India and Africa often align on global issues such as **UN reforms, climate negotiations, and representation of the Global South**. India has supported greater African participation in global institutions, including advocacy around the African Union's voice in forums like the G20.

What are the Major Frictions Limiting the Potential of India–Africa Relations?

- **Trade Imbalance and Limited Market Penetration:** India's exports are concentrated in a few sectors like pharmaceuticals and refined petroleum, while value-added manufacturing and services penetration remains limited.
  - African markets often perceive Indian firms as less competitive in terms of **scale, speed, and financing** compared to Chinese companies.
  - Despite India being a global IT powerhouse, its digital services penetration in Africa is still in its infancy compared to its potential.
  - While India has signed recent agreements **(e.g., the Strategic Partnership with Ethiopia in December 2025),** the export of high-end machinery and processed foods remains low.
- **Slow Implementation of Development Projects:** India's **Lines of Credit (LoCs)** focus on infrastructure and capacity building, but many projects face **delays due to procedural complexity, land issues, and weak local capacity**.
  - Slow execution reduces visibility and impact, sometimes leading to frustration among African partners despite goodwill.
  - India's $250 million Line of Credit for the **Maputo electricity project in Mozambique**, first offered in 2012, stalled in bureaucratic limbo for years without significant progress, necessitating a complete re-tendering process.
  - On the other hand, the **Addis Ababa–Djibouti railway was built with large China Eximbank buyer's-credit loans and Chinese contractors**, cited as an example of China delivering big, fast, financed infrastructure.
- **Weak Institutional Momentum:** Institutional frameworks such as the **India–Africa Forum Summit (IAFS)** have not been held regularly since **2015**, **weakening continuity and high-level political engagement.**
  - This gap contrasts with more frequent institutionalised engagements by other partners and reduces strategic focus on Africa in India's foreign policy calendar.

- **Logistic and Connectivity Constraints**: Persistent logistical challenges such as **limited direct shipping routes, high freight costs, and weak air connectivity** increase transaction costs and hinder trade, investment, and people-to-people exchanges between India and Africa.
  - These structural costs make Indian goods and services less competitive in many African markets.
  - The **ongoing conflict in the Red Sea has significantly disrupted the logistics of India-Africa trade throughout 2024 and 2025**, primarily by forcing vessels to abandon the shortest route through the Suez Canal in favor of the Cape of Good Hope.
    - A **typical 20–22 day voyage from India to African markets now takes 30 to 35 days,** representing a 50% increase in lead times.
- **Security and Political Instability in Parts of Africa:** Ongoing conflicts, coups, and security challenges in regions such as the **Sahel and Horn of Africa** create risks for Indian investments, project continuity, and the safety of the Indian diaspora.
  - **For instance, India had to launch Operation Kaveri** to evacuate over 3,000 Indians from Sudan due to conflict in the region.
  - These unstable environments deter deeper private sector participation and slow implementation.
- **Underrepresentation in Global Governance Frameworks:** While India supports Africa's voice in global institutions, African nations remain underrepresented in **UN Security Council reform** discussions and other decision-making bodies.
  - Differences over the model of reform prevent a common negotiating position. **While India (as part of the G4) seeks permanent seats with the veto**, the **Ezulwini Consensus (the African Union's common position)** demands at least two permanent seats for Africa with full veto rights and two additional non-permanent seats.
  - This generates a joint but unresolved diplomatic priority where both regions seek greater global voice yet struggle to overcome structural barriers.

What Strategic Reforms Are Needed to Unlock India–Africa Trade Potential?

- **Removing Trade Barriers and Deepening Institutional Trade Engagement:** India should focus on **removing tariff and non-tariff barriers** by actively pursuing **preferential trade agreements (PTAs)** and **comprehensive economic partnership agreements (CEPAs)** with major African economies and regional groupings.
  - Engaging deeply with **African regional economic communities** and the **African Continental Free Trade Area (AfCFTA)** can provide Indian exporters access to a unified market of over **1.4 billion people**.
  - This aligns with the call for India to "**connect, build and revive**" its trade engagement with Africa through institutionalised economic frameworks rather than ad-hoc bilateralism.
- **Shifting from Commodity Trade to Value-Added Manufacturing Partnerships:** The second pillar must focus on transitioning from **low-value commodity exports** (such as petroleum products) to **two-way value-added trade and joint manufacturing**.
  - Despite incentives offered by African governments, Indian firms have underutilised opportunities to set up manufacturing units in Africa.
  - Establishing production facilities offers a **dual strategic advantage**, preferential access to the **U.S. market through favourable tariff regimes** and direct entry into Africa's expanding consumer and industrial markets.
    - Moving into pharmaceuticals, automobiles, agro-processing, textiles, and light manufacturing is essential to elevate India–Africa economic ties to the next phase.
- **Unlocking Africa's Potential for Indian MSMEs through Trade Finance:** The third pillar should prioritise **MSME-led engagement**, where Africa offers greater opportunities than saturated Western markets.

- However, limited access to **trade finance, insurance, and risk-mitigation tools** constrains MSME participation.
- India must **scale up Lines of Credit**, simplify procedures, and improve accessibility for smaller firms.
- Measures such as **local-currency trade**, creation of a **joint India–Africa insurance pool**, and blended finance mechanisms can reduce political and commercial risks, encouraging banks and MSMEs to engage more actively.

- **Reducing Logistics and Connectivity Costs:** The fourth pillar should address **high freight and logistics costs**, which undermine competitiveness.
  - India needs to invest in **port modernisation, hinterland connectivity, and dedicated India–Africa maritime corridors**, supported by public–private partnerships. Improving shipping lines and air connectivity will reduce transaction costs, facilitate trade, and enhance business mobility—areas where India currently lags behind other global partners.
- **Scaling Services Trade and People-to-People Linkages:** The final pillar must focus on **services, digital trade, and human capital exchange**. India should leverage its strengths in **information technology, healthcare, education, professional services, and skill development** to expand services exports to Africa.
  - Services act as **high-value trade multipliers**, stimulating demand for goods and strengthening long-term economic integration. Current policy frameworks remain insufficient to unlock this potential and require targeted reforms to enable smoother movement of professionals, digital services, and institutional partnerships.

Conclusion:

India–Africa relations are at a crucial juncture, driven by shared growth aspirations and strong political goodwill. As External Affairs Minister **S. Jaishankar has noted, "Africa's goals and agenda are India's priority,"** doubling trade by 2030 will require a shift from commodity exports to value-added manufacturing, services, and MSME-led engagement. Reducing trade barriers, improving logistics, and expanding trade finance are vital, alongside leveraging India's strengths in digital services, healthcare, and skill development. A coherent, multi-pillar approach can convert this partnership into a durable engine of inclusive growth.

Reimagining Corporate Social Responsibility in India

This editorial is based on "Step up: On corporate environmental responsibility" which was published in The Hindu on 23/12/2025. The article highlights how corporate-led growth has intensified environmental stress, making stronger corporate environmental responsibility essential for sustainable development.

Tag : GS-2, Governance, GS-4, Business ethics, Stakeholders responsibility, GS-3, Inclusive Development.

In the face of accelerating environmental degradation and climate risk, **simply ticking CSR checkboxes is no longer enough;** corporate India **must embed genuine environmental stewardship into its core responsibilities.** While CSR spending in India **has expanded steadily and compliance levels remain high,** environmental initiatives continue to be largely project-based and peripheral to core business decisions. **Weak enforcement, greenwashing, and limited outcome measurement dilute the developmental impact of CSR-led environmental action.** Yet, with stronger regulation, constitutional anchoring of environmental duties, and outcome-oriented CSR reforms, corporate India can emerge as a key partner in sustainable development.

What is Corporate Social Responsibility?

- **About: Corporate Social Responsibility (CSR)** is a business model where companies integrate social and environmental concerns into their operations.
  - While globally it is often voluntary, **India became the first country in the world to make CSR a legal mandate through the Companies Act, 2013.**

- **Statutory Framework in India:** The **CSR mandate** is governed by **Section 135 of the Companies Act, 2013, and the Companies (CSR Policy) Rules, 2014.**
  - **Eligibility Criteria:** A company must comply with CSR provisions if it meets any one of the following thresholds during the immediately preceding financial year:
    - Net Worth: ₹500 Crore or more.
    - Turnover: ₹1,000 Crore or more.
    - Net Profit: ₹5 Crore or more.
  - **The "2% Mandate" (Spending Requirement):** Eligible companies are legally required to spend at least 2% of their average net profits made during the three immediately preceding financial years on CSR activities.
- **Permitted Activities (Schedule VII):** Companies cannot spend CSR funds on just anything. The activity must fall **under Schedule VII of the Act,** which includes:
  - **Eradication of hunger, poverty and malnutrition**; healthcare, sanitation and safe drinking water
  - **Promotion of education, vocational skills** and livelihood enhancement.
  - **Gender equality, women empowerment** and support for senior citizens and vulnerable groups
  - **Environmental sustainability,** ecological balance and conservation of natural resources
  - **Protection and promotion of national heritage**, art, culture and traditional crafts
  - **Welfare of armed forces,** CAPF and paramilitary veterans and their dependents
  - Promotion of rural, national, Paralympic and Olympic sports
  - Contributions to Prime Minister's relief and other government welfare funds
  - Support to research, innovation, incubators and public-funded institutions aligned with SDGs
- **Non-Compliance & Penalties**: India shifted from a "**Comply or Explain**" model to a "**Comply or Be Penalized" model in 2021.**
  - **Unspent Funds:** If the unspent amount relates to an Ongoing Project, it must be transferred to a special **"Unspent CSR Account" within 30 days of the FY** end and **spent within 3 years.**
  - **If not for an ongoing project,** it must be **transferred to a government-specified fund** (Schedule VII) **within 6 months.**
  - Penalties:
  - **Company:** Twice the unspent amount or ₹1 Crore (whichever is less).
  - **Defaulting Officers:** 1/10th of the unspent amount or ₹2 Lakh (whichever is less).

How does Corporate Social Responsibility Drive India's Socio-Economic Development?

- **Bridging Development Gaps:** CSR supplements government efforts in health, education, skill development, and rural infrastructure, helping address unmet social needs and promote inclusive growth.
  - For example, **Indian corporates spent a record ₹34,909 crore on Corporate Social Responsibility (CSR) initiatives in FY 2023-24,** a 13% rise from the previous year, according to Fulcrum's latest Bharat CSR Performance Report.
  - Companies like **Tata Group** and **Infosys** have supported **large-scale school infrastructure, digital classrooms, and primary healthcare projects**, directly improving access in aspirational and rural districts
- **Ensuring Sustainable Development:** By encouraging environmentally responsible practices, CSR balances economic growth with ecological protection and long-term resource sustainability.
  - **Infosys has committed to net zero emissions by 2040**, aligning with the national goals.
  - **ITC's watershed development projects** have helped create water-positive outcomes in drought-prone regions, aligning business growth with ecological balance
- **Stakeholder-Centric Governance:** CSR reflects a shift from **shareholder-only focus to stakeholder**

responsibility, ensuring businesses remain accountable to employees, communities, and society at large.

- Firms increasingly engage local communities in project design, seen in **Mahindra & Mahindra's skill development programmes**, which align training with local employment needs

- **Supporting Long-Term Business Stability:** CSR reduces social, environmental, and regulatory risks, creating a stable operating environment and supporting long-term profitability.
  - For instance,**L&T's construction skill councils** reduced project delays by creating a trained local workforce.
- **Ethical and Moral Responsibility:** Since businesses benefit from public resources and social stability, **CSR embodies the ethical obligation to give back to society.**
  - Also, Ethical conduct and social engagement under CSR improve corporate credibility, brand value, and public trust, strengthening the social licence to operate.
    - For instance, approximately **49% of eligible listed companies exceeded their prescribed 2% CSR spending requirement,** showing positive trends in CSR allocation.
  - Philanthropy-led models like **Azim Premji Foundation's education work** exemplify this moral dimension.
- **Aligning with National and Global Goals:** CSR spending increasingly aligns with **SDGs and national priorities** such as **Swachh Bharat, Skill India, and Jal Jeevan Mission.**
  - **CSR is no longer just "philanthropy" but "National Development Capital."** In **FY 2023-24 alone, 97% of funds (approx. ₹33,840 crore) were spent directly on social projects** rather than just being transferred to government funds.
    - It indicates that companies are actively implementing programs that mirror the Jal Jeevan and Skill India missions on the ground.
    - For instance, companies like **HDFC Bank and Reliance** have integrated water security into their "Rural Development" portfolios.

What are the Key Challenges Limiting the Developmental Impact of CSR in India?

- **Uneven Regional Reach and Limited Depth of Social Impact:** Despite large cumulative CSR spending, developmental benefits remain **spatially and sectorally concentrated**.
  - Over **60% of CSR funds are absorbed by a handful of industrialised states**, while many Aspirational Districts and tribal regions receive limited support.
  - CSR projects often focus on visible infrastructure rather than long-term human development outcomes, leading to **fragmented impact**.
    - For instance, **education-related CSR spending is skewed towards urban digital classrooms**, while rural learning outcomes remain weak.
- **Peripheral Environmental Action:** Environmental initiatives by many companies remain largely symbolic and detached from core business operations, **dominated by short-term activities.**
  - For instance, Environmental sustainability initiatives account for **less than 15% of total CSR expenditure**, and many firms rely on standalone projects such as **plantation drives rather than systemic emission reduction.**
  - While companies announce **net-zero commitments,** independent ESG reviews show **limited coverage of supply-chain (Scope-3) emissions**, diluting real sustainability gains.
- **Episodic Spending and "Short-Termism":** The **pressure of the annual 2% mandate forces a cycle of "episodic spending"** where companies fund quick, high-visibility projects to meet yearly deadlines rather than committing to decade-long transformations.

- They fail to invest in the **"Soft Infrastructure"**- long-term infrastructure development, water supply integration, and waste management systems.
- This **undermines trust and creates a "grant-dependency"** culture among NGOs who cannot plan for long-term staff or infrastructure.
- **For instance,** in FY 2024, nearly **65% of CSR-active organizations** implemented fewer than 5 projects, often as one-time grants.

- **Strategic Misalignment and Fragmented Efforts:** CSR is frequently treated as a **"compliance tax" managed by HR or legal teams** rather than being integrated into the core business strategy or national developmental goals.
  - This leads to fragmented, small-scale interventions that lack the "multiplier effect" required to solve complex issues like malnutrition or deep-tech skilling.
  - **For instance,** approximately **40% of Indian businesses** report difficulty aligning CSR with their overarching business goals, **leading to "random acts of kindness."**
- **Compliance-Driven Philanthropy and Concentration of Control:** While nearly **49% of eligible companies exceed the 2% CSR spending norm**, effectiveness varies.
  - A significant share of funds is channelled through **company-controlled foundations**, raising concerns about independence, innovation, and grassroots reach.
  - Smaller NGOs and community organisations face barriers in accessing CSR funding, restricting diversity of interventions.

What Measures Are Needed to Unlock the Full Potential of Corporate Social Responsibility?

- **Targeted and Equitable Allocation:** To address regional imbalance, CSR allocation should be guided by **district-level development indicators** rather than corporate location preferences.
  - A **national CSR prioritisation framework**, similar to the **UK's "place-based social investment"** model, can channel funds to Aspirational Districts and tribal areas. India can mandate partial convergence of CSR with **District Development Plans (DDPs)** to ensure complementarity with public schemes rather than duplication.
- **Embedding Sustainability into Core Business and Value Chains:** Environmental CSR must move beyond peripheral projects to **business-integrated sustainability**, as seen in the **EU's ESG-linked corporate responsibility model**. Indian firms should link CSR with supply-chain decarbonisation, circular economy practices, and water stewardship.
  - For example, **Unilever's global sustainability plan** integrates supplier emissions and community outcomes, delivering measurable climate and livelihood benefits.
- **Institutionalising Community Participation and Co-Creation:** CSR effectiveness can be enhanced by mandating **local stakeholder consultations** at the design stage, similar to **Brazil's participatory development model**.
  - Indian companies should partner with Panchayats, SHGs, and local NGOs for needs assessment and monitoring.
  - Successful pilots like **Tata Trusts' community-led rural development programmes** show that local ownership improves sustainability and outcomes.
- **Shifting from Event-Based Philanthropy to Long-Term Institution Building:** To strengthen trust, CSR should prioritise **long-duration projects with exit and maintenance plans**, following the **Nordic model of social investment**, where funding spans 5–10 years.
  - Indian firms can **adopt multi-year CSR commitments for health and education** infrastructure, ensuring trained personnel and operational funding beyond asset creation.
- **Outcome-Oriented Skilling Linked to Market Demand:** To improve employment conversion, CSR skilling must be **industry-linked and demand-driven**, as practiced under **Germany's dual vocational training system**.

- Indian companies should co-design curricula with industry associations, provide apprenticeships, and track post-training employment for at least 12 months. **L&T's integrated training-to-employment model** offers a scalable domestic template.
- **Injeti Srinivas Committee recommends** promoting outcome-based CSR, and encouraging collaboration with credible implementing agencies instead of company-controlled foundations.

- **Deepening SDG Alignment Through Measurable Indicators:** CSR–SDG convergence must move from symbolic mapping to **indicator-based reporting**, following the **UN SDG Compass framework**.
  - Companies should define outcome metrics (learning levels, income enhancement, health indicators) rather than output counts. **Japan's SDG-linked corporate reporting** demonstrates how measurable alignment improves accountability and scaling.
- **Expanding Impact Assessment and Data Transparency:** Impact assessment should be gradually extended to **medium-sized CSR projects**, supported by standardised tools and digital dashboards.
  - Countries like **Canada and Australia** use centralised social-impact registries to track outcomes across sectors.
  - India can strengthen the MCA CSR Portal into a **real-time outcome monitoring platform**, improving learning and evidence-based redesign.
- **Reframing CSR as a Constitutional and Environmental Duty:** CSR must move beyond voluntary charity and be anchored in **Article 51A(g), which mandates protection of the environment as a fundamental duty, as emphasised by the Supreme Court.**
  - This requires companies to internalise environmental responsibility as a core obligation, not discretionary spending.

Conclusion :

Corporate Social Responsibility has emerged as a vital instrument for advancing **inclusive and sustainable development**, contributing directly to **SDG-4 (Quality Education), SDG-3 (Good Health), SDG-8 (Decent Work), and SDG-13 (Climate Action)**. While India's CSR framework has scaled up in spending and compliance, its future impact depends on shifting from compliance-driven philanthropy to **outcome-oriented, community-led, and business-integrated social investment**.

India'S Evolving Free Trade Strategy

This editorial is based on "A good template: On India's FTA with New Zealand" which was published in The Hindu on 24/12/2025. The article highlights India's evolving and more calibrated approach to free trade agreements, balancing strategic openness with protection of sensitive domestic sectors. It underscores that the real test lies not in signing FTAs, but in effective implementation—removing non-tariff barriers, leveraging mobility provisions, and ensuring such agreements translate into broad-based economic gains.

Tag: GS-2, Governance , International Relations, GS-3, External Sector, FTA, FDI

As global trade fragments and protectionism resurges, **India's evolving approach to free trade agreements** reflects a shift from headline-driven deals to calibrated, interest-based partnerships. Recent **Free Trade Agreements (FTAs)** with countries such as the **New Zealand** signal a strategy that combines selective market opening with protection of vulnerable sectors. By focusing on **services, mobility, investment, and supply-chain resilience,** India is aligning trade policy with its comparative advantages. If effectively implemented, this pragmatic FTA approach **can strengthen India's global integration while supporting inclusive and sustainable growth.**

What are Free Trade Agreements?

- **About:** FTAs are **formal treaties** between two or more countries to promote trade and economic cooperation by reducing tariffs, easing non-tariff

barriers, and **establishing common rules for trade in goods, services, investment, intellectual property, and dispute settlement.**

- FTAs aim to ensure predictable market access, boost competitiveness, and integrate economies into global value chains. At the same time, they allow countries to safeguard sensitive domestic sectors through negotiated protections.
- For example, **India- UK FTA grants zero-duty** access for **99% of Indian exports** to the United Kingdom.

- **India's Recent FTAs:** India is moving away from a few major partners to a global network to insulate itself from global tariff wars and supply chain shocks.
  - Recently India has aggressively expanded its trade network, concluding landmark deals with the **UK (CETA), Oman (CEPA), and most recently New Zealand (FTA).**

Key Types of Trade Agreements

- **Free Trade Agreement (FTA):** Member countries eliminate or reduce tariffs and trade barriers on goods (and sometimes services) among themselves, while retaining independent trade policies with non-members **(e.g., India–ASEAN FTA).**
- **Comprehensive Economic Partnership Agreement (CEPA):** A deeper form of FTA that covers not only goods but also services, investment, intellectual property, mobility, and regulatory cooperation **(e.g., India–UAE CEPA).**
- **Comprehensive Economic Cooperation Agreement (CECA):** Similar to CEPA but relatively less extensive in coverage and commitments, often seen as a stepping stone to deeper integration **(e.g., India–Singapore CECA).**
- **Preferential Trade Agreement (PTA):** Countries offer reduced tariffs on selected goods rather than full tariff elimination, making it a limited and partial trade arrangement.
- **Customs Union:** Members eliminate internal tariffs and adopt a common external tariff for non-members, requiring deeper coordination. (e.g, **MERCOUSER**)
- **Economic Union:** The most integrated form, involving free movement of goods, services, capital, and labour along with coordinated economic policies **(e.g., Eurasian Economic Union).**

Why Is India Pushing for Free Trade Agreements (FTAs)?

- **Expanding Market Access:** FTAs help Indian exporters gain preferential access to large and fast-growing markets by reducing tariffs and non-tariff barriers, especially for sectors like pharmaceuticals, textiles, engineering goods, and services.
  - For example, **engineering goods exports to EFTA rose by 18% to $315 million** in FY 2024–25 that is credited to the **India–European Free Trade Association (EFTA) Trade and Economic Partnership Agreement (TEPA).**
- **Boosting Exports and Correcting Trade Imbalances:** With exports crucial for sustaining high growth, FTAs are seen as tools to diversify export destinations and improve India's trade competitiveness amid slowing global demand.
  - Since the signing of India-UAE CEPA, bilateral merchandise **trade has nearly doubled** from US$ 43.3 billion in FY 2020-21 to US$ 83.7 billion in 2023-24.
- **Leveraging India's Strength in Services and Mobility:** New-generation FTAs increasingly include provisions for **services trade, professional mobility, and mutual recognition of qualifications,** aligning with India's comparative advantage in IT, healthcare, education, and skilled manpower.
  - For instance, India–EFTA TEPA, secures **enhanced access in over 100 sub-sectors across EFTA nations** and includes **Mutual Recognition Agreements (MRAs) for professionals like nurses, accountants, and architects.**

- **Integrating into Global Value Chains (GVCs):** FTAs facilitate India's participation in regional and global supply chains by easing rules of origin, standards, and investment flows, supporting initiatives like ***Make in India*.**
  - For instance, India–Australia ECTA agreement secures a **stable supply of critical minerals like lithium, cobalt, and nickel,essential for India's battery and solar manufacturing sectors.**
- **Attracting Foreign Investment:** Predictable trade rules and investment protections under FTAs enhance investor confidence and encourage long-term FDI into manufacturing and infrastructure.
  - For instance, India–EFTA TEPA commits EFTA nations **to channel $100 billion in foreign direct investment (FDI) into India over the next 15 years,** alongside creating one million direct jobs.
- **Strategic and Geopolitical Considerations:** FTAs help India strengthen economic diplomacy with key regions, reduce overdependence on a few markets, and position itself as a reliable alternative in a fragmented global trade order.
  - **India is using FTAs to position itself as the global alternative to China.** By signing deals with developed markets, India ensures that global supply chains for electronics, semiconductors, and pharmaceuticals have a **"duty-free" home in India.**
    - **For instance, India–UK CETA allows companies to manufacture in India and export back to their home markets without tariffs,** directly competing with Chinese manufacturing hubs.
- **Learning from Past Hesitation:** After staying out of mega trade pacts like **RCEP**, India is pursuing **selective, calibrated FTAs** that balance openness with safeguards for sensitive sectors such as agriculture and MSMEs.
  - In the **India–New Zealand negotiations,** sensitive sectors like **dairy and certain animal and vegetable products have been excluded** despite dairy forming nearly one-third of New Zealand's exports.

What are the Major Issues Associated with India's FTAs?

- **Widening Trade Deficits with FTA Partners:** India has recorded persistent and, in some cases, **rising trade deficits with major FTA partners such as ASEAN, Japan and South Korea.**
  - Imports have grown faster than exports, reflecting asymmetrical competitiveness and limited export diversification.
  - For instance, between FY 2009 and FY 2023, India's imports from ASEAN surged by **234.4%,** while its exports to the bloc increased by only **130.4%.**
- **Low Utilisation of FTA Benefits by Exporters:** Many Indian exporters, especially MSMEs, do not fully utilise FTA provisions due to inadequate awareness, lack of capacity to navigate complex documentation, and limited understanding of rules of origin, reducing expected export gains.
  - India's FTA utilization rate as per the Asian Development Bank, has remained **under 25%, among the lowest in Asia.**
- **Persistence of Non-Tariff Barriers (NTBs):** Despite tariff concessions, Indian exports often face **restrictive standards, sanitary and phytosanitary measures, technical regulations,** and certification requirements in partner markets, particularly in agriculture, food products, and pharmaceuticals.
  - For example**, Basmati Rice, Milk, and chemicals from India consistently face NTBs in European markets** especially regarding **pesticide residue limits (MRLs) for rice (like Tricyclazole), contamination risks (molds, microbes), and documentation gaps (traceability, certificates).**
- **Weak Manufacturing Competitiveness:** Structural issues such as **high logistics costs, fragmented supply chains, and lower productivity** reduce the ability of Indian manufacturing to compete with imports from FTA partners, leading to import surges in electronics, machinery, and chemicals.
  - For instance, Indian SMEs face difficulty competing with ASEAN firms due to the latter's

deeply integrated production networks, lower logistics costs, and faster customs clearance.

- Recent 2024–25 government reports show India **has brought logistics cost down to 7.97% of GDP**. It shows improvement, however, **competitors like Vietnam and Thailand operate with highly efficient, port-led industrial clusters** that keep their effective cost per unit lower for global markets.

- **Complex and Restrictive Rules of Origin: Complicated rules of origin increase compliance costs** and discourage firms from claiming preferential tariffs, while also raising concerns about third-country dumping through FTA routes.
  - It leads to the **Spaghetti Bowl Effect,** because every FTA (India-ASEAN, India-UAE, India-Australia) has slightly different rules, a company exporting to three different regions must maintain three different sets of compliance paperwork for the exact same product.
- **Limited Gains in Services Trade:** Although services are India's comparative advantage, many FTAs provide limited market access due to restrictive visa regimes, caps on professional mobility, and slow progress on mutual recognition of qualifications.
  - For instance, in India-Japan CEPA, **stringent Japanese language requirements** for high-skilled migrants and **a lack of standardized mutual recognition for professional qualifications** in engineering and healthcare, limits the effective utilization of the pact.
- **Inadequate Safeguards for Sensitive Sectors: Agriculture, dairy, and MSMEs** remain vulnerable to import competition where safeguards are weak, poorly triggered, or insufficiently tailored to domestic realities.
  - For instance, **ASEAN-India Free Trade Agreement (AIFTA)** significantly reduced tariffs on products like **palm oil from Malaysia and Indonesia**, leading to a surge in cheap imports, which genuinely pressured Indian farmers, especially for edible oils, creating tough competition and impacting domestic producers
- **Implementation and Monitoring Gaps:** Weak institutional mechanisms to monitor FTA outcomes, address grievances, and renegotiate problematic provisions limit timely policy correction and learning.
  - **In India–South Korea CEPA**, imports of steel and electronic goods rose sharply while Indian exports remained subdued, yet **timely sector-specific reviews and corrective renegotiations were limited**.
  - Industry bodies repeatedly flagged misuse of rules of origin and market access barriers, but **weak monitoring mechanisms delayed policy response.**

How Can India Improve the Utilisation of Its Free Trade Agreements?

- **Strengthening Exporter Awareness And Handholding:** Many Indian exporters, especially MSMEs, remain unaware of FTA benefits or struggle with compliance.
  - **Sector- and district-level outreach through DGFT, Export Promotion Councils, and industry bodies,** along with dedicated FTA facilitation cells, can improve understanding of tariff schedules, documentation, and partner-country regulations.
- **Simplifying Rules Of Origin And Trade Procedures:** Complex and restrictive rules of origin raise compliance costs and discourage utilisation.
  - Rationalising product-specific rules, **promoting self-certification** with robust audits, and fully digitising certificates of origin can increase preference utilisation while preventing misuse.
- **Proactively Addressing Non-Tariff Barriers (Ntbs):** Indian exports often face SPS, TBT, and standards-related barriers despite tariff cuts.
  - Creating country- and sector-specific NTB monitoring desks can help document exporter grievances and pursue their resolution through FTA joint committees and dispute mechanisms.

- **Enhancing Domestic Competitiveness:** FTAs deliver gains only when domestic firms are competitive.
  - **Further reducing logistics costs, improving infrastructure and port efficiency,** supporting technology upgradation, and aligning FTAs with initiatives like PM Gati Shakti, Make in India, and PLI schemes are critical.
- **Leveraging Services Trade And Mobility Provisions:** Services are India's comparative advantage, yet many FTAs underperform **due to restrictive visa regimes and lack of mutual recognition of qualifications.**
  - Active follow-up is required to operationalise mobility clauses and professional access in IT, healthcare, education, and engineering.
- **Protecting Sensitive Sectors Through Effective Safeguards:** Agriculture, dairy, and MSMEs need faster and better-calibrated safeguard mechanisms to manage import surges.
  - Regular review of tariff concessions and timely use of trade-remedy instruments can balance openness with livelihood protection.
- **Linking FTAs With Investment And Supply-Chain Strategy:** FTAs should be integrated with investment promotion, industrial clusters, and supply-chain partnerships so that market access translates into domestic production, employment, and export growth.

Conclusion :

India's Free Trade Agreements are increasingly **shaped by pragmatism, strategic caution, and alignment with domestic priorities rather than blanket liberalisation.** While recent FTAs reflect **progress in services, mobility, and investment, their benefits remain uneven due to structural competitiveness gaps and implementation challenges. Addressing non-tariff barriers, strengthening institutional monitoring, and improving exporter readiness will be critical to convert negotiated access into real gains.**

India'S Solar Power Push

This editorial is based on "Create more space to let solar power flow" which was published in The Financial express on 16/12/2025. The article highlights how India's rapid expansion of solar capacity contrasts with persistent bottlenecks in transmission, storage, and grid readiness.

Tag: GS-3,Sustainable Developments, Renewable Energy, Solar Energy, GS-2, Governance.

As India races toward its **500 GW renewable energy target**, solar power has emerged as the backbone of the transition — yet the **pace of generation is outstripping the capacity to transmit** it. While solar projects are being commissioned rapidly, inadequate transmission infrastructure and land constraints are creating serious bottlenecks. The **challenge now lies not in producing solar power, but in moving it efficiently across the country.**Strengthening grid connectivity and unlocking private investment in transmission will determine whether India's solar ambition truly delivers.

How is India Progressing in Solar Power Development?

- **Capacity Expansion:** India's solar power capacity has expanded dramatically over the past decade, reaching around **129 GW in 2025, up from just 3 GW in 2014.**
  - This includes **ground-mounted projects, rooftop solar, hybrid systems, and off-grid installations**. Solar energy now forms a significant portion of India's energy mix and propels India to achieve **500 GW of non-fossil fuel capacity by 2030**.
  - Western and northern states lead solar deployment due to high irradiation and available land.
    - **Rajasthan, Gujarat, Maharashtra, and Tamil Nadu** are among the top solar producers, with Rajasthan alone having extremely high potential and targets for continued expansion.

- **Transmission Capacity and Grid Integration:** While grid-interactive solar generation capacity expands fast, **transmission infrastructure is being ramped up under initiatives like the Green Energy Corridor** to evacuate renewable power efficiently.
  - Currently, **India's total transmission system supports integration of large renewable capacity,** with ongoing projects and long-term plans to strengthen interstate and intra-state connectivity to reduce curtailment.
  - Rooftop solar adoption is also growing, supported by schemes like **PM Surya Ghar Yojana**. Nearly **24 lakh households have adopted rooftop solar** until December 2025 under the scheme.
  - **Solar Pumps** are also being stalled under the **PM-KUSUM scheme, integrated with grid connection.**
- **Energy Trading and Market Mechanisms:** Solar energy is increasingly participating in **energy markets and power trading platforms like Green Term Ahead Market (GTAM)**, enabling utilities and industries to procure clean energy.
  - Electricity exchanges facilitate sale of solar power through bilateral contracts, day-ahead markets, and **renewable purchase obligations (RPOs) ensure demand.**
- **Enhanced Focus on Battery Energy Storage Systems (BESS):** To manage the intermittency of solar ("the sun doesn't shine at night"), the government has pivoted from **"plain solar" tenders to "Round-the-Clock" (RTC) and hybrid tenders.**
  - The Ministry of Power has approved a Viability Gap Funding (VGF) **scheme to support 30 GWh of Battery Energy Storage Systems (BESS).** The ₹5,400 crore scheme is designed to catalyse nearly ₹33,000 crore in investments, with the **objective of meeting India's BESS requirements by 2028.**
- **Domestic Manufacturing of Solar Modules**: India has transitioned from being a solar importer to a manufacturing hub to insulate itself from global supply chain shocks. **India has achieved a landmark milestone of 100 GW of solar PV module manufacturing capacity enlisted under the Approved List of Models and Manufacturers (ALMM)** for Solar PV Modules.
  - This achievement reflects the country's rapid progress in building a robust and self-reliant solar manufacturing ecosystem, aligned with the national vision of Atmanirbhar Bharat
- **Floating Solar and Agrivoltaics**: As land acquisition becomes a challenge, India is moving solar panels onto water bodies and farmland.
  - Projects like the **Omkareshwar Floating Solar Park (600 MW) in Madhya Pradesh** are leading the way. These systems **reduce water evaporation** while **benefitting from the natural cooling effect of water**, which increases panel efficiency.
  - Also, under the **"dual-use" land policy push, solar panels are installed at a height that allows crops to grow underneath.** This provides farmers with a second source of income **(selling power) without sacrificing food production**

What are the Major Challenges Associated With India's Solar Power Sector?

- **Land Acquisition and Availability Challenges: Large-scale solar projects require vast contiguous land parcels, often located in arid or semi-arid regions**. In agriculturally rich or ecologically sensitive regions, land conversion also raises concerns about livelihoods and biodiversity loss.
  - Projects often face **delays due to overlapping land-use regulations, forest clearances, and wildlife protection norms**, especially in ecologically sensitive zones.
    - India witnessed a **44% decline in solar installations in 2023, largely attributed to land acquisition-related challenges.**
    - **For example**, projects in Rajasthan have faced timelines extension due to protection zones for the **Great Indian Bustard.**
- **Transmission and Grid Integration Constraints:** While solar generation capacity has expanded

rapidly, transmission infrastructure has not kept pace. Many solar parks face evacuation delays due to inadequate transmission lines and substations.

- Grid congestion, especially in high-generation states like **Rajasthan and Gujarat,** leads to power curtailment, reducing plant efficiency and investor confidence.
  - **For instance,** Nearly 4,300 MW of solar power capacity in Rajasthan faces complete daytime curtailment due to inadequate transmission infrastructure.

- **Intermittency and Storage Limitations:** Solar energy is **inherently intermittent** and dependent on daylight and weather conditions. Limited availability of affordable energy storage technologies such as batteries or pumped hydro, restricts the ability to supply reliable round-the-clock power, posing challenges to grid stability.
  - **Lithium-ion batteries** currently **lead the market for solar storage**, but they have limitations including safety concerns **(e.g., thermal runaway)**, temperature sensitivity, and reliance on finite, geopolitically sensitive rare earth minerals like lithium and cobalt.
    - Without effective and affordable storage, solar energy cannot provide 24/7 power.
- **Financial Stress in DISCOMs:** State-owned DISCOMs remain financially stressed, largely due to borrowing for clearing past dues and meeting working capital needs.
  - According to IEA, as of March 2025, distribution companies **in India owed more than USD 9 billion in unpaid dues. The accumulated losses of distribution companies in India stood at USD 75 billion in 2023.**
  - This weakens investor confidence, causes payment delays to solar developers, and affects long-term power purchase agreements (PPAs).
- **Dependence on Imported Equipment:** India relies heavily on imported solar modules, particularly from China, exposing the sector to supply chain disruptions, price volatility, and geopolitical risks. Despite initiatives like **Production Linked Incentive (PLI) schemes, domestic manufacturing capacity remains limited.**
  - For instance, **China still controls over 90% of the global supply for polysilicon** and wafers. And, India has **almost no indigenous commercial production of silica sand or high-grade wafers,** resulting in a local value addition of only 30-40% for Indian-made modules.
- **Policy and Regulatory Uncertainty:** Frequent changes in tariff structures, duties on imported components, and state-level policy variations create uncertainty for investors.
  - Delays in **signing power purchase agreements (PPAs**) and inconsistent implementation of renewable purchase obligations (RPOs) further complicate planning.
  - For instance, as of late 2025, an estimated 40–45 GW of awarded solar capacity remains "stranded" because Power Sale Agreements (PSAs) have not been signed.
- **Financing and Cost of Capital:** Although solar tariffs have declined, access to affordable long-term finance remains a challenge, particularly for smaller developers. High interest rates, currency risks for foreign loans, and limited green financing options increase project costs.
  - India's **cost of capital for grid-scale renewable energy** is one of the lowest among its emerging market and developing economy counterparts. However, it is still **80% higher than in advanced economies.**
- **Skill and Workforce Gaps:** The rapid expansion of the solar sector requires a skilled workforce for installation, operations, and maintenance. However, shortages of trained technicians and engineers limit efficiency and long-term sustainability.
  - **The rapid scale-up of the PM Surya Ghar Yojana** has led to the proliferation of "fly-by-night" installers who lack standardized certification, leading to poor-quality installations that pose fire risks and have lower energy yields.

- This "**skill-quality gap" at the grassroots level undermines the long-term bankability of rooftop projects and discourages retail investors**.

What Reforms are Needed to Effectively Unlock India's Solar Energy Potential?

- **Strengthening Land Access and Reducing Social–Environmental Conflicts:** India must move beyond ad-hoc land acquisition by promoting **land pooling, leasing models, and agrivoltaics**, where solar panels coexist with agriculture, as seen in **Japan and Germany**.
  - Large-scale use of **wastelands and desert regions**, similar to China's desert solar parks in Gobi, can minimize displacement.
  - **Digitised land records**, GIS mapping, and early community consultation, successfully applied in countries like **Australia**, can reduce disputes and project delays while improving social acceptance.
- **Expanding and Modernising Transmission Infrastructure:** To match rapid generation growth, India must accelerate **Green Energy Corridor (GEC)** projects and plan transmission networks in parallel with solar parks.
  - Countries like **China** have adopted long-term transmission planning linked to renewable clusters, ensuring minimal curtailment.
    - **India should also promote private sector participation in transmission** through viability gap funding and performance-based tariffs, alongside smart grid deployment for real-time load balancing.
- **Ensuring Reliable Power through Storage and Hybrid Solutions:** Addressing intermittency requires scaling up **battery energy storage systems (BESS)** and **pumped hydro storage**, as seen in Australia and the US, where storage is integrated with solar projects.
  - India can **incentivise hybrid solar–wind–storage projects and time-of-day tariffs to encourage round-the-clock clean power.**
  - Supporting domestic battery manufacturing under PLI and encouraging alternative technologies like **sodium-ion batteries** will strengthen long-term resilience.
- **Restoring Financial Health of Power Distribution Utilities:** Global experience shows that renewable success depends on financially viable utilities. India must accelerate reforms under the **Revamped Distribution Sector Scheme (RDSS)**, enforce timely tariff revisions, and reduce AT&C losses.
  - Countries like **Brazil and Chile** have improved utility performance through smart metering, prepaid billing, and independent regulation—models India can adapt to restore investor confidence.
- **Reducing Import Dependence and Strengthening Domestic Manufacturing:** To reduce vulnerability to global supply shocks, India should deepen local manufacturing across the solar value chain—from polysilicon to modules—similar to **China's integrated manufacturing ecosystem**.
  - The **PLI scheme should be complemented with R&D support,** technology transfer partnerships, and long-term procurement commitments to build scale and competitiveness.
- **Ensuring Policy Stability and Regulatory Predictability:** Stable and predictable policies are critical for long-term investments.
  - Countries like **Germany and Denmark** have demonstrated that **consistent renewable policies attract sustained investment.**
  - India should avoid retrospective tariff changes, ensure timely signing of PPAs, and maintain transparent regulatory processes to build investor confidence.
- **Mobilising Affordable Finance and De-risking Investment:** High cost of capital remains a barrier. **Expanding green bonds**, **blended finance models**, and **multilateral funding**, as seen in **Chile and South Africa's renewable auctions**, can reduce financing costs.

- **Credit enhancement mechanisms** and **sovereign guarantees** can further unlock private capital, especially for large-scale solar and storage projects.

- **Building a Skilled and Future-Ready Workforce:** Scaling solar deployment requires trained manpower across installation, operations, and maintenance.
  - Countries like **Germany and South Korea** have integrated vocational training with renewable expansion.
  - India can replicate this through expanded skilling programmes under Skill India and partnerships between industry, ITIs, and universities to ensure long-term sectoral sustainability.

Key Case Studies Related to India's Solar Advancement

- **Kadapa(Andhra Pradesh) & Bhadla Solar Parks (Rajasthan):** Successful models of **large-scale solar deployment through land pooling,** integrated planning, and dedicated transmission corridors.
- **Modhera, Gujarat- India's First 24x7 Solar-Powered Village:** Modhera represents the successful **integration of heritage and high-tech**. This project can make an entire community energy-independent while preserving the aesthetic of a historical site **(the Sun Temple).**
- **Cochin International Airport (CIAL), Kerala- The World's First Fully Solar Airport:** It made history in 2015 as the world's first airport fully powered by solar energy, achieving complete power neutrality through large solar plants.
- **Dhundi, Gujarat- The Solar Pump Cooperative:** In 2016, six farmers from Dhundi village in Gujarat's Kheda district **formed the world's first solar irrigation cooperative, Dhundi Saur Urja Utpadak Sahakari Mandali (DSUUSM)**.
  - As highlighted by The Better India, the cooperative uses solar pumps for irrigation and sells surplus power to Madhya Gujarat Vij Company Ltd (MGVCL), **turning farmers into solar entrepreneurs while halving irrigation water costs for the village**.
- **Sanchi, Madhya Pradesh- India's First Solar City**: Sanchi, a historic Buddhist site in Madhya Pradesh, was declared India's **first "solar city" in 202**3, aiming to run entirely on solar power.

Conclusion:

India's solar sector stands at the centre of its clean energy transition, playing a decisive role in achieving the **Panchamrit commitments** of 500 GW of non-fossil capacity, 50% energy from renewables, and net-zero emissions by 2070. Strengthening grid infrastructure, enabling domestic manufacturing, and improving policy coordination will be critical to unlocking the sector's full potential. Aligned with **SDG 7 (Affordable and Clean Energy)**, and **SDG 13 (Climate Action)**, a resilient and inclusive solar ecosystem can drive India's green growth while supporting energy security and climate commitments.

Reaffirming Free Speech in A Constitutional Democracy

This editorial is based on "Courts must protect, not regulate free speech which was published in The Hindus on 15/12/2025. The article brings into picture why courts must protect the right guaranteed under Article 19(1). Further it delves into what cautions must be taken to regulate Free Speech in the digital era.

Tag: GS Paper – 2 (Indian Constitution, Judiciary, Fundamental Rights, Governance), GS Paper – 4 (Ethics in Public Institutions – Constitutional Morality)

Recent Supreme Court discussions on regulating online content have **renewed debate over the judiciary's role in shaping the boundaries of free speech**. While freedom of expression under **Article 19(1)(a) forms the bedrock of India's democracy,** concerns arise when judicial observations appear to expand regulatory control

beyond constitutional limits. In a constitutional framework, any restriction—whether by the executive or judiciary—**must remain strictly anchored within Article 19(2),** lest the core guarantee of free speech be gradually diluted in the name of order.

What are the Existing Provisions Regulating Free Speech?

- **Constitutional Guarantee under Article 19(1)(a):** All Indian citizens have the **fundamental right to freedom of speech and expression**, which includes expressing views by words, writing, print, pictures, movies, digital media and the press.
  - This right also covers the **freedom to access and disseminate information** and the **freedom of the press** as an essential part of public discourse.
- **Reasonable Restrictions under Article 19(2):** Freedom of speech is not absolute; the State may impose **reasonable restrictions** in the interests of sovereignty, security of the State, friendly foreign relations, **public order**, decency or morality, contempt of court, defamation, and incitement to offence.
  - Any law curbing speech must be **legally backed, reasonable, and connected to these grounds**.
- **Bharatiya Nyaya Sanhita (BNS), 2023: Section 296:** Penalises obscene acts or songs in public places causing annoyance, reinforcing standards of public decency.
  - **Section 299:** Punishes deliberate and malicious acts intended to outrage religious feelings, protecting social harmony.
  - **Section 300:** Criminalises disturbance of religious assemblies or worship, safeguarding public order and communal peace.
- **Information Technology Act, 2000 – Regulation of Online Speech:**The IT Act governs speech in the digital space, where communication is rapid and wide-reaching.
  - **Section 66** addresses computer-related offences such as hacking and unauthorised access, while **Section 66E protects individuals from privacy violations through the unauthorised sharing of private images**.
  - **Section 67** penalises the publication or transmission of obscene or sexually explicit material online. These provisions ensure that digital freedom does not lead to misuse, exploitation, or harm.
  - **Section 69A** authorizes Central and State governments to **issue directions "to intercept, monitor or decrypt any information generated**, transmitted, received or stored in any computer resource".
- **IT Rules, 2021 – Intermediary and Digital Media Regulation:** The Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021, establish accountability for online platforms. They require **social media intermediaries and digital news publishers to follow due diligence norms, remove unlawful content when directed, and appoint grievance officers to address user complaints.**
  - The rules **also mandate a code of ethics and a three-tier grievance redressal** mechanism involving self-regulation, oversight bodies, and government supervision, ensuring responsible digital communication.

Judicial Interpretation

- **Romesh Thapar v. State of Madras (1950):** The Supreme Court **struck down a ban on a journal**, holding that restrictions must be narrowly defined and cannot be used to curb free expression on weak grounds. This case **laid the foundation for robust protection of free speech and press.**
- **Brij Bhushan Sharma v. State of Delhi (1950):** The Court **invalidated prior censorship on a newspaper**, reinforcing that pre-publication restraints violate free speech unless there is clear danger to public order.
- **Sakal Papers Ltd v. Union of India (1961):** The Supreme Court struck down restrictions on newspaper pricing and advertising, emphasising that **economic burdens** imposed on the press can amount to unreasonable interference with freedom of speech.

- **Shreya Singhal v. Union of India (2015):** The Supreme Court struck down **Section 66A of the IT Act** for being vague and overly broad, holding that **arrests for online speech violated Article 19(1)(a)** and **could not be justified under Article 19(2).**
- **Anuradha Bhasin v. Union of India (2020):** The Supreme Court held that **freedom of speech and trade through the internet is protected under Article 19(1)(a) and 19(1)(g)**. It ruled that **indefinite internet shutdowns are unconstitutional** and must meet the tests of necessity and proportionality. The judgment also **mandated periodic review of suspension orders,** strengthening safeguards against arbitrary restrictions.

What Are the Key Issues Affecting Freedom of Speech in India?

- **Rising Free Speech Violations and the Chilling Effect on Dissent:** India witnessed a sharp rise in documented free speech violations, with the Free Speech Collective recording **14,875 incidents in 2025**, including **117 arrests and 9 deaths** linked to expression-related activities.
  - This highlights that threats to free speech **extend beyond online censorship to physical safety, creating a climate of fear** that discourages dissent and democratic participation.
- **Frequent Internet Shutdowns Curtailing Access to Information:** According to Access Now, India imposed **84 internet shutdowns in 2024**, the highest among democratic nations.
  - Such disruptions severely **affect access to information, education, healthcare, and livelihoods,** while raising serious concerns over proportionality, transparency, and due process in digital governance.
- **Mass Platform Blocking and Executive Control Over Online Speech**: In May 2025, reports revealed that **over 8,000 social media accounts were ordered to be blocked** under government directives. Large-scale takedown powers exercised through executive orders illustrate how state authority can significantly shape digital discourse, often with limited judicial oversight.
- **Opaque Takedown Mechanisms and Expanding Enforcement Infrastructure:** The government's **"Sahyog" portal** recorded **294 takedown requests covering 3,276 URLs between October 2024 and June 2025**.
  - While framed as a coordination mechanism, **the lack of transparency, independent review, and clear appeal processes has raised concerns** about overreach and procedural fairness.
- **Impact on News Access and Media Freedom:** In July 2025, the temporary blocking of the **Reuters News account on X** following a legal demand—later restored—highlighted how takedown actions can disrupt access to credible journalism.
  - Such incidents **deepen uncertainty for media platforms** and raise questions about editorial independence and public access to verified information.
- **Moral Responsibility in Exercising Free Speech**: Cases like the **Ranveer Allahabadia controversy** highlight that free speech carries ethical responsibilities beyond legal limits. Influencers with large audiences shape public discourse, making restraint and sensitivity essential.
  - Even when speech is lawful, irresponsible expression can harm social harmony and public trust. Such cases underline the need for **self-regulation and ethical accountability** alongside legal safeguards in the digital age.
- **Judicial Endorsement of Tighter Content Regulation**:Karnataka High Court ruling in **X Corp v. Union of India & Others, upholding the government's expanded takedown powers.**
  - The court reinforced the legal obligation of platforms to comply **"expeditiously" with state directives, ruling that failure to do so results in the loss of "safe harbor" protection.**
  - While affirming sovereignty and public order, the judgment intensified debates over **balancing regulatory authority with constitutional protections for free speech.**

- **Surveillance and Data Requests Intensifying Self-Censorship:** Transparency reports from Meta and other platforms indicate **very high volumes of government data requests from India**, raising concerns over privacy erosion.
  - **India ranked second worldwide** (behind only the United States) **in the volume of user information disclosure requests** sent to Google during the first half of the year 2024.
  - Extensive surveillance capabilities can create a chilling effect, where users self-censor due to fear of identification, monitoring, or legal repercussions.

How Can Freedom of Speech Be Safeguarded in India?

- **Strengthening Judicial Oversight and Proportionality Tests:** Courts must strictly apply the **tests of legality, necessity, and proportionality** laid down in judgments such as **Shreya Singhal v. Union of India (2015) and Anuradha Bhasin v. Union of India (2020).**
  - These rulings emphasise that **restrictions on speech must be the least restrictive means and backed by clear legal authority.** Regular judicial review of speech-related executive actions can prevent misuse of vague or excessive restrictions.
- **Reforming and Clarifying Speech-Related Laws:** Laws dealing with public order, obscenity, and online speech—such as Sections 296, 299, and 300 of the Bharatiya Nyaya Sanhita and provisions under the IT Act, **must be narrowly defined to prevent misuse**. **Clear statutory definitions and safeguards** against arbitrary interpretation can reduce the chilling effect on legitimate speech.
  - For example, **Germany's Network Enforcement Act** (NetzDG) provides a model for procedural safeguards in content moderation. Rather than using vague terms like "anti-national," **the law lists 22 specific criminal offenses** (e.g., incitement to hatred, defamation, using symbols of unconstitutional organizations) **that justify a takedown.**
- **Ensuring Transparency in Content Takedown and Blocking Orders:**Government takedown requests under IT Rules **should follow transparent procedures**, including **written reasons, public disclosure** (except in sensitive cases), and **a right to appeal**.
  - Countries like the **UK and EU follow disclosure-based models** that balance security concerns with free expression ,an approach India can emulate.
- **Strengthening Institutional Safeguards for Media Freedom:** Independent regulatory bodies such as the **Press Council of India** and **News Broadcasting Standards Authority** should be empowered with greater autonomy and enforcement capacity.
  - This reduces executive overreach while ensuring ethical journalism and accountability.
- **Protecting Journalists and Whistle-blowers:** Legal safeguards are required to prevent harassment, arbitrary arrests, or intimidation of journalists and whistle-blowers.
  - **Ensure the operationalization of the Whistle Blowers Protection Act** and stronger witness-protection frameworks, in letter and spirit, to create a safer environment for investigative reporting.
- **Regulating Digital Platforms Without Overreach:** Social media regulation must **balance harm prevention with freedom of expression.** Instead of blanket takedowns, **graded responses such as content labelling, fact-checking, and algorithmic transparency** should be prioritised.
  - The EU's Digital Services Act offers a useful reference model.
- **Limiting Internet Shutdowns Through Clear Standards:** Internet shutdowns should be **used only as a last resort**, following the principles of necessity, proportionality, and temporariness laid down by the Supreme Court in *Anuradha Bhasin case*.
  - Mandatory periodic review and judicial oversight can prevent misuse.
- **Promoting Media Literacy and Civic Awareness:** Long-term protection of free speech requires

empowering citizens to critically evaluate information. Integrating media literacy into education curricula can reduce misinformation while strengthening democratic discourse.

- **For example**, **Finland** provides a leading example of the effective, long-term implementation of media literacy. **Media literacy is not taught as a standalone subject but is integrated across all school subjects from preschool onwards.**

- **Ensuring Independent Oversight Mechanisms:** Establishing an **independent digital rights or media ombudsman** can help adjudicate disputes, oversee government actions, and protect citizens' expressive freedoms without politicisation.
  - **For example**, countries like **France use the neutral ARCOM authority** (Audiovisual and Digital Communication Regulatory Authority) to ensure all decisions are made fairly, not politically, protecting citizens' right to speak freely.

Conclusion:

Freedom of speech is **central to India's democracy, enabling dissent, accountability, and informed public debate**. While constitutional safeguards exist, emerging challenges such as digital regulation and security concerns require careful balancing. **Ensuring transparent laws, judicial oversight, and proportional restrictions is essential to protect this fundamental right while maintaining public order.**

Strengthening India'S FDI Attractiveness

This editorial is based on "Fragile attractiveness: on the latest FDI data and India which was published in The Hindu on 26/12/2025. The article highlights how India's status as a global investment destination rests on a fragile foundation, while underscoring the need for deeper structural reforms to strengthen and sustain its FDI attractiveness.

Tag: GS-3 Resource Mobilisation, Foreign Direct Investment, GS-2, Governance

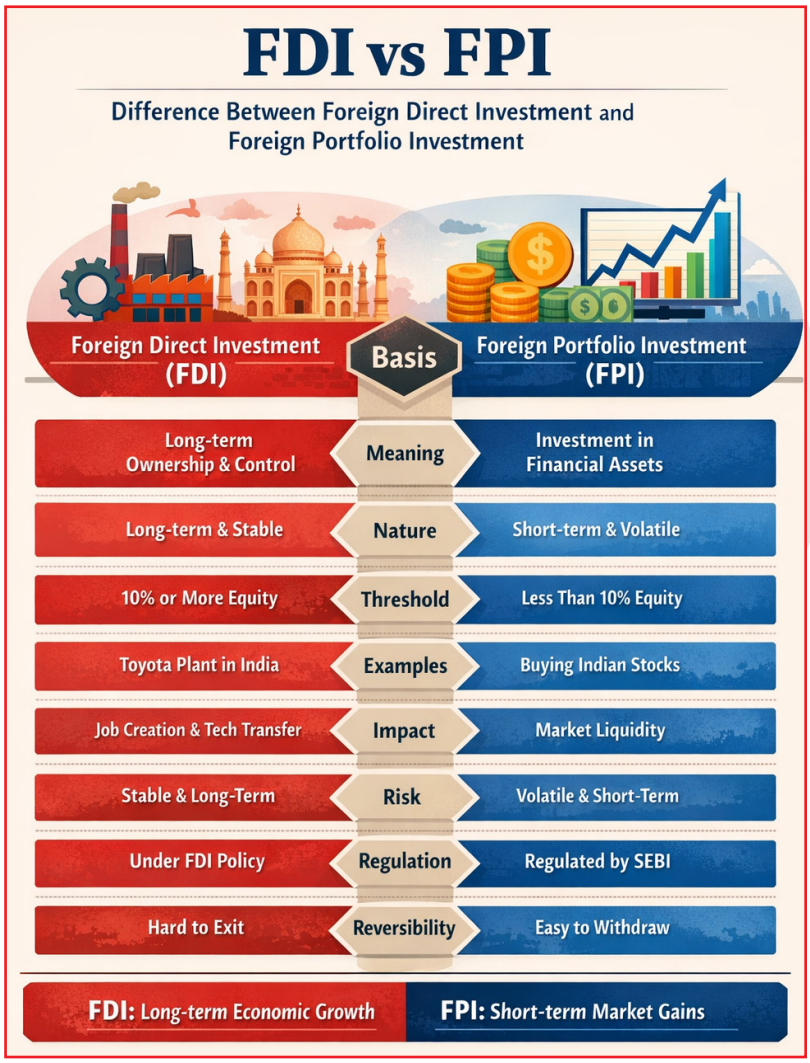
India's recent foreign direct investment (FDI) trends reveal how fragile global investor confidence can be, as even a single external shock, such as the U.S. tariff announcement, triggered **capital outflows.** While India remains one of the **world's fastest-growing economies,** the sudden dip in FDI shows that growth narratives alone cannot sustain investor trust. At the same time, India continues to attract long-term interest due to its large market, reform push, and manufacturing potential. Strengthening policy certainty and structural reforms can help convert this underlying potential into stable and sustained investment inflows.

What is Foreign Direct Investment ?

- **About**: **Foreign Direct Investment (FDI)**, as defined by the **Organisation for Economic Co-operation and Development (OECD)**, refers to an investment made by a resident entity in one economy with the objective of establishing a **lasting interest and a significant degree of influence or control** over the management of an enterprise in another economy.
  - It is different fro**m FPI, or Foreign Portfolio Investment,** that refers to foreign entities investing in a country's financial assets like stocks, bonds, mutual funds, or ETFs, without gaining control of local businesses
  - **Foreign Direct Investment (FDI) is recorded in the financial account of the Balance of Payments** as it involves long-term cross-border capital flows. It signifies a stable, enduring stake in the host economy through ownership, management control, and technology transfer.
    - For instance, **Toyota setting up a manufacturing plant in India** constitutes FDI, generating employment, boosting productivity, and integrating India into global value chains.
- **Routes of FDI in India**
  - **Automatic Route** : FDI is allowed without prior approval from the Government or RBI in most sectors. For example**, renewable energy , IT and software services, etc.**

- **Government Route** : FDI requires prior approval from the Government of India, usually through the relevant ministry or department. For example, **defence manufacturing.**

- **Prohibited Sectors for FDI**
  - **FDI is not permitted in certain sensitive areas**, including **atomic energy, lottery business, gambling and betting, chit funds, nidhi companies, real estate business (except development), trading in transferable development rights (TDRs) and manufacturing of tobacco and tobacco substitutes.**



What is the Current Trend in Foreign Direct Investment (FDI) in India?

- **Trends**: In recent years, India has continued to be an important destination for global Foreign Direct Investment. Although short-term fluctuations have occurred, including periods where **net FDI turned negative due to higher outflows compared with inflows**, the **overall trend shows robust gross inflows and strong investor interest in strategic sectors**.
  - For example, between **April and October 2025, India's gross FDI inflows increased by around 15.4% to approximately $58.3 billion**, highlighting continued investor confidence despite volatility.
- **Major Sources Of FDI: Singapore** (30% in FY24-25) and **Mauritius(17% FY24-25)** have traditionally been among the **top sources of FDI**, due in large part to treaty benefits and the presence of investment vehicles routed through these jurisdictions.
  - Other important contributors include the **United States, United Kingdom, Netherlands**, and the **United Arab Emirates**.
- **Top Sectors Attracting FDI**
  - **Service Sector:** The services sector remained the largest recipient of FDI in FY 2024–25, accounting for **19% of total equity inflows**.
    - It was followed by **computer software and hardware (16%)** and **trading (8%)**.
    - Notably, FDI inflows into the services sector recorded a strong growth of **40.77%**, rising from **USD 6.64 billion** in the previous year to **USD 9.35 billion**.
  - **Manufacturing:** Manufacturing has also shown strong traction as a key destination for foreign capital.

- In FY 2024–25, FDI inflows into the manufacturing sector grew **by 18% year-on-year, reaching about USD 19.04 billion,** up from USD 16.12 billion in the previous fiscal.

- **Major Recipient States: Maharashtra accounted for the highest share, receiving 39% of total FDI equity inflows in FY 2024–25**, followed by **Karnataka with 13%** and **Delhi NCR with 12%**.
  - Other significant recipient states include **Gujarat and Tamil Nadu**, which together account for a substantial share of total foreign investment in the country.

What Factors are Driving the Inflow of Foreign Direct Investment into India?

- **Large and Growing Domestic Market:** India's vast consumer base continues to attract FDI as companies seek scale and demand opportunities.
  - India secured over **USD 81.04 billion (provisional) in FY 2024–25**, reflecting sustained interest from global investors in tapping into the Indian market despite volatility.
  - Also, **India's digital market is maturing** as the world's **third-largest startup** ecosystem, coupled with its **"India Stack" (UPI, ONDC), is attracting massive "future-shaping" capital.**
- **Sectoral Liberalisation and Business Reforms:** Relaxation of FDI norms in major sectors has expanded investment opportunities.
  - For instance, the **government raised the FDI cap in insurance to 100% in the 2025 budget** and liberalised several sectors, simplifying access for foreign investors.
  - Also reforms, such as the **Jan Vishwas Bill 2.0**, have **decriminalized 288 minor industry offences to reduce the "compliance tax"** on foreign firms.
- **Strategic Policy Initiatives and Incentives:** Initiatives such as **Make in India, Production Linked Incentive (PLI) schemes, and expansion of free trade agreements** have made India more attractive for global supply chains and investment commitments.
  - Cumulative **FDI inflows have crossed $1 trillion since 2000,** indicating policy effectiveness in attracting capital.
  - Also, actual realized investments under PLI reached ₹1.88 lakh crore by June 2025 across 14 sectors.
- **Preferential Investment Agreements and Enhanced Market Access**: Expanding trade agreements and improved global engagement boost investor confidence.
  - For example, **India-UAE CEPA committed USD 100 Billion investment** by providing tariff advantages and predictable market entry opportunities.
  - Also, the **recent India-EFTA pact** secured a commitment **of $100 billion in investment over 15 years.**
- **The "China Plus One" Strategic Realignment:** Global corporations are aggressively diversifying their supply chains away from China to mitigate geopolitical risks and rising labor costs. **India is the primary beneficiary of this shift, offering a vast domestic market and a competitive, large-scale labor pool that provides long-term operational resilience.**
  - For instance, **Apple's iPhone exports from India hit $12.1 billion in 2024**, signaling a massive shift in high-tech assembly hubs.
- **Massive Infrastructure and Logistics Scaling:** The **PM GatiShakti National Master Plan** is addressing India's long-standing logistics inefficiencies by **enabling integrated, multimodal connectivity across road, rail, ports, and air networks, reducing transit time, improving supply-chain reliability, and enhancing ease of doing business.**
  - As a result, India's logistics cost has declined to about 7.97% of GDP, strengthening export competitiveness and **making India a more attractive destination for foreign investment.**

What are the Key Issues Affecting FDI Inflows in India?

- **Policy Uncertainty and Frequent Regulatory Changes:** Sudden amendments in **e-commerce**

rules, data localisation norms, and taxation policies create uncertainty for foreign investors who prefer long-term stability.

- Sudden legislative shifts in sunrise sectors **like the Promotion and Regulation of Online Gaming Act, 2025 and e-commerce "marketplace"** tweaks, **create a perception of high regulatory risk for digital capital.**
- Although most sectors follow the automatic FDI route, **investments from countries sharing land borders, mainly China, face strict screening under Press Note 3 (2020)**.
  - This requirement for prior government approval has **delayed around 200 proposals as of August 2025**, slowing the entry of critical suppliers and hindering the growth of India's electronics and EV manufacturing.
- Such unpredictability **increases perceived risk and discourages large,** long-gestation investments, especially in sectors like digital services and retail.

Global Economic and Geopolitical Uncertainty: Global developments such as geopolitical tensions, supply chain disruptions, and monetary tightening by advanced economies have significantly impacted capital flows.

- **Rising interest rates in the U.S. and Europe** have prompted investors to pull funds from emerging markets, including India, in search of safer returns.
- For instance, t**he US imposed 50% tariffs on certain Indian imports in late 2025, contributing to net FDI turning negative for three consecutive months ending October 2025**,highlighting that capital inflows are not fully translating into long-term domestic investment.

Infrastructure and Logistics Bottlenecks: Although logistics costs have come around 7–8% of GDP, inadequate last-mile connectivity, port congestion, and uneven infrastructure development across states continue to affect investor confidence, especially in manufacturing and export-oriented sectors.

- Despite India's jump to **38th in the World Bank's Logistics Performance Index (LPI), major ports face "vessel bunching**" and **yard congestion** as cargo volumes outpace terminal automation.
- **The PM Gati Shakti National Master Plan** has successfully mapped **about 1,700 data layers,** but the **"on-ground" synchronization between rail, road, and air remains incomplete.**

Land Acquisition and Labour Market Challenges: Despite reforms, land acquisition remains time-consuming due to legal complexities, rehabilitation issues, and state-level variations.

- Similarly, while labour laws have been consolidated, their implementation remains uneven across states, creating uncertainty for investors planning large-scale industrial operations.
- Despite the creation of the India Industrial Land Bank (IILB), which has **mapped over 4,500 industrial parks, challenges related to land availability, clear titles, and last-mile connectivity persist.**

Intense Global Competition for Investment: India faces stiff competition from countries such as **Vietnam, Indonesia, and Mexico,** which offer faster approvals, lower logistics costs, and investor-friendly ecosystems.

- For example, **Vietnam has attracted major electronics manufacturers** such as **Samsung and Apple** suppliers **due to its efficient special economic zones** and trade agreements like **CPTPP and EVFTA,** diverting some investments away from India.

Sector-Specific Regulatory Restrictions: Several sectors, including multi-brand retail, defence production, media, and insurance, still have caps or approval requirements that limit foreign participation. Such restrictions reduce the attractiveness of these sectors compared to fully liberalised markets.

- For instance,while the **Union Budget 2025 raised the insurance FDI cap to 100%, it introduced a mandatory clause requiring foreign firms to reinvest the entire premium income within India**.

- **Skill Gaps and Technology Constraints:** Although India has a large workforce, only about **5% of the workforce is formally skilled**, compared to over 50% in advanced economies.
  - There is a critical shortage of "Industry 4.0" ready talent—specialists in wafer fabrication, mechatronics, and advanced AI, needed for high-value manufacturing.
  - As a result, **investors often prefer countries with deeper skill ecosystems** and established supply chains.
- **Low R&D Intensity and Intellectual Property (IP) Risks:** India's Gross Expenditure on R&D **(GERD) remains significantly below the global average, which discourages "Innovation-led FDI" that seeks to build high-end laboratories rather than just assembly lines.**
  - For instance, India's GERD as a percentage of GDP r**emained between 0.6% to 0.7% which is below global average and lower than countries like China (nearly 2.4%) and the USA (around 3.5%)**.
  - Also, **concerns regarding the speed of patent enforcement** and the **protection of trade secrets in high-tech joint ventures** remain a **persistent barrier for biotech and aerospace firms.**

How can India Sustain and Increase Foreign Direct Investment Inflows?

- **Ensure Policy Stability and Regulatory Predictability:** India must provide a stable and transparent policy environment to boost investor confidence. Frequent changes in taxation, e-commerce rules, or compliance norms create uncertainty for long-term investors.
  - For example, **retrospective tax issues in the past** affected India's credibility, prompting the government to later withdraw such provisions.
    - **A stable, predictable regulatory regime is essential** to attract long-term greenfield investments.
- **Improve Ease of Doing Business at the State Level:** While India has improved its national ranking, inter-state disparities persist. Simplifying land acquisition, digitising approvals, and ensuring time-bound clearances can significantly reduce project delays.
  - **States like Gujarat and Telangana, which offer single-window clearance systems, have attracted higher FDI**, demonstrating the importance of administrative efficiency.
- **Strengthen Infrastructure and Logistics Efficiency**: Accelerating projects under **PM Gati Shakti,** expanding multimodal logistics parks, and modernising ports and railways can lower costs and improve ease of movement for goods and raw materials.
- **Deepen Manufacturing and Global Value Chain Integration:** India must move beyond assembly-based manufacturing to deeper value addition.
  - **Expanding and refining Production Linked Incentive (PLI) schemes,** especially in electronics, semiconductors, and electric vehicles, can help India integrate into global value chains and attract high-quality FDI.
- **Reform Land and Labour Markets:** Land acquisition delays and uneven implementation of labour codes discourage large-scale investments.
  - **Streamlining land acquisition through digitised land records** and ensuring **uniform adoption of labour codes across states** can enhance investor confidence and project execution.
- **Enhance Skill Development and Human Capital:** Despite a large workforce, skill mismatches remain a major constraint.
  - Strengthening vocational training, industry–academia collaboration, and skilling programs aligned with advanced manufacturing and digital technologies can attract high-value FDI in sectors like semiconductors, AI, and renewable energy.
- **Promote Stable and Transparent Taxation Regime:** Ensuring consistency in tax policies, faster dispute resolution, and reducing litigation through mechanisms like **faceless assessment and advance**

pricing agreements can improve investor sentiment. Predictable taxation is critical for long-term capital commitments.

- **Encourage Innovation and R&D Investment:** India **should gradually raise R&D expenditure to at least 1.5–2% of GDP,** with a clear roadmap and outcome-based funding.
  - The government **can expand tax credits and production-linked incentives (PLI) to R&D-intensive sectors, strengthen the Anusandhan National Research Foundation (ANRF)** to crowd in private investment, and **develop sector-specific innovation clusters in areas like semiconductors, AI, biotechnology, and green technologies.**
  - Further, **faster patent processing, stronger IP enforcement, and deeper academia–industry collaboration will enhance investor confidence and attract high-value, technology-driven FDI**.
- **Strengthen Trade Agreements and Global Integration:** Signing high-quality trade agreements and aligning standards with global markets can improve market access for investors.
  - Recent FTAs with the UAE and Australia are steps in this direction, but deeper integration with global value chains remains essential.
- **Ensure Policy Coordination and Centre–State Cooperation:** Effective coordination between the Centre and states is vital to reduce policy fragmentation.
  - **Competitive federalism,** backed by performance-based incentives for states, can help create a more predictable and investor-friendly ecosystem.

Conclusion:

To realise the **goals of *Viksit Bharat @2047*,** India must move beyond being a market for investment to becoming a global hub for manufacturing, innovation, and value creation. This requires **stable policies, world-class infrastructure, skilled human capital, and deep integration into global value chains.** If supported by consistent reforms and cooperative federalism, **FDI can become a powerful driver in transforming India into a resilient, inclusive, and globally competitive economy by 2047.**

Navigating India'S Maritime Transformation

This editorial is based on "Why the $30-trillion economy by 2047 will be built at sea" which was published in Hindu Business Line on 23/12/2025. The article brings into picture India's maritime sector as a key driver of its $30-trillion economic ambition, highlighting infrastructure expansion, strategic security, and sustainability. It underscores how ports, shipping, and maritime reforms are central to India's long-term growth and global competitiveness.

Tag: GS-3, Planning, Mobilization of resources, Infrastructure

As India advances toward its goal of becoming a **$30-trillion economy by 2047**, the seas will play a defining role in shaping this journey. With nearly **95% of trade by volume and 70% by value** moving through maritime routes, ports and shipping have emerged as critical engines of growth. While **recent gains in port efficiency, capacity expansion, and logistics reforms signal positive momentum**, **the scale of ambition ahead is far greate**r. By strengthening maritime infrastructure, integrating global supply chains, and sustaining reform momentum, India is well-positioned to **turn its blue economy into a powerful driver of long-term, inclusive growth.**

What are the Current Developments in India's Maritime Sector?

- **Expansion of Port Capacity and Efficiency:** India's port infrastructure has seen significant expansion, with total capacity nearly **doubling from about 1,400 MMTPA in 2013–14 to approximately 2,762 MMTPA in 2024–25**, and major ports handling around **855 million tonnes of cargo in FY 2024–25**.
  - Improvements in operational efficiency such as **reducing average vessel turnaround times from 93 to 48 hours** in 2023-24, a reduction of 48.65%, have enhanced competitiveness and throughput.

- **Structural Reforms in India's Maritime Governance:** Key maritime legislation have been enacted recently including the **Merchant Shipping Act, 2025**, **Carriage of Goods by Sea Act, 2025**, and the **Indian Ports Act, 2025**.
  - They are aimed at modernizing outdated colonial-era laws, **align Indian maritime law with international standards, and improve governance, safety, environmental compliance, and ease of doing business.**
- **Maritime Amrit Kaal Vision 2047 & Investment Push:** Under the long-term **Maritime Amrit Kaal Vision 2047,** the government has planned **nearly ₹80 lakh crore (~$1 trillion) in investments over the next 25 years** to develop **next-generation ports, shipbuilding, inland waterways**, **green shipping corridors**, **and maritime clusters,** aiming to boost India's share of global seaborne trade.
  - Shipping Corporation of India (SCI) announced plans to expand its **fleet to 216 vessels by 2047 with an investment of ₹1 Lakh Crores, adding 10 million Gross Tonnage (GT)** and strengthening India's global maritime competitiveness.
  - **India Maritime Week 2025** showcased India's growing global maritime leadership, with participation from over **85 countries**, reinforcing commitments to sustainable growth and international cooperation. The event secured **over ₹12 lakh crore in investments through 600+ MoUs**, highlighting strong global confidence in India's maritime vision.
- **Coastal Shipping & Inland Waterways Development:** The **Coastal Shipping Act 2025** officially recognises **coastal shipping as the fifth mode of transport** alongside road, rail, air, and inland waterways, aiming to reduce logistics costs and improve multimodal connectivity
  - India achieved a **record 145.5 million tonnes cargo movement on inland waterways in FY 2024–25,** up from 18.1 MMT in FY 2013–14, registering a CAGR of 20.86%.
  - The number of **National Waterways increased from 5 to 111, with the operational length growing from 2,716 km (2014–15) to 4,894 km** (2023–24).
- **Boost to Domestic Shipbuilding:** Government initiatives include a **₹70,000 crore financial package** to build shipbuilding and repair infrastructure, promote domestic ship ownership, and strengthen port facilities.
  - Currently **India 16th rank in global shipbuilding, aiming for top ten by 2030.**
  - India's Shipbuilding Mission aims to strengthen the entire maritime value chain by **addressing 12 focus areas, including financing, shipbuilding, ship repair, leasing, crewing, and maritime services**.
- **Maritime Human Resource Development:** India's maritime workforce has grown substantially, with the number of seafarers rising to **over 3 lakh, making India one of the top global suppliers of trained maritime professionals.**
  - There are also sectoral efforts, **for instance, maritime cybersecurity training programmes,** covering **shipboard IT–OT systems, port community systems, vessel traffic management systems (VTMS), and maritime critical infrastructure,** are being promoted.
    - These initiatives aim to create a cyber-secure maritime workforce, enhance safety of navigation, protect ports and shipping networks, and ensure compliance with IMO cybersecurity guidelines.
- **Green Shipping and Sustainable Maritime Transition:** India is actively promoting green and low-carbon shipping in line with its climate commitments. **The Green Tug Transition Programme (GTTP)aims to induct 50 green tugs by 2030,** reducing emissions at major ports.
  - Additionally, India is developing **Green Shipping Corridors with countries such as Japan, the Netherlands, and Norway, focusing on zero-emission maritime routes using green hydrogen and alternative fuels.**

- These initiatives support **India's net-zero target by 2070** and align the maritime sector with global climate goals.

- **Enhanced Maritime Security and Defence Preparedness:** India has significantly strengthened its maritime security architecture to safeguard sea lanes and trade routes.
  - Enhanced coastal surveillance**, expansion of the Information Fusion Centre – Indian Ocean Region (IFC-IOR)**, and increased naval presence ensure maritime domain awareness.
  - Indigenous warship building under Atmanirbhar Bharat has accelerated, with over 75% of Indian Navy vessels now built domestically, strengthening strategic autonomy and regional stability.
    - Over the past two decades, the Indian Navy has undergone a marked transformation from an import-dependent **"Buyer's Navy" to a predominantly indigenous "Builder's Navy."**
- **Port-Led Industrialisation and Coastal Economic Zones:** Under the Sagarmala Programme, port-led industrial clusters and coastal economic zones are being developed to integrate manufacturing, logistics, and exports.
  - More than **100 port modernisation projects**, worth around **₹32,600 crore**, have added **230 MTPA** of capacity.
  - In addition, **80+ connectivity projects** worth **₹52,000 crore** have improved nearly **1,500 km of port-linked infrastructure**.
    - Under its coastal development component, the programme has also benefited **fishermen** through improved fishing harbours and facilities.

What are the Key Issues Associated with India's Maritime Sector?

- **Infrastructure Gaps and Capacity Constraints:** While total port capacity has increased to ~2,762 MTPA (2024–25), **India handles only around 10% of global seaborne trade**.
  - Major ports like Jawaharlal Nehru Port (JNPT) **handle 10 million TEUs annually, compared to Shanghai's 50 million TEUs,** highlighting capacity and scale limitations.
  - Draft restrictions at several Indian ports restrict the handling of large container vessels, forcing transshipment through **foreign ports such as Colombo and Singapore.**

- **High Logistics Cost and Hinterland Bottlenecks:** Despite improvements, challenges remain in **last-mile connectivity, multimodal integration**, and **coordination across road, rail, ports, and inland waterways.**
  - **Congestion at ports, limited availability of dedicated freight corridors** in some regions, and uneven infrastructure quality continue to raise transaction costs.
  - Whereas, **Southeast Asian hubs, particularly Singapore and Malaysia's Port Klang,** set the global benchmark for vessel processing speeds that India is currently chasing.
    - **High TRT in India often stems from "pre-berthing" delays**, whereas SEA ports use advanced automated stacking and AI-scheduling to ensure ships spend less than a day at berth.
- **Insufficient Global Shipping Fleet and Competitiveness**: Although India handled 95% of its trade by volume and 70% by value through maritime routes, the nation's share of the **global merchant fleet is only about 1.2%,** and many vessels are ageing, limiting India's ability to replace foreign-flagged ships and reduce heavy annual freight payments.
  - For instance, **India pays around 75 billion dollars** to foreign shipping companies as rent for shipping services.
- **Environmental Sustainability Challenges:** India's coastline faces rising climate risks, **33.6% of the coastline is vulnerable to erosion**, while **ports face increasing threats from cyclones and sea-level rise.**
  - Additionally, maritime emissions remain a concern, with shipping contributing significantly to coastal pollution.
  - Although initiatives like the **Green Tug Transition Programme** and green shipping corridors exist, **large-scale adoption of low-carbon fuels and port electrification is still in early stages**.
- **Weak Integration of Inland Waterways:** Despite growth in inland water transport, from **18 million tonnes in 2014 to over 145 million tonnes in 2024**, its share in overall freight movement remains small.
  - **Limited last-mile connectivity and underdeveloped terminals** restrict its potential as a low-cost, low-emission alternative to road transport.
- **Rising Strategic Competition in the Indian Ocean Region (IOR):** India faces growing strategic pressure due to the expanding naval footprint of extra-regional powers, particularly China, under its **"String of Pearls" strategy**.
  - China has developed or gained access to a network of ports and dual-use facilities across the Indian Ocean, including **Gwadar (Pakistan), Hambantota (Sri Lanka), Kyaukpyu (Myanmar), Djibouti (Horn of Africa), and port access in the Maldives and Seychelles**.

What Reforms are Required to Strengthen India's Maritime Sector?

- **Upgrade Port Infrastructure and Capacity:** India must accelerate the development of **deep-draft ports**, automated terminals, and modern cargo-handling systems to accommodate large container vessels.
  - Expediting projects under **Sagarmala 2.0** and **prioritising dredging, mechanisation, and port-led industrial clusters** will reduce dependence on foreign transshipment hubs and enhance global competitiveness.
- **Strengthen Multimodal Connectivity and Logistics Integration:** To reduce logistics costs further, seamless integration of **ports with rail, road, and inland waterways** is essential.
  - Expanding **Dedicated Freight Corridors (DFCs), multimodal logistics parks, and digital cargo tracking platforms** will improve last-mile connectivity and cut transit time and costs.
- **Expand India's Merchant Fleet and Shipbuilding Capacity:** India must increase its share in the global shipping fleet by incentivising **domestic shipbuilding and ship ownership** through financial support, long-term credit, tax incentives, and assured cargo support.

- Implementing the **₹70,000 crore shipbuilding and repair package** effectively can reduce dependence on foreign vessels and retain freight earnings within the country.

- **Strengthen Maritime Security and Naval Preparedness:** Enhanced surveillance through **coastal radar networks, satellite monitoring, and UAVs**, along with increased naval presence in the Indian Ocean Region, is essential.
  - Strengthening institutions like the **Information Fusion Centre–IOR** and expanding maritime partnerships will ensure secure Sea Lines of Communication (SLOCs).
- **Promote Green and Sustainable Shipping:** Accelerating the transition to **green fuels**, electrification of ports, and low-emission vessels is critical.
  - Scaling up initiatives such as the **Green Tug Transition Programme**, promoting green hydrogen corridors, and incentivising clean ship technologies will align India's maritime growth with climate commitments.
- **Boost Inland Waterways and Coastal Shipping:** Improving navigability, terminal infrastructure, and cargo handling on National Waterways can significantly reduce logistics costs.
  - **Integrating inland waterways with coastal shipping** and rail networks will create a more efficient multimodal transport ecosystem.
- **Strengthen Maritime Skill Development and Innovation:** Focused investment in **maritime education, R&D, and advanced skill training**—especially in areas like ship design, marine engineering, cyber security, and autonomous navigation—is essential.
  - Establishing centres of excellence and public–private partnerships can bridge skill gaps.
- **Improve Governance and Ease of Doing Business:** Streamlining regulatory approvals, harmonising laws across ministries, and digitising port and customs processes can reduce delays.
  - Stronger coordination among central and state authorities will improve project execution and investor confidence.
- **Deepen Regional and Global Maritime Cooperation:** India should leverage forums such as **IORA, BIMSTEC, and the Quad** to strengthen maritime cooperation, develop common standards, and promote freedom of navigation.
  - Strategic partnerships can enhance resilience against geopolitical disruptions.
- **Balance Development with Coastal and Environmental Protection:** Implementing climate-resilient infrastructure, protecting coastal ecosystems, and enforcing environmental safeguards are essential to ensure long-term sustainability of maritime growth while supporting livelihoods of coastal communities.

Conclusion:

India's ambition of becoming **a $30-trillion economy by 2047** depends heavily on strengthening its maritime sector, which carries over 90% of the country's trade. **Modern ports, efficient logistics, and strong maritime security are essential to support export-led growth**. Aligning maritime development with the SDGs, especially on sustainable infrastructure and climate action, will ensure long-term resilience. Investments in green shipping, port modernisation, and skill development can transform India into a global maritime hub. **Together, these efforts can position India as a secure, sustainable, and competitive maritime power.**

Shaping Responsible AI: India'S Evolving Regulatory Framework

This editorial is based on "Model conduct: On India, AI use" which was published in The Hindu on 30/12/2025. The article examines India's evolving approach to governing artificial intelligence, highlighting key regulatory gaps, ethical challenges, and institutional constraints.

Tag: GS-2, E-Governance, Government Policies & Interventions GS-3, IT & Computers

As artificial intelligence reshapes economies and governance, India stands at a critical policy juncture. While

it has taken meaningful steps through **IT rules, data protection norms, and sectoral regulations**, a comprehensive framework addressing **AI's societal and psychological impacts is still evolving**. Unlike China's intrusive model, India has chosen a **rights-respecting and innovation-friendly path**, though gaps in consumer protection and capacity remain. This article examines the key challenges in India's AI governance, existing regulatory frameworks, global best practices, to build a responsible, competitive, and inclusive AI ecosystem.

What are the Existing Regulations Related to AI in India ?

- **Information Technology (IT) Act, 2000:** The IT Act forms the foundational legal framework governing digital activity in India and indirectly regulates Artificial Intelligence. Provisions such as **Sections 66C and 66D** address identity theft and online impersonation, which are increasingly relevant in cases involving deepfakes and AI-driven frauds.
  - Section 79 provides **"safe harbour"** protection to intermediaries if they observe **due diligence and comply with government directions.**
- **IT (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 (IT rules 2021):** These Rules operationalise platform accountability by mandating intermediaries to remove unlawful and misleading content, including AI-generated and manipulated media. Platforms are required to label synthetic content, establish grievance redressal mechanisms, and act swiftly on government directions.
  - Through recent advisories, the government has clarified that **generative AI platforms fall within the regulatory scope of these Rules**, thereby indirectly governing AI deployment.
- **Digital Personal Data Protection (DPDP) Act, 2023:** The DPDP Act provides India's first comprehensive framework **for personal data protection, directly impacting AI systems that rely on large datasets**. It mandates lawful and purpose-limited data processing, informed consent, data minimisation, and safeguards against misuse.
  - **AI developers must ensure fairness, transparency, and security while handling personal data**, making the Act central to responsible AI deployment in India.
- **Sector-Specific AI Regulation (RBI, SEBI and Others)**: India has adopted a **sectoral approach to AI governance.** The RBI has issued model risk management guidelines and the FREE-AI framework to ensure explainability, auditability, and fairness in AI-driven financial decisions.
  - SEBI mandates transparency and accountability in **algorithmic trading systems**.
  - Similar oversight exists in healthcare (CDSCO oversight for AI-based medical devices), telecom (DoT licensing norms governing AI-driven network management), and cybersecurity (CERT-In directions mandating incident reporting), ensuring AI use aligns with public interest and sectoral safety norms.
- **IndiaAI Mission:** Under the **IndiaAI Mission,** the government is promoting responsible AI through capacity building, public computer infrastructure, and indigenous model development.
  - The framework emphasises **ethical and human-centred AI, prioritising risk-based governance over blanket restrictions**, thereby enabling innovation while ensuring accountability.
- **Global Norms Influencing India's AI Governance:** India's approach aligns with evolving global standards.
  - The **OECD AI Principles** advocate human-centric, transparent and accountable AI systems.
  - **The EU's AI Act introduces a risk-based regulatory model**, while **UNESCO's AI Ethics Recommendation stresses inclusion, human rights and sustainability.**
  - India actively engages in **platforms like G20 and GPAI,** shaping global norms while adapting them to domestic realities.

What are the Issues Hindering AI Governance?

- **Absence of a Dedicated AI Law:** India lacks a dedicated law governing AI, as existing frameworks like the **IT Act and DPDP Act** were not designed for

autonomous, self-learning systems. This creates **ambiguity around liability, accountability, and enforcement in AI-related harms.**

- In contrast, the US's clearer oversight like proposed Algorithmic Accountability Act and mandatory safety disclosures under the Defense Production Act.
- In India, AI regulation remains fragmented across bodies like MeitY, RBI, and SEBI, leading to coordination gaps, while the absence of a clear legal definition of AI further complicates consistent regulation and compliance.

- **Data Availability and Quality Constraints:** AI systems require large, diverse, and high-quality datasets, but India faces challenges related to fragmented data, poor digitisation (like urban-rural divide, low digital literacy) and privacy concerns.
  - While the DPDP Act rightly safeguards personal data, gaps in frameworks for **accessing high-quality, anonymised, and non-personal datasets can constrain AI innovation, particularly in public-interest sectors such as healthcare and agriculture.**
  - **Excessive compliance burdens** could discourage startups and delay domestic model development, making India dependent on foreign technologies. At the same time, **under-regulation risks misuse, discrimination, and ethical violations.**
- **Algorithmic Bias and Social Concerns:** Many AI models operate as "black boxes," making their decision-making processes opaque. This raises **serious concerns about bias, discrimination, and unfair outcomes, especially in areas like credit scoring, recruitment, and welfare delivery.**
  - AI systems can **amplify social biases, enable surveillance, and threaten individual autonomy** if not carefully governed.
  - Ensuring explainability and fairness remains difficult due to **technical complexity and lack of enforceable standards.**
- **Limited Institutional Expertise:** Effective AI governance requires skilled regulators, auditors, and technologists within government institutions.
  - Currently, Capacity constraints exist across regulatory bodies, making enforcement and oversight of complex AI systems challenging, **which limits India's ability to conduct algorithmic audits and risk assessments.'**
- **Global Dependence on Key Technologies:** India remains dependent on foreign AI models, cloud infrastructure, and semiconductor supply chains.
  - This technological dependence raises **concerns around data sovereignty, strategic autonomy, and national security,** especially in critical sectors like defence, finance, and public services.

What Measures are Needed to Strengthen AI Governance in India?

- **Enacting a Comprehensive AI Law:** India needs a standalone, principle-based AI legislation that clearly defines artificial intelligence, assigns responsibilities, and establishes legal accountability and liability across the AI lifecycle.
  - **Defining responsibility among developers, deployers, and users** by clear legal standards and redress mechanisms for enhanced victim protection.
  - India can draw from the **EU AI Liability Directive**, which links liability to control and risk exposure, ensuring effective remedies for affected individuals.
- **Adopting a Risk-Based Regulation**: To balance innovation and safety, India should avoid blanket regulation and instead adopt a **tiered risk-based approach, as followed by the EU and OECD**.
  - **Low-risk applications should face light compliance,** while high-risk uses (such as biometric surveillance or automated credit scoring) should undergo stricter scrutiny.
  - Regulatory sandboxes, already used by RBI and SEBI, can be expanded to allow safe experimentation without stifling innovation.
- **Strengthening Data Ecosystems :** Strengthening data ecosystems requires secure data-sharing frameworks, robust anonymisation standards, and trusted intermediaries to enable responsible AI innovation.

- Scaling initiatives like the **India Data Management Office** and **IndiaAI Datasets Platform**, while **adopting data trusts and altruism models** inspired by the EU's Data Governance Act, can improve access to high-quality public datasets.

- **Ensuring Algorithmic Accountability:** To address black-box decision-making, India should mandate **explainability and auditability** for AI systems used in high-impact domains such as finance, policing, healthcare, and welfare delivery.
  - **Algorithmic impact assessments (**like Canada and EU**)** can **help identify risks before deployment.** Independent third-party audits should be encouraged to ensure fairness and non-discrimination.
- **Strengthening Institutional Capacity and Centralised AI Governance:**India must build technical expertise within regulators and the judiciary through targeted AI training and institutional support from bodies like the **National e-Governance Division, IITs, and IIITs.**
  - Simultaneously, establishing a **central nodal AI authority**, on the lines of the **EU's AI Office or the UK's AI Safety Institute**, can ensure coordinated oversight, standard-setting, and effective risk management across sectors.
- **Embedding Ethics, and Social Impact Safeguards** : AI governance must integrate ethical principles such as fairness, non-discrimination, transparency, and human oversight.
  - Drawing from **UNESCO's Recommendation on AI Ethics**, India should **mandate ethical impact assessments**, safeguards against surveillance misuse, and protections for vulnerable communities, especially in biometric and predictive technologies.
- **Reducing Strategic Dependence**: To reduce reliance on foreign AI models and infrastructure, India must invest in **domestic computing capacity**, semiconductor manufacturing, and foundational AI research.
  - Initiatives like the **IndiaAI Mission** and **National Semiconductor Mission** should be aligned with long-term strategic autonomy goals of "digital sovereignty".

Conclusion

India stands at a pivotal moment in shaping its AI governance framework. While **important steps have been taken through sectoral regulations, data protection laws, and global engagement, gaps remain in ensuring coherent, future-ready oversight.** Addressing challenges such as regulatory fragmentation, limited institutional capacity, and ethical risks is essential to building public trust. **By strengthening domestic capabilities, adopting global best practices, and promoting a human-centric approach, India can move beyond being a technology adopter to becoming a global leader in responsible and inclusive AI governance.**

Drishti Mains Questions

1. India's digital revolution has expanded financial inclusion, but it has simultaneously created new vectors of cyber exploitation. Discuss the need for strengthening citizen-centric cyber hygiene as the core of India's cybersecurity strategy.
2. Examine the key drivers of India's economic growth and the structural challenges that constrain its sustainability and inclusiveness. Suggest measures to strengthen resilience and broad-based development.
3. "India's environmental governance faces the dual challenge of promoting economic development while ensuring ecological sustainability. Critically examine the key gaps in India's environmental regulatory framework and suggest measures to strengthen environmental governance for sustainable development."
4. "India's strategic ambitions in the Indian Ocean Region (IOR) now hinge as much on developmental partnerships and minilateral frameworks as on traditional maritime power." Discuss this statement in the context of emerging security challenges and India's evolving role as a net security provider.
5. "The resilience of India-Russia relations is being tested by shifting geopolitical alignments and Russia's growing dependence on China." Examine how emerging frictions and new opportunities are reshaping this strategic partnership.
6. "Police reforms are as much about institutional accountability as they are about cultural transformation within the force. Elaborate."
7. Highlight the recent achievements of India's bioeconomy. What structural challenges persist in the sector, and what policy interventions are required to ensure sustainable and inclusive bioeconomic growth?
8. India's multi-alignment strategy demonstrates a calibrated assertion of strategic autonomy amid global uncertainties. Discuss the main pillars of India's multi-aligned foreign policy, the challenges it faces, and the measures India can adopt to strengthen its multilateral posture.
9. "Rising consolidation across key sectors is creating a systemic 'Too Big to Fail' challenge in India." Critically examine with suitable examples.
10. India's march toward Universal Health Coverage (UHC) is marked by ambitious reforms but constrained by structural inequities. Discuss the key achievements and the major systemic barriers, and critically evaluate what policy interventions are needed to transition from UHC to Universal Health Assurance in India.
11. "Economic marginalization and resource alienation created the original social base for Naxalism, but development interventions must go beyond physical infrastructure to achieve sustainable peace." Discuss
12. "India's nuclear energy ambitions hinge not just on technology, but on reforming laws, capital frameworks, and global partnerships." Discuss in light of the recent push for SMRs, fleet-mode reactors, and private sector participation.
13. Examine the evolution of India's electoral reforms since the 1950s. How have institutional, legal, and technological changes shaped the credibility of the electoral process?

14. "India's engagement with West Asia has evolved from transactional energy ties to a comprehensive strategic partnership." Critically examine the drivers of this transformation and assess its implications for India's foreign policy, economic security, and regional stability.
15. India's experience with Digital Public Infrastructure (DPI) shows that the state can shape digital markets, yet significant risks of re-monopolisation, data governance failures, and fragmented regulation persist. In this context, critically examine the challenges in regulating India's digital economy and suggest a framework for ensuring an open, inclusive, and innovation-friendly digital ecosystem.
16. Despite constitutional guarantees, education in India is increasingly shaped by household income rather than public provisioning.

    Discuss the structural causes of rising educational inequality and suggest reforms to ensure equitable and quality education across school and higher education.
17. The Uniform Civil Code is envisaged as a constitutional instrument to promote equality and gender justice, yet its implementation raises concerns related to religious freedom and pluralism. Discuss the constitutional rationale behind adopting a Uniform Civil Code.
18. "Despite possessing rich cultural and natural assets, India has not fully realised its tourism potential."Examine the regulatory and institutional challenges facing India's tourism sector and suggest reforms to enhance its global competitiveness.
19. Air pollution in India has shifted from a seasonal environmental concern to a chronic public health crisis.Examine the major sources of air pollution in urban India and critically evaluate the effectiveness of current policy measures such as NCAP and GRAP in addressing them.
20. Africa occupies a central place in India's Global South diplomacy. Discuss the significance of Africa in India's foreign policy and evaluate the challenges that must be addressed to transform the relationship into a comprehensive strategic partnership.
21. Discuss the role of corporate accountability and environmental governance in achieving sustainable development in India. Illustrate your answer with suitable examples.
22. India's recent Free Trade Agreements reflect a shift from headline-driven liberalisation to calibrated, interest-based trade policy. Examine this shift and assess its implications for India's economic growth.
23. Despite rapid capacity expansion, India's solar sector continues to face operational and infrastructural constraints. Analyse the key issues and suggest measures to ensure sustainable growth of solar energy in the country.
24. In the digital era, freedom of speech in India is increasingly influenced by executive action and judicial interpretation. Examine the constitutional framework governing free speech, analyse recent challenges such as judicial overreach and digital regulation, and suggest measures to safeguard this right without undermining public order.
25. Discuss the changing trends and sectoral composition of Foreign Direct Investment in India. How can FDI contribute to achieving India's Vision 2047 of becoming a developed economy?
26. India's ambition of becoming a $30-trillion economy is closely linked to the strength of its maritime sector.Examine the role of ports, shipping, and maritime infrastructure in achieving this goal.