ForumIAS

Mains Marathon

2nd week October, 2025

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Evaluate the potential of a revitalised Gold Monetisation Scheme (GMS) to mobilize dormant assets for national growth. Critically analyze the institutional reforms needed to ensure trust-based participation.

Introduction

India's households hold over **25,000 tonnes of gold**—worth nearly **$2.4 trillion (≈55% of GDP, FY26)**—lying idle. A revitalised **Gold Monetisation Scheme (GMS)** can transform this dormant wealth into productive financial capital.

Potential of a Revitalised GMS

Mobilising Dormant Wealth for National Growth

1. India imports nearly **87% of its gold demand**, contributing **8% to its import bill** and widening the **current account deficit**.
2. A restructured GMS can **recycle domestic gold**, reducing import dependency and stabilising external balances.
3. As per the **Economic Survey 2022-23**, a 10% mobilisation of household gold can release **$240 billion** of liquidity—sufficient to fund major infrastructure projects under **PM Gati Shakti** or boost capital formation in **MSMEs**.

Lower Cost of Capital Formation

1. The **cost of funds** via GMS (estimated **4.5–6.5%**) is cheaper than **external commercial borrowings (~8–9%)**.
2. Mobilised gold deposits can be channelled through **sovereign gold bonds, infrastructure funds, or green energy financing**, lowering India's dependence on volatile foreign portfolio inflows.

Enhancing Financial Inclusion and Formalisation

1. With over **60% of household savings in physical assets**, GMS can shift the cultural orientation towards **financialised savings**, improving household balance sheets.
2. Digitised GMS accounts (linked to **Jan Dhan–Aadhaar–Mobile trinity**) can foster rural participation and integrate informal savings into the formal economy.

Strengthening Monetary Resilience

1. According to the **RBI's Report on Currency and Finance (2023)**, India's vulnerability to gold-import shocks can be reduced by **enhancing domestic liquidity in gold-backed assets**.
2. The move aligns with the **Atmanirbhar Bharat** vision—making India self-reliant in financial resources while easing pressure on the rupee.

Institutional Reforms for Trust-Based Participation

Strengthened Infrastructure and Transparency

1. Establish **BIS-accredited assaying and hallmarking centres** nationwide to ensure purity verification and fair valuation.

2. Create a **National Gold Exchange** (as proposed by SEBI) for transparent pricing and traceable transactions.
3. Introduce **blockchain-based tracking systems** for depositor assurance and traceability of gold flows.

Regulatory and Tax Rationalisation

1. **Remove GST and customs duties** on gold deposited under GMS to prevent double taxation.
2. Offer **tax-free interest** and **capital gains exemption** on redeemed gold deposits to attract participation.
3. A **dedicated GMS Act** can consolidate fragmented rules under RBI, BIS, and Ministry of Finance for policy coherence.

Banking and Institutional Linkages

1. Involve **scheduled commercial banks, NBFCs, and fintech platforms** to create hybrid "**Digital Gold Deposit Accounts**."
2. Encourage **public-private partnerships (PPPs)** to manage collection centres securely and efficiently.
3. Introduce **deposit insurance cover** through **DICGC** to enhance depositor confidence.

Awareness and Behavioural Transformation

1. Launch nationwide campaigns under **Jan Suraksha Abhiyan** to destigmatise gold surrender and build trust.
2. Promote **gold-backed microcredit** and **digital gold wallets** through fintech innovations.
3. Leverage religious trusts, SHGs, and women's cooperatives to facilitate grassroots mobilisation of household gold.

Critical Analysis

1. While GMS 2015 mobilised barely **25 tonnes** due to low awareness, valuation mistrust, and administrative friction, a **revitalised, digital, and incentive-driven model** can overcome these limitations.

2. However, success hinges on building **institutional credibility**, **regulatory clarity**, and **cultural sensitivity**—recognising gold as both **economic capital** and **emotional wealth**.

Conclusion

As **John Maynard Keynes** observed, **"Capital development depends on confidence."** A trust-based, transparent GMS can unlock India's hidden wealth, enabling **Atmanirbhar financial growth** rooted in domestic resilience and collective confidence.

Critically analyze the strategy that India should prioritize manufacturing local market-serving semiconductor chips over the most advanced ones. Justify its impact on 'Atmanirbhar Bharat'.

Introduction

India's semiconductor consumption reached **$23.2 billion in 2023**, yet **imports met over 95%** of demand. Prioritizing indigenous, market-serving chip manufacturing can drive **Atmanirbhar Bharat**, technological sovereignty, and sustainable industrial transformation.

India's Semiconductor Landscape and Strategic Context

Global Semiconductor Dynamics

1. The **semiconductor value chain** is concentrated—**Taiwan (TSMC)** dominates advanced nodes (3–7 nm), while **China, Malaysia, and Vietnam** focus on mid-range and mature nodes (28–90 nm).

2. According to **McKinsey (2023)**, 70% of global semiconductor demand comes from "mature nodes" catering to **automobiles, IoT, defence, and industrial applications**—precisely India's growing markets.
3. Thus, localising such chips aligns with India's consumption profile and industrial needs rather than chasing frontier technology controlled by a few global leaders.

India's Demand-Driven Opportunity

1. India's domestic chip demand is projected to **exceed $80 billion by 2028**, driven by **EVs, 5G devices, defence electronics, and consumer durables**.

2. **PLI Scheme (₹76,000 crore)** under the Semicon India Programme aims to create fabrication and packaging ecosystems for **mature node chips (28–65 nm)**.
3. The **Micron ATMP facility in Gujarat (2023)** and **Tata's upcoming fab in Dholera** mark India's first major steps in this direction.

Why Prioritise Market-Serving Chips Over Advanced Nodes

Economic Viability and Scale

1. **Capex intensity**: Advanced fabs (3–7 nm) demand investments exceeding **$20 billion**, while mature node fabs cost less than **$7 billion**, with faster breakeven.
2. **India's electronics market**—valued at **$155 billion (2023)**—depends mostly on mid-end chips used in **automotive ECUs, mobile sensors, and power management circuits**. Hence, focusing on domestic-grade chips ensures **demand certainty and economic sustainability**.

Technological Catch-Up and Ecosystem Building

1. Manufacturing advanced chips requires **EUV lithography machines** (controlled by **ASML** in the Netherlands) and sophisticated IP supply chains India lacks.
2. Starting with **mature nodes** helps India develop **design, packaging, testing, and R&D linkages** gradually—mirroring **Taiwan's 1980s phased strategy**. This "**technology laddering approach**" builds competence before moving toward advanced nodes.

Supply Chain Security and Strategic Autonomy

1. The **Russia–Ukraine war** and **U.S.–China tech decoupling** exposed vulnerabilities in global chip supply chains.

2. Local fabs serving critical sectors—**defence, space, railways, and telecom**—enhance **strategic autonomy**, reducing reliance on geopolitical hotspots.

Employment and Skill Multiplier

1. Each semiconductor fab generates **5,000–10,000 direct** and **50,000 indirect jobs**, according to **MeitY** estimates.

2. Focusing on mid-level manufacturing integrates India's **Skilling India** initiatives (e.g., **Chips-to-Startup programme**) with tangible job creation.

Critical Challenges and Counterpoints

1. Critics argue that focusing on older nodes may make India **technologically obsolete** as global demand shifts to advanced nodes (AI chips, quantum processors).
2. However, **Boston Consulting Group (2023)** notes that **mature-node chips will form 60% of global demand even in 2030**, ensuring long-term relevance.
3. The key lies in **design-led innovation**—developing indigenous chip architectures through **startups (e.g., Saankhya Labs, InCore Semiconductors)** and partnering with **global fabs** for technology transfer.

Impact on Atmanirbhar Bharat

1. **Economic Atmanirbharta:** Reduces a **$23 billion import dependence**, saving foreign exchange.
2. **Technological Sovereignty:** Enables domestic production for strategic sectors like **ISRO, DRDO, and automotive manufacturing**.
3. **Innovation Ecosystem:** Encourages R&D collaboration with academia under **India Semiconductor Mission (ISM)**.
4. **Regional Industrialisation:** Boosts ancillary clusters in **Gujarat, Tamil Nadu, and Karnataka**, advancing balanced regional growth.

Conclusion

"The Fortune at the Bottom of the Pyramid", growth thrives on local relevance. Prioritising market-serving chips empowers India's **Atmanirbhar** journey through pragmatic, scalable innovation.

Critically analyze the doctrinal conflict where constitutional equality overrides tribal customs to secure inheritance rights for women. Examine the limits of judicial intervention.

Introduction

According to the 2011 Census, **tribal women constitute nearly 8% of Indias female population**, yet many remain excluded from property rights. The **2025 Supreme Court Gond inheritance verdict** redefines this exclusion through **constitutional equality**.

Doctrinal Context: Equality vs. Customary Autonomy

1. Indias Constitution guarantees **formal equality under Articles 14 and 15**, while **Fifth and Sixth Schedules** protect **tribal autonomy and customary laws**. This dualism often produces what jurists term a **doctrinal conflict** between **constitutional supremacy** and **legal pluralism**.

2. **Article 13(3)(a)** classifies customs and usages as laws in force, making them subject to constitutional scrutiny.
3. However, **Article 244 read with the Fifth and Sixth Schedules** grants tribal communities legislative and administrative self-governance, including control over land and inheritance.

4. The conflict arises when gendered customs often patriarchal — clash with the **constitutional morality** of equality.

Case Study: 2025 Supreme Court Verdict (Gond Inheritance Case)

In **Shelly v. Bahl (2025),** the Supreme Court held that **tribal women of the Gond community** are entitled to **inherit ancestral property** even in the absence of explicit custom.

Key observations:

1. **Burden of proof reversed** — courts should presume inclusion unless exclusion is proven by evidence.
2. **Justice, equity, and good conscience** become guiding principles when custom or statute is silent.
3. **Articles 14, 15(1), 38, and 46** were invoked to align customary law with the **constitutional vision of substantive equality**.
4. This marked a shift from earlier judicial restraint, notably the **Madhu Kishwar v. State of Bihar (1996)** judgment, where the Court upheld exclusionary customs to preserve social stability in Chotanagpur tribes.

The Constitutional Ethos of Equality and its Doctrinal Reach

1. **Evolution of Gender-Equal Property Rights**: The **2005 Hindu Succession (Amendment) Act** recognised daughters as coparceners in Hindu law, with its Statement of Objects and Reasons emphasising gender justice. Although not directly applicable to Scheduled Tribes (per Section 2(2) of the Act), the Court cited it to express the **constitutional morality** that should guide tribal contexts too.
2. **Constitutional Morality vs. Customary Pluralism**: As per **Dr. B.R. Ambedkar**, constitutional morality demands the subordination of social norms to constitutional values. However, excessive judicial intrusion risks undermining the **right to difference** and **cultural autonomy**, central to **tribal self-governance** under the Schedules.

The Limits of Judicial Intervention

1. **Institutional Competence**: Courts lack granular understanding of localized customs, risking **judicial overreach** and cultural homogenization.
2. **Democratic Legitimacy**: The judiciarys substitution of community norms with constitutional principles may dilute **participatory justice**, best achieved through **legislative consultation** or **tribal councils**.
3. **Doctrinal Boundaries**: The Courts reliance on **justice, equity, and good conscience,** a **colonial-era residuary principle**, can introduce subjectivity without consistent jurisprudence.

A **balanced approach** would involve:

1. Codifying tribal customs under **State Scheduled Areas Acts**, ensuring gender inclusion.
2. Promoting **customary reform through Gram Sabhas**, supported by constitutional literacy initiatives.
3. Encouraging **tribal womens representation** in autonomous councils to evolve norms organically.

Comparative Insight

Globally, **South Africas Bhe v. Magistrate (2004)** case similarly struck down customary inheritance rules excluding women, affirming that **custom must evolve within the framework of constitutional rights**. Indias trajectory mirrors this progressive yet cautious stance.

Conclusion

Constitutionalism must temper custom without tyranny. The 2025 verdict embodies this balance—preserving tribal identity while ensuring **substantive equality**, thus harmonising diversity with justice.

Critically analyze Chinas strategic education model in the global talent race. Evaluate the necessary policy and institutional response India must adopt to remain competitive.

Introduction

According to the **UNESCO Science Report (2021),** China accounts for over **30% of global STEM graduates** and is projected to surpass the U.S. in PhD output by 2025—reshaping the global knowledge economy.

Chinas Strategic Education Model: A State-Directed Talent Revolution

Chinas educational transformation is not incidental but a **state-engineered strategy for innovation sovereignty**. Its approach integrates education, industrial policy, and global talent mobility within a unified national mission.

1. **Mass Literacy to Targeted Excellence:** The **1986 Compulsory Education Law** ensured a literate base. Subsequent programs, **Project 211 (1995)** and **Project 985 (1998),** elevated elite universities into world-class institutions through heavy state funding and R&D infrastructure.
2. **STEM-Centric Human Capital:** As per the **Australian Strategic Policy Institute (ASPI),** China produces nearly **50 lakh STEM graduates annually**, compared to Indias 26 lakh. This quantitative edge translates into a sustained innovation pipeline.
3. **Research Quality and Global Leadership:**
    - **NISTEP Report (2022):** China leads in the **top 1% most-cited scientific papers**, surpassing the U.S.
    - **Nature Index (2023)** ranks the **Chinese Academy of Sciences** as the worlds top research institution.
    - Heavy state investment (~2.6% of GDP on R&D, per World Bank 2023) reflects strategic continuity.
4. **Reversal of Brain Drain:** Through the **Thousand Talents Plan and Changjiang Scholars Program**, China created **brain gain**, with over **1 million overseas scholars returning in 2021**. These returnees integrate global best practices into domestic innovation ecosystems.

5. **Integration of Industry, Academia, and National Strategy:** The **Made in China 2025 policy** aligns academic output with strategic industrial sectors AI, EVs, semiconductors, ensuring **supply-demand coherence** between universities and national economic goals.
6. **Soft Power and Knowledge Diplomacy:** Chinas expansion of **Confucius Institutes** and Belt and Road research collaborations projects educational power as a geopolitical tool, embedding influence within the global academic architecture.

Lessons and Policy Response for India

1. Strategic Integration of Education and Industrial Policy: India must align National Education Policy (NEP) 2020 with **Make in India**, **Startup India**, and **Digital India** to create a mission-oriented human capital strategy similar to Chinas innovation ecosystem integration model.

2. Strengthen R&D Ecosystem: Indias **GERD (Gross Expenditure on R&D)** remains below **0.7% of GDP** (UNESCO 2022). Raising it to **2%** is essential to drive translational research and reduce technological dependence.

3. Reverse Brain Drain through Diaspora Policy: Inspired by Chinas Thousand Talents Plan, India could introduce an **India Innovation Fellowship** to attract overseas researchers with funding, autonomy, and startup incubation support.

4. Foster Industry-Academia Synergy: Establish **Sectoral Innovation Hubs** under the PM Gati Shakti and Production-Linked Incentive (PLI) schemes to align university research with national industrial priorities in semiconductors, green tech, and defense manufacturing.

5. Emphasize Skill Deepening and STEM Diversity: India must enhance **STEM quality** through digital infrastructure, AI-enabled pedagogy, and **research-oriented curricula** under NEPs Multidisciplinary Research Universities framework.

6. Decentralize and Incentivize State-Level Innovation: Chinas provinces lead in R&D spending. Indian states must replicate this by **linking State Innovation Missions** to local industrial strengths under the Aspirational Districts Programme.

Conclusion

Education is the ultimate form of soft power. Indias competitiveness in the global talent race hinges on strategic synchronization of education, innovation, and industrial policy.

Examine the policy challenges hindering Indias shift from coal. Critically analyze why the dip in its coal use is deemed temporary and how to make the energy transition structural.

Introduction

According to the **Ember Global Electricity Review 2025**, renewables overtook coal as the worlds largest electricity source. Yet in India, coals dip remains temporary, revealing deep structural and policy constraints in its energy transition.

Indias Coal Dependence and The Development Dilemma

Coal continues to anchor Indias energy security, providing **~70% of electricity generation** and employing over **500,000 workers** directly **(Coal India Limited, 2024).** Despite renewables reaching **50.1% of installed capacity**, actual generation remains coal-dominant due to **intermittency, storage gaps**, and **demand volatility**.

Why the Dip in Coal Use Is Deemed Temporary

The **Ember 2025 Report** calls Indias fall in coal use temporary compared to Chinas structural decline. The reasons are multifaceted:

1. **Demand-Driven Fluctuation:** The dip resulted from mild weather and slower industrial demand, not systemic clean energy substitution. As temperatures rise, coal plants again meet peak evening loads.
2. **Baseload Dependence:** Renewable intermittency, especially **solars duck curve problem,** forces reliance on thermal baseload to ensure grid stability during evenings or monsoon seasons.
3. **Discom Financial Stress:** State electricity distribution companies (DISCOMs) accumulate **losses exceeding ₹70,000 crore (2023–24, RBI Bulletin)**, undermining renewable purchase obligations and deterring investment in green infrastructure.
4. **Policy Inertia and Regulatory Lock-In:** Long-term power purchase agreements (PPAs) with thermal plants and ongoing coal mine expansion (targeting **1 billion tonnes annual output by 2026**, as per Coal Ministry) reinforce coals dominance.
5. **Storage and Grid Infrastructure Deficit:** Indias **battery storage capacity (13 GWh operational)** is grossly inadequate for balancing 185 GW of renewables. Transmission bottlenecks delay renewable evacuation, especially in Rajasthan and Gujarat.

Structural Gaps in Indias Energy Transition

Indias transition is policy-driven but lacks **systemic coherence**:

1. **Fragmented Institutional Design:** Overlaps between MNRE, CEA, and state regulators cause policy friction.
2. **Inadequate Carbon Pricing:** The absence of a **national carbon market** distorts energy economics in favor of coal.
3. **Skewed Subsidy Architecture:** Fossil fuel subsidies (₹1.4 lakh crore, IEA 2023) exceed renewable support.
4. **Socioeconomic Resistance:** Coal belts like Jharkhand and Chhattisgarh depend on coal royalties, jobs, and political patronage—making phaseout politically sensitive.

Making Indias Energy Transition Structural: The Way Forward

A **just, planned, and structural transition** requires multi-dimensional reforms:

1. **Energy Storage Revolution: Expand Viability Gap Funding (VGF) to 43 GWh** and accelerate **pumped hydro (51 GW by 2032)** as per CEAs roadmap. Incentivize domestic **battery manufacturing under PLI** schemes.
2. **Green Baseload Development:** Deploy **Small Modular Reactors (SMRs)** and **biomass co-firing** to provide clean baseload power. Scale up Green Hydrogen Mission (target: **5 MMT by 2030**) to decarbonize industry and heavy transport.

3. **Market and Regulatory Reforms:** Operationalize **Carbon Credit Trading Scheme (2023)** for disincentivizing coal. Rationalize Renewable Purchase Obligations (RPOs) with fiscal penalties for non-compliance.
4. **Regional and Social Transition Planning:** Launch **Just Transition Commissions** in coal-dependent states, modeled on South Africas **Just Energy Transition Partnership (JETP).** Retrain coal labor for clean energy jobs via Skill India Energy Corps.
5. **Grid Modernization and Digitalization:** Invest in **AI-driven smart grids** and **inter-state transmission upgrades** under the Green Energy Corridor Phase-II.

Conclusion

As **Nicholas Sterns Climate Economics Review emphasizes**, **Sustainable growth is smart growth.** Indias coal transition must evolve from reactive substitution to structural transformation—anchored in resilience, inclusivity, and energy justice.

Examine the strategic necessity of Indias new railway links with Bhutan. Critically analyze its role in reinforcing Indias influence amid Chinas flexing across South Asia.

Introduction

According to the **Ministry of Railways (2024),** India announced two Indo-Bhutan cross-border railway projects worth **₹4,000 crore**. In an evolving Indo-Pacific order, infrastructure diplomacy becomes pivotal for Indias strategic and economic leverage.

Strategic Necessity of India–Bhutan Railway Links

1. **Geopolitical positioning:** Bhutan is the only South Asian country without diplomatic ties with China, making it a crucial partner in Indias Himalayan security calculus.
2. **Connectivity for integration:** The Kokrajhar–Gelephu (Assam–Bhutan) and Banarhat–Samtse (West Bengal–Bhutan) railway lines will connect Bhutan with Indias rail network, facilitating trade, tourism, and people-to-people connectivity.
3. **Landlocked dependency:** Bhutans landlocked geography necessitates access through India for imports, exports, and mobility—rail connectivity ensures greater resilience and reduces economic isolation.
4. **Strategic geography:** The routes pass near the **Siliguri Corridor (Chickens Neck)**, Indias narrow lifeline to the Northeast, enhancing strategic depth and logistical efficiency for both civilian and defence movement.

Reinforcing Indias Influence Amid Chinas Regional Assertiveness

- **Countering Chinas infrastructure diplomacy:** Chinas **Belt and Road Initiative (BRI)** has encircled India with projects like Gwadar (Pakistan), Hambantota (Sri Lanka), and Kyaukpyu (Myanmar). Beijings recent plan to connect Xinjiang to Tibet through Aksai Chin underscores the urgency of parallel Indian efforts.
- **Soft power through development partnership:** Indias model—based on **Neighbourhood First** and **Act East** policies—emphasizes sustainable, non-coercive infrastructure financing compared to Chinas debt-driven approach. Bhutans **hydropower cooperation** with India, generating 30% of its GDP, exemplifies mutual interdependence without economic overreach.

- **Strategic signaling:** The railway projects signal New Delhis readiness to expand its regional presence and resist Chinese salami-slicing tactics in border and influence zones. Reinforces Indias image as a **net security provider** and **regional integrator** in South Asia.

Economic and Security Synergy

1. **Economic multiplier effect:** Enhanced logistics can raise Bhutans trade efficiency, support regional tourism, and improve livelihoods in border districts of Assam and West Bengal. Fosters **subregional connectivity** under BIMSTEC and BBIN frameworks, crucial for Indias Indo-Pacific outreach.
2. **Security preparedness:** The Doklam plateau standoff (2017) revealed vulnerabilities in troop mobilization; railways now offer **dual-use infrastructure**—civilian development and rapid military logistics. Complementary projects like the **Sela Tunnel**, **Darbuk–Shyok–DBO road**, and **Arunachal frontier highways** collectively form a strategic deterrent along the LAC.

Challenges and the Way Forward

1. **Environmental sensitivity:** Bhutans cautious development policy emphasizes Gross National Happiness (GNH) and ecological sustainability. India must ensure minimal ecological disruption.
2. **Sovereignty and cultural sensitivity:** Respecting Bhutans autonomy will be key to sustaining mutual trust.
3. **Institutional mechanisms:** Joint monitoring under **India–Bhutan Rail Cooperation Committees**, capacity-building, and multilateral funding (ADB, JICA) can strengthen implementation.

Conclusion

Strategic connectivity defines modern geopolitics. Indias rail links with Bhutan embody smart statecraft—merging security, economy, and diplomacy for resilient Himalayan geopolitics.

Critically analyze the role of regulatory and oversight gaps in recurrent public health tragedies like contaminated medicines. Examine the reforms needed to strengthen drug control mechanisms.

Introduction

According to the **WHO (2023), 1 in 10 medical products** in low- and middle-income countries is substandard or falsified. Indias recurring contaminated syrup tragedies expose deep regulatory and institutional fragilities.

The Recurring Public Health Tragedy: A Regulatory Failure

1. **Historical continuity:** Since 1986, India has faced at least **five major diethylene glycol (DEG)** contamination episodes — from Mumbais J.J. Hospital deaths to incidents in The Gambia (2022) and Uzbekistan (2023).
2. **Recent episode:** The **2024 Coldrif cough syrup deaths** in Madhya Pradesh and Rajasthan again exposed the lack of proactive quality assurance. DEG, a toxic solvent used industrially, continues to leak into pharmaceutical supply chains.
3. **Systemic lapse:** Instead of targeting negligent manufacturers, enforcement agencies often scapegoat frontline practitioners—highlighted by the **arrest of a government paediatrician** instead of accountability within drug regulatory frameworks.

Role of Regulatory and Oversight Gaps

1. **Fragmented regulatory structure:** India has a **dual regulatory system** — the **Central Drugs Standard Control Organisation (CDSCO)** and **State Drug Controllers** — leading to overlaps and poor coordination. State authorities often lack laboratory capacity, manpower, and autonomy.
2. **Lax enforcement of standards:** The **Schedule M** (Good Manufacturing Practices) guidelines remain poorly implemented; only 15% of licensed units reportedly comply with full GMP norms (PIB, 2023).
3. **Inadequate surveillance mechanisms:** The **Pharmacovigilance Programme of India (PvPI)** lacks timely recall mechanisms and post-market surveillance. Risk-based inspections are infrequent and often reactive, following deaths rather than anticipating failures.
4. **Weak international credibility:** The **WHO global alert (2022)** on Indian-made syrups linked to child deaths in The Gambia and Uzbekistan dented Indias image as the pharmacy of the Global South. **Export regulatory oversight** is inconsistent — many small firms bypass stringent testing protocols for cost efficiency.
5. **Ethical and governance deficit:** The absence of **corporate accountability** and **public disclosure norms** encourages underreporting. Lack of whistleblower protection further erodes institutional transparency.

Broader Public Health and Ethical Implications

1. **Violation of Right to Health:** As recognized in **Paschim Banga Khet Mazdoor Samity v. State of West Bengal (1996),** access to safe medicines is integral to Article 21s Right to Life.
2. **Erosion of public trust:** Repeated incidents weaken public confidence in both domestic and export drug markets, undermining health diplomacy.
3. **One Health dimension:** Poor pharmaceutical waste management and chemical contamination have spillover effects on ecosystems and food safety, expanding the risk to zoonotic health.

Reform Measures to Strengthen Drug Control Mechanisms

1. **Institutional restructuring:** Establish a **National Drug Authority** on the lines of the **U.S. FDA**, ensuring uniform licensing, inspection, and recall powers.
2. **Digital and AI integration:** Use **blockchain-based supply chain monitoring** and **AI-enabled pharmacovigilance** to detect anomalies in real-time.
3. **Legislative modernization:** Expedite passage of the **Drugs, Medical Devices and Cosmetics Bill, 2023**, which mandates stringent compliance, penalizes non-conformity, and enhances recall provisions.
4. **Capacity building:** Enhance testing infrastructure—India has **only 38 central and state drug laboratories** for over 10,000 manufacturing units.
5. **International collaboration:** Align domestic standards with **WHO-GMP certification** and **PIC/S guidelines** to ensure global credibility.
6. **Public transparency:** A publicly accessible **Drug Quality Index** can ensure accountability and empower consumers.

Conclusion

As **Amartya Sens Development as Freedom asserts**, **real development expands human capabilities.** Ensuring drug safety through robust regulation embodies freedom from preventable suffering—a moral and constitutional imperative for Indias health sovereignty.

Examine how bureaucratic red tape hinders scientific progress in India and the Global South. Critically analyze if South-South cooperation and solidarity can effectively tip these institutional hurdles.

Introduction

According to **UNESCOs Science Report (2021),** developing nations contribute over **30% of global research** output but face chronic bureaucratic delays, underfunding, and rigid procurement systems—stifling innovation and equitable scientific advancement in the Global South.

Bureaucratic Red Tape: A Systemic Impediment to Science

1. **Administrative Delays and Procedural Rigidities:** Lengthy **procurement cycles** in public universities — often exceeding six months — delay acquisition of essential reagents and instruments. Example: Indian labs waiting months for DNA sequencing machines that become obsolete upon delivery.
2. **Opaque Approval Systems:** Overlapping policies, oral directives, and non-transparent clearance processes discourage initiative. As seen in **wildlife research permits**, Indian scientists often wait for months without official communication.
3. **Outdated Procurement Rules:** Rigid **lowest-cost procurement norms** often override scientific specificity. Essential materials with single suppliers cannot be procured under such constraints, limiting access to critical reagents. The **Union Finance Ministrys 2024 reform**—raising direct purchase limits from ₹1 lakh to ₹2 lakh—is a small but insufficient correction.
4. **Chronic Underfunding:** According to the **UNESCO Institute for Statistics (2023)**, India spends only **0.7% of GDP on R&D**, far below the global average of 1.8%. Recurrent delays in **PhD stipends and research grants** disrupt continuity and morale among young scientists.
5. **Technological Obsolescence:** Slow procurement leads to outdated lab equipment, increasing dependence on foreign institutions. Result: brain drain and limited indigenous innovation capacity.

Broader Impact on Scientific Ecosystems

1. **Stifled Innovation and Publication Gap:** Red tape diverts time from research to paperwork—reducing Indias research efficiency. The **Nature Index (2024)** ranked India 14th globally in output but much lower in citation impact, reflecting systemic inefficiencies.
2. **Erosion of Research Autonomy:** Bureaucratic micromanagement in grant allocation fosters compliance over creativity, disincentivizing risk-taking.
3. **Dependence on the Global North:** Lack of capacity forces Global South researchers to rely on Northern institutions for advanced analyses—perpetuating epistemic dependency and uneven intellectual ownership.

Can South-South Cooperation Tip the Bureaucratic Imbalance?

1. **Collaborative Optimism:** As Dr. **Sammy Wambua (Pwani University, Kenya)** suggested, South-South collaborations can circumvent rigid bureaucracies through Frameworks of Collaboration—provisional agreements allowing joint work while formal MoUs are processed. Example: **India–Africa partnerships in genomics and agriculture** (e.g., ICGEB and NEPAD programmes) have enabled shared infrastructure and cost-effective research.

2. **Pooling Resources and Expertise:** Joint research facilities (like the **India-Brazil-South Africa [IBSA] Fund**) promote shared access to technology and reduce dependence on expensive imports.
3. **Capacity Building and Knowledge Equity:** Collaborative training programmes—such as **Pan African e-Network Project (PAeNP)** and **C.V. Raman Fellowship**—enable skill transfer and reciprocal growth.
4. **Limitations:** Despite promise, **funding asymmetry, fragmented regulation, and lack of unified ethical frameworks** limit South-South synergy. Without parallel governance reforms and digital integration, cooperation may remain ad hoc and personality-driven.

The Way Forward

1. **Institutional Reforms:** Establish a **Single-Window Scientific Facilitation Authority** for clearances and procurement under GFR exemptions.
2. **Digital Governance:** Implement **e-procurement tracking systems** and AI-based monitoring to minimize delays.
3. **Funding Innovation:** Create **pooled South-South innovation funds** under the BRICS framework for shared R&D challenges.
4. **Global Research Equity:** Encourage open-access collaborations and shared data platforms to democratize knowledge production.

Conclusion

By pairing South-South solidarity with institutional reform, the Global South can democratize innovation and reclaim scientific agency.

Examine how protectionism in the developed world challenges Indias growth. Justify scale, skill, and self-reliance as the strategic answer for sustaining Indias contribution to global growth.

Introduction

According to **IMFs World Economic Outlook 2024,** India contributed over **16% to global growth**, yet rising protectionism in advanced economies—via tariffs, visa restrictions, and supply-chain barriers—poses systemic threats to Indias export-driven growth momentum.

Protectionism in the Developed World: A Resurgent Challenge

1. **Tariff and Non-Tariff Barriers:** The USs **100% tariff on branded pharmaceutical imports** and the EUs **Carbon Border Adjustment Mechanism (CBAM)** increase compliance costs for Indias pharma, steel, and chemical industries. Such measures represent neo-mercantilist tendencies, undermining global value chain integration.

2. **Visa Restrictions and Labour Mobility:** The **$1,00,000 H-1B visa fee** hike discourages Indian IT firms, curbing service exports—Indias largest surplus sector ($325 billion in FY24). Curtailing skilled migration impacts remittances, which reached **$135 billion in 2024**—the highest globally.

3. **Supply Chain Reorientation:** The China+1 diversification offers India opportunity but also exposes it to friend-shoring alliances that exclude it from Western production networks. WTO data shows global trade growth fell below 1% in 2023 due to rising trade fragmentation.

4. **Technology and IPR Barriers:** Restrictive technology transfer regimes and tightened patent protections limit Indias access to frontier technologies—particularly in **semiconductors, AI, and green hydrogen**.

Why Indias Growth Faces Systemic Headwinds

1. **Export-Led Vulnerability:** Merchandise **exports ($437 billion in 2024)** face market access constraints amid protectionist tendencies, particularly in pharmaceuticals, textiles, and IT-enabled services.
2. **Global Demand Slowdown:** The IMF projects developed economies to grow below **1.4% in 2025**, dampening external demand for Indian goods.
3. **Strategic Autonomy Concerns:** Overdependence on external capital and technology increases susceptibility to policy shocks, necessitating Atmanirbhar Bharat as a structural response rather than a slogan.

Scale, Skill, and Self-Reliance: Indias Strategic Counter

Scale: Building Capacity and Competitiveness

1. Massive infrastructure expansion—**₹11 lakh crore public capex in FY25**—and digital public goods (UPI, ONDC, Aadhaar) enhance production and transaction efficiency.
2. Indias manufacturing PMI of **57.7** and foreign exchange reserves above **$700 billion** reflect macroeconomic resilience and confidence.
3. **Production Linked Incentive (PLI)** schemes in 14 sectors, with $24 billion outlay, have catalysed **$50 billion in investments** and over **300,000 jobs**, strengthening domestic value chains.

Skill: Leveraging the Demographic Dividend

1. With a **median age of 28.4 years** and 65% population under 35, India is the worlds youngest major economy.
2. The **Skill India Mission** and **National Education Policy (NEP 2020)** align curricula with Industry 4.0 needs—AI, robotics, and green technology.
3. **Global Skill Partnerships** with Japan, UAE, and the UK enhance employability through internationally certified skilling models.

Self-Reliance: Strategic Atmanirbharta

1. Self-reliance is **integration with independence,** not isolation.
2. **Make in India**, **Digital India**, and **Start-Up India** link domestic innovation with global competitiveness.
3. The **Anusandhan National Research Foundation (₹50,000 crore)** and semiconductor PLI push are fortifying indigenous R&D.
4. Indias **renewable capacity (220 GW)** and leadership in the **International Solar Alliance** showcase sustainable self-reliance.

Broader Global Impact

1. By building scale, skill, and self-reliance, India safeguards its role as a **net contributor to global growth**, ensuring supply-chain resilience for the Global South.
2. As the developed world builds tariff walls, Indias strategy emphasizes **open innovation, human capital export, and inclusive digital infrastructure**—a model of equitable globalization.

Conclusion

As **Amartya Sen notes in Development as Freedom**, resilience stems from capability. Indias triad of scale, skill, and self-reliance transforms vulnerability into strength—preserving global growth amid protectionist tides.

Examine the potential of the India-UK partnership as a launch pad for Indias growth amid US protectionism. Critically analyze the need for structural reforms to leverage trade deals.

Introduction

Amid renewed US protectionism—like 50% tariffs on Indian goods, Indias **Comprehensive Economic and Trade Agreement (CETA)** with the UK offers a strategic window to expand exports and diversify markets within a shifting global trade order.

The Context: Rising Protectionism and Trade Realignment

1. **US Tariff Barriers:** India faces **100% tariffs on pharma imports** and **50% duties** on goods under America First policies.
2. **Global Fragmentation:** WTO (2024) warns global trade growth has slowed below **1%**, reflecting deglobalization and supply-chain nationalism.
3. **Indias Exposure:** The US is Indias largest export destination (~$118 billion in 2024); overdependence creates vulnerability to unilateral policy shocks.
4. Hence, diversifying trade partners through strategic FTAs—like with the **UK, EU, UAE, and Australia**—is a geopolitical and economic imperative.

The India-UK CETA: A Launch Pad for Growth

1. **Scope and Ambition:** Covers **over 99% tariff lines** in industrial and agri-products. Targets doubling bilateral trade from **$56 billion (2024)** to **$120 billion by 2030**.
2. **Complementarities:** India enjoys a trade surplus with the UK in both goods ($23B) and services ($33B). The UKs demand structure aligns with Indias export strengths—textiles, gems, machinery, and pharmaceuticals.

Key Opportunities:

1. **Textiles & Apparel:** UK imported $22.3B worth in 2023; Indias share only $1.6B. Zero-tariff access post-CETA enhances competitiveness vs. China (9–12% tariffs).

2. **Gems & Jewellery:** UKs $92.8B import market—Indias $0.6B share can expand as tariffs fall.

3. **Leather & Footwear:** UKs $8.5B import market; CETA reduces Indias 8% duty disadvantage.

4. **Strategic Hedge:** The UK can absorb part of Indias export losses due to US tariffs while strengthening the **Global Britain–Atmanirbhar Bharat synergy**.

Beyond Tariff Reductions: The Need for Structural Reforms

Reduced tariffs alone are insufficient; India must undertake systemic reforms to convert potential into performance.

1. Trade Facilitation & Logistics: According to the **World Bank Enterprise Survey (2024)**, average customs clearance time in India is **17.3 days**, compared to **6.7 in Bangladesh** and **3.3 in China**. Implementing **National Logistics Policy (2022)** and **Gati Shakti Master Plan** can cut logistics costs (currently ~13% of GDP) to the OECD average of 8%.

2. Regulatory and Institutional Efficiency: As Manish Sabharwal notes, India suffers from **regulatory cholesterol—**overlapping compliance and approvals that hinder scale. Streamlining industrial regulations, digitizing trade documentation under **ICEGATE 2.0**, and simplifying SEZ rules are essential for export competitiveness.

3. Access to Finance and Capital: MSMEs face high credit costs (9–12%). Expanding **Export Credit Guarantee Corporation (ECGC)** coverage and operationalizing **NIRVIK scheme** can unlock export potential.

4. Cluster-Based Industrial Strategy: Integrated manufacturing clusters with shared testing and design facilities will enhance quality and reduce cost asymmetries. **PLI Schemes** and **PM MITRA parks** must align with FTA-driven sectoral opportunities.

5. Human Capital & Skilling: The **UK-India Global Innovation Partnership** can boost high-skill employment in green tech, AI, and biotech sectors. Skilling programmes must integrate **UKs T-levels and vocational benchmarks** to match labour mobility needs.

Strategic & Geoeconomic Significance

1. The UK is Indias **fifth-largest investor**, with cumulative FDI of **$33 billion**.
2. Cooperation in **critical minerals, defence manufacturing, and higher education** can deepen strategic ties.
3. CETA can act as a template for future FTAs with the **EU**, balancing Western protectionism with diversified alliances.

Conclusion

As **Raghuram Rajan** argues in **The Third Pillar, reform, openness, and local empowerment drive** sustainable growth. Indias partnership with the UK must pair tariff gains with institutional and competitiveness reforms.

Examine the necessity of AI infrastructure development in Indian healthcare. Critically analyze its potential to transform clinical data into a multimodal learning system for public health.

Introduction

According to **NITI Aayog's National Strategy for Artificial Intelligence (2018),** India's healthcare AI could add **$25 billion** to GDP by 2025, if supported by robust data infrastructure and interoperable clinical systems.

Necessity of AI Infrastructure in Indian Healthcare:

1. India's healthcare ecosystem faces a **triple challenge** — data fragmentation, workforce shortage, and inequitable access. With less than **1 doctor per 1,000 people (WHO, 2023)** and vast rural populations underserved, AI can bridge diagnostic and decision gaps.

2. However, the **real bottleneck** is the absence of **AI infrastructure** — integrated data repositories, feedback loops, and digitized workflows. Without these, even advanced algorithms remain import-dependent and context-insensitive.

Key Necessities:

1. **Data Integration:** Currently, patient data is siloed across labs, hospitals, and government platforms. Unified Electronic Health Records (EHR) and National Digital Health Mission (NDHM) interoperability standards are essential.
2. **High-quality Multimodal Datasets:** AI thrives on diverse data — medical images, lab reports, genomics, and clinical notes. India's hospitals produce millions of such cases daily, yet lack systematic curation.
3. **Feedback Loops for Learning:** Imported AI models often misclassify diseases like tuberculosis as pneumonia due to dataset bias. Human-AI feedback loops can allow real-time correction and localized learning.

Transforming Clinical Data into a Multimodal Learning System

A **multimodal learning system** integrates text, imaging, and biological signals to enhance decision-making — moving from static diagnostics to dynamic learning healthcare systems (LHS).

Mechanisms of Transformation:

1. **Real-time Learning Flywheels:** Inspired by Scale AI's model, hospitals can continuously refine diagnostic accuracy through clinician feedback. Each corrected case strengthens system intelligence — a compound-learning model.
2. **Embedded Workflow Integration:** Embedding AI within radiology, pathology, and primary care workflows ensures decisions are augmented, not outsourced. This addresses algorithmic opacity and improves accountability.
3. **Federated Learning Models:** Rather than transferring sensitive patient data, hospitals can train local AI models collaboratively while ensuring data sovereignty — aligning with India's Digital Personal Data Protection Act, 2023.

4. **Public Health Surveillance:** AI-driven pattern recognition across datasets can detect epidemic outbreaks or drug resistance earlier than traditional systems, aligning with WHO's One Health Approach.

Case Studies and Initiatives:

1. **ICMR's AI Guidelines (2024):** Emphasize ethical deployment, patient safety, and localized datasets.
2. **AI4BHARAT and eSanjeevani:** Indigenous platforms developing domain-specific medical AI tools.
3. **Tata Memorial Hospital's Oncology AI:** Uses deep learning for cancer diagnostics from histopathology slides, reducing manual error rates by over **20%**.

Challenges and Reforms Needed

1. **Data Quality and Standardization:** Absence of national standards for clinical ontologies (like SNOMED CT, ICD-11) hampers dataset interoperability.

2. **Ethical and Privacy Risks:** Unchecked AI may compromise data confidentiality or amplify algorithmic biases.

3. **Regulatory Vacuum:** India lacks a dedicated Medical AI Regulatory Authority akin to the U.S. FDA's Digital Health Center of Excellence.

4. **Public-Private Collaboration:** Government must incentivize AI startups and healthtech firms to co-develop indigenous algorithms under Make in India for AI.

Way Forward

1. Establish **National Health Data Grids** linking public and private providers.
2. Promote **Open-Source AI Sandboxes** for safe innovation.
3. Implement **AI Ethics Audits** and continuous certification frameworks.
4. Create a **Public Health AI Mission** under NDHM to monitor, learn, and predict healthcare trends.

Conclusion

As **Eric Topol notes in "Deep Medicine",** the future of healthcare lies in intelligent systems learning from real patients daily — where India's AI infrastructure becomes its greatest healer.

Critically analyze the proposition that the DPDPA threatens to destroy the power of the RTI Act. Examine the need to harmonize data privacy and the right to know.

Introduction

India ranks **111th in the World Press Freedom Index (2024)**, reflecting democratic backsliding in transparency. The **Digital Personal Data Protection Act (DPDPA), 2023** risks eroding the hard-won transparency under the **Right to Information Act, 2005**.

The Spirit and Power of the RTI Act

1. The **Right to Information Act (RTI), 2005**, born from grassroots movements like the **MKSS campaign in Beawar**, transformed citizen–state relations. It operationalized **Article 19(1)(a)** of the Constitution — freedom of speech and expression — by recognizing that the **"right to know"** is integral to informed citizenship.

2. Since 2005, more than **3 crore RTI applications** have been filed, exposing major scams like **Adarsh Housing**, **Vyapam**, and **2G spectrum**.
3. The Act's **Section 8(1)(j)** balanced privacy and public interest by exempting personal information unrelated to public activity, yet allowing disclosure if public interest outweighed privacy.

4. This equilibrium — between **transparency and accountability** — made RTI one of the world's strongest sunshine laws.

How the DPDPA Threatens RTI's Core Power

The **Digital Personal Data Protection Act (DPDPA), 2023**, while necessary for privacy in the digital age, **overreaches** into transparency frameworks.

1. **Blanket Exemption through Section 44(3):** It amends **Section 8(1)(j)** of RTI to provide **absolute exemption** on "personal information", removing the earlier public interest override. This effectively means no citizen can seek the name, designation, or responsibility of an official involved in misconduct.

2. **Deletion of the "Parliamentary Parity Clause":** The clause — "Information that cannot be denied to Parliament cannot be denied to any citizen" — is deleted, undermining the principle of **co-equality between citizens and legislators**.

3. **Disproportionate Penalties:** Fines up to **₹250 crore** deter journalists, whistle-blowers, and civil society actors, chilling freedom of expression under **Article 19(1)(a)**.

4. **Centralization and Discretion:** The power to override exemptions now rests solely with the **government**, removing citizens' ability to challenge denials — violating the principle of **administrative accountability** enshrined in S.P. Gupta v. Union of India (1981).

The Need to Harmonize Privacy and Right to Know

1. Both privacy and transparency stem from the same constitutional ethos of **informational autonomy** and **democratic participation**.

2. The Supreme Court in **K.S. Puttaswamy v. Union of India (2017)** recognized privacy as a **fundamental right**, but emphasized that it is **not absolute** — it must be balanced with public interest.

Harmonization Requires

1. **Definitional Clarity:** Restrict "personal data" to information unrelated to public duty rather than blanket protection.
2. **Public Interest Test:** Reinstate Section 8(2) override — ensuring disclosure when public interest clearly outweighs privacy.

3. **Independent Oversight:** Establish a **Data Protection Board** autonomous from the executive to adjudicate conflicts between privacy and transparency.
4. **Proportionality Doctrine:** Adopt the **Puttaswamy four-fold test** — legality, necessity, proportionality, and safeguards — before restricting information flow.
5. **Digital Governance Architecture:** Link **DPDPA** and **RTI portals** through interoperable APIs to ensure selective anonymization, not secrecy.

Way Forward

1. **Strengthen Whistleblower Protection Act (2014)** to safeguard RTI users.
2. **Periodic Parliamentary Review** of privacy-transparency conflicts.
3. **Public Data Trusts** enabling anonymized, open access for researchers.
4. **Awareness Campaigns** to promote responsible use of both laws.

Conclusion

As Amartya Sen writes in **"Development as Freedom",** transparency empowers citizens to demand justice. Harmonizing **privacy and right to know** ensures democracy's integrity, not secrecy, becomes India's defining strength.

Critically analyze the proposition that engaging with the Taliban constitutes complicity, not diplomacy. Justify the ethical and diplomatic imperative of prioritizing Afghan women's rights in India's policy.

Introduction

According to **UN Women (2024)**, Afghanistan remains the only country in the world where girls are banned from secondary and higher education, symbolizing state-sponsored **gender apartheid** under Taliban rule since 2021.

India's Engagement with the Taliban

1. India's recent **diplomatic outreach to the Taliban** — including participation of Taliban officials in events at New Delhi (2025) — reflects a pragmatic shift to secure regional stability and humanitarian access.

2. However, such engagement risks **legitimizing a regime** systematically erasing women from public life — raising questions about **ethical diplomacy**, **normative legitimacy**, and India's commitment to **gender justice** under its constitutional and international obligations.

Taliban's Record of Gender Apartheid

Since seizing power in August 2021, the Taliban have institutionalized **gender persecution**, which the **UN Human Rights Council (2024)** classified as a crime against humanity.

Key manifestations:

1. **Education Ban:** 1.1 million girls deprived of schooling **(UNESCO, 2024).**

2. **Employment Erasure:** Over **80% of women journalists** and **60% of female employees** dismissed (Afghanistan Media Support Organisation, 2025).
3. **Public Space Restrictions:** Women banned from parks, gyms, and long-distance travel without a male guardian.
4. **Legal Codification:** The **Propagation of Virtue and Prevention of Vice Law (2024)** forbids women's voices in public broadcasting, an act of **institutional misogyny**.

Such measures amount to **gender apartheid**, a system of domination denying women their personhood, political agency, and visibility.

Complicity vs. Diplomacy — The Dilemma

Engagement without accountability risks crossing the line from **pragmatism** to **complicity**.

1. Diplomatic Realism: Proponents argue engagement ensures **humanitarian coordination**, **counterterrorism cooperation**, and **regional security** under India's "Neighbourhood First" and **strategic autonomy** doctrines.

2. Complicity: However, when engagement is devoid of **normative conditionality** i.e., no public condemnation or demand for women's rights, it normalizes **gender persecution**. It undermines **India's soft power** built on democratic values and gender equality. It contradicts India's role in **UN Women's Executive Board** and its constitutional mandate of **Article 15(3)** (special provisions for women). It violates principles of **constructivist diplomacy**, where norms and identity shape legitimacy, not merely strategic convenience. As former UN High Commissioner **Michelle Bachelet** warned, "Silence in the face of systemic gender oppression amounts to moral complicity."

India's Diplomatic Imperative

India must adopt a **feminist foreign policy approach**, balancing realism with **moral responsibility**.

1. **Foundations:** Uphold the **"Responsibility to Protect (R2P)"** principle for gender persecution victims. Align with **CEDAW** (Convention on the Elimination of All Forms of Discrimination Against Women).

2. **Conditional Engagement:** Dialogue must explicitly demand restoration of girls' education and women's employment as preconditions for aid or recognition.
3. **Humanitarian Channels:** Direct support to **Afghan women-led NGOs**, teachers, and journalists through **UN OCHA** or **SAARC Development Fund**.
4. **Diplomatic Signaling:** Use platforms like **G20**, **BRICS**, and **UNGA** to internationalize gender persecution in Afghanistan.
5. **Knowledge Diplomacy:** Scholarships and remote education programs for Afghan girls via India's **SWAYAM** and **IGNOU digital learning platforms**.
6. Such actions combine **moral leadership with strategic foresight**, reinforcing India's image as a responsible democracy in the Global South.

Global Precedents and Lessons

1. **Nordic States' feminist foreign policy** links aid to gender rights, an instructive model.
2. **South Africa's anti-apartheid diplomacy** demonstrates how moral isolation, not engagement, catalyzes internal reform.

3. Thus, diplomatic recognition without reform risks entrenching oppression rather than moderating it.

Conclusion

As we know silence enables tyranny. India's diplomacy must defend Afghan women's voices, for justice anywhere safeguards freedom everywhere.

Examine the potential of the Australia-India clean energy partnership in building a resilient regional ecosystem. Critically analyze the role of Australia's resources and India's workforce.

Introduction

According to the **IEA (2024), Indo-Pacific nations face the fastest-rising energy demand globally**. The Australia-India clean energy partnership offers a strategic opportunity to build a resilient, diversified, and sustainable regional clean energy ecosystem.

Context and Strategic Significance

1. The **India-Australia Renewable Energy Partnership (REP), launched in 2023**, aims to enhance cooperation across solar, hydrogen, energy storage, and critical minerals.

2. It builds upon frameworks like the **Quad Clean Energy Supply Chain Initiative** and aligns with **SDG 7 (Affordable and Clean Energy)** and **SDG 13 (Climate Action).**

3. Both nations face **common vulnerabilities**, climate change impacts and supply chain dependence on China, which refines 90% of rare earths and manufactures 80% of global solar modules.
4. By diversifying this dependency, the partnership strengthens the Indo-Pacific's **strategic autonomy** and **energy security architecture**.

Australia's Resources: The Resource Powerhouse

Australia holds nearly **45% of global lithium reserves**, along with significant deposits of cobalt, nickel, and rare earths. Yet, it exports most raw materials without refining.

1. **Potential Role:** Develop **downstream processing hubs** in collaboration with India. Joint R&D on refining technologies and battery storage solutions. Support India's **National Green Hydrogen Mission** (target: 5 MMT green hydrogen by 2030) with reliable input minerals. **Example:** The Critical Minerals Investment Partnership (2023) aims to supply lithium and cobalt for India's EV and battery industries.
2. **Challenge:** Australia's current lack of large-scale refining capability risks reinforcing its "extractive dependency," necessitating **joint industrial ecosystems**.

India's Workforce: The Human Capital Advantage

India, with **65% of its population below 35**, possesses a demographic dividend ready for green skill deployment.

Strengths:

1. Skill India Mission and Green Jobs Initiative can produce over **1 million renewable energy technicians** by 2030 (ILO, 2023).
2. Production Linked Incentive (PLI) Schemes encourage domestic manufacturing of solar PV modules and batteries.
3. India's renewable capacity already reached **500 GW of non-fossil capacity by 2025**, five years ahead of target.

Potential Role:

1. Act as a **manufacturing and deployment hub** for clean energy technology.

2. Provide skilled manpower for installation, operation, and maintenance across the Indo-Pacific. **Example:** Indian firms like **ReNew Power and Adani Green Energy** are exploring collaborations with Australian firms in solar and hydrogen infrastructure.

Building a Resilient Regional Ecosystem

A resilient Indo-Pacific clean energy ecosystem requires **regional diversification, value addition, and innovation**.

1. The **Track 1.5 Dialogue** under REP brings together policymakers, industries, and academia for technology co-creation.
2. Joint investments in **Green Hydrogen Corridors** and **Battery Supply Chain Hubs** can reduce dependency on China and enhance regional self-reliance.
3. ASEAN and Pacific Island nations can benefit from the spillover effects—capacity building, knowledge transfer, and access to affordable clean technology.

Challenges and the Way Forward

1. **Policy Asymmetry:** Regulatory misalignment and investment barriers between the two nations.
2. **Financing Constraints:** Clean energy projects require long-term concessional financing and carbon pricing mechanisms.
3. **Geopolitical Sensitivity:** Balancing ties with China while building an alternate energy network under Quad and IPEF.

Way Forward:

1. Establish an Indo-Pacific Clean Energy Fund for project financing.
2. Institutionalize joint R&D centers under REP.
3. Promote circular economy principles to recycle rare earths and minimize waste.

Conclusion

As **Amartya Sen's Development as Freedom** reminds us, sustainable development empowers people and nations. A robust India-Australia clean energy partnership can anchor equitable, secure, and climate-resilient regional growth.