ForumIAS

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GEOGRAPHY AND ENVIRONMENT

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Critically analyze the proposition that reclaiming the district as a democratic commons is essential to revive national development and inclusive growth in India."

Introduction

With 65% of India's population under 35 (UNFPA, 2023) and 85% residing in districts of birth, reclaiming districts as democratic commons is pivotal to unlocking inclusive growth, youth empowerment, and equitable development.

District as a Democratic Commons: The Rationale

1. **Demographic Dividend & Local Anchoring**: India's demographic dividend risks becoming a **"demographic disaster" (ILO, 2023)** if youth remain excluded. Districts, where the majority live, are natural spaces to foster participatory governance.
2. **Economic Geography**: Cities covering **3% of land generate 60% of GDP (Economic Survey, 2022),** creating stark regional imbalances. District-led development decentralizes opportunity, reducing over-concentration and urban migration pressures.
3. **Democratic Fatigue & Political Centralization**: Centralized schemes reduce local agency. PRIs and district councils, constitutionally **mandated (73rd and 74th Amendments),** often remain under-utilized. Democratic commons empower elected representatives beyond mediating entitlements.

Districts as Engines of National Development

1. **Decentralized Accountability**: District-level monitoring of outcomes (**using indices like NITI Aayog's Aspirational Districts Programme)** ensures local transparency. Example: **Dantewada, Chhattisgarh** improved learning outcomes via community engagement in education.
2. **Inclusive Growth & Equity**: Focused district interventions bridge disparities. Kerala's Kudumbashree model of women's collectives, rooted in districts, showcases participatory planning yielding social and economic empowerment.
3. **Innovation Ecosystems**: Districts can act **as hubs of "glocal" innovation** — e.g., **Grain ATM (Annapurti)** pilots in Indian districts with WFP, replicable across Global South.
4. **Civic Participation & Ownership**: Transforming districts into democratic commons expands public life beyond welfare entitlements. Youth-led district councils in states like Kerala and Rajasthan reflect experiments in grassroots democratic engagement.

Critical Analysis: Challenges to District-Centric Democratic Commons

1. **Capacity Deficits**: District administrations remain bureaucrat-heavy, with weak planning capacity at Panchayat and Zila Parishad levels **(World Bank's *Decentralization in India* report).**
2. **Elite Capture & Inequality**: Decentralization risks local elite domination, marginalizing women, Dalits, and minorities unless safeguards exist.
3. **Fragmentation vs Cohesion**: Overemphasis on district autonomy may fragment policy coherence. National schemes **(e.g., PMGKY, MGNREGA)** require strong center-district alignment.
4. **Fiscal Federalism Constraints**: India's fiscal structure remains highly centralized. Districts lack adequate untied funds to experiment and sustain commons-driven development.

Way Forward

1. **Institutional Reforms**: Empower **District Planning Committees (Art. 243ZD)** with real authority.

2. **Technology & Transparency**: Open data dashboards for district-level outcomes.
3. **Participatory Budgeting**: Extend **Kerala's *People's Plan Campaign* nationally**.
4. **Youth Mainstreaming**: District youth parliaments as democratic incubators.
5. **Private Sector Engagement**: CSR funds aligned with district development priorities.

Conclusion

As Amartya Sen in *Development as Freedom* reminds us, **true progress requires expanding participation.** Reclaiming districts as democratic commons bridges policy and people, ensuring inclusive growth and revitalizing India's democratic spirit.

Examine the geographical imperatives for India to increase domestic mining. Critically evaluate the role of the private sector in achieving resource security for Atmanirbhar Bharat.

Introduction

India imports over **90% of oil, 95% of copper, and 99% of gold**, despite having geological similarities to resource-rich regions like **Australia and Africa** (USGS 2022). Achieving *Atmanirbhar Bharat* necessitates tapping domestic mining potential.

Geographical Imperatives for Domestic Mining

1. **Favourable Geological Endowment**: India lies on the **Indian Shield**, rich in iron ore, bauxite, copper, gold, coal, and rare earths. Its **Precambrian rocks** host significant deposits comparable to South America and Africa.
2. **Strategic Minerals for New-Age Economy**: India holds **6th largest bauxite reserve** and substantial coal **deposits (BP Energy Outlook 2022).** Lithium, cobalt, and rare earths critical for EVs and renewable technologies remain underexplored.
3. **Import Dependence vs Potential**: Despite having 319 billion tonnes of coal reserves **(Ministry of Coal, 2023),** India imports ~20% coal demand. Large dormant mines like **Kolar Gold Fields** and underutilised resources highlight untapped potential.
4. **Regional Concentration**: Eastern and central states (Jharkhand, Odisha, Chhattisgarh) form India's **mineral heartland**, offering a geographical push for resource-led development.

Role of Private Sector in Resource Security

1. **Exploration and Risk-Taking**: Globally, small private explorers function like **start-ups**, spreading risk and driving discoveries (Canada's junior exploration model). India's auction-based regime discourages such risk-taking; liberalising private exploration could enhance reserves.
2. **Technology Infusion**: Private players bring cutting-edge mining technologies like **automation, AI-enabled exploration, and eco-friendly extraction**. Example: **Vedanta Resources** in bauxite and zinc has demonstrated efficiency and global competitiveness.
3. **Reviving Dormant Assets**: Many PSUs underperform (e.g., Hindustan Copper, Hutti Gold Mines). Public-private partnerships (PPPs) could unlock these through capital and modern methods.
4. **Level Playing Field**: Currently, PSUs receive preferential allocations and fiscal support. Private participation needs **transparent, non-discriminatory policy** to encourage entrepreneurship in mining.

5. **Employment and Inclusive Growth:** Mining sector has a high **employment multiplier effect**. Domestic mining expansion could generate millions of jobs, reducing rural distress and supporting *Viksit Bharat 2047*.

Critical Challenges

1. **Environmental and Social Costs**: Mining-induced displacement (Niyamgiri, Odisha) shows conflict between resource extraction and community rights.
2. **Regulatory Bottlenecks**: Complex clearance system delays projects; need for **self-certification with post-audit accountability**.
3. **Global Transition**: Climate commitments under **Paris Agreement** require balancing fossil fuel extraction with renewable transition.

Way Forward

1. Adopt **National Mineral Exploration Policy 2019** in spirit by allowing small explorers.
2. Create **single-window clearance systems** with strict audit.
3. Promote **green mining technologies** to align with sustainability.
4. Strengthen PPPs for dormant asset revival.
5. Establish **strategic reserves of critical minerals** for national security.

Conclusion

As **Amartya Sen noted in *Development as Freedom***, true progress requires **economic capacity alongside social equity**. Harnessing India's rich geology through private sector dynamism can ensure *resource security* for **Atmanirbhar Bharat** while sustaining inclusive development.

Critically examine the potential for a 'fraught franchise' to emerge from a nationwide Special Intensive Revision (SIR) exercise. How can the Election Commission ensure electoral integrity?

Introduction

India, the world's largest democracy, has **96.8 crore registered electors (ECI 2024)**. However, Bihar's Special Intensive Revision (SIR), which deleted **65 lakh names**, reveals risks of exclusion and threatens democratic legitimacy.

Risks of a 'Fraught Franchise' in Nationwide SIR

1. **Massive Exclusions and Opaqueness**: In Bihar, 47 lakh deletions were later corrected after **Supreme Court intervention (2024)**, exposing procedural opacity. Disproportionate deletion of **women and marginalised groups** raises questions of systemic bias.
2. **Over-burdening Citizens**: Requirement of documents such as **birth and caste certificates**, often unavailable to poor, SC/ST/OBC, and migrant populations, risks disenfranchisement. Contradicts the principle of **universal adult suffrage under Article 326**.
3. **Administrative Capacity Constraints**: Conducting a **door-to-door SIR for 96 crore voters** is logistically complex. Errors in Aland (Karnataka, 2023) highlight ECI's technical vulnerabilities.

4. **Trust Deficit**: Lack of consolidated exclusion lists and vague claims about "foreign nationals" risk creating political suspicion and **bogeymen narratives**. Could undermine **free and fair elections — a basic structure of the Constitution (Kesavananda Bharati, 1973)**.
5. **Gendered and Socioeconomic Dimensions**: **UN Women's reports** show women face higher risks of disenfranchisement due to **migration after marriage** and lack of property-linked documents. Similar exclusion was seen in **NRC Assam (2019)** where 19 lakh people, many poor and illiterate, were left out.

Safeguards for Electoral Integrity

1. **Inclusive Verification Mechanisms**: Adopt **door-to-door verification by booth-level officers (BLOs)**, used effectively in early 2000s revisions. Use **self-reporting plus physical verification**, not suspicion as default.
2. **Accept Widely Held Identity Documents**: Recognise **Aadhaar, voter ID, ration card, job cards**—already with majority citizens. Reduces barriers for vulnerable populations.
3. **Transparency and Due Process**: Publish reasons for each deletion **in advance**, with clear **appeals process at local level**. Digital dashboards to track exclusions, while ensuring **data privacy**.
4. **Technological Aids with Checks**: Use AI-enabled **de-duplication of rolls**, but with **human verification** to prevent wrongful deletions. Lessons from Estonia's **e-voting system** show that technology must be complemented with citizen trust-building.
5. **Independent Oversight and Accountability**: Empower **Election Observers** and civil society organisations to monitor roll revision. Regular audits by **CAG or independent commissions** to assess accuracy.
6. **Gender-Sensitive and Migrant-Friendly Approach**: Special campaigns for **migrant workers and women voters** with simplified registration norms. **UNDP's Electoral Assistance Division** emphasises gendered inclusivity in roll preparation.

Way Forward

A nationwide SIR must balance **roll purity (removing duplicates/ghost voters)** with **roll inclusivity (ensuring no legitimate voter is excluded)**. The focus should shift from suspicion of the electorate to empowerment of the electorate.

Conclusion

As B.R. Ambedkar reminded in the **Constituent Assembly Debates**, democracy rests not only on institutions but on **"social legitimacy and inclusion."** For India, electoral integrity requires **transparency, inclusivity, and trust**, not exclusionary suspicion.

Evaluate the potential of the National Clean Air Programme (NCAP) to deliver significant public health benefits. What policy and institutional tweaks are essential for its effective implementation?

Introduction

Air pollution causes **1.67 million deaths annually in India (Lancet, 2020)** and is the second leading risk factor for disease burden. The **NCAP (2019)** holds transformative potential for health-centric environmental governance.

Potential of NCAP in Delivering Public Health Benefits

1. **Direct Health Co-benefits**: **IIT-Delhi & Climate Trends (2025)**: A **30% cut in pollution** reduces incidence of **heart disease, diabetes, anaemia, low birth weight**. WHO studies link PM2.5 to **COPD, stroke, lung cancer**, making NCAP a preventive healthcare strategy.
2. **Reduced Mortality & Morbidity**: **Lancet Planetary Health (2021):** Failure to meet WHO air standards caused **1.5 million deaths in India**. NCAP's **40% PM reduction target by 2026** could save thousands of lives annually.
3. **Economic Productivity Gains**: **World Bank (2019):** Air pollution cost India **1.36% of GDP**. Cleaner air reduces healthcare costs and improves labour productivity, adding an estimated **$95 billion annually (NITI Aayog, 2022)**.
4. **Climate & Environmental Synergy**: Tackling PM also reduces **black carbon**, aligning with India's **Paris Agreement NDCs** and enhancing climate resilience. Cleaner cities improve **urban liveability indices**, supporting SDG 3 (Health) and SDG 11 (Sustainable Cities).

Challenges Undermining NCAP Effectiveness

1. **Limited Geographical Coverage**: Focuses on **131 cities**, ignoring **rural and peri-urban regions** where biomass burning and crop residue contribute heavily.
2. **Institutional Weakness**: **SPCBs (State Pollution Control Boards)** lack manpower, autonomy, and monitoring capacity. Monitoring stations often placed in **low-density areas**, missing urban hotspots.
3. **Policy-Implementation Gap**: Funds underutilised, **Delhi NCR smog episodes** reveal lack of interstate coordination. Absence of strong enforcement despite NCAP's aspirational targets.
4. **Fragmented Jurisdiction**: Air pollution is **transboundary**, but cities are left to their own devices. Example: Punjab-Haryana crop burning impacts Delhi, but NCAP lacks a **federal coordination framework**.
5. **Weak Public Health Integration**: Pollution rarely linked with disease surveillance or healthcare planning. No structured framework for **public health advisories** during high AQI episodes.

Essential Policy and Institutional Tweaks

1. **Expand Coverage Beyond Cities**: Include **rural areas** with crop burning, brick kilns, and biomass fuel usage. Adopt **airshed management approach (like California Air Resources Board).**
2. **Strengthen Monitoring Infrastructure**: Install **high-density real-time monitors** in industrial and traffic-heavy zones. Promote **open-source AQI data platforms** for public awareness.
3. **Inter-State and Inter-Agency Coordination**: Establish **Regional Clean Air Authorities** (modeled on **CAQM in Delhi-NCR**). Ensure synergy between **MoHFW, MoEFCC, MoRTH, and state governments**.
4. **Mainstream Health in Air Policy**: Integrate NCAP with **National Health Mission**. Link **ICMR disease registries** with air quality data for targeted interventions.
5. **Capacity Building & Funding**: Increase budgetary allocation, ensure **timely fund utilisation** by ULBs. Strengthen SPCBs with trained staff, technology, and accountability mechanisms.
6. **Behavioural & Technological Shifts:** Promote **EV adoption, renewable energy, LPG/PNG transition**. Launch **community awareness campaigns**, replicating the success of **Swachh Bharat Abhiyan**.

Conclusion

Health is central to human capability. For NCAP to succeed, India must adopt **health-centric air governance, regional coordination, and institutional accountability** to ensure clean air as a public good.

Examine the shifting frontiers of India-Pakistan security from airspace to the sea. Critically analyze the implications for India's maritime defence strategy and naval modernization.

Introduction

The **Operation Sindoor crisis (2025)** revealed a shift in India-Pakistan hostilities from airspace to maritime domains. With 95% of India's trade by sea, maritime security is now central to strategic stability.

Shifting Frontiers: From Air to Sea

Historical Context

1. **1971 War:** Indian Navy's blockade of Karachi crippled Pakistan's economy.
2. **Kargil 1999 & Balakot 2019:** Conflicts played out in land-air domains, with the sea peripheral.
3. **Post-2025 Crisis:** Naval deployments, live-fire drills, and asset dispersals underline a shift towards maritime deterrence.

Pakistan's Naval Signalling

1. Induction of **Hangor-class submarines** (Chinese-built) and **Babur-class corvettes** (Türkiye).
2. Development of **anti-access/area-denial (A2/AD)** doctrine.
3. Strategic dispersal of assets to **Gwadar**, reducing Karachi's vulnerability.

India's Naval Response

1. Operation Sindoor signaled readiness for forward deterrence.
2. Induction of **INS Nistar** (diving support vessel) and **stealth frigates**.
3. Joint patrols in the **South China Sea with the Philippines**, aligning with Indo-Pacific outreach.
4. Doctrinal emphasis: *"First to strike at sea in future conflict"* (as per Admiral Dinesh Tripathi, 2025).

Implications for India's Maritime Defence Strategy

1. **Escalation Dynamics**: **Higher risk of war threshold crossing** at sea than in air. Naval skirmishes are prolonged, unlike short-lived air encounters, making escalation harder to control.
2. **External Involvement**: **China's PLAN presence in Gwadar and Karachi**: Raises two-front challenge. **Türkiye's naval assistance**: Enhances Pakistan's maritime deterrence. India must prepare for a **regionalised crisis with external stakeholders**.

3. **Deterrence Equation**: Pakistan's growing A2/AD capabilities reduce India's ability to coerce through blockade. India's traditional dominance is narrowing — requiring **qualitative edge over quantitative parity**.

Naval Modernization: Critical Requirements

1. **Fleet Modernization**: India's fleet aging; delays in **Project 75I submarines** and **aircraft carrier INS Vikrant**'s operational readiness remain concerns. Need to expand **nuclear submarine fleet (Arihant-class)** for credible second-strike capability.
2. **Maritime Domain Awareness (MDA)**: Satellite-linked **Information Fusion Centre–Indian Ocean Region (IFC-IOR)** must be integrated with QUAD allies. AI-driven unmanned systems for surveillance in choke points like **Strait of Hormuz**.
3. **Jointness and Doctrinal Shift**: Integration with **Air Force and Coast Guard** under the **Theatre Command framework**. Development of **maritime strike UAVs and hypersonic missiles** to counter Pakistan's evolving deterrence-by-denial strategy.
4. **Blue Water to Grey Zone Preparedness**: While Indo-Pacific projection remains vital, near-seas coercive capacity must not be diluted. Balancing **Indo-Pacific outreach** with **Arabian Sea deterrence** is now strategic necessity.

Conclusion

As it is observed, **"Whoever controls the sea controls commerce and destiny."** India's maritime defence must blend **blue-water ambition with grey-zone readiness**, ensuring credible deterrence against Pakistan while modernizing for wider Indo-Pacific security.

Examine the shifting frontiers of India-Pakistan security from airspace to the sea. Critically analyze the implications for India's maritime defence strategy and naval modernization.

Introduction

The 2025 Operation *Sindoor* crisis revealed a decisive shift in India–Pakistan hostilities from airspace to the maritime domain. With over 95% of India's trade moving by sea, maritime security now underpins strategic stability.

Shifting Frontiers: From Air to Sea

Historical Context

1. While the 1971 war showcased India's maritime dominance through the Karachi blockade, subsequent confrontations—from Kargil (1999) to Balakot (2019)—remained confined to land and air domains.

2. Post-2025, however, intensified naval signalling, live-fire drills, and asset dispersals mark a distinct shift toward **sea-based deterrence**.

Pakistan's Naval Signalling

1. Pakistan's recent induction of **Hangor-class (Chinese-built) submarines** and **Babur-class corvettes (from Türkiye)** demonstrates a move toward technological parity.

2. Its development of an **Anti-Access/Area-Denial (A2/AD)** doctrine and dispersal of assets from Karachi to **Gwadar** reflect strategic decentralization. The launch of **PNS Mangro** and ballistic missile tests indicate readiness to deter Indian coercion through maritime denial capabilities.

India's Naval Response

1. Operation *Sindoor* marked India's shift toward a **forward deterrent posture**. The induction of **INS Nistar**, stealth frigates, and joint patrols with the Philippines in the **South China Sea** signal both capacity building and Indo-Pacific integration.

2. Admiral Dinesh Tripathi's 2025 assertion that the Navy would be the "first to strike at sea" underscores doctrinal evolution. These measures align with India's **Maritime Security Strategy (2023)** and *SAGAR* vision for regional leadership.

Implications for India's Maritime Defence Strategy

1. Escalation Dynamic: Naval engagements carry higher risks of uncontrolled escalation. Unlike transient air skirmishes, maritime operations—being continuous—blur thresholds between peace and conflict. The **Institute for Defence Studies and Analyses (IDSA)** warns that miscalculation at sea could rapidly cross the "war threshold," complicating crisis management.

2. External Involvement: China's **PLA Navy (PLAN)** presence at Gwadar and Karachi and Türkiye's training and technology support introduce a **multi-actor maritime chessboard**. This externalization of regional security elevates the risk of a **two-front maritime dilemma**. India must, therefore, embed deterrence in a **multilateral Indo-Pacific framework**, strengthening ties with QUAD, ASEAN, and the Indian Ocean Rim Association (IORA).

3. Deterrence Equation: Pakistan's A2/AD posture narrows India's coercive leverage. India's traditional dominance, though intact, is eroding as Pakistan invests in asymmetric capabilities. The challenge is to sustain a **qualitative edge** through modernization, network-centric warfare, and integration of **C4ISR systems** (Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance).

Naval Modernization: Critical Requirements

1. **Fleet Modernization:** Accelerate **Project 75(I)** submarines and aircraft carrier programs; expand **Arihant-class SSBNs** for credible second-strike capability.
2. **Maritime Domain Awareness (MDA):** Enhance the **Information Fusion Centre–Indian Ocean Region (IFC–IOR)** with AI-driven unmanned systems for choke-point surveillance.
3. **Doctrinal Integration:** Advance **jointness** under the Theatre Command structure and deploy **hypersonic cruise missiles** and **maritime UAVs** for sea denial.
4. **Blue-Water and Grey-Zone Balance:** Prioritize near-sea coercive strength while sustaining Indo-Pacific outreach. Maritime diplomacy and coastal resilience must complement deterrence.

Conclusion

"Control of the sea means control of destiny." India's maritime strategy must merge blue-water aspirations with grey-zone preparedness, modernizing to deter Pakistan while securing the Indo-Pacific commons.

Justify treating employment as a national priority and analyze the need for a unified national framework in India. Evaluate its potential to enhance livelihood security.

Introduction

With over 133 million people entering India's workforce by 2047 (CII estimate), employment generation is central to sustaining demographic dividends, inclusive growth, and social stability—necessitating its treatment as a national policy priority.

Employment as a National Priority

1. Demographic Dividend and Growth Nexus: India's working-age population will peak by 2043 (UNFPA, 2024). Harnessing this window requires quality employment creation. The **World Bank (2023)** highlights that each 1% rise in employment elasticity can lift 10 million out of poverty annually.

2. Economic Equity and Social Stability: Employment ensures distributive justice and balanced regional growth. The **ILO's 2022 Employment Outlook** warns that underemployment and informality (over 80% workforce) can erode India's growth potential and deepen social inequalities.

3. Growth and Resilience Linkage: In a consumption-driven economy, job creation broadens the demand base. According to **CMIE (2024)**, India's labour participation rate stands at 41%, with female LFPR below 25%. Enhancing quality employment is thus vital for sustained GDP growth and gender equity.

Need for a Unified National Employment Framework

1. Despite multiple central and State schemes (PMKVY, MGNREGA, National Career Service, PM-DAKSH), India lacks a cohesive policy integrating **employment, skills, migration, and livelihoods**.

2. Fragmented approaches lead to duplication and inefficiency.

Integrated National Employment Policy (INEP)

1. **Integrated National Employment Policy:** As recommended **by NITI Aayog (2023),** should align industrial, trade, and education policies with labour market outcomes.

2. **Governance Architecture:** Empowered Group of Secretaries at the Centre, with **District Employment Committees** for localized planning.

3. **Time-bound Sectoral Targets:** Identifying high-employment sectors — textiles, construction, agro-processing, care economy, and tourism.

Labour Market and Skilling Reform

1. Mismatch between graduate employability (only 48% job-ready, India Skills Report 2024) and sectoral needs necessitates **Outcome-Based Skilling (OBS)** linked to industry demand, AI, and green technologies.

2. Timely implementation of **four Labour Codes (2019–20)** will formalize employment, improve flexibility, and ensure universal social security.

Employment Mobility and Data Systems

1. A national framework must integrate **migration policy**, allowing seamless interstate worker movement.

2. Strengthened real-time data via **Periodic Labour Force Survey (PLFS)** and a National Employment Data Grid can inform evidence-based policymaking.

Enhancing Livelihood Security: The Three-Pillar Impact

1. Social Protection and Formalisation: Unified employment policy can converge welfare and work — linking **e-Shram**, **EPFO**, and **ESIC** platforms — to ensure portable, digital social security for 40 crore informal workers.

2. Gender-Inclusive Workforce Expansion: Policies like **Employment Linked Incentive (ELI)** for firms hiring women, formalization of **Anganwadi and ASHA roles**, and investment in childcare and gig platforms can raise female LFPR to 35% by 2030.

3. Green and Urban Jobs Transition: Emerging green sectors (EVs, renewables, circular economy) could create 3.5 crore jobs by 2047 (CEEW Report 2024). Urban employment guarantees in Tier-2 cities can cushion cyclical distress.

Way Forward

1. **Blended Finance for MSMEs:** Access to concessional capital for labour-intensive sectors.
2. **Gig Economy Regulation:** National registry and portable benefits for 9 crore expected gig workers by 2030.
3. **Data-Driven Governance:** Real-time dashboards linking PLFS, GSTN, and EPFO data.

Conclusion

As **Amartya Sen noted in Development as Freedom,** "Employment is the surest path to dignity and capability." A unified national framework can transform India's workforce into engines of equitable, resilient growth.

Critically analyze the role of Small Modular Reactors (SMRs) in making nuclear energy commercially viable. Examine how eased government restrictions can boost private sector participation.

Introduction

According to **the IAEA (2023), over 80 SMR designs** are under development globally, signalling a paradigm shift toward scalable, safer, and cost-efficient nuclear power vital for India's clean energy transition and net-zero targets.

The Promise of SMRs: Redefining Nuclear Energy

Small Modular Reactors (SMRs) are advanced nuclear fission reactors with capacities typically below 300 MWe. Their modular design allows factory fabrication, rapid deployment, and scalability—addressing the high capital costs and delays of traditional large reactors.

1. **Economic viability:** SMRs reduce upfront costs by 30–50% compared to conventional reactors (World Nuclear Association, 2023). Their modularity supports phased investment and shorter construction timelines, improving the Levelized Cost of Electricity (LCOE).
2. **Safety and technology:** Passive cooling systems and underground siting enhance safety. Advanced designs like Molten Salt Reactors (MSR) and High-Temperature Gas-Cooled Reactors (HTGR) improve fuel efficiency and reduce waste.
3. **Grid flexibility and decarbonization:** SMRs can integrate with renewables, provide process heat for industries, and aid hydrogen production—key to India's National Hydrogen Mission and achieving Net Zero by 2070.

SMRs in India's Energy Landscape

India's nuclear installed capacity is ~7.5 GW (NPCIL, 2024), only 2% of total electricity generation. Large reactors face challenges of high costs, land acquisition, and delays (e.g., Kudankulam).

1. **Strategic necessity:** SMRs offer potential for decentralised deployment near industrial clusters or remote regions.
2. **Indigenous capability:** BARC and NPCIL have initiated feasibility studies on 220 MWe SMRs, supported by the Atmanirbhar Bharat initiative.
3. **Export potential:** Aligning with India's Act East and Neighbourhood First policies, SMRs can be exported to South Asia or Africa, strengthening India's energy diplomacy.

Commercial Viability Challenges

Despite technological promise, SMRs face hurdles in cost competitiveness and regulatory adaptation:

1. **Financing:** Private sector is reluctant due to long gestation periods and uncertain returns.
2. **Regulatory bottlenecks:** India's Atomic Energy Act, 1962 restricts nuclear operations to government entities, deterring innovation and foreign partnerships.
3. **Waste management and liability:** Ambiguities in the Civil Liability for Nuclear Damage Act (CLND), 2010 discourage private investment due to supplier liability risks.

Need for Eased Government Restrictions

Easing regulatory constraints can catalyse private participation and innovation:

1. **Amend the Atomic Energy Act** to allow joint ventures with private and foreign entities under strategic safeguards.
2. **Public-Private Partnerships (PPP):** Similar to the SpaceCom and Defence Corridor models, PPPs can share costs, technology, and risk.
3. **Regulatory modernisation:** The Atomic Energy Regulatory Board (AERB) must adopt adaptive licensing for modular technologies.
4. **Financial incentives:** Production-Linked Incentives (PLI) for SMR components, sovereign green bonds, and viability gap funding can de-risk investment.

5. **Global collaboration:** Partnerships with the US, France, and Russia through Clean Energy Ministerial (CEM) and ITER consortium can accelerate technology adoption.

International Precedents

1. **USA:** NuScale Power's SMR gained NRC approval in 2022—the first globally.
2. **UK & Canada:** Fast-tracked licensing and fiscal incentives spurred Rolls-Royce and GE-Hitachi projects.

India can emulate these regulatory models to enable market-led nuclear innovation.

Conclusion

As per **IEA's World Energy Outlook 2024,** SMRs bridge the trilemma of energy security, affordability, and sustainability. Reforming India's nuclear governance can unlock private innovation, securing a resilient low-carbon future.

Critically analyze the proposition that India's constitutional guarantee of a life with dignity must legally extend to dignity in dying. Examine the necessity of euthanasia reform.

Introduction

The **World Health Organization (2023) estimates over 5.4 million** Indians require **palliative care annually.** India's Article 21 promise of "life with dignity" increasingly demands ethical and legal recognition of "dignity in dying."

Constitutional and Ethical Context

1. The right to life under **Article 21** of the Indian Constitution has evolved through judicial interpretation—from Maneka Gandhi v. Union of India (1978) to Common Cause v. Union of India (2018)—to encompass dignity, autonomy, and freedom of choice.

2. The Supreme Court in Common Cause legalized **passive euthanasia** and recognized **advance directives**, stating that the right to die with dignity is inseparable from the right to live with dignity.

3. However, the implementation gap persists. Procedural rigidity—dual medical boards, judicial oversight, and unclear hospital protocols—renders the process inaccessible. As a result, families and physicians often make informal decisions, undermining legality and transparency.

Rationale: Autonomy and Beneficence

From the **bioethical** perspective, passive euthanasia aligns with two key principles —

1. **Autonomy:** Respecting the patient's informed choice to decline life-prolonging treatment.
2. **Beneficence and Non-Maleficence:** Preventing unnecessary suffering when medical intervention only extends pain.
3. However, **active euthanasia** (deliberate termination of life) remains ethically fraught. Given India's socio-economic inequalities, limited healthcare access, and familial dependence, it risks **coercive euthanasia**—where financial or emotional pressures may influence end-of-life choices.

Comparative and Global Perspectives

1. Countries like **Netherlands, Belgium, and Canada** have legalized active euthanasia under strict safeguards. The **U.K.'s Terminally Ill Adults Bill (2025)** allows physician-assisted dying for those with less than six months to live.

2. Yet, India's fragmented healthcare system, low palliative care penetration **(only 2% of need met, Lancet Commission, 2022),** and weak institutional capacity make full emulation of Western models ethically risky.

3. India's approach—**ethical conservatism with compassionate pragmatism** is more contextually suited. The focus should be on refining passive euthanasia to ensure accessibility, accountability, and humane implementation.

Necessity of Reforming Passive Euthanasia

1. **Digital Integration:** A national digital registry for Advance Directives, linked with Aadhaar and verified by physicians, can streamline consent.
2. **Decentralised Ethics Oversight:** Empower **Hospital Ethics Committees** (including doctors, palliative specialists, and independent members) to approve withdrawal of life support within 48 hours.
3. **Legal Simplification:** Replace judicial clearance with statutory review mechanisms monitored by **State Health Commissions**.
4. **Mandatory Safeguards:** Cooling-off periods, psychological counselling, and family consent to prevent misuse.
5. **Public Awareness and Medical Training:** Medical curricula should integrate **end-of-life ethics** and **palliative care law**, reducing fear among healthcare professionals.

These reforms align with **One Nation–One Health Record** vision and India's **Digital Health Mission**, ensuring ethical oversight through technological efficiency.

Way Forward: Dignity, Compassion, and Legal Certainty

India must move from legality to practicality ensuring that the terminally ill are neither forced to live in pain nor die without dignity. Euthanasia reform should prioritize **procedural humanity**, not legislative haste.

Conclusion

As **Amartya Sen emphasized in "The Idea of Justice",** true freedom lies in expanding human capability. Ensuring dignified dying transforms law into compassion, fulfilling India's constitutional and moral conscience.

Critically analyze if imposing civil liability for marital disruption contravenes the spirit of the Joseph Shine verdict. Examine the legal validity of the alienation of affection concept.

Introduction

Post-Joseph Shine v. Union of India (2018), India decriminalised adultery under Article 21's privacy guarantee. Yet, Delhi High Court's Shelly Mahajan case revives the civil tort of "alienation of affection."

From Criminal Adultery to Civil Wrong: The Legal Shift

1. The **Joseph Shine** judgment struck down Section 497 IPC, holding adultery as a matter of personal morality rather than public penal concern. The Supreme Court declared that criminal law cannot police private sexual choices, emphasizing individual **autonomy, privacy**, and **gender equality**.

2. However, it also clarified that **adultery remains a civil wrong**—a ground for divorce and possible civil consequences under tort law.

3. The **Delhi High Court (2025)** in **Shelly Mahajan v. Bhanushree Bahl** has taken this opening to recognise the **common law tort of "Alienation of Affection (AoA)"**, allowing a spouse to sue a third party who intentionally and maliciously disrupted marital consortium.

The Tort of Alienation of Affection: Conceptual and Comparative Context

1. Originating in **Anglo-American "heart balm" laws**, AoA allows a spouse to seek damages against a third party who caused the "loss of affection and companionship."

2. Globally, it has faded. Only six U.S. states, **North Carolina, Utah, South Dakota, Hawaii, Mississippi, and New Mexico**, retain the tort with strict proof requirements. Others abolished it as **archaic, prone to misuse, and incompatible with gender-neutral marriage norms.**

3. In **India**, the Supreme Court in Pinakin Mahipatray Rawal v. State of Gujarat (2013) observed that **"alienation of affection by a stranger, if proved, is an intentional tort."** Later, Indra Sarma v. V.K.V. Sarma (2013) extended its moral foundation, noting even children could have a cause of action if parental affection was alienated. However, these were **obiter dicta**, not enforceable precedents granting monetary damages.

Does Civil Liability Contradict Joseph Shine? — A Critical Analysis

1. Harmony with Joseph Shine: The Joseph Shine verdict decriminalised adultery but did not immunise it from civil consequences. Imposing civil liability for wrongful interference does not punish private morality but protects the **institutional sanctity of marriage** and **civil rights of the aggrieved spouse**. Hence, it **complements**, rather than contravenes, Joseph Shine.

2. Risk of Overreach: Yet, the Delhi HC's recognition of AoA risks reintroducing **state moral policing via civil law**, indirectly reviving patriarchal notions of "marital ownership." It may conflict with Puttaswamy (2017), where the Court underscored sexual autonomy as intrinsic to dignity and privacy.

3. Constitutional Scrutiny: Under **Article 19(1)(a)** and **21**, consenting adults have the right to intimate association. Holding a third party liable may infringe this liberty unless **wrongful inducement or coercion** is proven. Thus, the doctrine's survival depends on narrowly defined **mens rea** (malicious intent) and **causation** (direct link between conduct and marital disruption).

Jurisdictional and Institutional Validity

1. The Delhi HC clarified that family courts handle disputes between spouses, while AoA claims are civil torts against outsiders—thus, civil courts retain jurisdiction. However, absent legislative backing or statutory codification, such claims risk **judicial overreach** and inconsistency in enforcement.

2. Reform could come via the **Law Commission**, defining tortious liability for "intentional interference in marital consortium," balancing **privacy, autonomy, and accountability**.

Policy Implications

1. Reinstating AoA may restore a measure of **moral accountability** in extramarital conduct, but it risks reducing human affection to a compensable commodity.

2. Instead, **restorative mediation** and **psychological counselling** might better preserve marital dignity without monetising intimacy.

Conclusion

As **Martha Nussbaum noted in "Frontiers of Justice**", dignity demands moral autonomy, not legal surveillance. India's marital jurisprudence must safeguard compassion, not commodify affection, in balancing rights with responsibility.

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.