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EDITORIAL ANALYSIS



JULY 22



CONSISTENT
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UNIQUE AND BEST IN
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1. Citizen-centric governance calls upon India to transcend old silos (MINT)
2. 1991's biggest lesson for India is not about diplomacy (THE INDIAN EXPRESS)
3. Let's make China work for us, securely (HINDUSTAN TIMES)
4. Man vs wild need not be our conservation model (HINDUSTAN TIMES)



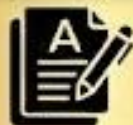
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Citizen-centric governance calls upon India to transcend old silos

Andhra Pradesh's constituency-level framework, for example, listens to people and helps close gaps in policy implementation



S. MAHALINGA, CEO
is chairman, Lok Sabha Constituency Development Committee

One of the key tasks of public policy is to create structures and building blocks which bridge the gap between policy and implementation. This is especially critical at the state and local level where institutions and capacity constraints may sometimes lead to short-cuts in implementation which can create limitations for even well thought-out policy. To overcome such constraints, India's government has spearheaded innovative solutions like the Aspirational Districts and Aspirational Blocks programmes (ADP and ABP), under which leaders and like-minded government officials work with the best performing districts and blocks in their states.

This is accomplished through measuring improvement in key performance indicators that cover important domains such as health, nutrition, agriculture, water resources, financial inclusion and skill development. This initiative has played a key role in fostering cooperative and competitive behaviour. At the same time, districts have improved on key performance indicators, thus contributing to state of being and an improvement of living standards.

One of the focuses of the ADP/ABP initiatives is that the spending budget, unlike development outcomes, is not an easy target beyond a defined approach. Under conventional administrative arrangements, policy implementation usually occurs through several semi-independent offices. Monitoring outcomes operates independently within sectors; development data remains dispersed across multiple platforms and opportunities for cross-border actions are often limited. While these mechanisms support programme implementation, they do not provide a dedicated institutional framework for India's constituency-level development management. Due to a lack of convergence, this political structure often, which does not support the convergence of various elements of development outcomes.

A recent initiative of the Andhra Pradesh government merits attention in this context. This initiative harnesses elected representatives, in this case members of legislative assembly (MLAs), as key members of public policy and engagement with the institutions and representatives of the development outcomes in their constituency. The state government has established for each Constituency Lok Sabha Area (or CLS) an SCVAP, an aspirational constituency-level governance framework to enhance the implementation of its 2007 vision of a 'New India'. Conceived as a bridge between vision and execution, SCVAPs serve as a constituency-level institutional mechanism for monitoring the broader development objectives of the state and its constituent outcomes. They provide elected representatives and administrators with



dedicated support for development planning, performance monitoring, citizen engagement, stakeholder convergence and evidence-based decision-making across all 17 constituency-level outcomes and 1000+ indicators of Andhra Pradesh.

Each SCVAP functions under the leadership of the MLAs and draws upon a multidisciplinary team comprising a constituency special officer, young professionals, knowledge partners and sector-specific state staff. This team extends sustained support across the full cycle of constituency development—from the preparation and execution of an initiative vision to its monitoring and key performance indicators (KPIs), preparation of inter-departmental convergence, and execution of flagship programmes and the disbursement of citizen-centric governance.

The institutional framework rests on a digital foundation comprising the AP Constituency Portal and the Constituency Vision Monitoring System (CVMS). These platforms provide real-time access to development data, constituency-level dashboards, planning documents, performance metrics and assessments of public commitment, thereby enabling transparency, accountability and evidence-based decision-making.

The early experience of constituencies such as Hyderabad illustrates the promise of this model. SCVAPs have shown their capacity to leverage partnerships, strengthen the monitoring of development outcomes, promote livelihoods and enable the constitutional delivery of development priorities on the ground. SCVAPs are envisioned not merely as data-gathering arrangements, but as centres of development intelligence at the constituency level. They work upon the full analysis of data from the systematic assembly of information across sectors, its interpretation and its conversion into insights. By keeping a continuous watch on socio-economic conditions, the progress of infrastructure, quality of service delivery, growth of local economic activity and the implementation of government programmes, each unit builds a live

base of evidence for its constituents.

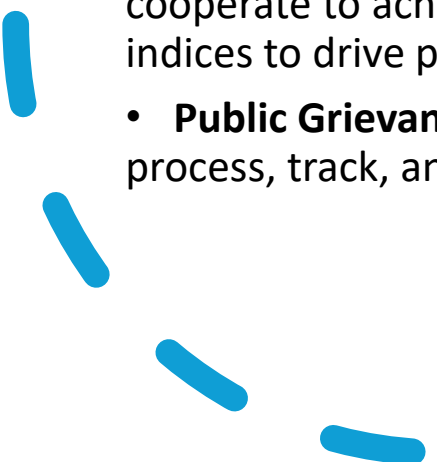
The significance of this lies in the shift in perspective. New information, which may have been limited operational value, is refined into a usable insight that can guide action. The concerned authorities are thereby better placed to detect problems and fix errors rather than after they happen, and performance trends over time and sectors and provide interventions with greater precision.

A defining feature of the SCVAP model is the manner in which it embeds the citizen's voice within the formal machinery of planning and service. Rather than treating public feedback as an add-on, the model draws it in as a direct input; governance is engineered through the Public Grievance Redressal System (PGRS), observations from field verification and insights gathered through stakeholder consultations, surveys and routine community interaction are all fed into regular review and analysis.

The effort to close the distance between the government and the governed, development plans and administrative delivery, aims to reflect the lived experience of citizens in compensating the difficulties they encounter in accessing services and the priorities they attribute for their solutions. By institutionalising this dialogue, SCVAPs make governance more transparent, accountable, more accessible for its outcomes and more responsive to felt needs.

Thus, systemic efforts of government are planned around a common set of data around a shared evidence base of plans and performance indicators. In doing so, this model creates citizen-development monitoring structures while preserving the accountability and autonomy of each pillar within its domain. This creates a citizen-centric system within India's existing vision of becoming a developed nation. For governance, the development needs and aspirations of the citizen are placed front and centre, even as gaps between policy and implementation are bridged.

- **Key Terms and Explanations**

- **Aspirational Districts and Blocks Programmes (ADP and ABP):** Targeted developmental initiatives designed to fast-track the progress of India's most underdeveloped districts and blocks through multi-sectoral key performance indicators and competitive federalism.
 - **Siloed Administrative Approach:** A traditional bureaucratic structure where individual departments or ministries operate in isolation, lacking cross-sectoral coordination and data-sharing mechanisms.
 - **Constituency-Level Governance Framework:** An institutional arrangement that brings state-level vision and planning directly to the legislative constituency level, bridging macro policy with micro-execution.
 - **Key Performance Indicators (KPIs):** Measurable, quantifiable values used to evaluate how effectively an organization, district, or constituency is achieving key socio-economic objectives.
 - **Cooperative and Competitive Federalism:** A governance dynamic where the central and state governments cooperate to achieve national goals, while states and local administrative units compete based on development indices to drive performance.
 - **Public Grievance Redressal System (PGRS):** A structured digital or administrative mechanism designed to receive, process, track, and resolve citizen complaints regarding public service delivery.
- 



- **Main Arguments and Substantive Parts**
- **The Core Implementation Deficit:** The primary bottleneck in modern public policy is not the quality of policy design, but the structural gap in last-mile implementation caused by institutional capacity constraints at local levels.
- **The Limit of Departmental Silos:** Conventional administrative setups rely on fragmented monitoring systems and dispersed data, which restrict holistic vision and hamper comprehensive development outcomes.
- **Empowering Elected Representatives as Development Managers:** By equipping lawmakers (such as Members of Legislative Assembly) with dedicated institutional support units, political representatives transition from mere legislators into active drivers of grassroots execution.
- **Data-to-Insight Pipeline:** Transitioning from raw, unanalyzed data to refined intelligence allows administrations to detect emerging problems early, track performance trends over time, and sequence interventions with high precision.
- **Institutionalizing Citizen Voice:** Incorporating citizen feedback, grievances, and field verifications into the formal machinery of planning closes the distance between the governed and the governing.

- **Historical Evolution of the Issue**

- **Colonial Legacy of Administrative Silos:** The pre-independence administrative apparatus was primarily designed for law enforcement, revenue collection, and control, fostering compartmentalized departments that lacked developmental convergence.
- **Post-Independence Centralized Planning:** The early decades featured top-down Five-Year Plans and Community Development Programmes (CDPs) that often suffered from bureaucratic alienation and poor local participation.
- **The Panchayati Raj Revolution (1992):** The 73rd and 74th Constitutional Amendments marked a historical turning point by institutionalizing local self-government, attempting to bring decentralized planning closer to the grassroots.
- **Shift toward Outcome-Based Governance (2018 Onwards):** The launch of initiatives like the Aspirational Districts Programme shifted administrative focus from mere budget outlays (financial expenditure) to tangible socio-economic outcomes measured through real-time indices.
- **Contemporary Micro-Governance Innovations:** Modern governance is witnessing the rise of specialized, tech-enabled constituency units that translate overarching state visions (such as long-term state development goals) into actionable local execution.



THE LEGACY CHALLENGE

COLONIAL LEGACY:
Law & Order,
Revenue focus,

ADMINISTRATIVE SILOS:
Fragmented data,
Departmental Isolation

CENTRALIZED PLANNING:
Top-down,
Alienation

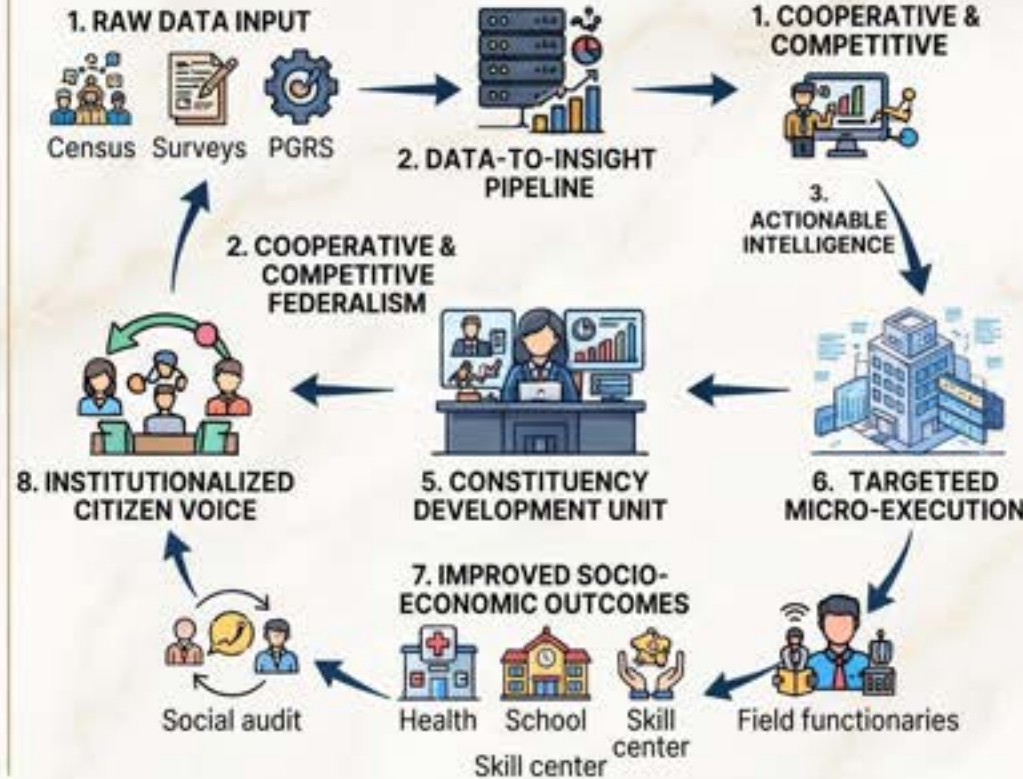


**RESULT:
IMPLEMENTATION DEFICIT**

HISTORICAL EVOLUTION

- 1950s • Centralized Planning
- 1992 • Panchayati Raj Revolution
- 2018 • Shift to Outcome-Based Governance - ADP/ABP
- Today • Micro-Governance Innovations

THE NEW GOVERNANCE MODEL: DATA-DRIVEN, CONSTITUENCY-FOCUSED



KEY TERMS EXPLAINED

ADP/ABP: Centralized *Law & Order, Revenue focus
Siloed Approach: Law & Collection, and Revenue focus
Constituency-Level Framework: Constituency-Level Framework
KPIs: Revvour-Level Framework KPIs stanchoar quert, KPIs

KPIs: Cooperati/Competitive Federalism: Trenter ale- Resting, Fedestionns
Cooperative/Competitive Federalism: Align with deskog interaoperability & Innovations
PGRS: Plomargray-Leve impleurating a loss loav & departments

MULTIDIMENSIONAL ANALYSIS



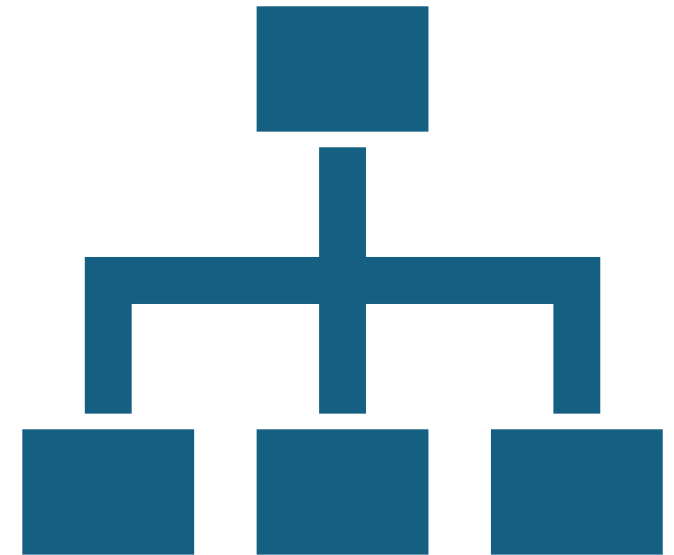
UPSC/APSC SYLLABUS CONNECT

- GS Paper 2 (Governance & Constitution)
- GS Paper 3 (Economy & Inclusive Growth)
- GS Paper 4 (Ethics)
- Optional Subjects (Pub Ad & Pol Science)

WAY FORWARD

- Institutionalize Support Units
- Enhance Digital Interoperability
- Deepen Social Audits
- Capacity Building at Grassroots

- **Logical and Philosophical Base**
- **Principle of Subsidiarity:** Asserts that governance functions, resource allocation, and planning should be handled by the lowest competent and localized authority capable of addressing them effectively.
- **Democratic Accountability:** The belief that political representation must be fused with administrative capability so that elected leaders are directly answerable for measurable development metrics in their constituencies.
- **Evidence-Based Utilitarianism:** Rooted in the philosophy of maximizing societal welfare through rigorous data analytics, ensuring that public resources are directed toward areas of maximum deprivation and need.
- **Collaborative Rationalism:** Rejects bureaucratic isolation in favor of networked governance where multi-disciplinary teams, knowledge partners, and citizens co-create public policy solutions.



- **Multidimensional Analysis**

- **Social:** Directly enhances human capital by improving healthcare, nutrition, and skill development, while empowering marginalized populations by giving structured weightage to their daily lived experiences.
- **Political:** Revitalizes the role of elected representatives, fosters healthy competitive federalism across administrative units, and enhances state legitimacy through transparent, performance-driven governance.
- **Legal:** Operates within constitutional and executive frameworks, strengthening administrative compliance, accountability, and the rule of law through institutionalized monitoring and grievance redressal.
- **Ethical:** Promotes values of probity, transparency, empathy, and responsiveness in public service delivery, actively dismantling administrative apathy and reducing corruption leakages.
- **International:** Directly aligns with the United Nations Sustainable Development Goals (SDGs), particularly Goal 16 (Peace, Justice and Strong Institutions) and Goal 17 (Partnerships for the Goals) through localization.
- **Economic:** Optimizes public expenditure efficiency, prevents resource duplication, stimulates local economic activity, and converts capital outlays into durable, high-impact regional economic assets.





- **Linkages with NCERTs**
- **Class 11 Indian Constitution at Work (Political Science):** Linked to chapters on *Federalism* and *Local Governments*, which discuss the division of powers, decentralized planning, and the structural challenges of grassroots democracy in India.
- **Class 9 Democratic Politics (Political Science):** Relevant to chapters on *Working of Institutions* and *Democratic Rights*, exploring how executive-legislature dynamics and citizen participation shape policy execution.
- **Class 11 and 12 Indian Economic Development (Economics):** Connected to units focusing on economic planning, poverty alleviation, human capital formation, and the transition from growth outlays to developmental outcomes.

- **Linkages with UPSC CSE Syllabus**
- **GS Paper 2 (Governance & Constitution):** Structure, organization, and functioning of the Executive and Legislature; Devolution of powers and finances up to local levels and challenges therein; Important aspects of governance, transparency, and accountability.
- **GS Paper 3 (Economy & Inclusive Growth):** Government budgeting, mobilization of resources, inclusive growth, and issues arising from design and implementation constraints in developmental programs.
- **GS Paper 4 (Ethics, Integrity, and Aptitude):** Ethics in public administration, status of transparency, accountability, and the psychological and moral imperative of empathy toward weaker sections.
- **Optional Subjects (Public Administration & Political Science):** Highly relevant for topics covering grassroots democracy, administrative reforms, policy formulation, implementation analysis, and inter-governmental relations.



- **Way Forward**

- **Institutionalizing Specialized Support Units:** Replicate multidisciplinary constituency support models nationwide to provide lawmakers and local administrators with dedicated technical, data, and planning expertise.
- **Enhancing Digital Interoperability:** Break down departmental data silos by integrating disparate databases into unified, real-time digital dashboards that enable predictive policy analysis and timely interventions.
- **Deepening Social Audits and Feedback Loops:** Institutionalize regular community consultations, stakeholder surveys, and grievance redressal data as mandatory inputs for annual constituency budgeting and planning.
- **Capacity Building at the Grassroots:** Invest heavily in training local administrative staff, field functionaries, and elected representatives in data literacy, evidence-based decision-making, and participatory governance.



- **UPSC Civil Services Examination (Mains):**

- *To what extent can cooperative and competitive federalism be viewed as a new paradigm of governance in India? Examine with examples. (GS Paper 2)*
- *Effective grass-root democracy requires not only decentralization of power but also financial devolution and administrative capability. Discuss. (GS Paper 2)*
- *Performance monitoring and evaluation systems are critical for translating policy intent into developmental outcomes. Analyze in the context of recent administrative reforms. (GS Paper 3)*
- *Transparency and accountability are the two vital dimensions of a pro-people governance model. Comment. (GS Paper 4)*
- **UPSC Civil Services Examination (Prelims - Relevant Themes):**
 - Questions focusing on the Aspirational Districts Programme (ADP), indicators tracked by NITI Aayog, provisions of the 73rd and 74th Constitutional Amendments, and index-based competitive federalism among Indian states.



From 1991, three foreign policy lessons for managing disruption of certainties



RAJA MANDALA
BY C RAJA MOHAN

HISTORICAL ANALOGIES must be approached with caution. Yet there is striking symmetry between the foreign policy challenges that confronted India in 1990-91 and those now posed by the wars in Iran and Ukraine. Simultaneous upheavals in the Middle East and Europe in 1991 shattered India's economic and strategic assumptions. Today, the two regions are again compelling Delhi to reconsider the foundations of its national strategy. Iraq's invasion of Kuwait in August 1990, and the US-led war to reverse Saddam Hussein's annexation, sent oil prices soaring, disrupted remittances and aggravated India's balance-of-payments crisis. Within months, the Soviet Union — the principal anchor of Indian foreign policy during the Cold War — collapsed. The twin shocks forced India to reform its economy, diversify its international partnerships and rethink its place in the world.

The circumstances today are different, but the underlying challenge is familiar. The war that began with the killing of Iran's Supreme Leader on February 28 has raised energy costs, disrupted navigation through the Strait of Hormuz and exposed India's dependence on the Middle East.

The relief in Delhi after Washington and Tehran signed a memorandum of understanding in June has proved premature as the conflict escalates again. In Europe, meanwhile, the Ukraine war has entered its fifth year without a clear path to settlement. Russia is not about to disintegrate as the Soviet Union did in 1991. But the prolonged war, with its mounting costs, is generating new questions about Russia's future at home and abroad.

India is much better placed to manage these shocks than it was in 1991. It has a larger economy, greater diplomatic weight, and wider international partnerships. Yet its ex-



ILLUSTRATION: C R JAGANMOHAN

posure to the world and the resulting vulnerabilities are greater.

American policies are intensifying this vulnerability. The sanctions legislation associated with the late Senator Lindsey Graham is proposing massive punitive tariffs against China, India and others importing Russian oil. President Donald Trump has also called for the legislation to be expanded to cover Iran. Whether or not Congress accepts that proposal, India's energy diplomacy will come under increasing stress.

The Indian government has shown considerable flexibility in navigating these pressures so far, but it could get trickier in the days ahead. As in 1991, however, the government appears more flexible than the foreign policy debate surrounding it might suggest. When Saddam invaded Kuwait, India's official posi-

Iraq's invasion of Kuwait in August 1990, and the US-led war to reverse Saddam Hussein's annexation, sent oil prices soaring, disrupted remittances and aggravated India's balance-of-payments crisis

tion of refusing facilities to American military aircraft — reflected these multiple pressures.

But the domestic strategic consensus in 1991 was hardly realistic. Large sections of the political and foreign policy establishment sympathised instinctively with Saddam, long viewed as a friend of India and a representative of secular Arab nationalism. His annexation of an independent country was viewed as less important than his confrontation with the United States.

The same rigidity shaped Indian reactions to the Soviet crisis. By the late 1980s, Mikhail Gorbachev's internal reforms and retrenchment abroad had made clear that the old Soviet order was unsustainable. Yet a large section of Delhi's foreign policy community denounced him for seeking accommodation with the West. When communist hardliners attempted a coup in August 1991, there was barely concealed political glee in parts of Delhi. The coup collapsed within three days; the Soviet Union disappeared in December.

The protagonists have changed, but the instinct survives. Sympathy for Tehran often rests less on the character or conduct of the Islamic Republic than on its resistance to

America. Saddam's secular autocracy and Iran's Islamic theocracy are as different as chalk and cheese. Yet the Indian foreign policy community embraced them both as symbols of anti-American defiance.

The debate on Russia is similarly personalised around Putin and sentimentalised through the memory of Soviet support for India. This obscures the need to examine Russia's internal strains, its changing relationship with China and its imperatives for reconciling with Europe and America. India's interests require an empathetic understanding of the domestic politics of Russia and Iran — not reflexive signalling of solidarity to the governments of the moment.

The first lesson from 1991, therefore, is that no balance of power is permanent. The certainties of the 1980s — a stable Soviet Union, a bipolar order and dependable partnerships — vanished with astonishing speed in 1991. Unpredictability is not an interruption to a permanent international politics; it is one of its permanent features. Indian strategy must devote as much attention to discontinuity as to continuity.

The second is that debate itself is a strategic asset. A foreign policy community organised around a rigid consensus will repeatedly miss inconvenient possibilities. India needs stronger expertise on Russia, Iran, Central Asia and the internal politics of the Middle East. India needs sustained investment, more than ever, in languages, history and regional specialisation. It also needs institutions willing to reflect on competing scenarios and encourage contrarian judgments.

The third and most important lesson is that external shocks and systemic changes cannot be managed by diplomacy alone. What rescued India after 1991 were the internal reforms. The answer must be the same today — sweeping domestic reform to cope with a changing world. Diplomacy's sole then and now is to support internal transformation.

The author is a contributing editor on international affairs for The Indian Express. He is also a Distinguished Professor at the Indira Gandhi Institute of American Studies, Jindal Global University and the Korea Foundation Chair on Asian Geopolitics at the Council for Strategic and Defence Research, Delhi.

- **Key Terms and Explanations**
- **Systemic Geopolitical Shock**
 - A sudden, unexpected shift in the global balance of power or regional security architecture that disrupts established international norms, economic supply chains, and strategic assumptions.
 - **Example:** The collapse of the Soviet Union in 1991 or the sudden outbreak of a major military conflict in key global energy corridors like the Strait of Hormuz.
- **Reflexive Solidarity vs. Strategic Realism**
 - **Reflexive Solidarity:** A foreign policy tendency to support long-standing allies or ideological partners automatically based on historical sentiment, past assistance, or anti-hegemonic sentiment, often ignoring present geopolitical realities.
 - **Strategic Realism:** An objective foreign policy approach that evaluates nations purely on current power dynamics, structural changes, and immediate national interest rather than historical nostalgia.
 - **Example:** Instinctively backing a traditional partner despite their actions violating sovereign international norms, compared to objectively evaluating how those actions affect domestic economic stability.
- **Balance of Payments (BoP) Vulnerability**
 - An economic crisis occurring when a nation lacks sufficient foreign exchange reserves to pay for its essential imports (such as crude oil) and service its external debt obligations.
 - **Example:** India's 1991 foreign exchange crisis, triggered by soaring global oil prices and the sudden loss of remittance inflows due to the Gulf War.
- **Secondary Sanctions and Economic Coercion**
 - Extraterritorial penal measures imposed by a dominant economy (like the United States) on third-party countries or businesses to prevent them from trading with a targeted nation.
 - **Example:** Measures or tariff threats aimed at penalizing neutral nations for importing discounted crude oil or energy products from nations under sanctions.
- **Strategic Debate and Institutional "Red Teaming"**
 - The systematic practice within a country's diplomatic and security establishment of deliberately challenging orthodox assumptions, encouraging contrarian views, and building deep area-specific expertise to anticipate low-probability, high-impact events.
 - **Example:** Maintaining specialized research centers on regional politics to continuously test alternate foreign policy scenarios rather than relying on a rigid strategic consensus.

- **Main Arguments and Substantive Parts**

- **Core Thesis**

- Geopolitical order and global balances of power are inherently unstable. A nation's strategic posture cannot rely on perpetual international certainties or historical nostalgia; instead, foreign policy must be anchored in continuous domestic structural reform, objective regional expertise, and an agile, non-ideological assessment of changing world power dynamics.

- **Key Arguments and Substantive Analysis**

- **1. The Mirroring of Historical Shock Waves**

- Global political shifts tend to repeat structural patterns across eras. The twin shocks of energy market turmoil and the collapse of structural anchors (such as the Soviet collapse in 1991 or contemporary conflict escalations across Eurasia and the Middle East) test national resilience in nearly identical ways.

- Despite enjoying a significantly larger economy, greater diplomatic weight, and broader international partnerships today compared to three decades ago, integrated global exposure creates elevated structural vulnerabilities to external economic and security shocks.

- **2. The Illusion of Permanent Alliances and Order**

- Predictability in international relations is an exception, not the rule. Systemic changes occur rapidly, as seen when the Cold War's bipolar balance disappeared almost overnight in 1991.

- A resilient foreign policy strategy must devote as much intellectual capital and institutional preparation to managing structural discontinuities as it does to nurturing routine diplomatic continuities.

- **3. The Hazard of Ideological Sentimentality in Foreign Policy**

- Foreign policy establishments frequently fall into the trap of viewing complex international actors through romanticized historical lenses—such as viewing autocratic regimes purely as symbols of anti-hegemonic resistance or over-personalizing long-standing bilateral ties.

- Relying on reflexive solidarity obscures underlying structural vulnerabilities, internal strains within partner nations, and changing regional realpolitik, ultimately risking diplomatic misalignment during crises.

- **4. Foreign Policy Success Begins at Home**

- External diplomacy alone cannot shield a nation from systemic global disruptions. The ultimate salvation during major geopolitical crises comes from internal structural and economic reforms.

- Diplomacy's principal purpose during times of international turmoil is not merely to articulate positions abroad, but to buy time, protect national space, and support internal economic transformation.

- **Historical Evolution of the Issue**
- **Phase 1: Idealist Foundations and Soviet Strategic Alignment (1950s–1980s)**
 - Post-independence foreign policy prioritized non-alignment while maintaining strong solidarity with anti-colonial and secular nationalist movements across the Global South.
 - Following the 1971 Indo-Soviet Treaty of Peace, Friendship, and Co-operation, the Soviet Union became the indispensable structural anchor for military hardware, veto protection at the UN Security Council, and rupee-ruble trade arrangements.
- **Phase 2: The Double Shock and Systemic Watershed (1990–1991)**
 - **The Gulf Crisis (1990):** Iraq's invasion of Kuwait caused global oil prices to skyrocket, disrupted vital worker remittances from the Middle East, and required the massive air evacuation of over 170,000 citizens.
 - **The Soviet Collapse (1991):** The disintegration of the USSR removed the primary strategic pillar of Indian foreign policy, leaving the nation ideologically and diplomatically exposed in an emergent unipolar world.
 - **The Policy Response:** Driven by an acute Balance of Payments emergency, India initiated landmark Liberalisation, Privatisation, and Globalisation (LPG) reforms while recalibrating its diplomatic posture toward pragmatic engagement with the West.
- **Phase 3: Strategic Re-orientation and Multi-Alignment (1992–2010s)**
 - Adoption of the "Look East" policy to forge economic integration with Southeast Asia, normalization of full diplomatic relations with Israel, and cautious engagement with the United States.
 - The 1998 nuclear tests and the subsequent civil nuclear deal with the US marked a definitive transition from traditional post-colonial non-alignment to a strategy of proactive multi-alignment and pragmatic power balancing.
- **Phase 4: Era of Global Disruption and Pragmatic Realism (2020s–Present)**
 - The return of major power competition, Eurasian conflicts, Middle Eastern volatility, and unilateral trade sanctions have dismantled post-Cold War globalization assumptions.
 - Modern strategy emphasizes issue-based strategic autonomy—balancing partnerships across competing blocs (e.g., Quad, BRICS, SCO) while safeguarding domestic economic and energy security interests.



UNDERSTANDING GEOPOLITICAL SHOCKS & DEVELOPING FOREIGN POLICY REALISM

KEY GEOPOLITICAL TERMS & DEFINITIONS



SYSTEMIC GEOPOLITICAL SHOCK
Sudden shift in global power, disrupting established norms, economic supply chains, and strategic assumptions.
e.g., Soviet collapse.



REFLEXIVE SOLIDARITY VS. STRATEGIC REALISM

Solidarity: Automatic support for allies based on history/sentiment.
Realism: Objective evaluation of nations purely on current power dynamics and national interest.



BoP VULNERABILITY

Economic crisis due to insufficient foreign exchange reserves for essential imports and debt service.
e.g., India's 1991 crisis.



SECONDARY SANCTIONS & ECONOMIC COERCION

Extraterritorial penal measures on third-party countries to prevent trade with targeted nations.
e.g., measures for importing discounted crude from sanctioned states.



INSTITUTIONAL 'RED TEAMING'

Systematic practice of deliberately challenging orthodox assumptions and building deep expertise to anticipate events.

THE HAZARDS & REALITIES OF FOREIGN POLICY

MIRRORING HISTORY

Global political shifts repeat structural patterns across eras (e.g., energy turmoil, collapse of large economies are not immune).

Global political shifts repeat structural patterns across eras (e.g., energy turmoil, collapse of whers). Large economies are not immune.

HAZARD OF SENTIMENTALITY

Breaking idealist chains on symbolic figures
Viewing actors through romanticized historical lenses risks diplomatic misalignment during crises.



ILLUSION OF PERMANENCE

Predictability is an exception, not the rule. Alliances are fluid. Treat structural discontinuities as routine management.

SUCCESS BEGINS AT HOME

External diplomacy alone cannot shield. Ultimate salvation comes from internal structural and economic reforms. Diplomacy buys time.

THE REALPOLITIK / ETHICS TENSION

NORMATIVE ETHICS

Condemn territorial aggression; uphold international law

PRAGMATIC DUTY

Secure affordable resources; protect citizen welfare from global shocks

ETHICAL TENSION
NAVIGATED BY
NATIONAL INTEREST

PHILOSOPHICAL BASES FOR PRAGMATIC REALISM



STRUCTURAL REALISM (NEOREALISM)

Stretches state pillars
Anarchic world; states must prioritize power and self-reliance.
Fluid alliances.



CLASSICAL PRAGMATISM

successful outcomes
Judgment by practical consequences, not abstract dogma.
Flexible consensus.



HEGELIAN

Two colliding forces creating a new structure
External crises force higher-order structural syntheses.
Crises as catalysts.

MULTIDIMENSIONAL IMPACT ANALYSIS



UPSC CSE & APSC CCE SYLLABUS INTEGRATION MAP

MAP

GS PAPER 1

World History;
Cold War Dynamics

GS PAPER 2

Foreign Policy;
Bilateral Ties;
Diaspora Impacts

GS PAPER 3

LPG Reforms;
Energy Security;
BoP Challenges

GS PAPER 4

Ethics in IR;
Realpolitik dilemmas

OPTIONALS & ESSAY

PSIR, Economics, and Essay themes (National Interest, Strength from Within)

PREVIOUS YEARS' QUESTION TOPICS (PYQ INSIGHTS):

e.g., Strategic Autonomy Challenges, BoP Impact Security Vulnerability, 1991 Crisis Effects

- **Logical and Philosophical Base**
- **Structural Realism (Neorealism)**
 - **Underlying Logic:** The international system is fundamentally anarchic, devoid of a centralized global authority capable of guaranteeing state survival. International alliances are fluid and transient.
 - **Philosophical Imperative:** States must prioritize national power, strategic self-reliance, and security. Resting foreign policy on moral sentiment or historical goodwill misreads the core dynamics of international relations.
- **Classical Pragmatism**
 - **Underlying Logic:** Truth and policy effectiveness are judged by practical consequences rather than adherence to abstract ideological dogmas.
 - **Philosophical Imperative:** Foreign policy must remain non-doctrinaire. When real-world conditions change, established strategic consensus must be discarded in favor of approaches that yield concrete national benefits.
- **Dialectic of Crisis and Internal Transformation**
 - **Underlying Logic:** External crises act as political and economic catalysts, exposing structural weaknesses within a nation's political economy.
 - **Philosophical Imperative:** In accordance with Kautilyan (*Arthashastra*) thought and modern realpolitik, foreign strength relies entirely on domestic stability and state capacity (*Saptanga theory*). Diplomacy is an external shield designed to buy space for internal development.



- **Multidimensional Analysis**
- **Social Dimension**
- **Diaspora Vulnerability:** Millions of Indian citizens residing in volatile regions (such as the Gulf) require robust contingency planning and rapid evacuation capabilities during crises.
- **Impact on Domestic Well-being:** Foreign energy shocks instantly translate into domestic inflation, elevated fuel costs, and reduced disposable income for vulnerable households, linking foreign policy directly to domestic social stability.
- **Political Dimension**
- **Domestic Consensus vs. Dogma:** Political debates over foreign policy often suffer from entrenched ideological biases, where parties cling to historical narratives rather than adapting to current national interests.
- **Institutional Rigidity:** Bureaucratic foreign policy mechanisms can resist change, preferring comfortable historical consensus over contrarian assessments that challenge traditional worldviews.
- **Legal Dimension**
- **International Law and Sovereignty:** Balancing commitment to the UN Charter principles (respect for territorial integrity) against realpolitik demands when major powers violate international norms.
- **Navigating Unilateral Sanctions:** Addressing legal compliance issues stemming from secondary sanctions imposed by external powers without UN Security Council endorsement, requiring innovative payment mechanisms and trade structures.
- **Ethical Dimension**
- **Realpolitik vs. Moral Norms:** Navigating the ethical tension between upholding global human rights norms and securing affordable energy and raw materials to lift millions out of poverty at home.
- **Responsibility to Citizens:** Recognizing that a state's primary ethical responsibility is safeguarding the economic welfare and physical security of its own population during international turmoil.
- **International Dimension**
- **Managing Great Power Friction:** Maintaining strategic autonomy amid deepening rivalries between major global power blocs (US-China, Russia-West).
- **Multilateral Balancing:** Navigating participation in overlapping, divergent international groupings (e.g., Quad, BRICS, SCO, G20) to maximize diplomatic maneuverability.
- **Economic Dimension**
- **Energy Security and Balance of Payments:** Over-reliance on energy imports creates structural vulnerability to global price spikes, threatening foreign exchange reserves and currency stability.
- **Supply Chain Resilience:** External disruptions highlight the necessity of diversifying import sources, localizing critical manufacturing, and expanding non-traditional economic partnerships.

Linkages with NCERTs

NCERT Book	Chapter & Class	Key Conceptual Connection
Contemporary World Politics	Class 12, Chapter 1: <i>The Cold War Era & End of Bipolarity</i>	Analyzes how the collapse of the Soviet Union dismantled the global balance of power, forcing non-aligned nations to rethink their foreign policy anchors.
Contemporary World Politics	Class 12, Chapter 2: <i>Contemporary Centres of Power</i>	Explores the rise of multipolarity, alternative economic blocs, and how nations must navigate fluid power dynamics beyond traditional alliances.
Politics in India Since Independence	Class 12, Chapter 4: <i>India’s External Relations</i>	Traces the evolution of foreign policy from early post-colonial non-alignment to pragmatic interest-based relations following regional wars and economic shocks.
Indian Economic Development	Class 11, Chapter 3: <i>Economic Reforms Since 1991</i>	Demonstrates how the 1990–91 Gulf Crisis and Balance of Payments emergency forced sweeping domestic structural reforms (LPG), linking global shocks to internal transformation.

- **Linkages with UPSC CSE Syllabus**
- **GS Paper 1: History of the World**
 - **Syllabus Focus:** Re-redrawing of national boundaries, Cold War dynamics, and post-colonial geopolitical realignments.
 - **Core Linkage:** Understanding the systemic geopolitical consequences of the end of the Cold War and how shifting global power structures impact developing nations over time.
- **GS Paper 2: Governance, Constitution, Polity & International Relations**
 - **Syllabus Focus:** India and its neighborhood; effect of policies and politics of developed and developing countries on India's interests; Indian diaspora.
 - **Core Linkage:** Evaluating strategic autonomy, the management of external sanctions, diplomatic maneuvering during major power conflicts, and protecting overseas citizens in conflict zones.
- **GS Paper 3: Economic Development & Security**
 - **Syllabus Focus:** Indian Economy and issues relating to planning, mobilization of resources, growth, and development; Effects of liberalization on the economy; Energy security.
 - **Core Linkage:** Analyzing how external shocks affect Balance of Payments, inflation, and crude oil dependence, underscoring the vital link between internal economic reforms and external strategic resilience.
- **GS Paper 4: Ethics, Integrity & Aptitude**
 - **Syllabus Focus:** Ethical concerns and dilemmas in government and private institutions; Ethics in International Relations.
 - **Core Linkage:** Assessing the ethical dilemmas between national self-interest (ensuring cheap energy for poverty alleviation) versus global normative obligations (condemning sovereign aggression).
- **Essay and Optional Subjects**
 - **Essay:** Alignment with themes on *"National interest vs. Ideological idealism"*, *"Internal strength as the anchor of foreign policy"*, and *"Navigating an unpredictable world order"*.
 - **PSIR Optional (Paper 2):** Direct relevance to India's Foreign Policy evolution, non-alignment to multi-alignment transition, structural realism, and bilateral relations with





- **Way Forward**
- **1. Institutionalize Contrarian Analysis ("Red Teaming")**
 - Foreign policy institutions must create formal mechanisms that encourage alternative scenario modeling and contrarian judgments. Bureaucratic consensus should be continuously stress-tested by independent experts to avoid ideological blind spots during global shifts.
- **2. Invest in Deep Area Specialization and Strategic Expertise**
 - Long-term resources must be directed toward building specialized regional expertise. This requires deep investments in foreign languages, regional histories, and political analysis across critical geographies such as Russia, Iran, Central Asia, and the Middle East, rather than relying on generalized diplomatic rotation.
- **3. Strengthen Comprehensive National Power (CNP)**
 - External diplomatic leverage is fundamentally limited by internal economic and technological strength. Priority must be given to accelerating domestic manufacturing, building critical infrastructure, expanding energy independence, and advancing technological self-reliance to absorb foreign economic shocks.
- **4. Strategic Diversification of Energy and Trade**
 - To mitigate secondary sanctions and trade disruptions, national economic architecture must continuously diversify import channels, expand strategic petroleum reserves, establish non-dollar trade settlement mechanisms, and secure key global mineral supply chains.
- **5. De-ideologize Foreign Policy Discourse**
 - Diplomatic engagement should be guided by objective realpolitik and pragmatic national interest rather than historical sentimentality or reflexive anti-western/pro-western bias. Foreign partnerships must be evaluated dynamically based on contemporary alignments and tangible national benefits.

UPSC CSE Prelims Questions

Question 1 (UPSC CSE Prelims 2019)

Which one of the following groups of plants was domesticated in the 'New World' and introduced into the 'Old World'? (*Theme: Historic trade and economic exchanges; included for structural broad-based economic history context*)

- A) Tobacco, cocoa and rubber
- B) Cotton, wheat and rice
- C) Sugarcane, peanut and sesame
- D) Wheat, cotton and sugarcane

Correct Answer: A

Question 2 (UPSC CSE Prelims 2021)

In the context of India's decision to launch the 'National Hydrogen Energy Mission', consider the following statements:

- 1.It will reduce dependence on imported fossil fuels.
- 2.It will directly support the diversification of energy imports.
- 3.It will help in achieving zero-carbon emission targets in heavy transport. Which of the statements given above is/are correct?

- A) 1 only
- B) 1 and 2 only
- C) 1 and 3 only
- D) 1, 2 and 3

Correct Answer: D

Question 3 (UPSC CSE Prelims 2017)

Which of the following best describes the term 'Merchant Discount Rate' sometimes seen in the news? (*Theme: Financial and economic systems under external/internal structural reforms*)

- A) It is the incentive given by a bank to a merchant for accepting payments through debit cards.
- B) It is the amount charged to a merchant for payment processing services on debit and credit card transactions.
- C) It is the percentage of discount given by the bank to consumers on online shopping.
- D) It is the fee charged by the government on large digital transactions.

Correct Answer: B

Question 4 (UPSC CSE Prelims 2015)

The term 'Goldilocks Scenario' is often associated with which of the following economic conditions?

- A) A period of high inflation coupled with low growth
- B) A period of steady economic growth with low inflation and low unemployment
- C) A severe crisis in the balance of payments requiring foreign bailout
- D) A situation where currency depreciates rapidly due to capital flight

Correct Answer: B

Let's make China work for us, securely

If AI inference runs on Indian GPUs in an Indian data centre, the data pipeline is entirely domestic

Companies across the world are turning to Chinese open-weight models that now deliver near-frontier capability at a fraction of the cost, trailing the frontier (Anthropic's) by roughly eight months. Even this claim is changing fast with Moonshot AI's Kimi K3 beating Anthropic's Fable 5 on some coding-related benchmarks. These developments have amplified the question of AI sovereignty for India: In the absence of a domestic frontier model, are Chinese open-source models just as problematic as US proprietary models?

Our argument is that the sovereignty debate should not treat AI as a monolith. A proprietary model reached through a foreign application programming interface (API) and an open-weight model running on Indian hardware create fundamentally different dependencies. Despite structural tensions between India and China, the cheaper Chinese option might be the more sovereign one. We explain why.

When a ministry or a bank builds a workflow on Claude or ChatGPT, every query is processed by a company subject to US jurisdiction. When access to frontier models is being turned on and off based on national policy, this matters as the dependence is continuous — if an export control or sanctions decision were to remove access tomorrow, the workflow would break.

Now consider an alternative. An Indian financial services firm runs a Chinese open-weight model on graphics processing units (GPUs) rented from data centres in India. What exactly is the sovereignty risk here? The model weights are a static file of parameters sitting on Indian hardware. The data never leaves Indian territory. The Chinese creator of the model has no ongoing connection to its deployment, no API to revoke access, and no access to user data. This setup has better data sovereignty properties than a foreign proprietary API.

Large Indian firms and regulators are wary of using these open-weight models because they suspect Chinese "backdoors", even though there is no special backdoor in an open-weight model, which is just a set of billions of weights and biases (parameters). If inference runs on Indian GPUs in an Indian data centre, the data pipeline is entirely domestic. The Chinese lab is no more "in the loop" than the authors of a textbook are when someone reads their book in another country.

This highlights the perception and compliance risk China's digital exports face, even when the technical risk is minimal. But the fear of Chinese AI in Indian boardrooms is often a category error. The risk of Chinese hardware (with potential physical backdoors) or Chinese equity (with potential political influence) is being mapped onto Chinese model weights, where the threat model is structurally different. The

security research community has identified concerns around sleeper agents and trojans in neural networks — models that behave normally on standard benchmarks but produce subtly compromised outputs under specific trigger conditions. But this risk is not specific to open-weight models.

Chinese companies have chosen the open-weight model route partly to compete with proprietary models for the global market. However, the Chinese government has demonstrated a pattern of restricting exports when materials become strategically important. For instance, gallium, germanium, antimony, and rare earth processing technologies were all freely exported until they weren't. That open-weight models are still leaving without restriction tells us how strategically significant Beijing considers this generation of AI tools.

But as models become the primary intermediaries through which people interact with information, China will face an uncomfortable problem. Its own open models, built with Chinese talent and compute, will become the vehicle through which the world encounters balanced, often unflattering accounts of its history and present. An experiment we did using Open Router suggests that third-party-hosted Chinese open-weight models tend to provide neutral or seemingly uncensored answers, whereas direct calls to the same models hosted by Chinese companies are censored. A government that censors its domestic internet is unlikely to remain comfortable



Pranay Kotasthane



Bharath Reddy



Not all foreign models create the same kind of dependency, and the cheaper, most accessible models might be the most sovereign.

AFP

ble exporting models that undo that censorship for everyone else.

If these models prove transformative, we can expect China to restrict them. Weights cannot be "unexported" once released publicly, so any restriction would apply only to future, more capable generations. This strengthens the case for building domestic AI inference platforms that credibly serve models from both ecosystems as a neutral party. We should prepare for a near-term future (possibly within the next 18 months) in which access to the leading models will be curtailed by the Communist Party of China. Thankfully, there are non-Chinese open-weight models in contention should that happen.

Since the risk profile of open models differs qualitatively from that of proprietary APIs, the policy response should differ too.

First, Indian firms should actively focus on developing domestic AI inference infrastructure. The ability to run any model on Indian hardware, without data leaving Indian territory, is a capability worth having. India needs multiple inference providers, not a single national AI cloud.

Second, regulators should focus on the deployment layer (where data flows, who controls the compute, and what audit trails exist) rather than the national origin of model weights. A blanket suspicion of cheap Chinese-origin models is commercially costly. It

denies Indian firms access to capable, low-cost models while doing nothing about the actual sovereignty risk, which lies in proprietary API dependencies.

Third, timing matters. If China eventually restricts exports, India will want to have already built the capacity to absorb whatever is available in domains such as fine-tuning, evaluation, and red-teaming. Domestic compute takes months to build, and starting now is imperative.

Fourth, one vulnerability that open weights cannot solve is that every GPU powering inference in India is designed by American firms, which may be subject to American export controls. Open weights solve the model-access and data-flow problems, not the compute supply chain. The only near-term option here is to remain on reasonably good terms with the US and participate in initiatives like Pax Silica. That is manageable. It doesn't mean agreeing with Washington on everything, but continuing to engage with it as India has, despite major provocations.

Not all foreign models create the same kind of dependency, and the cheaper, most accessible models might, in the right deployment configuration, also be the most sovereign.

Pranay Kotasthane and Bharath Reddy are researchers with the high-tech geopolitics programme at the Takshashila Institution. The views expressed are personal.

- **Key Terms and Concepts**
- **1. Frontier AI Models**
 - These represent the most advanced, highly capable AI systems available globally at any given time. They possess multi-modal capabilities (text, vision, code generation) and require vast financial and compute resources to train.
 - *Example:* State-of-the-art models developed by leading laboratories that push the boundaries of reasoning and complex problem-solving.
- **2. Proprietary API vs. Open-Weight Models**
 - **Proprietary API Models:** Models where the underlying code, architecture, and mathematical weights are hidden. Users access the model via an Application Programming Interface (API) over the cloud. The vendor processes the query on foreign servers.
 - *Example:* Querying a closed cloud platform where input data leaves the user's local network and travels to the host firm's data centers abroad.
 - **Open-Weight Models:** Models where the trained mathematical parameters (weights and biases) are publicly downloadable. Users can download these static parameter files and host them locally on their own hardware.
 - *Example:* Downloading a multi-billion parameter model file and running it locally inside a domestic bank's private data center without internet connectivity.
- **3. AI Sovereignty vs. Data Sovereignty**
 - **Data Sovereignty:** The legal principle that data collected within a country is subject to the laws and governance of that nation.
 - **AI Sovereignty:** A broader concept encompassing national control over the entire AI technology stack—including domestic compute (GPUs), model parameters, data pipelines, and operational independence from foreign geopolitics.
- **4. Inference vs. Model Training**
 - **Training:** The resource-intensive process of feeding massive datasets to neural networks over months on thousands of GPUs to learn patterns and build weights.
 - **Inference:** The operational phase where a pre-trained model processes user queries to generate responses. Inference requires significantly less compute power than training and can be executed locally once model weights are secured.
- **5. Model Parameters, Weights, and Biases**
 - These are the numerical values within a neural network that dictate how input data is processed into an output. Model weights are static mathematical files; once downloaded, they do not communicate with their original developer.
- **6. Sleeper Agents and Trojan Vectors in Neural Networks**
 - A security vulnerability where a model behaves normally under standard evaluation conditions but executes malicious or biased outputs when exposed to specific, hidden "trigger phrases" or contextual cues programmed during its training.
- **7. Compute Supply Chain & Pax Silica**
 - **Compute Supply Chain:** The complex global semiconductor ecosystem involved in producing advanced chips (GPUs) required for AI inference and training.
 - **Pax Silica:** A strategic geopolitical alignment and alliance structure led by Western nations to secure semiconductor supply chains, advanced chip design, and lithography technologies against geopolitical disruptions.

- **Main Arguments and Core Analysis**
- **1. Disaggregating the AI Monolith**
 - Treating AI as a uniform technology creates policy errors. Sovereignty risks vary fundamentally depending on the **deployment architecture** rather than just the geographic origin of the model's developer.
 - A proprietary model accessed via a foreign API creates continuous dependency, exposing critical national workflows to sudden policy shifts, export controls, or sanctions from foreign jurisdictions.
 - Conversely, an open-weight model hosted on local hardware operates as an isolated static asset, offering distinct operational sovereignty advantages.
- **2. Operational Autonomy of Local Inference**
 - When an entity hosts open-weight models on domestic GPUs:
 - **Zero Telemetry / Zero Phone-Home:** The model parameters are static mathematical assets sitting on local storage. No continuous connection to the foreign lab exists, preventing remote revoking of access or tracking of queries.
 - **Absolute Data Sovereignty:** Input data and generated outputs never cross international borders, aligning strictly with domestic data localization and privacy mandates.
- **3. Deconstructing the "Backdoor" Narrative**
 - Widespread hesitation regarding foreign open-weight models often stems from conflating distinct risk profiles:
 - **Category Error:** Security fears associated with foreign *hardware* (physical backdoors in microchips) or foreign *equity* (political control via board seats) are frequently misapplied to open model weights. Model weights are static parameter files, not executable software programs with live networking capabilities.
 - **Universal Security Risks:** Risks such as "sleepers agents" or trojans exist across both proprietary and open models regardless of origin. These can be evaluated and neutralized domestically through rigorous testing and red-teaming.
- **4. Geopolitical Paradox of Open-Weight Exports**
 - **Strategic Utility:** Open-sourcing capable models serves as a strategy to capture global market share, establish technological standards, and challenge proprietary market leaders.
 - **The Censorship Dilemma:** Open-weight models hosted on independent, neutral platforms often generate uncensored outputs, conflicting with domestic censorship regimes in their country of origin.
 - **Impending Export Restrictions:** Historically, strategic commodities (e.g., rare earths, critical minerals) face export restrictions once their global strategic importance peaks. Advanced open-weight models may face similar export restrictions in the near future, creating a finite window for nations to acquire and integrate these assets.
- **5. The Compute Supply Chain Bottleneck**
 - While open weights resolve the model-access and data-residency challenges, they do not resolve hardware dependencies. Domestic inference still relies on specialized GPUs designed by a limited number of foreign corporations. Consequently, true AI sovereignty requires balancing open-software adoption with diplomatic alliances that secure hardware access.

- **Historical Evolution of AI and Digital Sovereignty**

- **Phase 1: Software Outsourcing and Passive Dependency (1990s–2000s)**

- India emerged as a global IT services hub, focusing on software development and maintenance.
- Operating systems, enterprise software, and core digital hardware were entirely imported, creating structural dependency on Western tech ecosystems without active national data protection policies.

- **Phase 2: Cloud Computing and Data Sovereignty Debates (2010–2022)**

- The rapid migration of enterprise and government data to public cloud platforms raised data residency concerns.
- Landmark judicial rulings established privacy as a fundamental right, sparking legislative efforts around data localization and digital rights (e.g., draft Data Protection Bills, RBI mandates on local payment data storage).

- **Phase 3: The Generative AI Explosion (2022–2024)**

- The rollout of large language models created a binary dynamic: expensive proprietary APIs hosted in foreign data centers versus nascent open-source models.
- Emerging markets faced high API access costs, potential supply disruptions, and growing regulatory concerns regarding user data usage for model training.

- **Phase 4: Compute Realpolitik and Strategic Inference (2024–Present)**

- Open-weight models reached capability levels competitive with proprietary options across various technical tasks.
 - Global policy shifted toward establishing domestic compute infrastructure, fine-tuning capacity, and hardware-focused diplomatic strategy, prioritizing deployment control over base model creation.
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NAVIGATING INDIA'S AI SOVEREIGNTY: DISAGGREGATING RISKS AND DEPENDENCIES.

Proprietary APIs vs. Open-Weight Models: A Strategic Analysis.

CHALLENGES & THE CHOICES

US PROPRIETARY FRONTIER MODELS

(e.g., Claude, ChatGPT)



Continuous Dependency

RISE OF CHINESE OPEN-WEIGHTS

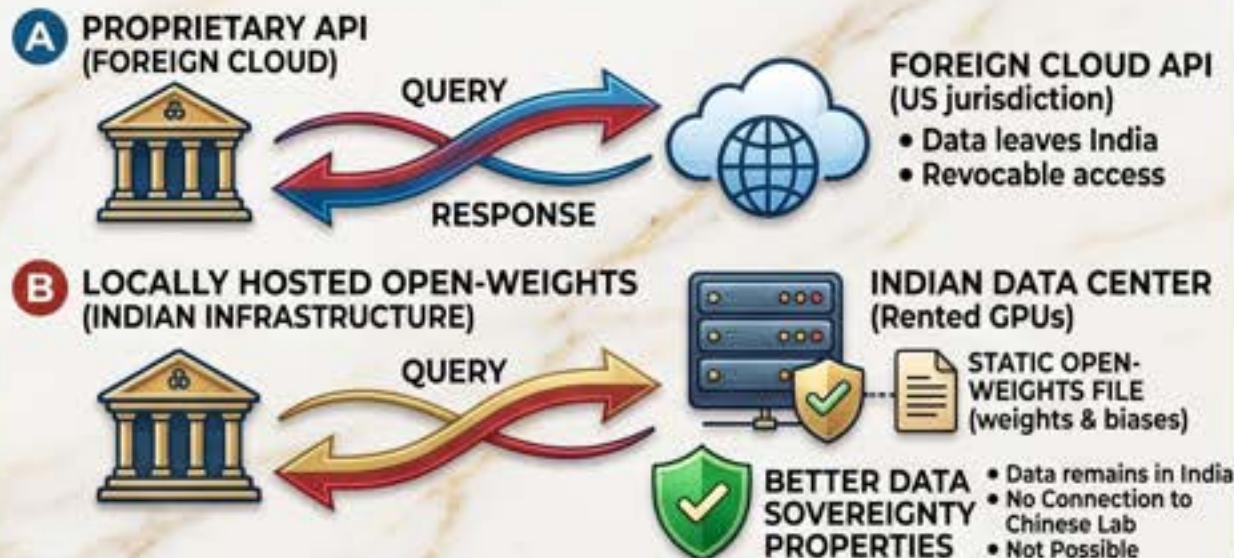
(e.g., Moonshot Kimi K3)



Near-frontier capability (~8 months trail), speed of change (beating some benchmarks).

ARE CHINESE OPEN-WEIGHTS JUST AS PROBLEMATIC FOR INDIA?

A NEW SOVEREIGNTY PARADIGM: NOT ALL FOREIGN MODELS CREATE THE SAME DEPENDENCY



REFINING THE THREAT MODEL: MYTHS VS. RISKS

MYTHS (Fear in Boardrooms)



Backdoors-in-parameters



Misapplied Risks

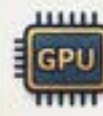
ACTUAL RISKS



Sleeper agent/trojan



Future restrictions



GPU Supply dependence

INDIA'S AI SOVEREIGNTY ROADMAP: 4 Strategic Steps

DOMESTIC INFERENCE INFRASTRUCTURE



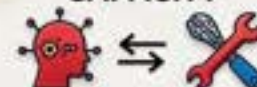
Build multiple inference providers & capacity to run ANY model on Indian hardware.

FOCUS ON DEPLOYMENT LAYER



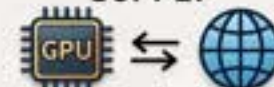
Regulate data flows, compute control, and audit trails. Not origin of weights.

ABSORPTION CAPACITY



Build capacity for fine-tuning, evaluation, and red-teaming now. Before restrictions.

SECURE COMPUTE SUPPLY



GPU supply is US-dependent. Remain on good terms with US. Participate in Pax Silica.

Pragmatic Engagement + Local Deployment = Enhanced Sovereignty.

Logical and Philosophical Foundations

Philosophical / Policy School	Core Concept	Application to AI Sovereignty
Realism in International Relations	Technology as an instrument of state power and strategic leverage.	Proprietary APIs act as potential points of leverage for foreign states; running open weights locally neutralizes ongoing foreign state interference.
Technological Determinism vs. Social Constructivism	Technology's impact is shaped by its deployment framework, not just its intrinsic code.	A model's impact depends on the local deployment context, data control measures, and governance rather than its origin.
Strategic Autonomy & Strategic Multi-Alignment	Pragmatic engagement with multiple foreign entities to maximize sovereign options.	Deploying open-weight models on locally hosted infrastructure while engaging in diplomatic alliances to secure hardware access.
Functional Sovereignty vs. Intellectual Ownership	Operational control over critical systems without needing full ownership of base IP.	True sovereignty requires operational control over execution and data residency, not necessarily building every base model from scratch.

- **Multidimensional Analysis**
- **1. Social Dimension**
- **Democratization of Digital Services:** Low-cost open-weight models enable local startups, educational institutions, and public healthcare systems to deploy customized AI solutions without unsustainable API licensing fees.
- **Linguistic Diversity:** Open-weight models can be fine-tuned locally on regional languages and dialects, preserving cultural nuances and enhancing civic access across diverse populations.
- **Information Integrity:** Unfiltered models hosted locally allow researchers and citizens to access balanced perspectives free from foreign state censorship or commercial curation.
- **2. Political Dimension**
- **National Security & Strategic Autonomy:** Decoupling internal government workflows from foreign APIs prevents foreign intelligence agencies from monitoring critical queries or abruptly revoking service access during geopolitical friction.
- **Regulatory Shift:** Policy focuses on the **deployment layer** (data flows, user identity, compute access) rather than placing blanket bans on model origins, avoiding counterproductive tech isolationism.
- **3. Legal Dimension**
- **Compliance with Privacy Legislation:** Local execution of open-weight models ensures full alignment with domestic data protection laws (such as the Digital Personal Data Protection Act, 2023), eliminating cross-border data transfer risks.
- **Liability & Auditability:** Hosting models locally gives domestic regulators full visibility to audit inference logs, inspect weights, and hold local deployers legally accountable for harmful outputs.
- **4. Ethical Dimension**
- **Mitigating Hidden Bias:** Fine-tuning open models locally helps identify and address embedded biases, trojans, or toxic cultural alignment introduced during original pre-training.
- **Transparent Red-Teaming:** Open-weight access allows independent security researchers to systematically audit model behavior, fostering public trust through transparent safety evaluations.
- **5. International Dimension**
- **Bypassing Tech Hegemony:** Using open weights reduces dependence on monopolistic foreign tech ecosystems, giving developing nations greater flexibility in shaping their digital infrastructure.
- **Silicon Diplomacy:** Since GPUs remain concentrated under foreign intellectual property, nations must balance software independence with proactive diplomatic engagement to secure hardware supply chains.
- **6. Economic Dimension**
- **Cost Efficiency:** Running inference locally on rented or owned GPUs significantly reduces long-term operational expenses compared to recurring subscription and API fees paid in foreign currency.
- **Local Data Center Growth:** Capital expenditure shifts from foreign cloud subscriptions to domestic cloud providers, driving investment in local data infrastructure, job creation, and energy networks.

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- **Linkages with NCERT Textbooks**
 - **1. Class 11 Political Theory**
 - **Chapter 3: Equality:** Explores structural inequality and equal opportunity. Relates to how access to low-cost compute and open-weight models prevents a widening global digital divide between advanced and developing economies.
 - **Chapter 10: Development:** Discusses sovereign choices in national development models. Connects directly to choosing sustainable, self-reliant tech infrastructure over continuous foreign tech dependency.
 - **2. Class 12 Contemporary World Politics**
 - **Chapter 4: Alternative Centres of Power:** Examines economic and technological dominance. Highlights how open-weight distribution strategies serve as tools for technology diffusion and soft-power expansion in a multipolar world.
 - **Chapter 6: International Organisations:** Addresses global commons and tech governance. Relevant to evaluating international regulatory frameworks for critical technologies like AI, semiconductors, and data flows.
 - **3. Class 11 Indian Economic Development**
 - **Chapter 3: Liberalisation, Privatisation and Globalisation (LPG):** Provides historical context on opening markets while retaining regulatory control. Connects to balancing open foreign technology imports with long-term domestic capability building.
 - **Chapter 8: Infrastructure:** Focuses on foundational economic assets. Connects to modern digital infrastructure requirements, including GPU clusters, high-speed
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- **Linkages with UPSC CSE Syllabus**
- **GS Paper 1: Society & Social Issues**
- **Impact of Globalization:** How global open-source technology movements democratize access to advanced tools while challenging localized content moderation norms.
- **GS Paper 2: Governance, Polity, & International Relations**
- **E-Governance Applications:** Deploying sovereign, locally hosted AI models across public service delivery, grievance redressal, and civic administration without exposing citizen data to foreign APIs.
- **Bilateral & Global Groupings:** Tech diplomacy surrounding critical supply chains (e.g., Quad, Pax Silica, India-US iCET) and managing bilateral tech dependencies.
- **GS Paper 3: Economy, Science & Technology, & Security**
- **Science & Technology:** Indigenization of technology, building domestic compute capacity (India AI Mission), and managing AI deployment architecture.
- **Internal Security & Cyber Infrastructure:** Securing digital infrastructure against foreign cyber vectors, sleeper agents, data exfiltration, and supply chain disruptions.
- **Economic Development:** Reducing foreign exchange expenditures on software licenses by leveraging open-weight models on domestic cloud infrastructure.
- **GS Paper 4: Ethics & Human Interface**
- **Ethics in AI Governance:** Addressing algorithmic bias, transparency in data processing, preventing covert manipulation, and ensuring accountability in local deployments.
- **Essay Topics**
- *"Technology is a useful servant but a dangerous master: The quest for digital sovereignty in the 21st century."*
- *"Strategic autonomy in a hyper-connected world: Balancing global integration with national interest."*



- **Way Forward and Policy Recommendations**

- **1. Build Multi-Provider Domestic Inference Infrastructure**

- Rather than creating a single, centralized state-run AI cloud, encourage a private-public ecosystem of independent inference providers within national borders.
- Expand the India AI Mission's compute provisioning to ensure startups, public institutions, and enterprise entities can rent domestic GPUs at competitive rates.

- **2. Shift Regulatory Focus to Deployment Governance**

- Move regulatory oversight away from model national origin toward the **deployment layer**.
- Mandate strict compliance regarding data residency, end-to-end security audits, inference logging, and robust access controls regardless of whether an open-weight model originated in Europe, the US, or Asia.

- **3. Establish Domestic Red-Teaming and Evaluation Hubs**

- Develop independent verification labs to inspect, stress-test, and red-team open-weight models before enterprise or government deployment.
- Focus on identifying hidden trigger conditions, trojans, or systemic biases, ensuring foreign pre-trained models are thoroughly vetted and aligned locally before execution.

- **4. Advance Silicon Diplomacy and Hardware Supply Security**

- Expand bilateral and multilateral partnerships (e.g., Pax Silica, iCET) to ensure uninterrupted access to high-performance hardware and semiconductor equipment.
- Support domestic chip design initiatives under the India Semiconductor Mission to progressively reduce long-term hardware vulnerabilities.

- **5. Cultivate Model Agnosticism and Local Adaptability**

- Avoid locking critical infrastructure into any single model family or ecosystem.
- Develop specialized capabilities in fine-tuning, parameter-efficient adaptation (LoRA), and model compression. This ensures domestic systems can seamlessly swap underlying weights as more advanced open-weight alternatives emerge globally.

Prelims Questions

UPSC CSE Prelims 2020 With the present state of development, Artificial Intelligence can scan which of the following effectively?

1. Bring down electricity consumption in industrial units
2. Create meaningful short stories and songs
3. Disease diagnosis
4. Text-to-Speech conversion
5. Wireless transmission of electrical energy

Select the correct answer using the code given below: (a) 1, 2, 3 and 5 only

(b) 1, 3 and 4 only

(c) 2, 4 and 5 only

(d) 1, 2, 3 and 4 only

Correct Answer: (d)

UPSC CSE Prelims 2021 With reference to 'Software as a Service (SaaS)', consider the following statements:

1. SaaS buyers can customize the user interface and can often change data fields.
2. SaaS users can access their data through their mobile devices.
3. SaaS application software runs entirely on local machines without internet connection.

Which of the statements given above are correct? (a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Correct Answer: (a)

UPSC CSE Prelims 2022 Consider the following statements regarding Open Source Software (FOSS):

1. Unlike proprietary software, open-source software allows users to inspect, modify, and enhance the source code.
2. Open-source software cannot be used for commercial purposes under any licensing model.

Which of the statements given above is/are correct? (a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Correct Answer: (a)

Man vs wild need not be our conservation model

As India advances toward Vision Bharat 2047, the choices it makes about its natural ecosystems will be as consequential as the infrastructure it builds or the industries it nurtures. Can a country of 1.4 billion people, urbanising rapidly and expanding its economy at pace, also be a country where tigers roam, lions persist, and wild spaces are protected alongside development? India's record over the past three decades suggests the answer is yes. The task now is to turn a conservation achievement into a globally relevant model of coexistence. It is in that spirit that India launched the International Big Cat Alliance (IBCA), bringing together range countries for a shared commitment to protect the world's most iconic species.

As wildlife populations grow and habitats improve, a new challenge is emerging: the geography of human and animal life is increasingly overlapping. Crop loss, livestock predation and, in some cases, direct threat to human life are placing real pressure on the people who live closest to India's wild spaces. But these pressures are also, in many cases, a reflection of successful conservation outcomes. As habitats become better protected and populations grow, interactions between people and animals naturally increase.

Compensation schemes, buffer zones, and wildlife corridors remain important components of India's conservation framework. But as wildlife populations recover and economic development reaches deeper into natural landscapes, the question is no longer simply how to mitigate conflict, but how to create conditions where people and wildlife can coexist across shared landscapes over the long term.

Across the Global South, countries are navigating this tension between development and biodiversity. India has already demonstrated, through Project Tiger and decades of protected area management, that sustained political commitment can deliver meaningful conservation outcomes. More recently, efforts to secure the future of the Asiatic lion in Gujarat and the ambitious reintroduction of cheetahs under Project Cheetah have further reinforced India's willingness to undertake complex, long-term conservation interventions. The focus now is to extend the same commitment into the more complex terrain of coexistence.

The broad contours of what coexistence requires are becoming clearer. Infrastructure must incorporate ecological sensitivity at the design stage, not as an afterthought. India's roads, railways, and transmission lines are reshaping landscapes faster than current environmental review processes can keep pace. Wildlife crossings, corridor-sensitive routing, and permeability assessments are not obstacles to delivery; they are conditions for ensuring that connectivity for people does not sever connectivity for wildlife. The ministry of road transport and highways has piloted underpasses and overpasses on select highways; the task now is to make this standard practice.

Technology must move from pilot to programme. AI-enabled camera networks, satellite-linked movement monitoring and community SMS alert systems have been trialled across Assam, Karnataka, Tamil Nadu and Uttarakhand, among other states, with positive results. India's capabilities in space, AI, and digital pub-

lic infrastructure position it as a potential developer and exporter of conservation technology. A national coexistence technology mission could accelerate both deployment and indigenous innovation, generating solutions that other range countries can adapt.

For communities living alongside wildlife, the credibility of conservation is tested at the moment of loss. A farmer whose livestock is taken by a leopard, or whose crop is flattened by elephants, needs a swift, fair and certain response. When compensation fails, tolerance fails alongside. Digitised systems with clear timelines and payouts indexed to local market values would do more to build conservation's social licence than almost any other single intervention, repositioning communities as partners rather than reluctant hosts.

Conservation must become financially sustainable. India's protected areas require investment well beyond what public budgets can provide, but the economic case for nature is becoming increasingly clear. More than half of global GDP depends, directly or indirectly, on healthy ecosystems, and biodiversity risk is moving from the margins of corporate sustainability to the mainstream of business decision-making. India's Business Responsibility and Sustainability Reporting Framework, aligned with global standards on nature-related disclosures, reflects this shift. The opportunity is to channel that mainstream into practical conservation outcomes. This shift is also being driven by a growing recognition that as populations expand, urbanisation accelerates and development footprints widen, ecological space and biodiversity become increasingly valuable public goods whose preservation is essential not only for environmental reasons but also for long-term economic and social resilience. Sustainable tourism, corporate partnerships, philanthropic capital and emerging biodiversity finance mechanisms can help mobilise resources at scale. The challenge is less about the availability of capital than creating credible institutions and investable models that ensure funding reaches the landscapes and communities that need it most.

Ultimately, coexistence is a governance challenge. It requires institutions that respond quickly, infrastructure that plans for ecological realities, technology that helps anticipate conflict, and communities that see themselves as partners in conservation rather than its cost-bearers. Many developing countries are grappling with similar pressures. India's experience will not translate everywhere, but the underlying questions are shared by most of the developing world. India has shown that species can recover with sustained commitment and political will. The next phase is about ensuring that people and wildlife can thrive alongside one another in a rapidly changing landscape. If India can demonstrate that economic transformation, ecological stewardship and community welfare can advance together, it will offer not only a conservation success story but a development model of growing relevance to the world.

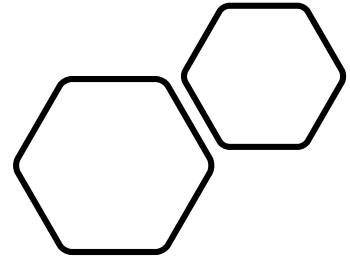


Harsh Vardhan Shringla



Suryaprabha Sadashivan

Harsh Vardhan Shringla, a Member of Parliament (Rajya Sabha) from BJP, former foreign secretary of India and former chief coordinator of India's G20 Presidency. Suryaprabha Sadashivan is managing principal, Chief Advisors. The views expressed are personal.



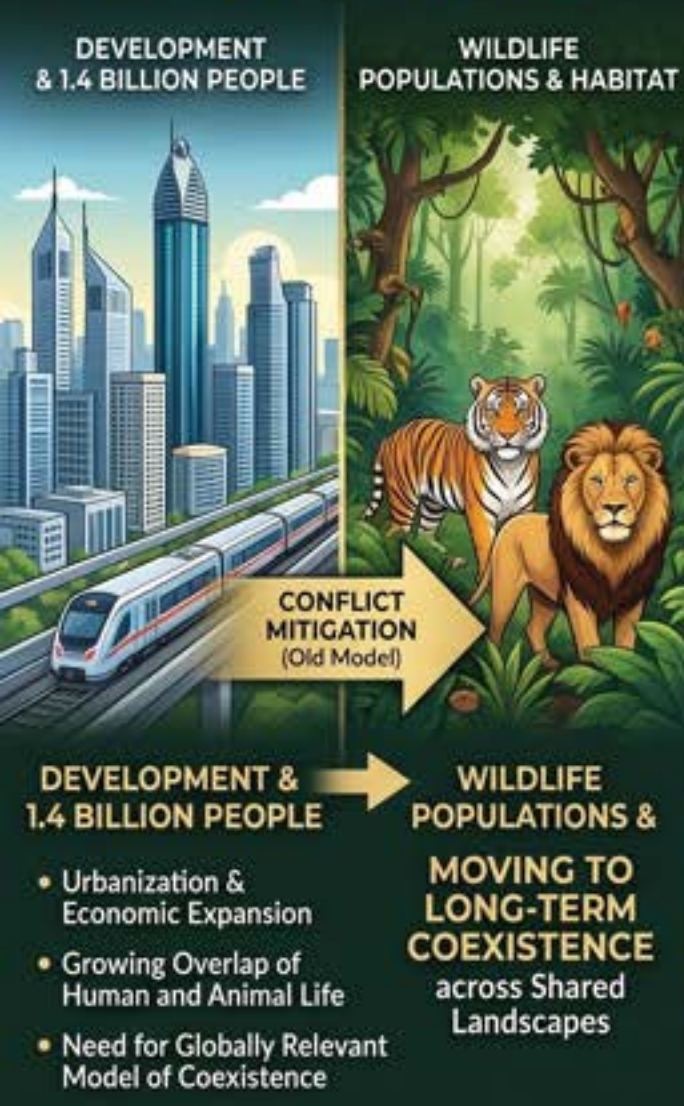
- **Key Terms and Explanations**
- **1. Viksit Bharat 2047**
- **Concept:** The official vision to transform India into a fully developed nation by its centenary of independence in 2047.
- **Conservation Relevance:** A key debate in this vision is whether high GDP growth can occur alongside ecological preservation. It highlights that natural capital—such as clean water, dense forests, and top predators—is essential for sustainable development rather than an obstacle to economic growth.
- **2. International Big Cat Alliance (IBCA)**
- **Concept:** A mega-global alliance launched by India in 2023 to protect seven major big cat species: Tiger, Lion, Leopard, Snow Leopard, Puma, Jaguar, and Cheetah.
- **Significance:** Modeled on India's success with Project Tiger, IBCA fosters South-South cooperation by sharing technical expertise, financial resources, and anti-poaching strategies among 96 range countries.
- **3. Coexistence Paradigm vs. Conflict Mitigation**
- **Conflict Mitigation:** A traditional, reactive approach that focuses on keeping humans and wildlife apart through physical barriers (like solar fences or trenches) and relocating animals.
- **Coexistence Paradigm:** A proactive approach that accepts spatial overlap between human activities and wildlife. It uses landscape-level planning, smart infrastructure design, community benefits, and technology to allow both to share space safely.
- **4. Permeability Assessments and Ecological Corridors**
- **Permeability Assessment:** Evaluating how easily wildlife can move through human-altered landscapes like farms, roads, and towns.
- **Ecological Corridors:** Strips of natural habitat that connect separated wildlife populations.
- **5. Business Responsibility and Sustainability Reporting (BRSR)**
- **Concept:** A mandatory reporting framework established by the Securities and Exchange Board of India (SEBI) for the top 1,000 listed companies.
- **Conservation Link:** BRSR requires businesses to report their impacts on biodiversity, water use, and emissions. This moves environmental accountability from optional corporate philanthropy to core governance.
- **6. Digital Public Infrastructure (DPI) in Conservation**
- **Concept:** Using scalable digital technologies—such as real-time sensor networks, satellite data, AI camera traps, and open-source messaging—as public utility services.
- **Application:** Deploying AI-powered early warning systems in elephant corridors to automatically send SMS alerts to local villagers and locomotive drivers when animals approach human settlements or railway tracks.

- **Main Arguments and Substantive Parts**
- **Core Thesis**
 - As India advances toward a multi-trillion-dollar economy by 2047, conservation policy must evolve from isolating wildlife within strictly protected reserves to managing coexistence across shared landscapes. Successful species recovery naturally increases interactions between humans and wildlife. Managing this requires smart infrastructure, swift compensation, technology deployment, and biodiversity finance.
- **Key Substantive Arguments**
- **1. Conservation Success Generates Spatial Overlap**
 - Decades of protection under initiatives like Project Tiger, Project Elephant, and the Asiatic Lion Conservation Project have helped populations recover. Because many animals live outside core tiger reserves and national parks, human-wildlife encounters are often a sign of successful conservation rather than system failure.
- **2. Eco-Centric Infrastructure Design**
 - Linear infrastructure—such as highways, railway tracks, and power transmission lines—can fragment habitats if built without ecological considerations. Incorporating structures like overpasses, underpasses, and canopy bridges at the design phase preserves habitat connectivity without halting economic progress.
- **3. Technology Must Scale from Pilots to National Programs**
 - While isolated projects use AI-enabled cameras, satellite tracking, and automated alert systems, these technologies often remain confined to individual reserves. Establishing a coordinated national framework can standardize technology deployment, making real-time early warning systems a routine public safety measure.
- **4. Social License Depends on Swift Redressal**
 - Public support for conservation declines when communities face uncompensated crop damage, livestock loss, or personal harm. Replacing slow, bureaucratic compensation processes with digitized, direct-benefit transfers indexed to market rates builds trust and transforms local residents into conservation partners.
- **5. Mainstreaming Biodiversity Finance**
 - Public budgets alone cannot fund landscape-scale conservation. Aligning corporate disclosures with biodiversity metrics enables green finance, sustainable eco-tourism, and philanthropic capital to support protected areas and surrounding buffer communities.
- **6. India's Governance Model for the Global South**
 - By balancing dense populations, economic growth, and megafauna protection, India offers a practical conservation model for developing nations facing similar pressures across Asia, Africa, and Latin America.

- **Historical Evolution of Conservation and Coexistence in India**
- **Colonial Era (1878 – 1947): Commercial Exploitation and Game Management**
- **Forest Acts of 1878 and 1927:** Classified forests as state property primarily for timber extraction and revenue generation, reducing traditional community access.
- **Hunting and Sport:** Megafauna like tigers, leopards, and lions were hunted as "vermin" or trophies, leading to significant population declines across the subcontinent.
- **Post-Independence Transition (1950s – 1970): Habitat Loss and Initial Interventions**
- **Agricultural Expansion:** Post-independence initiatives converted vast forest tracts into farmland to bolster food security.
- **Extinction Warnings:** The local extinction of cheetahs by the early 1950s and declining tiger numbers highlighted the need for national-level conservation legislation.
- **The Era of Statutory Protection and "Fortress Conservation" (1972 – 2005)**
- **Wildlife Protection Act (WPA), 1972:** Established strict legal frameworks for creating Protected Areas (National Parks and Wildlife Sanctuaries) and hunting bans.
- **Project Tiger (1973):** Introduced core-buffer management strategies, creating dedicated tiger reserves.
- **Forest Conservation Act (1980) & Environment Protection Act (1986):** Restricted the diversion of forest lands for non-forest purposes and introduced mandatory environmental impact assessments.
- **Focus on Exclusion:** Protection largely relied on keeping local communities out of core habitats, which sometimes created tension between residents and forest management.
- **Rights-Based and Landscape-Level Management (2006 – 2020)**
- **Forest Rights Act (FRA), 2006:** Recognized the historical land and resource rights of Scheduled Tribes and traditional forest dwellers, shifting governance toward community involvement.
- **National Tiger Conservation Authority (NTCA):** Given statutory status in 2006, NTCA introduced scientifically backed tiger estimation practices and formalized critical tiger habitats and eco-sensitive zones.
- **Infrastructure Integration:** Pilot projects, such as wildlife underpasses on NH-44, demonstrated how linear infrastructure can be designed to accommodate ecological connectivity.
- **The Coexistence Era (2021 – 2047 Vision)**
- **Project Cheetah (2022):** The world's first intercontinental translocation of a large wild carnivore, aimed at restoring grassland ecosystem functions.
- **International Big Cat Alliance (IBCA, 2023):** India established its leadership role in global conservation diplomacy.
- **Current Focus:** Integrating real-time digital monitoring, mainstreaming private biodiversity finance through corporate frameworks, and establishing eco-friendly design as a standard engineering requirement.



THE CORE IMPERATIVE



FOUR PILLARS OF A SUCCESSFUL COEXISTENCE MODEL



KEY OUTCOMES & GLOBAL LEADERSHIP



- **Logical and Philosophical Foundations**
- **Anthropocentrism vs. Ecocentrism**
- **Anthropocentrism:** Views nature primarily as a resource for human utility and economic development.
- **Ecocentrism:** Recognizes that natural ecosystems and wild species have intrinsic value regardless of their immediate usefulness to humans.
- **Synthesis:** The coexistence model connects these views. It treats ecosystems both as essential public goods that support human survival and as natural spaces that deserve protection.
- **Deep Ecology and Biological Intrinsic Worth**
- **Philosophical Basis:** Associated with philosopher Arne Næss, Deep Ecology asserts that all living beings have an inherent right to live and flourish.
- **Policy Application:** Reintroducing top predators and establishing connected wildlife corridors honors the intrinsic ecological roles these species play in maintaining ecosystem health.
- **Intergenerational and Intragenerational Equity**
- **Intergenerational Equity:** Requires the current generation to preserve biodiversity and functioning ecosystems for future generations.
- **Intragenerational Equity:** Demands that the costs of conservation should not fall disproportionately on marginalized rural and tribal communities living near wild habitats while urban centers enjoy the broader ecological benefits.
- **Constitutional Foundations in India**
- **Article 48A (Directive Principles of State Policy):** Directs the State to protect and improve the environment and safeguard the country's forests and wildlife.
- **Article 51A(g) (Fundamental Duties):** Assigns a duty to every citizen to protect and improve the natural environment, including forests, lakes, rivers, and wildlife, and to display compassion for living creatures.
- **Article 21 (Right to Life):** Broadened by the Supreme Court to include the right to a clean, healthy, and ecologically balanced environment.



- **Multidimensional Analysis**
- **1. Social Dimension**
- **Community Vulnerability:** Marginalized rural communities near forest boundaries face safety risks, crop loss, and livestock predation, which can impact their local livelihoods.
- **Social License for Conservation:** When compensation is slow or inadequate, public support for conservation can turn into hostility. Transparent, fair redressal helps convert local residents from reluctant hosts into active conservation partners.
- **Gender Impacts:** Women often collect non-timber forest produce and firewood, making them directly exposed to human-wildlife encounters.
- **2. Political and Administrative Dimension**
- **Federal Coordination:** Forests and wildlife fall under the Concurrent List (Entry 17A and 17B). Smooth coordination between central ministries (Environment, Highways, Railways, Tribal Affairs) and state forest departments is essential.
- **Grassroots Governance:** Strengthening Gram Sabhas under the Forest Rights Act and PESA (Panchayats Extension to Scheduled Areas) helps align local democratic decision-making with wildlife management goals.
- **3. Legal and Regulatory Dimension**
- **Harmonizing Laws:** Balancing the protective mandates of the Wildlife Protection Act (1972) with the community-rights framework of the Forest Rights Act (2006) remains an ongoing administrative task.
- **Enforcing Environmental Reviews:** Ensuring environmental impact assessments evaluate ecological permeability rather than treating mitigation measures as simple regulatory formalities.
- **4. Ethical Dimension**
- **Resource Distribution:** It is important to address why forest-dwelling communities should bear the primary burden of living alongside large carnivores while urban centers receive the broader ecological and economic benefits.
- **Rights of Non-Human Species:** Recognizing that wildlife requires connected spaces for movement, feeding, and reproduction alongside human infrastructure networks.
- **5. International Dimension**
- **Global South Leadership:** India's conservation strategies offer practical insights for nations across Africa, Latin America, and Southeast Asia balancing high population density with biodiversity protection.
- **Global Commitments:** Aligns with international agreements like the Kunming-Montreal Global Biodiversity Framework (specifically the 30x30 target) and the Convention on Biological Diversity (CBD).
- **6. Economic and Financial Dimension**
- **Valuing Natural Capital:** Healthy natural ecosystems supply key services—such as watershed protection, carbon storage, and soil stabilization—that support the broader economy.
- **Biodiversity Finance:** Moving beyond public funding by leveraging private sector ESG commitments, corporate social responsibility funds, and biodiversity credits to support local conservation infrastructure.

- **Linkages with NCERT Textbooks**
- **Linkages with UPSC CSE Syllabus**
- **General Studies Paper 1 (Indian Society & Geography)**
- **Geography:** Distribution of key natural resources, physical geography of forest biomes, habitat fragmentation, and ecological corridors.
- **Society:** Social changes affecting tribal communities, rural livelihood vulnerabilities, and urbanization impacts on land-use patterns.
- **General Studies Paper 2 (Governance & Polity)**
- **Governance:** Institutional coordination between central and state agencies, public service delivery of compensation, transparent welfare administration through direct benefit transfers.
- **Statutory Bodies:** The roles and mandates of the National Tiger Conservation Authority (NTCA), National Board for Wildlife (NBWL), and Central Zoo Authority.
- **General Studies Paper 3 (Environment, Infrastructure & Technology)**
- **Environment:** Conservation strategies, human-wildlife conflict resolution, Environmental Impact Assessments (EIA), and international initiatives like the IBCA.
- **Infrastructure:** Developing eco-friendly linear infrastructure, highway underpasses, and dedicated wildlife crossings.
- **Technology:** Using AI, camera networks, satellite tracking, and digital warning systems for wildlife management.
- **General Studies Paper 4 (Ethics & Human Values)**
- **Environmental Ethics:** Balancing economic growth with nature preservation, duties toward non-human species, and fair resource distribution.
- **Ethical Governance:** Ensuring fairness for forest-dwelling communities who bear the immediate costs of wildlife protection.
- **Relevance to Optional Subjects**
- **Geography:** Landscape ecology, biogeography, eco-sensitive zone management, and spatial planning.
- **Public Administration:** Inter-ministerial coordination, policy implementation hurdles, and environmental administration at regional levels.
- **Sociology:** Tribal rights, development-induced changes, community participation, and indigenous environmental knowledge.
- **Zoology / Botany:** Habitat management, population dynamics, carnivore ecology, and ecosystem conservation.

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- **Way Forward and Policy Recommendations**
- **1. Launch a National Coexistence Technology Mission**
 - Establish a unified technology mission to scale successful local pilots into national tools.
 - Combine AI-powered camera networks, satellite monitoring, and early warning SMS systems into a shared digital platform to reduce human-wildlife conflict in real time.
- **2. Make Eco-Friendly Infrastructure Design Mandatory**
 - Require linear infrastructure projects (roads, railways, power lines) passing near wildlife corridors to include a "Landscape Permeability Index" in their initial designs.
 - Ensure wildlife overpasses, underpasses, and canopy crossings are standard engineering components rather than retrofitted additions.
- **3. Modernize and Automate Compensation Frameworks**
 - Update compensation systems to deliver fast, direct payouts via Direct Benefit Transfer (DBT) for crop and livestock losses.
 - Index compensation rates to prevailing local market values and set clear processing timelines to maintain community trust in conservation efforts.
- **4. Strengthen Local Community Stewardship**
 - Involve local communities in conservation planning through joint forest management models, local monitoring networks, and nature-based tourism enterprises.
 - Formalize community forest resource rights under the Forest Rights Act (2006) to align local incentives with biodiversity protection.
- **5. Expand Biodiversity Finance Mechanisms**
 - Use corporate disclosures under the Business Responsibility and Sustainability Reporting (BRSR) framework to direct private sector ESG capital toward landscape restoration.
 - Develop blended finance models, green bonds, and payment for ecosystem services (PES) schemes to support local conservation funding alongside public budgets.

UPSC Prelims Questions

1. UPSC CSE Prelims 2023

Q. Consider the following statements regarding the International Big Cat Alliance (IBCA):

- 1.It was launched by India for the protection of seven big cats.
- 2.Membership is open only to countries that are natural range states of these big cats.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (a)

Explanation: Membership is open to range countries as well as non-range countries, UN agencies, and international organizations interested in big cat conservation.

2. UPSC CSE Prelims 2020

Q. Among the following Protected Areas, which one is well-known for the conservation of a sub-species of the Indian swamp deer (Barasingha) that thrives well on hard ground and is exclusively graminivorous?

- (a) Kanha National Park
- (b) Manas National Park
- (c) Mudumalai Wildlife Sanctuary
- (d) Tal Chhapar Wildlife Sanctuary

Answer: (a)

3. UPSC CSE Prelims 2019

Q. Which of the following protected areas are located in the Cauvery basin?

- 1.Nagarhole National Park
- 2.Papikonda National Park
- 3.Sathyamangalam Tiger Reserve
- 4.Wayanad Wildlife Sanctuary

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 3 and 4 only
- (c) 1, 3 and 4 only
- (d) 1, 2, 3 and 4

Answer: (c)



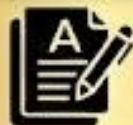
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