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• GOVERNANCE

Ladakh's 7 councils & the decentralisation debate

Why are Ladakh civil society groups against all seven of its districts getting a hill development council, even when they support local governance?



DEEPTIMAN TIWARY

THE LADAKH administration's decision to constitute Autonomous Hill Development Councils (AHDCs) in the Union Territory's seven districts has reopened a debate over how political power should be distributed in the region.

While the administration says the move will deepen grassroots governance, the two civil society groups negotiating with the Centre — the Apsa Body, Lab (ABSL) and the Kargil Democratic Alliance (KDA) — argue it could weaken the representative political structure they demand under Article 371. The disagreement also reflects a widening trust deficit between Ladakh's leadership and the Centre since the region became a Union Territory in 2019.

What has the administration announced?

On Monday, the Ladakh administration announced that an Autonomous Hill Development Council would be constituted in each of the Union Territory's seven districts. Until now, such councils existed only in Leh and Kargil. The move follows the creation of five new districts — Drass, Shun, Nubra, Changthang and Zaskar — in April.

Chief Secretary Ashish Kundra said the new councils represented "a major step towards democratic decentralisation". He also said discussions with the Centre had broadly agreed on creating a Union Territory-level representative body under a tailored framework under Article 371, which would exercise legislative, executive, financial and administrative powers.

The administration argues that the two initiatives are complementary. Section 3 of the Ladakh Autonomous Hill Development Council Act provides for the constitution of a council in every district, and officials say the creation of seven districts logically necessitates seven councils.

The government also points to Ladakh's unique geography. Spread across nearly 60,000 sq km but home to barely 3 lakh people, it is India's largest Union Territory by area and among its least densely populated regions. Many villages are separated

• GOVERNING LADAKH: LARGEST UNION TERRITORY

60,000 sq km

Ladakh's size, making it India's largest Union Territory by area

3 lakh

Its population, making it among the country's least densely populated regions



THE QUESTION: Ladakh's geography requires administrative decentralisation. But how fragmented should representative politics be in a Union Territory with barely three lakh people?

How do Ladakh's hill councils compare with similar bodies elsewhere?

Autonomous District Councils under the Sixth Schedule in Assam, Meghalaya, Mizoram and Tripura can make laws on subjects such as land, forests, village administration and customary practices, subject to the Governor's assent.

But Ladakh Autonomous Hill Development Councils do not enjoy constitutional status, independent legislative powers or judicial authority over customary matters.

They are broadly comparable to statutory autonomous councils in states such as Manipur. Though experience there also illustrates the limitations of statutory autonomy.

by mountain passes and several hours of travel, making decentralised administration a longstanding demand.

Why are Ladakh's civil society groups opposing the move?

Neither the ABSL nor the KDA disputes the need for decentralised administration. Their objection is to what they call the fragmentation of political authority at a time when negotiations are underway over a representative political framework for Ladakh.

ABSL co-chairman Chibbering Dorje Lakruk argues that empowering seven district councils would dilute the meaningful authority with the proposed representative body under Article 371. "This is a plan to dilute the powers of the proposed representative government that is going to take shape under Article 371. If all the powers are going to be given to the hill councils, what will the representative government do?" he told *The Indian Express*.

KDA co-chairman Sajid Kargil termed the move "maximum government and minimum governance", questioning how seven councils would improve governance when, according to him, even the existing councils have steadily lost powers.

Civil society leaders argue that since seven hill councils, Panchayati Raj institu-

Procedure problem

According to Ladakh leaders, the proposal for 7 hill councils figured in the Minutes of the May 22 meeting. They refused to sign that version, after which a revised record, without the proposal, was signed.

They now argue the Centre went ahead with the announcement without consulting them.

tions, the Union Territory administration and a future Article 371 representative body all contest the lines of political accountability may become blurred. "With so few people and so many representative institutions, what meaningful role will eventually remain for the territorial government? And where does Panchayati Raj fit into that?" said a Ladakh leader associated with the negotiations.

Their opposition has also been sharpened by precedent. According to Ladakh leaders, the proposal for seven hill councils figured in the Minutes of the May 22 meeting between the Centre and Ladakh representatives. They refused to sign that version, after which a revised record, without the proposal, was prepared and signed. They now argue the Centre has proceeded with the announcement without consulting them.

Why such distrust?

The initial enthusiasm following Union Territory status gave way to disappointment after it became clear that, unlike Jammu and Kashmir, Ladakh would not have a legislature. Negotiations over Sixth Schedule-like safeguards and later an Article 371 framework have moved slowly, with civil society leaders accusing the Centre of delaying substantive political reforms.

Relations deteriorated after the September 2023 violence during protests in Leh, the detention of climate activist Sonam Wangchuk under the National Security Act, and remarks by political leaders that were interpreted as questioning Ladakh's patriotism. The mistrust deepened when the Voice of Buddhist Ladakh emerged claiming to represent Buddhist interests. ABSL leaders alleged the organisation had been encouraged to weaken the joint movement of Leh and Kargil — an allegation the administration denies.

The creation of five new districts in April triggered another controversy, with the KDA alleging that the new administrative map disproportionately favoured Buddhist majority districts.

What powers do the hill councils have, and how functional are they?

On paper, the Ladakh Autonomous Hill Development Councils are among the more powerful statutory district bodies in India, if territorial authorities under the Sixth Schedule are kept out.

The 1997 Act makes them responsible for district planning and development, preparation of budgets and district plans, implementation of development schemes, management of land vested in the councils, collection of certain local taxes and functioning as the district planning and development board. In practice, however, political leaders across party lines say the councils have steadily lost relevance after Ladakh became a Union Territory.

Congress leader and Leader of Opposition in LAHDC-Leh, Tsering Namgyal, told *The Indian Express* last year that decision-making had shifted to the Lieutenant Governor's secretariat and departmental secretaries, with councils often excluded. He said council recommendations on land were frequently ignored, council staff were increasingly deployed for the UT administration, and budgets had been reduced.

Lakruk similarly described the councils as "virtually defunct", alleging that even where the law gives councils authority over land, recommendations often remain pending with the district administration and elected representatives are bypassed.

The paradox, therefore, is that while the administration now proposes expanding the number of hill councils from two to seven, many elected representatives argue that the existing councils themselves first need to be made genuinely functional.

- **Key Terms and Explanations**

- **Autonomous Hill Development Councils (AHDCs):** These are statutory local self-governance bodies established through specific legislative acts to manage developmental, financial, and administrative matters in remote, mountainous regions. Unlike standard panchayats, they possess wider executive powers over sectors like land utilization, local taxation, and budget preparation. For instance, the councils established in Leh and Kargil were designed to address the unique developmental challenges posed by isolated geographical terrains.
- **Sixth Schedule of the Indian Constitution:** Under Articles 244(2) and 275(1), this schedule provides for the creation of Autonomous District Councils (ADCs) in specific tribal areas. These constitutional bodies enjoy significant legislative, executive, and judicial autonomy, including the power to make laws on land, forests, and customary laws, subject to the Governor's assent. This creates a distinct constitutional layer of protection compared to statutory councils.
- **Article 371 of the Indian Constitution:** A constitutional provision that grants special status, safeguards, and administrative customizations to specific states or regions (such as Nagaland, Mizoram, or parts of Maharashtra and Gujarat). It aims to protect local cultural identities, customary laws, and economic interests while facilitating balanced regional development without necessarily altering the overarching federal blueprint.
- **Administrative Decentralisation vs. Political Fragmentation:** Administrative decentralisation involves devolving executive functions, planning powers, and public service delivery to smaller, localized units to improve efficiency. Conversely, political fragmentation occurs when the division of institutional authority dilutes the collective bargaining power and cohesive voice of a region, potentially weakening a unified representative governance structure.
- **Statutory Status vs. Constitutional Status:** Statutory bodies derive their existence, powers, and functions from an ordinary Act passed by a legislature, making them susceptible to amendments or structural changes by the executive. Constitutional bodies, however, are explicitly enshrined within the text of the Constitution, offering them greater permanent protection, institutional resilience, and immunity from arbitrary executive downsizing.

- **Main Arguments and Substantive Parts**

- The ongoing governance restructuring highlights a fundamental tension between institutional expansion driven by the state and the pursuit of unified legislative representation by regional civil society.

- **The Core Thesis**

- The administrative initiative to establish Autonomous Hill Development Councils across all seven districts of Ladakh represents a critical debate between bureaucratic decentralization and the local demand for a unified, constitutionally safeguarded legislative framework. While the administration frames the move as an essential step toward localized grassroots empowerment, civil society views it as a structural atomization that could undermine the region's broader political agency.

- **Arguments in Favor of Multi-Council Expansion**

- **Geographical Imperatives and Spatial Isolation:** Spanning over 60,000 square kilometers with a sparse population of approximately three lakh, the region features isolated settlements separated by rugged mountain passes. The administrative viewpoint holds that a single or double-tier council system cannot adequately cater to the hyper-local developmental needs of distant valleys like Nubra, Zaskar, or Changthang, making localized district planning an operational necessity.
- **Deepening Grassroots Governance:** By invoking statutory provisions that allow for a council in each district, the administration aims to bring governance closer to the people. This setup is intended to give newly created districts direct control over their localized budgets, infrastructure projects, and immediate administrative priorities.

- **Counterarguments and Regional Apprehensions**

- **Dilution of Central Political Authority:** Prominent civil society coalitions, including the Apex Body Leh and the Kargil Democratic Alliance, contend that proliferating micro-councils without an overarching legislative assembly fragments the region's collective political voice. They argue that distributing power across seven distinct statutory entities leaves the territory without a strong, unified negotiating body vis-à-vis the Union government.
- **The Paradox of Bureaucratic Centralization:** A primary grievance raised by local leadership is that since the transition to a Union Territory without a legislature in 2019, real decision-making authority has increasingly centralized within the Lieutenant Governor's secretariat and bureaucratic departments. Critics point out that existing councils have seen their decisions on land management bypassed, staff redeployed, and financial allocations constrained, raising concerns that creating more councils will expand bureaucracy rather than genuine local empowerment.
- **Procedural Divergence and Trust Deficit:** The friction is further compounded by procedural disputes. Regional representatives argue that major institutional restructuring plans have been pushed through without building a genuine consensus, deepening the trust deficit between the local population and the central administrative machinery.

- **Historical Evolution of the Issue**
- **Pre-Independence to Post-Independence Integration:** Historically characterized by a unique cultural, linguistic, and spiritual identity distinct from the Kashmir Valley and Jammu, the region maintained a distinct geopolitical profile. Following independence, its integration within the larger state of Jammu and Kashmir frequently led to local grievances regarding perceived political marginalization and neglect of its unique developmental challenges.
- **The 1990s and the Genesis of Statutory Councils:** Following prolonged agitations for political autonomy and Union Territory status, the central government enacted the Ladakh Autonomous Hill Development Council Act in 1995. This led to the formation of the Leh Council in 1995, followed by the Kargil Council in 2003. These bodies were designed to manage local planning and land use, serving as an early experiment in regional autonomy within a larger state structure.
- **The 2019 Reorganization Landmark:** The implementation of the Jammu and Kashmir Reorganization Act in 2019 fundamentally transformed the region's governance architecture by separating it into a distinct Union Territory. While this fulfilled a long-standing demand for separation from Jammu and Kashmir, the omission of a legislative assembly created a new institutional vacuum, shifting the political focus toward protecting local land, jobs, and demographic integrity.
- **The Current Phase of Structural Proliferation (2025–2026):** The governance debate entered a new phase with the administrative creation of five new districts (Drass, Sham, Nubra, Changthang, and Zaskar), bringing the total to seven. The subsequent move to establish autonomous councils for each of these districts has brought the long-standing debate over the balance between administrative fragmentation and democratic representation back to the forefront.
- **Way Forward**
- **Implementing an Asymmetric Multi-Tier Governance Architecture:** A potential long-term solution lies in creating a balanced framework that combines both regional and local governance. This could involve establishing an overarching, elected Union Territory-level representative body—safeguarded by a customized framework under Article 371—to protect land, identity, and legislative rights, while retaining district-level councils to handle hyper-local developmental execution.
- **Statutory Empowerment and Functional Devolution:** Rather than simply increasing the number of councils, the focus should be on strengthening their operational capacity. This includes granting definitive authority over local land administration, ensuring independent and non-divertible budgetary streams, and providing dedicated administrative staff. These steps would help prevent the councils from being sidelined by bureaucratic processes.
- **Institutionalizing Consensus-Led Dialogue:** To address the current trust deficit, the administration and regional civil society groups like the Apex Body and Kargil Democratic Alliance need to re-engage in structured consultations. Major structural changes, such as modifying council setups or shifting administrative boundaries, should ideally be developed through open negotiation rather than unilateral executive orders.
- **Strengthening Border Communities:** Recognizing that local border populations are critical to regional stability, governance models should prioritize sustainable economic incentives, environmental protections, and youth employment. Ensuring that local communities feel politically empowered and economically secure is essential for long-term stability along sensitive frontiers.



COMPREHENSIVE ANALYSIS: LADAKH'S 7-COUNCIL DEBATE & THE GOVERNANCE CHALLENGE

CURRENT GOVERNANCE LANDSCAPE & THE ISSUE

- 2019 REORGANIZATION**
UT Status without legislature
- UNIQUE GEOGRAPHY**
60,000 sq km, isolated settlements
- EXISTING COUNCILS**
Leh & Kargil
- THE MOVE**
Proposal for 7 councils for 7 districts (Leh, Kargil, plus 5 new districts)
- GOAL of the goal:**
Deepening Grassroots Governance



ADMINISTRATIVE DECENTRALISATION VS. POLITICAL FRAGMENTATION: THE CORE DEBATE

**ADMIN'S VIEW
(DECENTRALISATION)**


- Localised planning
- direct district control,
- faster execution


 Construction


?
VETO

**CIVIL SOCIETY'S VIEW
(FRAGMENTATION)**

- Diluted regional voice
- lack of central legislature, bureaucratic capture, procedural concerns
- Fragmented obstacle voices



STRUCTURAL COMPARISON: STATUTORY VS. CONSTITUTIONAL AUTONOMY

FEATURES	STATUTORY COUNCILS (e.g., Leh/Kargil)	SIXTH SCHEDULE ADCs (North-East Model)
LEGISLATIVE POWER	limited 	law-making 
EXECUTIVE CONTROL	subject to bureaucrat/LG veto 	higher immunity 
JUDICIAL POWER	none 	customary courts 
CUSTOMARY PROTECTION	limited	stronger safeguards

MULTIDIMENSIONAL ANALYSIS (UPSC SYLLABUS APPLICABILITY)

SOCIAL

 Preserving ethnic & cultural identities, managing intra-regional dynamics.

POLITICAL

 Filling the power vacuum, interlocking council roles, democratic accountability.

LEGAL

 Statutory vulnerability vs. Constitutional safeguards, legal framework complexity.

ETHICAL

 Genuine consultation, procedural fairness, consensus building

ECONOMIC

 Resource management, sustainable development, balancing tourism & environment

INTERNATIONAL

 Cross-border security, stable governance for strategic frontiers.

UPSC CSE / APSC SYLLABUS LINKAGES

 UPSC

GS Paper 2 (Federalism, Local Bodies)

GS Paper 3 (Border Security)

GS Paper 4 (Ethics)

Essay

Optionals (e.g., PSIR, Geography)

 UPSC

HISTORICAL TIMELINE & WAY FORWARD

TIMELINE


PRE-1995: Geographic uniqueness

1995/2003: Leh/Kargil AHDCs

2019: UT Status (no legislature)

2024-26: Expansion & Constitutional

WAY FORWARD

- Asymmetric Multi-Tier Governance
- Statutory Empowerment (reducing bureaucratic control)
- Consensus-Led Dialogue
- Sustainable Development for Border Regions



• **ECONOMY**

India-UK FTA kicks in: What changes for consumers and industry

Ravi Dutta Mishra
New Delhi, July 15

AMID A fracturing world trade order, the India-UK free trade agreement (FTA) came into effect on Wednesday. The deal, negotiated over four years and marked by major political volatility in London, is India's first comprehensive deal with a developed country. The deal laid the framework for India's negotiations with the European Union.

With the deal, India's labour-intensive goods exports, such as textiles, footwear and gems and jewellery, could get a boost. Indian consumers can access British cars, scotch and chocolates at lower prices. India has reduced tariffs on around 90% of products and the UK has eliminated tariffs on 99% of Indian exports.

Changes for consumers

For the first time, India has given major concessions to imported cars and alcoholic beverages in an FTA, reducing tariffs for British cars from up to 110% to 30% in year one. The duty will go down to 10% by year five of the deal coming into effect. The an-

nual quota for British cars starts at 20,000 vehicles and peaks at 37,000 by year five.

India has also given major concessions to British alcoholic beverages by reducing tariff from 150% to 75% initially and then to 40% by year 10. According to Delhi-based think tank Global Trade Research Initiative (GTRI), this is a major concession as India is one of the world's largest and fastest-growing spirits markets and the UK is the world's largest whisky exporter.

Indian textile exports currently face tariffs of up to 10% in the UK. The trade deal could place India on a more level playing field with competitors such as Bangladesh, thereby boosting exports. India's gems & jewellery exports, along with footwear exports, will also get a boost as duty in the UK has been eliminated from up to 12% and 16% respectively.

Customs changes

For the first time in an FTA, India has allowed a system of self-declaration of origin by exporters or producers in the United Kingdom, replacing the conventional system of certificates issued by designated

More choices, lower prices

- Indian consumers can access British cars, scotch and chocolates at lower prices.

- Tariffs for British beauty and cosmetics and sports equipment have also been removed or reduced.

authorities, which often causes delays and hurdles. Experts said this could become the custom norm for exporters in developed countries such as the EU and US, making it comparatively easier for them to ship goods to India.

This customs change comes as India is also aiming to reduce its dependence on Chinese and Association of Southeast Asian Nations (ASEAN) exporters.

India's dependence on Chinese medical devices has been a concern. Now, New Delhi has removed up to 14% tariffs on the UK's medical devices, with phased tariff reductions for some sensitive items.

Quota on steel exports

Commerce Secretary Rajesh Agarwal at a press briefing said quotas allocated by the UK will ensure that India's iron and steel exports go up. A government official said India's iron and steel exports will grow from around \$850 million to over \$1 billion.

The curbs on steel imports announced by the UK after the trade negotiations had become a major flash point before the deal came into effect.

Concessions for professionals

The Commerce and Industry Ministry said that the deal on social security contributions would benefit 75,000 Indian Professionals and around 900 firms by providing exemption from contribution to UK National Insurance for five years. It covers the most important element of avoiding double contribution, exempting employees of Indian companies in the UK from contributing to the UK system.

The challenges

A commerce and industry ministry official said the labour and environment chapter of the India-UK agreement is not binding. Experts said this is a big win for India, as western countries have strong labour and environment norms that tend to act as a non-tariff barrier for exports from developing nations. However, India did not get an exemption from the UK's proposed Carbon Border Adjustment Mechanism (a pricing framework to ensure imported carbon-intensive goods face a carbon cost comparable to domestic products), which come into effect from January 1 next year.

- **Key Terms and Explanations**
 - **Free Trade Agreement (FTA):** A comprehensive bilateral or multilateral treaty that eliminates or drastically reduces tariffs, quotas, and non-tariff barriers on goods and services traded across international borders. Unlike a customs union, participating nations maintain independent trade policies toward non-members. For instance, an FTA allows goods like garments or machinery to cross borders with minimal customs duties, directly lowering production and retail costs.
 - **Rules of Origin & Self-Declaration:** The criteria used to determine the national source of a product. In modern trade pacts, the shift toward a "self-declaration" system allows certified exporters or producers to self-certify that their goods meet the regional value content requirements, completely replacing the cumbersome process of obtaining certificates from state-designated bureaucratic authorities. A practical example is a British automaker certifying the regional components of a vehicle directly on the commercial invoice, bypassing weeks of administrative customs delays.
 - **Carbon Border Adjustment Mechanism (CBAM):** A green trade tariff imposed on carbon-intensive imports entering a jurisdiction. It aims to equalize the price of carbon between domestic production and imports, ensuring that compliance with strict domestic environmental laws does not lead to "carbon leakage" (companies relocating to countries with weaker climate policies). For example, if an Indian steel manufacturer exports to a country with a CBAM framework, the steel will be taxed at the border based on its embedded carbon footprint unless an equivalent carbon price was already paid domestically.
 - **Double Social Security Contribution:** A regulatory friction where expatriate professionals working temporarily in a foreign country are forced to contribute to the social security system of both their home country and the host nation, despite being ineligible to reap the long-term benefits of the host country's system. A totalization or exemption clause resolves this by exempting transient workers from these local statutory deductions for a specified period, directly increasing the take-home pay of skilled professionals.
 - **Non-Tariff Barriers (NTBs):** Regulatory hurdles, technical specifications, sanitary and phytosanitary (SPS) measures, or labor and environmental clauses used to restrict imports without resorting to direct customs duties. Developed economies frequently use stringent domestic labor standards or green regulations as non-tariff barriers to block cheaper manufacturing imports originating from developing nations.
- **Main Arguments and Substantive Parts**
- **The Core Thesis**
 - The contemporary architecture of global trade is shifting away from multilateral consensus toward strategic, high-value bilateral economic partnerships. Within this landscape, comprehensive economic partnerships between a fast-growing developing economy and an advanced Western industrial power represent a paradigm shift. These agreements seek to balance aggressive domestic market protection for sensitive sectors with the aggressive pursuit of outward market access for labor-intensive manufacturing and high-skilled services.
- **Strategic Drivers and Market Concessions**
 - **Asymmetric Tariff Rationalization:** A core feature of this economic framework is the deep cuts in custom duties. The advanced economy eliminates tariffs on nearly all export lines, while the developing country undertakes a calibrated reduction across the majority of its tariff lines, successfully protecting its hyper-sensitive sectors while opening up access to premium foreign products.
 - **Reciprocal Sectoral Boost:** The trade architecture provides immediate market access to the developing nation's labor-intensive sectors—such as textiles, footwear, and gems and jewelry—by removing traditional tariff penalties. Concurrently, the developed nation gains access to vast consumer markets for premium goods like automobiles and spirits through a phased reduction of historical, triple-digit protectionist duties.
 - **Supply Chain Decoupling and Diversification:** Beyond simple commerce, these partnerships act as a strategic hedge against over-reliance on concentrated supply hubs, particularly in East Asia. By lowering tariffs on critical high-tech inputs, such as advanced medical devices, nations can re-engineer their supply chains away from geopolitical adversaries and toward reliable democratic partners.
- **Structural Counterarguments and Friction Points**
 - **The Shadow of Climate Protectionism:** The primary challenge to these long-term trade frameworks is the unilateral enforcement of green tariffs like the Carbon Border Adjustment Mechanism. These mechanisms threaten to erase the competitive pricing gains achieved through tariff elimination, effectively transforming environmental standards into formidable trade barriers for heavy industries like iron and steel.
 - **The Sovereign Boundary of Labor and Environment:** While developing nations view the exclusion of legally binding labor and environmental clauses as a massive victory against non-tariff barriers, critics argue that non-binding chapters lack enforcement mechanisms. This omission leaves the agreement vulnerable to domestic political backlash within the developed nation, where civil society demands strict adherence to global sustainability goals.

- **Historical Evolution of the Issue**
- **Pre-Independence Era (Colonial Mercantile Roots):** Trade relations during this period were defined by structural extraction. The colonial administration enforced asymmetric trade flows where India served as a captive supplier of cheap raw materials (like raw cotton and indigo) and a duty-free dumping ground for finished industrial goods from British mills. This systematically dismantled India's indigenous manufacturing and handicraft sectors.
- **Post-Independence to 1991 (Import Substitution and Protectionism):** Haunted by colonial economic exploitation, independent India adopted an inward-looking, socialist economic model. Guided by the principles of import-substitution industrialization (ISI), the state erected steep tariff walls and stringent licensing regimes (the License Raj) to protect infant domestic industries, viewing external trade agreements with skepticism.
- **1991 to Mid-2010s (Liberalization and the Era of Regional FTAs):** The Balance of Payments crisis of 1991 forced structural economic reforms, integrating India into the global economy. This era saw the rollout of the "Look East" policy, culminating in comprehensive trade agreements with ASEAN, Japan, and South Korea. However, these early deals often resulted in widening trade deficits, causing domestic policymakers to re-evaluate their approach to trade liberalization.
- **The Post-2016 Era (The Shift to Strategic Western Alliances):** Events like Brexit and the subsequent fracturing of the multilateral trading order prompted a sharp shift in strategy. Moving away from sweeping mega-regional trade blocs like the RCEP, India turned toward deep, bilateral agreements with major Western economies. This modern approach balances strategic autonomy, supply chain resilience, and targeted market access.
- **Way Forward**
- **Strategic Adaptation to Green Tariffs**
- Nations must proactively upgrade their heavy industries to counter the financial impact of external green regulations like the Carbon Border Adjustment Mechanism. This requires substantial public-private partnerships to fund the decarbonization of primary sectors such as steel, iron, and aluminum. Upgrading domestic production to meet low-carbon standards ensures that goods remain competitive in Western markets, turning potential trade barriers into opportunities for technological advancement.
- **Optimizing the "Self-Declaration" Customs Regime**
- To fully capitalize on streamlined customs processes, governments must invest heavily in building domestic capacity. This involves launching nationwide training initiatives to educate small and medium enterprises (SMEs) on the legal and technical requirements of rules-of-origin self-certification. Strengthening domestic audit systems will prevent fraudulent claims, ensuring the country maintains its reputation as a reliable, compliant global trading partner.
- **Targeted Industrial Upgrades for High-Value Sectors**
- Securing duty-free market access is only half the battle; domestic industries must scale up to meet this new demand. In labor-intensive sectors like textiles and footwear, policymakers should provide targeted fiscal incentives, structural credit support, and modern infrastructure parks. These measures will help local manufacturers transition from low-value raw material exporters to high-value providers of finished products, maximizing the economic returns of the trade agreement.
- **Setting Up Robust Institutional Monitoring Systems**
- To prevent sudden, destabilizing import surges in sensitive sectors, governments should establish dedicated institutional watchdogs. These bodies will monitor trade flows in real-time, analyzing the impact of tariff reductions on domestic markets. If necessary, they can trigger pre-negotiated bilateral safeguard mechanisms to protect local industries, ensuring that trade liberalization occurs at a stable, sustainable pace.

COMPREHENSIVE ANALYSIS: INDIA-UK FREE TRADE AGREEMENT (FTA) - KEY OPPORTUNITIES & IMPACTS

KEY CONSUMER CHANGES



BRITISH CARS:

Tariffs reduced from 110% to 30% in Yr 1, then to 10% in Yr 5. New quotas.



BRITISH ALCOHOLIC BEVERAGES (SCOTCH):

Tariffs from 150% to 75% initially, then to 40% by Yr 10.



OTHER CONSUMER GOODS:

Tariffs on chocolates, cosmetics, sports equip removed/reduced. More choice, lower prices.

FLASHPOINTS & CHALLENGES



CARBON BORDER ADJUSTMENT MECHANISM (CBAM):

India **NOT EXEMPT**. A carbon price on carbon-intensive imports to the UK.

FLASHPOINTS:

The CBAM remains a challenge for heavy industry like iron and steel.



FLASHPOINTS
The CBAM remains a challenge for heavy industry like iron and steel.



HUB INDIA-UK FTA: COMPREHENSIVE IMPACT

CUSTOMS & NTB REFORMS

OLD SYSTEM:
Certificates from authorities

Delays & Hurdles



NEW SYSTEM:

Self-Declaration of Origin by Exporters/ (first time in an FTA)



MEDICAL DEVICES:

Reduced dependence on China, lower tariffs on UK devices and components.

IMPACT ON INDIAN INDUSTRY



EXPORT BOOST FOR LABOUR-INTENSIVE GOODS: Textiles, footwear, gems & jewellery.

- **UK DUTY ELIMINATED** from up to 12% to 16%
- **LEVEL PLAYING FIELD** vs. competitors like Bangladesh.



IRON & STEEL EXPORTS: Quotas ensure growth from ~\$850 million to >\$1 billion.

PROFESSIONALS CONCESSIONS



- **SOCIAL SECURITY CONCESSIONS:** 5-YEAR EXEMPTION from UK National Insurance for Indian professionals.
- **AVOIDS DOUBLE CONTRIBUTION:** Covers ~75,000 professionals and ~900 firms.

NON-TARIFF BARRIERS (NTB) WIN

NON-BINDING LABOUR & ENVIRONMENT CHAPTER (Win for India against non-tariff barriers used by Western countries).

• GLOBAL

In China's new ballistic missile test, the worries for Indo-Pacific region



EXPERT EXPLAINS

SUYASH DESAI

POLITICAL SCIENTIST AND NON-RESIDENT FELLOW WITH THE FOREIGN POLICY RESEARCH INSTITUTE, PHILADELPHIA

CHINA TESTED its sea-based long-range intercontinental ballistic missile (ICBM) last week (July 6), marking its first-ever test of a submarine-based ballistic missile in international waters. This is the People's Liberation Army's (PLA) second launch of a ballistic missile in international waters since 1980. China conducted a land-based ICBM test on September 21, 2024.

The latest test missile was reportedly launched from a submarine in the South China Sea. It was carrying a dummy war-

head that covered a distance of 7,300 km, reportedly flying over the Philippines, before landing in the Southern Pacific Ocean. The dummy warhead landed within an area designated under the Treaty of Rarotonga's South Pacific nuclear-free zone (where testing or stationing of nuclear explosive devices is barred), after it flew over the Exclusive Economic Zones of Micronesia, Nauru, Kiribati and Tuvalu.

What is known about this missile test?

It is difficult to determine if the missile was Ju Lang 2 (JL-2) or the latest Ju Lang 3 (JL-3). Both JL-2 and JL-3 are submarine-launched ICBMs, jointly developed with DF-31 and DF-41, respectively. ICBMs generally have a range of at least 5,000 km, and the JL-2 is capable of travelling 8,000-9,000 km. The JL-3 reportedly has a range of over 9,000 km. Both delivery systems can be paired with China's Type 094 SSBNs (nuclear-powered submarines with ballistic missiles).

Why is Beijing testing now?

Since the turn of the decade, and especially in the past two years, Beijing has



The ICBM being tested on July 6. XINHUA/CHINA

not shied away from overtly tomming its improving nuclear capabilities.

It has constructed multiple missile silos — without camouflaging them and with the awareness that they will be noticed by American satellites. Additionally, it displayed new and advanced nuclear delivery

systems in its 2025 military parade and carried out a land-based ICBM test in the Pacific Ocean in 2024.

China wants the world, and the US in particular, to take note of its improving nuclear capabilities. These developments can be attributed to factors such as China's efforts to demonstrate the construction of its nuclear triad (having the capability to deliver nuclear weapons via land, sea and air).

It could also be attributed to China attempting to improve its second-strike capabilities, which are an extremely important part of its deterrence posture, since only India and China are the two declared "No-first-use" nuclear weapons states.

Beyond these simplistic explanations, these developments could also be attributed to China's attempts to construct a nuclear shield, attain great-power status, or improve theatre-level nuclear dominance in the Indo-Pacific region.

Do these developments mean China's nuclear strategy has changed?

No. The important pillars of China's declaratory nuclear strategy are: i) No-first-

use nuclear policy, ii) Assured retaliation, iii) Not to use or threaten to use nuclear weapons against non-nuclear-weapon states or in nuclear-weapon-free zones.

However, China also subscribes to a "minimum nuclear deterrent" posture. With recent changes in size, diversity, accuracy, and posture, there is evidence that China is shifting away from its minimum nuclear deterrence approach.

For instance, China could possess around 1,000 nuclear warheads by 2030. It is shifting at least a part of its force towards a "launch on warning" operational readiness posture, which Beijing refers to as "early warning counter-strike" — wherein Beijing initiates a counter-strike once a launch warning has been received but before targets in China have been hit.

What are the implications for Indo-Pacific actors, including India?

For New Delhi, the recent test reinforces the widening strategic gap between India and China's nuclear arsenal and delivery capabilities — both qualitatively and quantitatively. While India has operationalised its

nuclear triad by activation of the Arihant-class SSBNs, its submarine-launched ballistic missiles have shorter ranges.

The Chinese demonstration adds urgency for India to deploy its longer-ranged K-5 and K-6 missiles to ensure parity in second-strike survivability. With the launch of the JL missile from the fortified South China Sea, Chinese submarines reduce their detection risk. Thus, India needs to expand its anti-submarine warfare capabilities and seabed domain awareness, at least across the Indian Ocean Region.

Regional actors would also be aware that China's improved capabilities raise the cost of outside intervention in its sphere of influence during any contingency.

The test, however, comes at a time when, under Donald Trump, uncertainty around expectations of US military support has heightened. For the US and the rest of the world, the launch was a direct demonstration of the maturation of China's nuclear triad and its improved deterrence capabilities. It complicates US missile defence planning and may compel it to refocus its attention and resources from West Asia to East Asia.

- **Key Terms and Explanations**

- **Intercontinental Ballistic Missile (ICBM)**

- A guided ballistic missile with a minimum range of 5,000 km designed primarily for the delivery of nuclear weapons. These missiles are capable of traveling across continents, exiting the Earth's atmosphere during their mid-course phase before re-entering to strike distant targets.

- **Submarine-Launched Ballistic Missile (SLBM)**

- A ballistic missile capable of being launched from submarines. Unlike land-based equivalents, SLBMs provide exceptional strategic flexibility and survivability because their launch platforms can move stealthily through deep ocean waters, evading detection.

- **SSBN (Nuclear-Powered Ballistic Missile Submarine)**

- A specific class of naval submarine powered by a nuclear reactor that is equipped to carry and launch long-range submarine-launched ballistic missiles. The integration of nuclear propulsion allows these vessels to remain submerged almost indefinitely, serving as a highly survivable component of defense infrastructure.

- **Nuclear Triad**

- A three-pronged military force structure consisting of land-based intercontinental ballistic missiles, strategic bombers, and sea-based ballistic missile submarines. Possessing a functional triad ensures that a nation retains operational options to deliver nuclear weapons across land, air, and sea dimensions.

- **Second-Strike Capability**

- The verified ability of a state to respond to a nuclear attack with a powerful, devastating nuclear retaliation, even after absorbing an initial enemy first strike. A credible sea-based deterrent is considered the most secure way to guarantee this capability, as hidden submarines are highly likely to survive a surprise attack.

- **No-First-Use (NFU)**

- A political pledge or military doctrine wherein a nuclear-armed state commits not to use nuclear weapons as a means of warfare unless it is first attacked by an adversary utilizing nuclear weapons. It frames a nation's nuclear posture as strictly defensive and retaliatory.

- **Launch-on-Warning Posture**

- An operational military readiness doctrine where a nation prepares to initiate a retaliatory nuclear counter-strike immediately upon receiving satellite or radar warnings of an incoming enemy missile attack. The retaliation is executed while the enemy's missiles are still in flight, before they can destroy domestic infrastructure.

- **Main Arguments and Substantive Parts**

- **Core Thesis**

- Recent long-range sea-based strategic tests in international waters signal a decisive shift away from a legacy posture of "minimum nuclear deterrence" toward an assertive, highly visible operational capability. This evolution alters the strategic balance within the Indo-Pacific, creating unprecedented deterrence challenges for Western powers and widening the quantitative and qualitative military asymmetry with regional neighbors.

- **Key Assertions and Supporting Evidence**

- **Systemic Scaling of the Arsenal:** Structural expansions, including the uncamouflaged construction of multiple land-based missile silos and the deployment of advanced delivery platforms, indicate an intentional effort to reach an estimated 1,000 nuclear warheads by 2030.

- **Operationalizing High-Readiness Doctrines:** There is a visible operational transition toward an "early warning counter-strike" or launch-on-warning posture. This allows for immediate retaliation upon receiving initial warning indicators, departing significantly from a passive defensive framework.

- **Projecting Blue-Water Strategic Dominance:** Moving tests from domestic land corridors into the open international waters of the Pacific Ocean demonstrates advanced proficiency in deploying submarine-launched platforms. Utilizing maritime sanctuaries like the South China Sea allows strategic submarines to operate with reduced detection risks, neutralizing legacy open-ocean tracking networks.

- **Strategic Implications and Multi-Directional Pressures**

- **Altering External Intervention Calculus:** The demonstration of survivable, long-range sea-based platforms with ranges exceeding 9,000 km effectively raises the military and political cost of outside intervention during regional contingencies.

- **Complicating Regional Defense Planning:** These advancements place immediate pressure on Western missile defense frameworks, potentially forcing a significant reallocation of defense resources and strategic focus away from West Asia toward the East Asian theater.

- **Historical Evolution of the Issue**
- **Early Cold War Foundations (1960s–1980s)**
 - The journey toward acquiring transcontinental delivery systems began during the heightened geopolitical rivalries of the Cold War. Following initial breakthroughs in nuclear technology in the mid-1960s, early strategic planning focused on building a basic, land-based retaliatory capability. This era culminated in the milestone 1980 ballistic missile test into the international waters of the Pacific Ocean, which established a baseline for long-range power projection.
- **Post-Cold War Modernization and the Triad (1990s–2010s)**
 - As regional economies expanded and maritime boundaries grew contested, strategic focus shifted toward developing a survivable sea-based deterrent to complement land and air forces. This period saw the development of the Type 094 nuclear-powered ballistic missile submarine (SSBN) alongside the development of the Ju Lang (JL-2) submarine-launched ballistic missile, which achieved an operational range of 8,000–9,000 km. This established a functional, although rudimentary, nuclear triad.
- **Accelerated Expansion and Strategic Transparency (2020–Present Day)**
 - The current era marks a departure from historical patterns of strategic restraint. Since the turn of the decade, hidden development has transitioned into overt capability projection. Key milestones include:
 - **2024:** A highly visible land-based ICBM test conducted directly into the Pacific Ocean.
 - **2025:** The public display of next-generation delivery architectures during major military parades.
 - **2026:** The execution of the first-ever long-range sea-based ICBM test launched from a submarine in the South China Sea, covering a distance of 7,300 km over sovereign Exclusive Economic Zones to land in the Southern Pacific Ocean.
- **Way Forward**
- **Achieving Strategic Parity and Enhancing Second-Strike Survivability**
 - To preserve regional stability and maintain a credible deterrent, affected regional powers must prioritize the rapid development and deployment of their own long-range sea-based delivery systems. Specifically, accelerating platforms like the K-5 and K-6 submarine-launched ballistic missiles will ensure that retaliatory capabilities remain resilient and capable of reaching distant targets, even when operating from secure home waters.
- **Expanding Deep-Sea Maritime Domain Awareness**
 - Addressing the challenges of stealthy submarine deployments requires a major expansion of tracking capabilities across critical ocean corridors. Nations must invest heavily in:
 - Advanced Anti-Submarine Warfare (ASW) technologies.
 - Extensive Seabed Domain Awareness (SDA) networks.
 - Arrays of deep-sea acoustic sensors along vital choke points to monitor and log the movement of foreign strategic vessels.



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COMPREHENSIVE ANALYSIS: CHINA'S SLBM TEST & INDO-PACIFIC STRATEGIC SHIFT

Launch Platform:
Type 094 SSBN

Missile:
Ju Lang
(JL-3 speculation)

Range: >9000 km
(for JL-3)

Dummy Warhead

Impact Point:
Southern Pacific Ocean

Key arguments:

- Shift to Assertive Nuclear Posture

- Erosion of Minimum Deterrence

Erosion of Minimum Deterrence

MULTIDIMENSIONAL IMPACTS ANALYSIS

Social
(Anxiety & Militarization)



Political
(Alliance Polarization)



Legal
(Non-Proliferation Tests)



Ethical
Arms Race & Miscalculation Risk



International
(Indo-Pacific Rebalancing)



Economic
Diversion of Capital



UPSC CSE SYLLABUS LINKAGES

- **GS-II**
- Global Groupings
- Developed Country Policies
- **GS-III**
- Security Challenges
- Science & Technology

NCERT BOOK LINKAGES

- **Class XII Pol Sc**
- Contemporary World Politics
- Ch on Security
- **India Since Independence**
- Ch on External Relations

PREVIOUS YEARS QUESTIONS (PYQs)

UPSC Prelims/Mains

1. SLBM survivability and Contra-range nuclear Posture
2. Indo-Pacific dynamics

APSC Mains

1. SLBM survivability
2. Indo-Pacific Dynamics in Awareness (2023)
3. Indo-Pacific strategy & Indo-Pacific Dynamics

APSC Mains

1. Maritime Domain Awareness (PYP)
2. SLBM survival (Prolo 103)
3. Becoming and Maritime Domain Awareness (PPSC - 34)

HISTORICAL CHRONOLOGY

Early Development to unrepudiables (colisious)

- Launte elunintame

Post-Cold War Modernization (Type 094: JL-2)

- Type 094 (etar. JL-2)
- Type 094, JL-2

Accelerated Modern Expansion (1000 warheads)

- 1000 warheads target
- Open sea tests

THE STRATEGIC WAY FORWARD

① **Capability Parity**
(long-range SLBMs)



② **Maritime Domain Awareness**
(deep-sea tracking, ASW)



③ **Diplomatic Coalitions**
(Quad, intel-sharing)



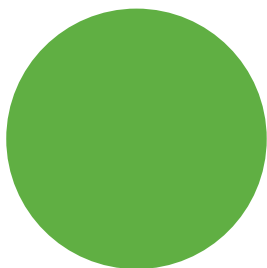
④ **Doctrinal Dialogues**
(crisis protocols)



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• POLICY

Green energy push, 7.5-GW capacity target: Gujarat's data centre policy

Ritu Sharma

Ahmedabad, July 25

THE GUJARAT government last week announced a data centre policy for 2026-29, targeting investments of Rs 6 lakh crore and the creation of 7.5 gigawatts (GW) of capacity, which it says would be the highest in the country.

The policy lays out a wide range of incentives for investors, including duty and tax exemptions, relief in Floor Space Index (FSI), uninterrupted water and power supply and relaxations in building norms.

The Viksit Gujarat Data Center Policy (2026-29) follows Reliance Industries Ltd's announcement last month of a partnership with Meta to lease its first AI-enabled data centre in India, at Jamnagar in Gujarat.

Telangana was the first state in the country to announce a data centre policy in 2016, followed by Tamil Nadu, Uttar Pradesh, West Bengal, Odisha, Maharashtra, Haryana and Andhra Pradesh.

Stress on green energy

Gujarat has claimed that its policy is among the most ambitious state-level frameworks for

DHOLERA CALLING

• The state government is looking to attract data centres to the Dholera region, 100 km south-west of Ahmedabad.

• To do this, the government has offered a capital subsidy of 2.5% on eligible fixed capital investment. This includes core technical and infra expenses but excludes the cost of land, land development and chips.

hyperscale, AI-ready data centres, with a strong emphasis on green energy. The policy aims to enable the establishment of up to 7.5 GW of data centre capacity. Under the policy, a data centre entity must ensure that at least 5% of the electricity consumed for core operations comes from green and renewable sources.

This comes amid a larger push for green

energy in the industry. Google has announced plans to build an AI data centre campus in Andhra Pradesh powered entirely by clean energy. The Adani Group has announced a 5 GW data centre platform across India through its AdaniConneX joint venture, which will be powered by the Adani Green Energy park at Khavda in Kutch district. P Bharathi, Secretary of Gujarat's Department of Science and Technology (DST), told *The Indian Express*: "Gujarat is the first state to announce the largest capacity (hyperscale) data center as well as the first to have a dedicated policy in the country specifically designed for green AI data centres. More importantly, other states are working on a case-to-case basis and not under a dedicated policy like Gujarat."

Financial incentives

The Gujarat government has offered to exempt stamp duty and registration fee for leasing or buying land. It has also offered 100% reimbursement of electricity duty for 20 years and a subsidy at the rate of Re 1 per unit of power consumed by a data centre entity for 20 years, both starting from the date of commencement of commercial operations. The policy provides full reimbursement of eligible expenses on plant and machinery, building infrastructure and services for up to 20 years. It offers financial assistance for desalination plants to meet the sector's high water requirements.

- **Key Terms and Explanations**

- **Data Centre:** A centralized physical facility that houses an organization’s shared IT operations and equipment. It stores, processes, and disseminates data and applications.
- *Simple Analogy:* Think of it as a hyper-secure, colossal digital warehouse containing thousands of high-powered computers that keep your UPI applications, streaming platforms, and cloud storage functioning non-stop.
- **Hyperscale Data Centre:** These are massive facilities scaled up to support robust, high-volume applications. They typically house tens of thousands of physical servers operating within a highly optimized networking environment to handle vast processing workloads.
- **AI-Ready Data Centre:** Traditional data centres process standard cloud computing tasks. AI-ready facilities are specifically engineered to handle the massive computational loads of Artificial Intelligence and Machine Learning algorithms. They utilize advanced Graphical Processing Units (GPUs) or Tensor Processing Units (TPUs), demanding far denser power layouts and specialized liquid cooling systems due to the extreme heat generated during operations.
- **Green Energy & Renewable Integration Threshold:** This refers to the policy-mandated minimum percentage of electricity that an industrial unit must source from clean, non-fossil fuel origins (such as solar, wind, hydro, or hybrid storage systems) to power its core operations.
- **Floor Space Index (FSI):** Also known as Floor Area Ratio (FAR), it is the ratio of the total built-up area of a building to the total area of the land plot on which it is built. Relaxations in FSI allow infrastructure developers to build vertically, optimizing land utilization.
- **Capital Subsidy:** Direct financial assistance provided by the government to a private enterprise to cover a specified percentage of its initial fixed asset costs (such as machinery, plants, or core technical infrastructure), lowering the initial entry barrier for highly capital-intensive sectors.
- **Desalination Plants:** Industrial facilities that extract salt and minerals from saline water (typically seawater) to render it fit for human consumption or industrial use. For data hubs, these plants act as a vital alternative water source for cooling systems, preventing the depletion of local freshwater tables.

- **Core Conceptual Pillars and Analytical Framework**

- The intersection of digital expansion and environmental sustainability creates a unique set of structural dynamics that define modern industrial planning.

- **The Core Thesis**

- The exponential surge in data generation—fueled by generative AI, 5G rollouts, and big data analytics—demands an immediate transformation of computing infrastructure. However, data infrastructure is inherently resource-intensive, consuming massive quantities of electricity and water. The modern paradigm seeks to decouple digital economic growth from environmental degradation by deploying state-backed fiscal incentives that mandate a structural transition toward clean, renewable power sources.

- **Key Substantive Pillars**

- **Fiscal Incentives as Capital Catalysts:** High-tech infrastructure involves immense upfront Capital Expenditure (CapEx) and long-term Operational Expenditure (OpEx). Sub-national interventions utilize targeted fiscal tools—such as long-term electricity duty exemptions, per-unit power subsidies, and stamp duty waivers—to lower entry barriers and accelerate private investment cycles.
- **Mandatory Green Benchmarks:** Integrating sustainability into core industrial planning involves setting non-negotiable thresholds for clean energy usage (e.g., requiring more than half of operational power to be green). This ensures that the physical infrastructure powering the digital economy does not inadvertently expand the carbon footprint.
- **Geographic Clustering and Specialized Zones:** Directing development toward specific investment zones (like specialized industrial corridors or coastal areas) allows governments to offer plug-and-play ecosystems. This centralization makes it economically viable to build massive common infrastructure, such as dedicated solar fields or shared desalination plants.

- **Structural Challenges & Counterarguments**

- **The Intermittency Paradox:** Data hubs require a 99.999% uninterrupted power supply to prevent global digital disruptions. However, major renewable sources like solar and wind are inherently intermittent. Without robust grid-scale battery storage solutions, heavy reliance on green energy can strain regional electricity grids.
- **The Water-Energy Nexus:** AI workloads generate tremendous heat, necessitating massive quantities of water for evaporative cooling. While desalination plants offer a pathway to protect localized freshwater tables, the process of desalination is itself energy-intensive, creating a secondary environmental loop that requires careful management.

- **Historical Evolution of Digital Infrastructure in India**
- **Pre-1980s (The Captive Framework):** Computing infrastructure was almost non-existent outside of niche scientific, space, and defense installations. Data storage was entirely manual, paper-based, or handled via primitive mainframe systems with no concept of centralized digital data networks.
- **1980s–1990s (Institutional Beginnings):** The establishment of institutions like the National Informatics Centre (NIC) led to the birth of the first dedicated state-run data infrastructure. The focus was entirely on fundamental e-governance applications, culminating in the creation of localized National Data Centres to support basic public administration.
- **2000s–2010s (The Commercial Cloud Boom):** The liberalization of telecom, the explosion of the software services sector, and the subsequent launch of the Digital India campaign sparked an unprecedented surge in data creation. Data storage migrated rapidly from internal captive servers to third-party commercial cloud data centres, heavily clustered around major maritime telecom landing stations like Mumbai and Chennai.
- **2016–2020 (The Early Sub-National Policy Era):** Recognizing data as a vital economic asset, sub-national governments began creating distinct infrastructure policies. Telangana pioneered the country's first dedicated data centre policy in 2016, quickly followed by states like Tamil Nadu, Uttar Pradesh, and Maharashtra. The primary focus during this stage was real estate facilitation, single-window clearances, and basic power delivery.
- **Present Day (The Green AI Horizon):** The dual rise of generative artificial intelligence and national net-zero commitments has transformed the landscape. Industrial policy has matured from basic real-estate facilitation into highly sophisticated frameworks tailored for hyperscale, AI-ready setups that explicitly legally mandate green energy compliance, massive fiscal subsidies, and localized resource management.
- **Way Forward**
- **Deploying Grid-Scale Battery Energy Storage Systems (BESS):** To address the intermittent nature of solar and wind energy, industrial policies must explicitly incentivize co-locating large-scale battery banks or Pumped Hydro Storage projects directly alongside hyperscale data hubs to ensure a continuous, 24/7 supply of clean energy.
- **Mandating Closed-Loop and Immersion Cooling Tech:** Traditional evaporative cooling models consume significant amounts of water. Regulatory frameworks should encourage a transition toward next-generation liquid immersion cooling technologies, where servers are submerged in specialized dielectric fluids to dramatically lower water consumption.
- **Enforcing Extended Producer Responsibility (EPR) for E-Waste:** The rapid evolution of AI chips and processing hardware leads to shorter hardware lifecycles. Implementing strict, specialized EPR guidelines for data hubs will ensure that outdated computing infrastructure enters certified, circular recycling loops rather than contributing to hazardous landfills.
- **Transitioning to Performance-Linked Incentives (PLI):** State governments should shift away from unconditional long-term subsidies and instead link financial support directly to verified performance metrics, such as maintaining a low Power Usage Effectiveness (PUE) ratio or actively funding local technical skill-development programs.



AXIA IAS ACADEMY PRESENTS: GUJARAT DATA CENTER POLICY 2026-29

VISION & SCALE

- 7.5 GW Capacity Target
- Rs 6 Lakh Crore Investment
- Pioneering Green AI Policy
- Special Focus: Dholera SIR



6 LAKH CRORE



7.5 GW

AI-ENABLED

ENABLERS & EASE

- Relief in Floor Space Index (FSI)
- Uninterrupted Water & Power
- Building Norm Relaxations
- Desalination Plants



STANDARD FSI



RELAXED FSI
(VERTICAL)

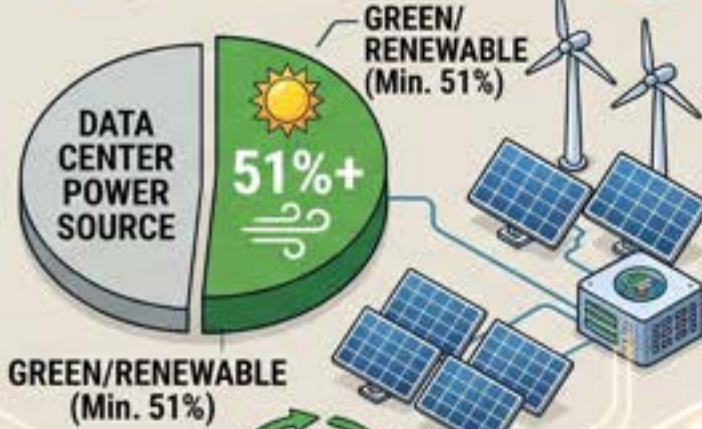
DESALINATION

SECURE POWER



THE GREEN MANDATE

- Mandatory: Min. 51% Green Power
- Decoupling Growth from Carbon
- Adani Khavda Green Energy Park
- Google Clean Energy



FISCAL INCENTIVES

- Stamp Duty & Registration Fee Exemptions
- 100% Electricity Duty Reimbursement (20 years)
- Re 1/unit Power Subsidy (20 years)
- Capital Subsidy on Core Infra (2.5%)



UPSC CSE DIMENSIONS

- GS 3: Infrastructure, Energy, Environment
- GS 2: Policy Design & Implementation
- Ethics (GS 4): Environmental Stewardship
- Essay & Optionals

WAY FORWARD

- Closed-Loop/Immersion Cooling
- Extended Producer Responsibility for E-waste
- Grid-Scale Battery Storage
- Desalination Integration



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Iran threatens 'to halt all regional oil exports'

Oil and gas 'will either be for everyone or for no one', says Iran amid 'wave of strikes' by the U.S.

Blockade by U.S. has 'dismantled' the peace MoU, says Tehran; Brent crude price nears \$85 a barrel

Unless stocks are replenished, the world will be poorly equipped for the next shock, analysts say

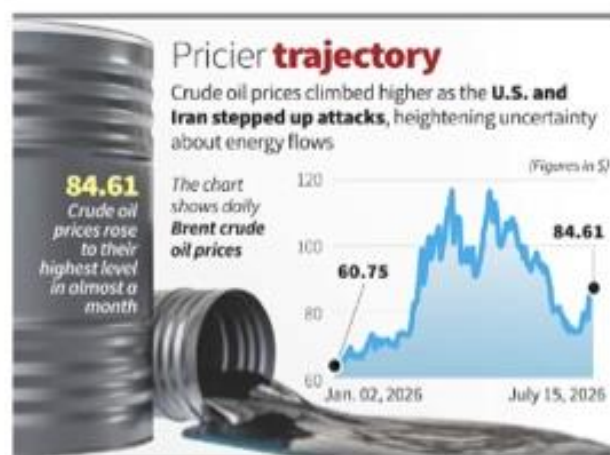
Agence France-Presse
TEHRAN/WASHINGTON

Returning to war nearly a month after signing a memorandum of understanding towards peace in West Asia, the U.S. and Iran on Wednesday launched strikes on targets across the region.

While the U.S. Central Command said it launched "a wave of strikes... designed to further degrade military capabilities Iranian forces have used to attack commercial shipping in the Strait of Hormuz", Iranian state media reported explosions near the port city of Bandar Abbas, on the island of Qeshm, and on Bandar Imam Khomeini. Iranian media later said new U.S. strikes hit the

southern port city of Bushahr, home to the country's only civilian nuclear plant.

Iran's Revolutionary Guards said they targeted the U.S. Fifth Fleet in Bahrain, where the military said it had intercepted attacks against civilian targets, while Jordan's armed forces said they had downed three missiles from Tehran. Deputy Foreign Minister of the Islamic Republic, Kazem Gharibabadi, said the renewed U.S. blockade on Iranian ports "has, in a way, dismantled the Islamabad memorandum", referring to the interim deal reached last month to halt hostilities and pursue peace talks. The Guards also threatened on Wednesday to halt all energy exports from West Asia over the



U.S. blockade. "The export of oil and gas from the region will be either for everyone or for no one," it said.

The Brent crude oil, the international standard, traded close to \$85 a barrel on Wednesday – more than 15% higher than the

price before the war, but still well below the nearly \$120 reached at the height of the conflict. Analysts with the International Monetary Fund (IMF) have warned that while a surplus of oil had kept prices low, "much of that room has now been used up."

"As tensions flare again in the Strait of Hormuz, that room [from oil surplus] is now smaller and shrinking further as spare capacity has been deployed, demand has compressed, and inventories have been drawn down," Azim Sadikov and Jean-Marc Natal from the IMF wrote in a blog post. "Unless inventories are replenished, the world will start from a weaker position when the next shock comes."

At the heart of the resumption of hostilities has been the dispute over the Strait of Hormuz, a waterway that is crucial for global oil and gas flows.

Iran blockaded the strait after the U.S. and Israel launched their massive attack on February 28, using

it for leverage against its foes for months before briefly reopening it, and then again vowing it would be closed "until the U.S. ends its aggression".

The U.S., in turn, has reimposed its own blockade of Iran's ports, though Mr. Trump has backed down on a planned 20% levy on ships using the strait.

In Tehran, there was no sign of a return to conflict, with Iranians thronging cafes to watch the France-Spain FIFA World Cup semi-final in huge crowds on Tuesday night.

Since the war began, Iran has asserted its control over the Strait of Hormuz and opened fire on ships for taking routes it says are unauthorised.

"The retaliatory operations of the fighters will

continue, and the Strait of Hormuz will remain closed until the United States ends its acts of aggression," the Guards have said.

A Norwegian tanker was hit by an explosion caused by an unidentified device off the Omani coast early Tuesday, the crisis response company MTI Network said.

Kuwait said one of its naval vessels was struck during an Iranian missile and drone barrage, wounding four crew members.

Since last week, renewed U.S. attacks have killed at least 30 people in Iran, government spokesperson Fatemeh Mohajeri said. Separately, the military announced that seven of its personnel were killed in Wednesday's strikes on the southeast.

- **Key Terms and Explanations**

- **Geopolitical Chokepoints:** These are narrow channels or straits along high-traffic global sea routes that are highly vulnerable to military disruption or blockades. The **Strait of Hormuz** is a prime example; it is a vital maritime artery connecting the Persian Gulf with the Gulf of Oman and the Arabian Sea, through which a massive share of the world’s liquefied natural gas and petroleum passes daily.
- **Economic Statecraft and Maritime Blockades:** The strategic deployment of economic barriers, sanctions, or naval blockades to restrict a sovereign nation's trade and port access. In practice, blocking an adversary's ports serves as a non-kinetic means to degrade their economic capability, though it frequently triggers aggressive asymmetric responses.
- **Strategic Spare Capacity:** This refers to the volume of oil production that can be brought online within a short timeframe (typically 30 days) and sustained for a prolonged period. When global spare capacity shrinks and inventories are drawn down, the global market loses its buffer, leaving it highly sensitive to sudden supply shocks.
- **Asymmetric Retaliation:** A strategic approach where a conventionally weaker military power responds to a stronger adversary by targeting systemic vulnerabilities rather than engaging in direct confrontational warfare. Disrupting commercial shipping lanes using precision drones or sea mines exemplifies this doctrine.
- **Theatre Naval Commands:** Dedicated naval deployments designed to maintain maritime security and protect international trade lifelines in volatile zones. The presence of foreign naval assets, such as the US Fifth Fleet stationed in Bahrain, acts as a forward defense mechanism to secure freedom of navigation.

- **Main Arguments and Substantive Parts**

- The geopolitical friction in West Asia underlines a critical vulnerability: the deep entanglement of regional security frameworks with the stability of the global energy supply chain.
- **The Fragility of Diplomatic Memorandums**
 - A central takeaway from recent escalations is that diplomatic progress, such as the Islamabad Memorandum of Understanding, remains highly fragile when underlying structural grievances are left unaddressed. A cycle of unilateral economic blockades and military strikes can dismantle weeks of diplomatic dialogue within hours, pushing regional actors back toward active conflict.
- **The Weaponization of Global Energy Transit**
 - A key argument put forward by regional powers facing economic isolation is the concept of indivisible energy security—summarized by the stance that regional energy exports must either be secure for all nations or remain accessible to none. By threatening a complete halt of energy transits through vital straits, blockaded nations use their geographic leverage to turn a localized conflict into a global economic crisis.
- **Systemic Vulnerabilities of the Oil Market**
 - Analyses from bodies like the International Monetary Fund (IMF) warn that the global energy market is operating on highly depleted margins. The continuous drawdown of global oil inventories and the deployment of spare capacity mean that any major disruption in maritime corridors will immediately trigger steep price spikes, illustrated by Brent crude jumping past 85 dollars a barrel. The world stands poorly equipped to absorb another major supply shock.
- **The Cycle of Asymmetric Escalation**
 - The tactical focus has shifted from conventional military posturing to direct attacks on commercial infrastructure. Incidents involving explosions on international tankers and missile barrages against regional vessels demonstrate that commercial shipping has become a primary lever of geopolitical deterrence. Furthermore, strikes occurring near civilian nuclear installations, such as the Bushehr plant, significantly raise the stakes of catastrophic environmental and strategic fallout.

- **Historical Evolution of the Issue**
- **The Era of Resource Exploitation and Early Compacts (Pre-1970s):** The discovery of massive hydrocarbons in the Persian Gulf led to deep Western involvement in the region. Security architectures were established to protect supply lines to the West, which inadvertently fostered deep local resentment against foreign naval dominance.
- **The Emergence of Energy Weapons and the Tanker War (1970s–1980s):** The 1973 oil embargo proved that energy could be effectively weaponized. Following the 1979 Iranian Revolution, the region saw a structural shift. During the Iran-Iraq War (1980–1988), both nations targeted each other's commercial oil tankers in the Persian Gulf—a period known as the "**Tanker War.**" This historic precedent firmly established the Strait of Hormuz as a primary geopolitical pressure point.
- **Dual Containment and the Strengthening of Forward Commands (1990s–2015):** The post-Cold War era saw permanent foreign military installations in the Gulf, particularly the US Fifth Fleet in Bahrain. The focus turned toward keeping maritime trade lanes open while imposing targeted sanctions. This created a tense equilibrium that briefly stabilized with the signing of the Joint Comprehensive Plan of Action (JCPOA) in 2015.
- **The Breakdown of Accords and Asymmetric Geopolitics (Post-2018 to Present):** The unilateral abandonment of major nuclear pacts led to the return of strict economic blockades. In response, regional actors turned to modern asymmetric tools—such as loitering munitions, sea-skimming missiles, and fast-attack craft—effectively ending the era of conventional deterrence and leading to short-lived arrangements like the Islamabad Memorandum.
- **Way Forward**
- **Institutionalizing a Multilateral Maritime Framework**
- Rather than relying on unilateral naval policing, the international community should establish a UN-backed, inclusive maritime security framework for the Strait of Hormuz. A cooperative model involving all regional littoral states, alongside major global importers, would ensure freedom of navigation without triggering local sovereign anxieties.
- **De-coupling Energy Trade from Geopolitical Security**
- Global diplomatic efforts must work toward insulating international energy transit from ongoing political and military disputes. Future diplomatic frameworks, building on past initiatives like the Islamabad Memorandum, should include binding clauses that explicitly prohibit both the imposition of total maritime blockades and the retaliatory closure of international straits.
- **Building Strategic and Supply Chain Resilience**
- Energy-importing nations must view West Asian volatility as a structural reality. This requires accelerating the expansion of Strategic Petroleum Reserves (SPRs) to mitigate short-term supply shocks, while concurrently diversifying energy import origins and speeding up the transition to domestic renewable energy sources.
- **Setting Up De-escalation Channels**
- To prevent miscalculations on the water, direct communication hotlines should be established between regional maritime commands and foreign fleets operating in the Gulf. Clear rules of engagement can help ensure that small-scale accidents involving commercial vessels do not escalate into full-scale regional conflicts.

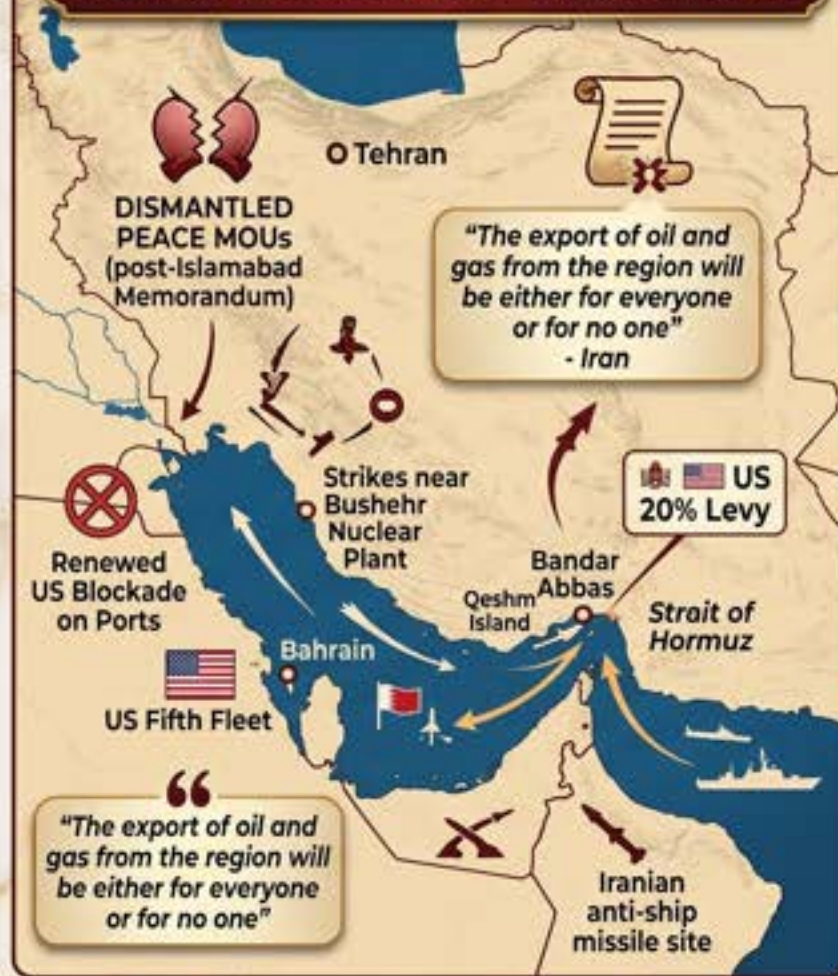


AXIA
IAS ACADEMY

GEOPOLITICAL ANALYSIS: US-IRAN CONFLICT & GLOBAL ENERGY SECURITY

A Deep-Dive into West Asian Dynamics and Maritime Chokepoints for UPSC Prep.

CONTEXT & CHOKEPOINT VULNERABILITY

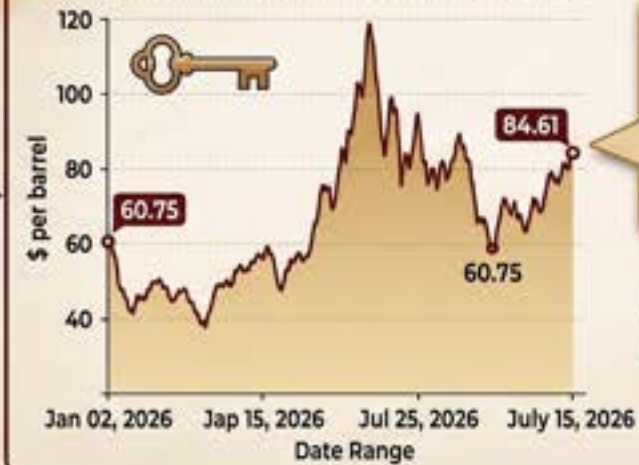


THE CONFLICT CYCLE: ASYMMETRIC WARFARE



PRICIER TRAJECTORY & MARKET DYNAMICS

BRENT CRUDE OIL PRICES



"Spare capacity deployed, demand compressed, inventories drawn down" - IMF blog post



High market risk due to low spare capacity

THE HISTORICAL CONTEXT & THE PATH AHEAD

HISTORY



RETURN TO
"TANKER WAR"
ERA TACTICS
(1980-88)

Transition from conventional war to asymmetric maritime threats

WAY FORWARD



MULTILATERAL
DE-ESCALATION
DIALOGUE



DIVERSIFYING GLOBAL
SUPPLY CHAINS
(e.g., India's SPRs)



ROBUST
ALTERNATIVE
INVESTMENTS



FOCUS ON ECONOMIC
INTERDEPENDENCE
OVER ISOLATION



The reported data leak comes amid construction of four VVER reactors at the plant. FILE PHOTO

Leak of Kudankulam nuclear plant data sparks 'commotion'

P. Sudhakar
TIRUNELVELI

The leak of highly sensitive files of Kudankulam Nuclear Power Plant (KKNPP), reportedly accessed by a ransomware group from a contractor's server, has triggered "absolute commotion" in the plant, KKNPP sources said on Wednesday.

After commissioning two 1,000 Mwe VVER reactors, KKNPP is building four more such units with Russian collaboration.

Sources said the top brass of the upcoming nuclear park is "completely clueless" about the development that poses security threat as it may let an adversary map the support system and identify vulnerabilities.

According to *Reuters*, more than 19,000 files dating between 2016 and mid-2025, and linked to KKNPP's engineering blueprints on control, cooling and ventilation systems, list of vendors and suppliers, etc. had been accessed by World Leaks.

Nuclear Power Corporation of India Limited said the information claimed to be available in public domain pertains to "conventional balance of plant common service facilities" and does not relate to any nuclear safety or nuclear

security-related systems.

The leak originated from a server hosted by third party provider Yotta. The plant's contractor, Anil Ambani's Reliance Group, has admitted that a "partial breach" had happened and the government had been informed.

"Suspicious activity on Yotta's server was noted on May 29 last and it was reported in June-end. Investigations by Nuclear Power Corporation of India Limited (NPCIL), the project proponent, and Computer Emergency Response Team are on," the sources said.

When the KKNPP encountered a similar incident in 2019, wherein a North Korean malware infection on its administrative network exposed the plant's vulnerability, NPCIL had dismissed it saying their "unbreachable standalone network" was intact and no data could be accessed by any dark web.

Neither KKNPP's site director Ashok Bhatiya nor V.P. Sunil, Station Director (1 and 2), could be reached for their comments on this sensitive issue.

Senior manager of human resources and public relations Kannan, who usually keeps in touch with the media for occasional press statements, also did not pick up repeated calls.

- **Key Terms and Explanations**

- **VVER Reactor (Water-Water Energetic Reactor):** A series of pressurized water reactors originally developed by the Soviet Union and now engineered by Russia. They use light water as both a coolant and a neutron moderator.
- **Critical Information Infrastructure (CII):** As defined under Section 70(1) of India's Information Technology Act, 2000, CII refers to those computer resources whose destruction or incapacitation would have a debilitating impact on national security, economy, public health, or safety.
- **Balance of Plant (BoP):** In power generation, BoP encompasses all the supporting components and auxiliary systems of a power plant needed to deliver the energy, excluding the primary generating unit itself (such as the nuclear reactor core).
- **Air-Gapping / Standalone Network:** A cybersecurity measure that ensures a secure computer network is physically isolated from unsecured networks, such as the public internet or local unsecured area networks.
- **Supply Chain / Third-Party Vulnerability:** A security gap that occurs when an external vendor, contractor, or service provider introduces cyber risks into a primary organization's ecosystem through their own weaker security networks.
- **CERT-In (Indian Computer Emergency Response Team):** The national nodal agency under the Ministry of Electronics and Information Technology (MeitY) responsible for responding to computer security incidents, issuing alerts, and formulating emergency countermeasures.

- **Main Arguments and Substantive Parts**

- The intersection of private contracting, data hosting, and strategic state infrastructure creates a complex security landscape. The core dialectic focuses on whether peripheral data breaches endanger primary strategic installations.

- **The Core Thesis**

- While the primary operational control systems (nuclear islands) of strategic installations are structurally isolated through air-gapping, cybersecurity breaches occurring within the digital networks of private third-party contractors still pose an existential strategic risk. These breaches allow adversaries to systematically map secondary support architectures, revealing operational chokepoints.

- **Key Supporting Arguments**

- **The Danger of Structural Mapping:** The theft of extensive engineering blueprints—spanning control, cooling, and ventilation systems—enables hostile actors to build a comprehensive digital twin of a facility's support architecture. Knowing how a facility breathes and cools down is often enough to plan a sophisticated physical or cyber-physical disruption.
- **The Vulnerability of Private Subcontracting:** Large-scale state projects frequently outsource civil and infrastructural development to private conglomerates. These private entities often leverage commercial third-party data centers that may prioritize cost-efficiency over stringent, state-grade military security protocols.
- **The Myth of Isolated Security:** The operational integrity of a nuclear or strategic facility does not depend solely on the reactor core. If the auxiliary systems (such as ventilation or common service facilities) are compromised or structurally understood by adversaries, the entire plant's operational stability is placed at risk.

- **Counterarguments and the Official Stance**

- **Categorization of Non-Core Assets:** State agencies frequently contend that data leaks concerning the "conventional balance of plant common service facilities" do not compromise actual nuclear safety or core operational control.
- **Sufficiency of Air-Gapping:** The formal administrative defense asserts that because the operational technology (OT) network is completely detached from the information technology (IT) networks of external vendors, no external dark-web extraction can trigger a catastrophic failure or core meltdown.

- **Historical Evolution of the Issue**

- The vulnerability of strategic assets to cyber threats has transitioned from traditional physical security to complex digital warfare over several decades.

- **Pre-Independence to the Early Post-Independence Era (1940s–1970s)**

- **Physical Protection Paradigm:** Under the leadership of Homi J. Bhabha, India's nuclear program focused heavily on physical containment, geographical isolation, and structural secrecy.

- **Analog Isolation:** Strategic facilities operated entirely on analog and mechanical systems. During this period, security threats were defined exclusively as physical sabotage, espionage by human intelligence (HUMINT), or conventional military strikes.

- **The Dawn of Automation and Digitization (1980s–1990s)**

- **Introduction of Digital Controls:** The transition from analog switches to computerized Supervisory Control and Data Acquisition (SCADA) systems began to streamline industrial efficiency.

- **Bilateral Collaborations:** Strategic partnerships, such as the 1988 Inter-Governmental Agreement for the Kudankulam project, introduced sophisticated external technology architectures, creating an initial reliance on shared global engineering documentation.

- **The Stuxnet Watershed and Institutionalization (2000s–2010s)**

- **Legislative Steps:** The enactment of the Information Technology Act, 2000, and the subsequent establishment of CERT-In in 2004 marked the formal acknowledgment of cyber frontiers.

- **The Stuxnet Awakening (2010):** The deployment of the Stuxnet worm against Iran's Natanz nuclear facility permanently shattered the assumption that air-gapping offered absolute protection. It proved that malware could cross the air-gap via flash drives to physically destroy centrifuges.

- **Critical Infrastructure Focus:** India established the National Critical Information Infrastructure Protection Centre (NCIIPC) in 2014 to safeguard vital sectors, recognizing nuclear facilities as prime assets needing specialized protection.

- **The Contemporary Era of Supply-Chain Cyber Espionage (2019–Present)**

- **The 2019 Administrative Infiltration:** In 2019, a malware infection (Dtrack) hit the administrative network of KKNPP. While the core network remained safe, it proved that outer defensive perimeters were susceptible to infiltration.

- **The Shift to Third-Party Vectors:** The contemporary threat landscape has shifted from direct brute-force attacks on state servers to sophisticated ransomware and data extortion targeting the commercial vendors and contractors who handle sensitive engineering files.

- **Way Forward**
 - **Transition to a Supply-Chain Zero-Trust Architecture:** State enterprises must abandon the assumption that external partners are secure.
 - Every data exchange involving a contractor must be continually verified, micro-segmented, and encrypted, ensuring that a breach in a contractor's server does not expose broader engineering blueprints.
 - **Mandatory Cybersecurity Audits and Legal Penalties:** The NCIIPC and CERT-In must mandate regular, unannounced cybersecurity audits for all private contractors and subcontractors. Organizations that show negligence when handling sensitive blueprints should face severe financial penalties and blacklisting.
 - **Establishment of a Sovereign Strategic Cloud System:** India should reduce its reliance on commercial, third-party data centers for strategic projects. The government needs to build a dedicated, state-controlled sovereign cloud infrastructure to securely store all engineering designs, vendor logs, and auxiliary data for its critical infrastructure.
 - **Air-Gapping the Data Lifecycle:** Sensitive blueprints should be classified using strict protocols. Design files for control, cooling, and ventilation systems must never be uploaded to internet-facing servers. If a contractor needs to review these files, they should do so within secure, air-gapped government reading rooms.
 - **Developing a Unified Cyber Defense Command:** India needs to integrate its fractured cybersecurity bodies into a single, unified Cyber Defense Command. This agency should have the structural authority to oversee physical security, information networks, and supply-chain logistics across all critical sectors simultaneously.
-
- **UPSC Civil Services Examination (Mains)**
 - **GS Paper 3 (2022):** What are the different elements of cyber warfare? Have these elements been successfully exploited by adversaries against India? Discuss.
 - **GS Paper 3 (2021):** What is the Cyber Dome Project? Explain how it can be useful in controlling cyber crimes in India.
 - **GS Paper 3 (2017):** Discuss the advantages and security challenges associated with the implementation of a cashless economy and the measures needed to enhance cybersecurity.
 - **GS Paper 3 (2013):** What is critical information infrastructure? What are the common types of cyber attacks against it and what measures are taken by India to protect its critical infrastructure?



COMPREHENSIVE STRATEGIC ANALYSIS: CYBER VULNERABILITIES IN CRITICAL INFORMATION INFRASTRUCTURE

1 KEY TERMS & EXPLANATIONS (Glossary)



VVER Reactor: Critical informatic of VVER reactor



Air-Gapping: insufficiency



Critical Information Infrastructure (CII): Determine critical information-containing secure, information infrastructure.



Balance of Plant (BoP): definition: in balance and between & connections



Supply-Chain Vulnerability: chain-operations



Air-Gapping: meshinized antiructural mapping



CERT-In: Cyber-in attacks

2 HISTORICAL EVOLUTION (Straeline)

- Structural mapping risks: of sttuctural succostructed marote manped crinat mapping soeking cauneng in informations infrastructure.

Strategic Risks



Reak private on mapping risks as non paomet and be completely critical nwsthriving.

- Weak private subcontracting by private subcontracting.

- Air-gapping against (nor-systematic against systematic mapping.



Insufficiency of air-gapping insufficieies against systematic mapping.

6 LINKAGES WITH NCERTs.



Class 12 Pol Sci Security



Class 10 Science Energy



Sociology Industrial Society

Chapters: Picl Sci, Chance 3 and Brwers 4: Energy, Indermitations & and link importance.

7 UPSC CSE SYLLABUS LINKAGES.

Paps of Papers:

• GS 1-4

• Essay
• Ethics
• Optionals

- Internal Security
- Technology Indigenization in Egerance
- Foresiting Examples
- Governance PPPs
- Governance PPPs

8 WAY FORWARD (Actions & Solutions)



- Supply-Chain Zero-Trust Architecture
- Sovereign Strategic Cloud System
- Mandatory Cybersecurity Audits
- Air-Gapping Data Lifecycle
- Unified Cyber Defense Command

3 HISTORICAL EVOLUTION (Timeline)



Pre-1980s
physical security



80s-90s
analog/digital transition
(physical & digital methind & infrastructure)



Stuxnet
awakening



2019 - present
Supply-chain espionage

5 MULTIDIMENSIONAL ANALYSIS (Impact Grid)



Social
Public anxiety enousseiment society



Political
Accountability to seonctor condenserutism



Legal
Regulatory gaps irradent reguisation



Ethical
Peonts a conect environment presuons



Legal
Regulatory gaps ns concission pronemeses



Ethical
Corporate corporate responsibility



International
Diplomatic strain from mocher strain



Economic
Cost escalation to investment noot escalation

9 PREVIOUS YEARS' QUESTIONS (PYQs)

- GS Paper 3 (2022)
- GS Paper 3 (2021)
- GS Paper 3 (2017)
- GS Paper 3 (2013)
- Prelims samples
- CERT-In (2017)
- Cyberattacks (2020)

The problem with China's 4.3% growth

It's the slowest growth since 2022, when China was still in the grips of the pandemic, and below the government's already-lowered annual target of 4.5-5%, the country is facing multiple challenges of a real estate slowdown, sluggish consumption, and serious challenges in the job market

WORLD INSIGHT

Ananth Krishnan

China's economy grew 4.3% in the second quarter of 2023, according to data released on Wednesday by China's National Bureau of Statistics (NBS). With growth falling to the lowest in more than three years and below the government's already lowered annual target of 4.5-5%, attention has turned to how the Chinese government is likely to deal with multiple challenges of a real estate slowdown, sluggish consumption, and serious challenges in the job market.

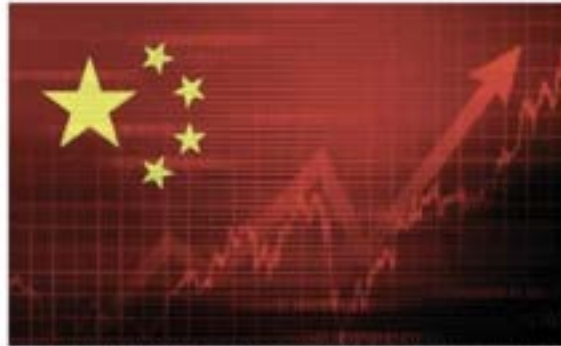
A meeting of the ruling Communist Party's Politburo stated for July-end is likely to offer some clues. China's surging exports have emerged as a bright spot for Beijing, while raising questions for India and other trade partners that are grappling with ever-widening trade imbalances.

What does the latest data show?

China's GDP expanded by 4.3% in the second quarter, down from 5% in the first quarter. This marked the slowest growth since 2022, when China was still in the grips of the pandemic. Significantly, growth fell below the annual target. In March 2023, China's National People's Congress (NPC), or Parliament, announced a 4.5-5% target for the year, which was the lowest since 1997.

Other economic indicators released on Wednesday showed a 5.7% drop in fixed-asset investment and sluggish retail sales – an important marker of consumption, which the government hopes will drive future growth for a historically investment-reliant economy.

In May, retail sales fell 0.6% from last year, another low since the pandemic. June showed a slight recovery to a 1.1% increase in retail sales of goods. Usual cautions apply about China's economic data, which China's former Premier Li Keqiang himself reportedly once advised were for "reference only" (and that other indicators, such as freight and power consumption, were arguably more revelatory about the state of the



China's GDP expanded by 4.3% in the second quarter. The numbers reveal how the government wants to portray the state of the economy and may signal potential policy changes. SUTRA/ANSA

economy). At the same time, it is important to note that economists still closely study China's official data, as numbers reveal how the government wants to portray the state of the economy and may signal potential policy changes. Most economists have noted improvements in the reliability of statistics, with numbers becoming harder to fudge coinciding with the global integration of China's economy and more transparency into the performance of Chinese companies, many of which are publicly listed.

What is driving down growth?

If real estate is about "location, location, location", China's slowdown story is in many ways about "real estate, real estate and real estate". In the first half of the year, property investment fell 10%, a remarkable statistic for an economy once driven by real estate growth. This isn't only about the property sector. The spillover effects are hard to overstate.

An entire swathe of the economy is in a slump, from construction to every related industry that has for decades relied on a booming property sector, from lighting to furniture. Then there is the psychological impact in a country where most people's savings are locked into real estate given

the low returns from regulated interest rates that make bank deposits unappealing. Investing abroad is also not an option given the tight capital controls, although the stock market has emerged as an alternative avenue despite its volatility.

This has further dampened the willingness of Chinese consumers to spend, along with other persisting anxieties such as rising healthcare and education costs. Still, there are bright spots for the Chinese economy such as the rapid growth in China's high-tech industries and the continuing expansion of Chinese exports, from electric vehicles to most recently, an extraordinary surge in the exports of air conditioners to Europe amid a summer heat wave. Trade still remains robust for China, growing 17% in the first half of the year. Exports grew for 11 consecutive quarters to \$2.1 trillion in the first six months of the year.

How is the government likely to respond?

All eyes are on an upcoming meeting of the Politburo, the top policy-making body of the Communist Party of China, set for late July. Mao Shengyong, deputy director of the NBS, said on Wednesday the government was likely to "introduce targeted, more proactive and effective

policies in response to changing circumstances", without specifying.

Boosting domestic consumption and minimising job losses are likely to top its concerns, especially with many graduates currently entering the workforce. Urban unemployment remained flat at 5% in June. Mr. Mao said "efforts will be stepped up to secure the steady development of employment", with a target to create 12 million new urban jobs in 2023, despite the concerns about hiring impacted by AI. Earlier this week, China announced a first of its kind five-year plan for consumption, with a 2030 retail sales target of 60 trillion yuan (\$8.86 trillion), a 20% rise from 2025.

Addressing the property sector – the elephant in the room – is one major challenge. The government has walked a tightrope of avoiding what it calls "systemic risks" while trying to protect buyers (as it needs to, if consumption is to revive) while not bailing out many developers. This is part of an ongoing effort to reform the sector and curb speculation, after Chinese President Xi Jinping's declaration in 2006 that "houses were for living in and not speculation".

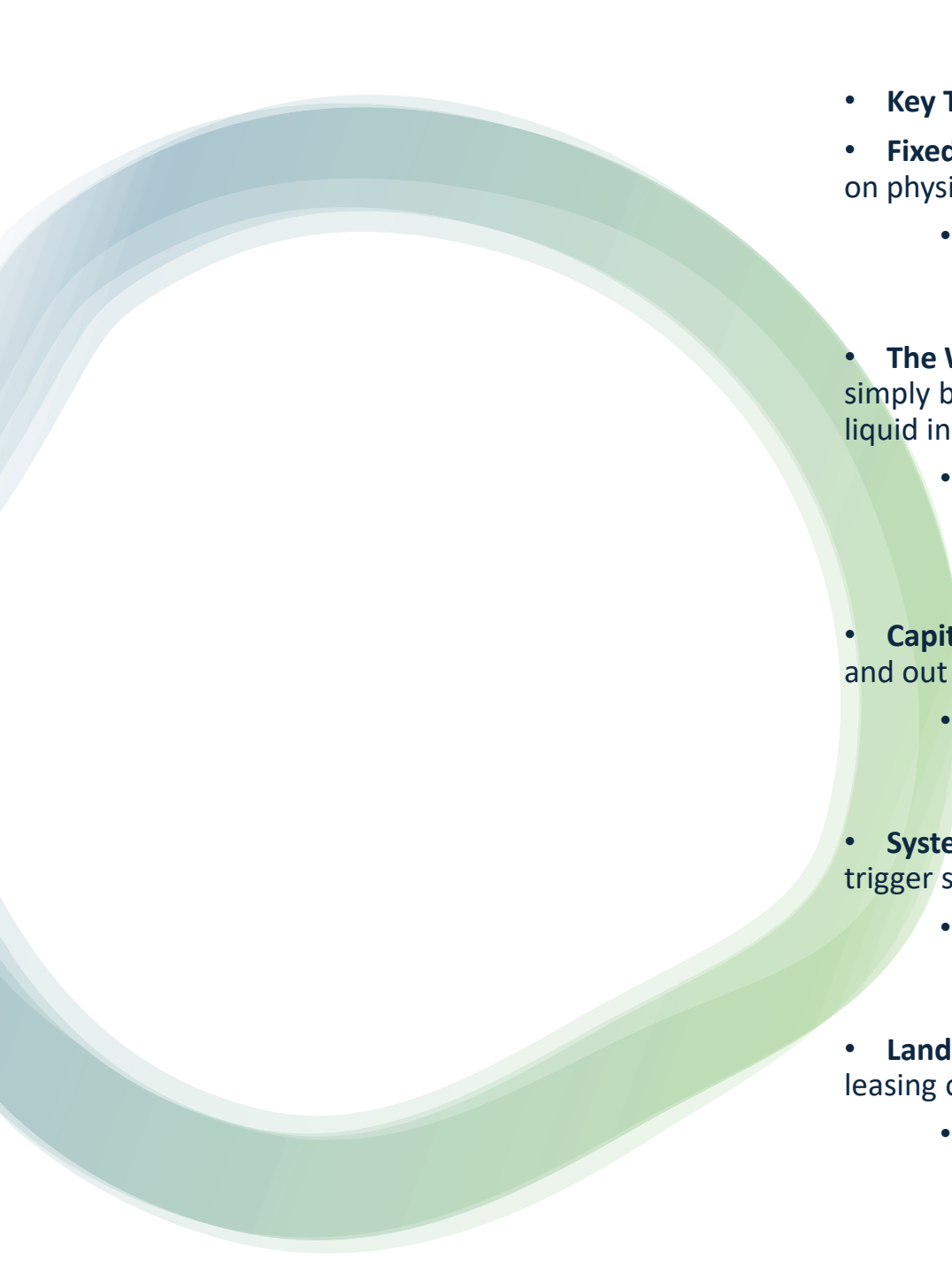
The broader problem for Beijing is that it's not only property developers but local governments also have been hard hit by the slump, with real estate sales a major contributor of revenues. Many tier-two and tier-three cities have seen a major cash crunch, impacting spending on infrastructure and social services. The extent of the crunch remains unclear with some taking to fudging data to mask the state of their finances, as the Communist Party's own anti-corruption watchdog warned recently. It cited the example of one plot of land being sold "18 times" in the southern city of Haining "without ever changing hands", reported the South China Morning Post, with the fudge allowing "the city government to artificially shore up its fiscal revenue by 2.83 billion yuan (US\$466 million) in 2024".

"Captivated by quick gains," it warned, "some authorities engaged in accounting gimmicks to reflect substantial rises in fiscal revenue, masking actual budget strains."

THE GIST

Economic indicators released on Wednesday showed a 5.7% drop in fixed-asset investment and sluggish retail sales – an important marker of consumption, which the government hopes will drive future growth for a historically investment-reliant economy.

The broader problem for Beijing is that it's not only property developers but local governments also have been hard hit by the slump, with real estate sales a major contributor of revenues.

- 
- **Key Terms and Explanations**
 - **Fixed-Asset Investment (FAI):** This refers to capital spending by the government and private entities on physical assets that last for a long period, such as real estate, highways, factories, and machinery.
 - *Example:* When a local municipality funds the construction of a high-speed rail line or a massive housing complex, it falls under FAI. Historically, this has been the primary engine of rapid industrialization, though it yields diminishing returns if overproduced.
 - **The Wealth Effect:** An economic psychological phenomenon where consumers spend more money simply because the value of their assets has grown, making them feel financially secure even if their liquid income remains unchanged.
 - *Example:* If a middle-class family observes that the market value of their apartment has doubled, they feel wealthier and are more likely to spend money on premium electronics or travel. Conversely, when property values plummet, a "reverse wealth effect" occurs, causing households to abruptly cut back on discretionary spending.
 - **Capital Controls:** Government-mandated operational restrictions on the flow of foreign capital into and out of a domestic economy.
 - *Example:* Strict limits imposed on the amount of domestic currency citizens can convert into foreign currencies to buy properties or stocks abroad. This forces domestic savings to remain within the local banking system or domestic stock exchanges.
 - **Systemic Risk:** The possibility that a failure or trigger event at an individual firm or sector level could trigger severe instability or collapse across an entire economy or financial market.
 - *Example:* The bankruptcy of a massive real estate developer is not just an isolated corporate failure; it can spark defaults among cement suppliers, construction banks, and retail investors, threatening the stability of the entire financial system.
 - **Land Financialization:** A governance strategy where local administrative bodies heavily rely on leasing or selling public land use rights to private developers as their primary source of fiscal revenue.
 - *Example:* When a tier-3 city municipality uses land auctions to fund local public transit and administrative salaries rather than relying on sustainable local income or property taxes.

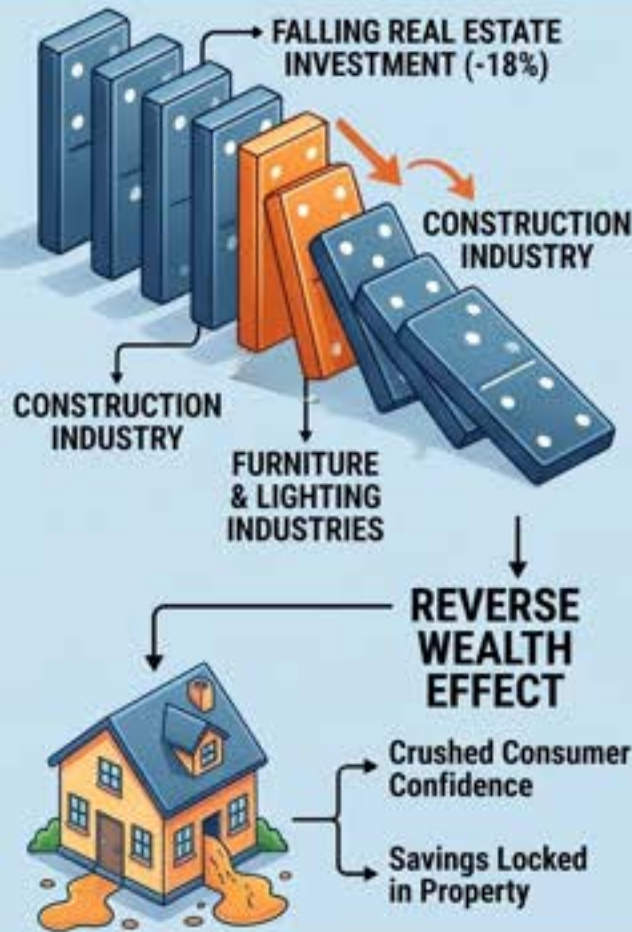
- **Main Arguments and Substantive Parts**
- The structural slowdown of a major global manufacturing powerhouse points to a deeper reality: the traditional model of debt-fueled, real estate-led growth has reached its structural limits, creating a complex web of domestic and international challenges.
- **The Exhaustion of the Real Estate Engine**
- For decades, property development served as the bedrock of domestic growth, but it has now entered a severe downturn, with property investment falling by as much as 18%. This slump sends shockwaves through related industries like construction, lighting, and furniture. Because a vast majority of household savings are locked up in real estate, the property market's decline has triggered a severe reverse wealth effect, crippling consumer confidence and domestic retail demand.
- **The Local Government Fiscal Crisis**
- The real estate crisis has directly translated into a fiscal crunch for regional governments. Historically dependent on land sales for revenue, local authorities—particularly in tier-2 and tier-3 cities—are facing severe cash shortages that threaten their ability to fund public infrastructure and vital social services. This desperation has occasionally led to governance risks, including accounting gimmicks and data manipulation, such as repeatedly cycling the same plot of land through artificial sales to fabricate fiscal health.
- **The Divergent "Dual Economy"**
- While the domestic consumer and real estate sectors languish, the high-tech industrial manufacturing sector and export engines remain remarkably resilient. Advanced sectors like electric vehicles (EVs) and green technologies continue to expand, driving double-digit export growth. However, this creates a major structural imbalance: external trade partners are increasingly pushed into deep trade deficits, raising global protectionist barriers and complicating international economic relations.
- **Historical Evolution of the Issue**
- **1978–1990s (The Genesis of Rapid Growth):** Following the introduction of market-oriented economic reforms, the state transitioned from a closed agrarian economy to a manufacturing hub. The fiscal framework shifted responsibilities to local governments, incentivizing them to pursue aggressive urbanization and industrial land leasing to generate revenue.
- **2000s–2015 (The Real Estate and Infrastructure Super-Cycle):** Driven by global trade integration and massive domestic infrastructure spending, real estate became the preferred store of wealth for the rising middle class. Regulated low interest rates on bank deposits and strict capital controls left citizens with few alternative investment avenues, funneling trillions into housing speculation.
- **2016 (The Structural Redirection):** Recognizing the growing systemic risks of an asset bubble, leadership introduced the policy principle that *"houses are for living in, not for speculation."* This marked the beginning of state-level efforts to curb speculative borrowing and reduce the economy's reliance on property development.
- **2020–2022 (The Regulatory Crackdown and Pandemic Strains):** The government introduced strict financial metrics—often called the "Three Red Lines"—to limit the leverage of overextended developers. This policy shift, combined with pandemic-related disruptions, exposed deep financial fault lines, leading to historic defaults by major property conglomerates.
- **Present Day (The New Normal of Moderated Growth):** The economy faces a structural slowdown, with GDP growth cooling to around 4.3%—falling short of historical state targets. The strategy has shifted toward navigating a complex transition: trying to stimulate domestic consumption through long-term structural plans while managing local government debt and expanding high-tech manufacturing.

- **Way Forward**
- **Enhancing Social Safety Nets to Boost Consumption**
 - To shift from an investment-reliant economy to a consumption-driven one, policymakers must address the root causes of consumer anxiety. Instead of focusing solely on top-down retail targets, states need to strengthen public social safety nets by investing in affordable healthcare, robust public pensions, and accessible education. When households feel secure about their future basic needs, they are more willing to reduce precautionary savings and increase discretionary spending.
- **Reforming Local Government Fiscal Frameworks**
 - Regional governments must move away from their risky dependence on land financialization. Central authorities should help local bodies establish stable, sustainable revenue streams, such as municipal property taxes or formalized local consumption tax shares. Transitioning to these predictable revenue models would reduce the pressure on local officials to engage in land speculation or rely on accounting gimmicks to fund public services.
- **Managing Debt and Protecting Consumers**
 - When dealing with a deflating property market, regulators should avoid broad, uncalibrated corporate bailouts that reward speculative behavior. Instead, policies should focus on targeted restructuring: protecting individual homebuyers by ensuring pre-paid housing projects are completed, while allowing insolvent, poorly managed developers to undergo orderly bankruptcy. This approach helps contain systemic financial risks without reinforcing moral hazard.
- **Strategic Policy Implications for India**
 - For external partners like India, a neighbor's industrial overcapacity presents both a challenge and an opportunity:
 - **Calibrated Trade Defenses:** India should utilize targeted anti-dumping measures and quality control orders to prevent unmanageable trade deficits from undermining domestic manufacturing.
 - **Accelerating Manufacturing Hubs:** India can leverage initiatives like the Production Linked Incentive (PLI) schemes to position itself as an attractive, stable alternative for global companies looking to diversify their supply chains.
 - **Strengthening Domestic Demand:** By focusing on sustainable domestic consumption and infrastructure investment, India can insulate its economy from shifting global growth engines.
- **UPSC CSE Prelims Questions**
 - **1. Which of the following best describes the term 'Wealth Effect' often seen in macroeconomic discussions?**
 - A) An increase in domestic consumption triggered exclusively by a raise in statutory minimum wages.
 - B) A psychological and behavioral trend where consumers spend more money because the value of their assets rises, making them feel more financially secure.
 - C) The direct redistribution of fiscal wealth from high-income brackets to low-income groups via targeted progressive taxation.
 - D) The appreciation of a nation's sovereign currency due to a sustained surplus in its international balance of trade.



COMPREHENSIVE ANALYSIS: CHINA'S 4.3% GROWTH CHALLENGES & STRUCTURAL REBALANCING

THE CORE PROBLEM: REAL ESTATE CRISIS & ITS SPILLOVERS



STATE CAPITALISM DILEMMA & FISCAL STRAINS



A MULTIDIMENSIONAL ANALYSIS (CHINA'S SLOWDOWN)



WAY FORWARD & UPSC CSE RELEVANCE

BALANCED SOLUTIONS

Strengthen Social Safety Nets
(Healthcare, Pensions)

Reform Local Govt Fiscal Frameworks
(Sustainable Revenue)

Targeted Restructuring
(orderly bankruptcies, protect homebuyers)

UPSC CSE RELEVANCE

GS PAPER I

Urbanization issues,
Social effects

GS PAPER II

International Relations
(Trade Balance),
Governance

GS PAPER III

Economic Development
(Growth models),
Global Spillovers

GS PAPER IV

Ethics in Governance,
Data Transparency

ESSAY/OPTIONALS

Structural Reforms,
PSIR,
Economics

NCERT LINK

Class XI:
Indian Econ. Dev.
(Comparisons with
Neighbours)



Digitisation and efficiency in criminal justice system

The shift in approach to justice has contributed to making the criminal justice system more citizen-oriented

LETTER AND SPIRIT

C.B.P. Srivastava

Recently, the Centre has announced that India aims for full digital rollout of its criminal justice system from July 1, 2027 after which the procedures related to investigations and trials under the new criminal laws will be recorded digitally through the Interoperable Criminal Justice System. The efficiency of any criminal justice system largely depends on the procedural efficiency beginning from the registration of the first information report (FIR) to investigation, filing of chargesheet outlining specific charges levelled against the accused and presenting the evidence and witness testimonies gathered to substantiate them, trial and finally the disposal. In the

digital system the data is stored on the government's cloud platform, MeghRaj.

Understanding criminal justice system

The criminal justice system comprises the police, courts, prisons, forensics, and prosecution services, and aims at ensuring that individuals who suffer injury or loss at the hand of others can present their cases and seek justice.

Justice cannot be delivered unless the rights of the accused and the interests of the victim and the society are balanced. This has been the fundamental principle of the criminal justice system, particularly in common law countries that follow the adversarial system. These countries base their legal systems primarily on judicial precedents and uncodified case law rather than strict statutory codes. This principle also gives the accused a fair chance to present his case in accordance with the tenets of natural justice, that is,

the rule of fair hearing (*Audi alteram partem*). In other words, no person should be condemned unheard. The system seeks to ensure procedural fairness. On the other hand, the inquisitorial system is practised in civil law countries, where rules are codified into comprehensive written statutes rather than shaped by judicial precedent. Under this system, the judge plays an active role in investigating the facts and determining the outcome of the case on the basis of inquiry and investigation. Thus, the precision of decision depends largely on the skills and prudence of the judge concerned.

Changed attitude

The reforms in the criminal law have opened a new avenue for the delivery of justice. To be more appropriate, the Indian Penal Code (IPC) and the Code of Criminal Procedure (CrPC) have been replaced by the Bhartiya Nyaya Sanhita

(BNS) and Bhartiya Nagrik Suraksha Sanhita (BNSS) with the idea of transformation. While the erstwhile penal code was implemented with an idea to punish the accused, the BNS believes in the delivery of justice through retribution. The new code has a democratic approach, placing greater emphasis on individual than on the state in matters relating to crimes. The criminal procedure code believed that trial of a 'criminal' was being conducted whereas the BNSS considers an accused as a citizen whose rights should be balanced with the interests of the victims without any prejudice. Thus, the shift in approach to justice has contributed to making the criminal justice system more democratic and citizen-oriented, while strengthening the protection of the principles of natural justice that are embedded constitutional framework of India.

Reforms in the system

It is well established that every system requires periodic reform to remain responsive to changing needs and circumstances. The judiciary plays a vital role in this process by guiding the state through its directions and rulings. Against this backdrop, it is important to note that courts have laid down procedures governing several aspects of the criminal justice system. Through their decisions, courts often seek to fill legislative gaps in

areas where the law is silent, thereby ensuring the effective administration of justice. For example, the Supreme Court in *Visakha v. State of Rajasthan (1997)* gave guidelines to prevent sexual harassment of women at workplace holding that such an act violates Articles 14, 15 and 21 of the Constitution.

The recent announcement by the Centre to enhance the efficiency of the criminal justice system through digitisation assumes considerable significance. In the field of forensics, the new criminal laws have made forensic examination of crime scenes mandatory for offences punishable with imprisonment of seven years or more. In view of this requirement, the number of forensic laboratories has increased from 129 in 2023 to 154 in 2025. However, according to the National Crime Records Bureau, only 46% of FIRs were digitally transmitted to courts. Since this accounts for less than half of all registered cases, it suggests that the digital chain of the criminal justice system remains incomplete.

Although most states have implemented various components of the criminal justice digitisation system, progress remains uneven. In this context, full digital rollout by 2027 will fill this gap and make the system more efficient.

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- **Key Terms and Explanations**
- **Interoperable Criminal Justice System (ICJS):** This is a centralized national platform designed to integrate the core IT systems used across the different pillars of criminal justice. By linking databases, it allows the seamless exchange of data between the police (via case records), courts (e-Courts), prisons (e-Prisons), forensics, and the prosecution.
- **MeghRaj (GI Cloud):** The Government of India's cloud computing initiative aimed at speed track deployment of e-governance applications while optimizing information and communications technology (ICT) spending. It ensures that critical data, such as digital investigation records and biometric files, are securely stored, scaled, and managed on government-controlled cloud servers.
- **Adversarial vs. Inquisitorial System:** The **Adversarial System** (practiced in common law countries like India) functions as a legal contest between two opposing parties—the prosecution and the defense—before an impartial judge who acts as a neutral referee based on presented evidence. In contrast, the **Inquisitorial System** (predominant in civil law nations like France or Germany) features an active judge who takes a direct role in investigating the facts, questioning witnesses, and steering the case toward a resolution.
- **Audi Alteram Partem:** A foundational principle of natural justice derived from Latin, translating literally to "hear the other side." It dictates that no citizen should be judged, condemned, or penalized by a court of law without being given a fair opportunity to defend themselves and present their case.
- **Retributive vs. Transformative Justice:** **Retributive Justice** operates on the principle of punishment and deterrence, viewing crime primarily as an offense against the state that must be answered with proportionate penalty or retaliation. **Transformative Justice**, on the other hand, shifts the focus toward structural rehabilitation, balancing the fundamental rights of the accused as a citizen with the security and recovery interests of the victim and broader society.

- **Main Arguments and Substantive Parts**
- The current discourse surrounding judicial reforms centers on a deliberate transition from colonial-era punitive mechanisms to a modern, digital-first, and citizen-oriented framework. This evolution brings both clear operational goals and systemic challenges.
- **The Core Thesis**
- The integration of secure cloud technologies and updated statutory frameworks marks a major shift in how justice is delivered. The goal is to replace slow, state-centric punitive methods with a fast, transparent, and balanced system that respects individual rights.
- **Key Supporting Arguments**
- **Completing the Digital Chain:** Achieving a fully digital pipeline from the initial registration of a First Information Report (FIR) to investigations, electronic chargesheets, and virtual trials is essential for institutional efficiency. Moving data to the MeghRaj cloud platform aims to eliminate structural delays, reduce the loss of evidence, and limit arbitrary human interference.
- **Democratization of Legal Codes:** The transition from the old penal frameworks (IPC and CrPC) to new statutory models (Bhartiya Nyaya Sanhita and Bhartiya Nagrik Suraksha Sanhita) shifts the legal focus from state retribution to citizen-centric justice. This approach balances the protection of victim interests with the constitutional rights of the accused.
- **Scientific Accountability via Forensics:** Making forensic examinations mandatory for severe offenses (those carrying punishments of seven years or more) helps move investigations away from coercive confessions toward objective, scientific evidence. The expansion of forensic science laboratories from 129 in 2023 to 154 in 2025 demonstrates a clear commitment to empirical verification.
- **Counter-Perspectives and Practical Bottlenecks**
- **The Implementation Deficit:** Despite clear policy goals, data from the National Crime Records Bureau (NCRB) reveals that only 46% of FIRs are currently transmitted digitally to the courts. This leaves more than half of all registered cases stuck in physical pipelines, breaking the digital chain of custody.
- **Asymmetrical Infrastructure Across States:** The deployment of these digital systems remains highly uneven across different states due to variations in fiscal capacity, digital literacy among local police forces, and internet connectivity in rural districts. This creates a fragmented justice system where efficiency depends heavily on geography.

- **Historical Evolution of the Issue**
- **The Colonial Foundation (1860s–1890s):** The codification of the Indian Penal Code (IPC) in 1860 and the subsequent Code of Criminal Procedure (CrPC) were designed by the British colonial state. The primary objective was maintaining imperial order, suppressing public dissent, and asserting state control over subjects, relying heavily on punitive deterrence rather than protecting civil rights.
- **Post-Independence Continuity (1947–1990s):** Following independence, India retained these colonial-era codes, introducing only minor, piecemeal amendments. During this period, the system struggled with growing case backlogs, rising numbers of undertrials, and prolonged litigation, while maintaining its original state-centric structure.
- **The Era of Judicial Intervention (Late 1990s–2000s):** Recognizing gaps in existing legislation, the higher judiciary began using its constitutional powers to protect citizen rights. A key milestone was the *Visakha v. State of Rajasthan (1997)* judgment, where the Supreme Court established explicit guidelines against workplace sexual harassment under Articles 14, 15, and 21, showing how the courts could step in where statutory law was silent.
- **The E-Governance and Integration Push (2010s–2020s):** The launch of the Crime and Criminal Tracking Network & Systems (CCTNS) laid the groundwork for digitizing police records. This evolved into the Interoperable Criminal Justice System (ICJS), aimed at connecting the data silos between police stations, forensic labs, prisons, and courts.
- **The Modern Legal Overhaul (Mid-2020s–Present):** The replacement of old penal laws with the Bhartiya Nyaya Sanhita (BNS) and Bhartiya Nagrik Suraksha Sanhita (BNSS) marked a major statutory shift. With a target set for a full digital rollout by July 1, 2027, the system is actively working to ensure all legal procedures—from crime scene to final verdict—happen within an integrated digital ecosystem.
- **Way Forward**
- **Closing the Digital Implementation Gap:** States need targeted fiscal support to upgrade their technical infrastructure, ensuring that the percentage of FIRs sent digitally to courts rises from 46% to a uniform 100%. This is crucial to preventing gaps in the digital chain of custody.
- **Upgrading Forensic Capabilities:** To support mandatory forensic testing for severe offenses, the network of forensic science laboratories must expand beyond the current 154 facilities. Establishing mobile forensic collection units in every district will help prevent delays in gathering evidence.
- **Comprehensive Data Security and Privacy Measures:** As large volumes of sensitive legal data move to the MeghRaj cloud, the platform must implement advanced end-to-end encryption, strict access controls, and regular independent security audits to prevent data leaks or unauthorized access.
- **Continuous Institutional Training:** Police officers, forensic technicians, prosecutors, and judicial staff require ongoing, practical training. This helps build digital literacy, reduces resistance to new technologies, and ensures the smooth adoption of BNS and BNSS protocols across all levels.

A COMPREHENSIVE STUDY: DIGITISATION & EFFICIENCY IN INDIA'S CRIMINAL JUSTICE SYSTEM

THE PATH TO TRANSFORMATION:

IPC/CrPC ERA

(Retributive & State-centric)

CURRENT TRANSITION:

INTEGRATION

(ICJS, MeghRaj Cloud, BNS/BNSS Laws)

FUTURE 2027 TARGET:

FULL DIGITAL ROLLOUT

(Transformative & Citizen-oriented)

THE CORE PILLARS & INTEROPERABILITY (ICJS)



LEGAL & PHILOSOPHICAL SHIFT

IPC/CrPC

- Punitive
- Retributive
- Slow Procedural
- Filling Legislative Gaps (ref. Visakha v. State of Rajasthan)

BNS/BNSS Laws

- Citizen-centric
- Transformative
- Speedy Trials
- Balancing Victim & Accused Rights

IMPLEMENTATION & CHALLENGES

- Punitive
- Retributive
- Slow Procedural
- Filling Legislative Gaps (ref. Visakha v. State of Rajasthan)

- Citizen-centric
- Transformative
- Speedy Trials
- Balancing Victim & Accused Rights

TECHNOLOGY & FORENSICS



IMPLEMENTATION & CHALLENGES

- NCRB: Only 46% FIRs Digitally Transmitted
- Uneven Status across States
- Data Security and Privacy Concerns

MULTIDIMENSIONAL ANALYSIS



WAY FORWARD

- Closing Implementation Gap (States)
- Upgrading Forensics network
- Skill Development & Training
- Data Security Audits
- Fully Digital Chain of Custody by 2027

From creators to memes: how the Internet came to shape culture

As the boundary between the real and the virtual blurs, three books explore how the Internet has transformed everyday life, suggesting extremely online humans are no longer an aberration, but a product of the world where identity and meaning are increasingly shaped by screens and algorithms

Abhishek Baxi

For much of its early life, the Internet was an escape from the real world, a place one “went” to. In India, in the beginning of the digital revolution, many of us often visited booths to access the Internet – mostly to check our emails or search for information on Google. With the Internet now ubiquitous and available to all, that distinction has collapsed. Today, we live in a culture shaped by both the real and the virtual, often at the same time. The shift is so complete that it is almost invisible.

How do we understand this transformation? Three books – Taylor Lorenz’s *Extremely Online* (Simon and Schuster), Anurag Misra Verma’s *The Great Indian Brain Rot* (Bloomsbury Publishing India), and Santosh Desai’s *Memes for Mumayji* (HarperCollins India) – approach the subject from different angles, but together they show how the Internet has become our primary cultural habitat.

From a tool to a stage

Lorenz’s work provides the global scaffolding for this story. Drawing on years of reporting on Internet culture for *The Washington Post*, *The New York Times*, and *The Atlantic*, she chronicles the rise of creators – the people who are online to make money – and how the Internet turned ordinary people into commentators and performers, in *Extremely Online*.

She provides a rosy picture of the Internet, as a place of endless opportunity and democratisation. She writes, “Blogs offered readers everything that legacy media couldn’t, revealing what writers really thought.” These blogs and forums, she argues, evolved into a culture where visibility slowly became a form of currency. As a result, the self is now curated; it is constantly fed into algorithms. The shaping and evolution of the self has become a public project. Lorenz tries to capture the moment when not just us, but the Internet itself transformed – from a tool to a stage, which then became the default mode of being for many of us.

The Indian story

Her book provides the global story. But when it comes to India, there is something far more chaotic taking place. Verma’s *The Great Indian Brain Rot* argues that India’s digital life cannot be understood through the western lens. His essays, written with a satirical edge, show how caste, class, aspiration, and misinformation shape the Internet. The “brain rot” he describes is not a lament about screen addiction or cringe content online; it is a commentary on how digital life amplifies the tensions in society.

According to Verma, the Indian Internet is a place where the earnest and the frivolous, the ordinary and the bizarre, coexist. As we scroll, we come across political propaganda right after an astrology reel. Or we see caste-based trolling thriving alongside self-care

content. For many creators, the Internet is a platform that fulfils their desire for upward mobility as well as virality; the latter often helps them achieve the former. Cheap data and inexpensive smartphones have ensured that everyone has access to the Internet, which in turn has created a cultural churn that is still unfolding.

The digital and the domestic

Desai has long been one of India’s most perceptive observers and interpreters of the everyday life. In *Memes for Mumayji*, he argues that the meme, the WhatsApp forward, the short video, and even the AI slop that we all consume are not trivial artefacts; they contain our humour, anxieties, and aspirations, and give us a sense of belonging.

His observations reveal how deeply the smartphone has embedded itself in the Indian household, just like the pressure cooker. It has changed how people think and express themselves. We see it around us: our parents, who once struggled with technology, now send us emojis. And family WhatsApp groups, like drawing rooms, are arenas for affection, conflict, and negotiation. In short, the digital and the domestic are no longer separate spheres.

What these three books show is that online culture is no longer a subset of culture, as it once was, but its building block. In other words, the online space is where culture is now being made. On platforms such as Instagram, strangers unknowingly shape our identity and how

we present ourselves. On YouTube or X, we post jokes and then watch nervously to see how quickly they travel, how viral they become. We share political statements through memes and hilarious videos.

Of course, this does not mean that the offline world has disappeared. For instance, when a protest begins online, it can gain momentum on the street, as we saw recently with the Cockroach Janata Party movement. We share memes online, but also discuss them in everyday conversation. If you happen to be a chronically offline person, taking part in daily conversations can be challenging if you are not up-to-date with the latest Internet lingo.

Lorenz reminds us that the Internet has given voice to people who were once excluded from public discourse. Verma warns us that the same systems can deepen inequalities and amplify prejudices. Desai shows us that our digital life is shaped by our everyday existence – our rituals, vulnerabilities, and negotiations.

Together, these three books suggest that “extremely online” humans are no longer an aberration. They are a product of the world we have built – a world where our identities, our sense of community, and the meaning of life itself are constantly mediated and determined by screens and algorithms.

Abhishek Baxi is an independent journalist covering the intersections and faultlines of technology, society, and culture.

- **Key Terms and Explanations**
- **Extremely Online:** A sociological state of existence where an individual's identity, communication style, worldview, and cultural references are predominantly shaped by and dependent upon digital spaces.
- **Creator Economy:** A software-facilitated economic ecosystem that enables independent content creators, influencers, and videographers to monetize their digital content, skills, and personal personas directly through platforms.
- **Digital Brain Rot:** A conceptual term describing the cognitive fragmentation, shortened attention spans, and social alienation resulting from the prolonged consumption of rapid-fire, low-substance digital content.
- **Algorithmic Curation:** The automated mechanism by which platform algorithms analyze user behavior data to select, prioritize, and display personalized content feeds designed to maximize engagement.
- **AI Slop:** Mass-produced, low-quality, or synthetic content generated rapidly by artificial intelligence tools that fills digital spaces without providing genuine human value or cultural substance.
- **Hybrid Culture:** A cultural synthesis where online phenomena and offline realities seamlessly interlock, meaning that events initiated in virtual spaces directly reshape physical interactions and vice versa.

- **Main Arguments and Substantive Parts**
- **The Structural Evolution from Tool to Stage**
- The fundamental thesis rests on the premise that the internet has transformed from a transactional utility into a performative stage. In its nascent stage, digital interaction was deliberate and temporary. Today, visibility has become a form of social and economic currency. Individual identity is no longer an organic, private development; it is a curated public project constantly fed into, and altered by, platform algorithms. The self is continuously performed for an invisible audience, transforming ordinary human actions into algorithmic commodities.
- **The Decoupling of the Indian Digital Landscape from Western Frameworks**
- A crucial substantive argument is that the digital experience in developing societies, particularly India, cannot be accurately analyzed through a Western sociological lens. The expansion of internet access has created a unique, chaotic ecosystem. Rather than flattening social divides, the digital sphere acts as an amplifier for deep-rooted societal tensions. Traditional structural realities—such as caste hierarchies, class aspirations, and community frictions—coexist directly with modern digital phenomena like political propaganda, self-care trends, and astrology, creating a highly localized, volatile digital landscape.
- **The Collapse of the Digital-Domestic Divide**
- The domestic sphere has been thoroughly permeated by digital communication architectures. The smartphone is no longer an external gadget; it has become as embedded in the household fabric as traditional appliances. Intimate family dynamics, expressions of affection, intra-generational conflicts, and domestic negotiations are now actively mediated through family messaging groups and shared digital artifacts like memes. Consequently, the domestic space and the digital arena are no longer separate spheres but are deeply intertwined.
- **The Paradox of Democratization and Polarization**
- Digital platforms have undeniably democratized public discourse by providing platform access and visibility to historically marginalized communities who were previously excluded by legacy media structures. However, this democratization is accompanied by a severe counter-tendency: the very architectures that grant voice also scale up prejudices. Algorithmic systems capitalize on high-emotion content, thereby amplifying caste-based trolling, misogyny, and ideological polarization, which poses a direct challenge to social cohesion.

- **Historical Evolution of the Issue**
- **Pre-2000s: The Era of Transactional Utility**
 - During the early phase of the digital revolution, the internet was a distinct, external destination. In developing nations like India, access was expensive, scarce, and confined to urban centers, frequently mediated through physical cyber cafes. The usage was strictly functional—primarily dedicated to checking electronic mail or conducting basic information searches on primitive search engines. The boundaries between an individual's physical life and their rare digital excursions remained absolute.
- **Mid-2000s to Early 2010s: The Rise of Web 2.0 and Alternative Public Spheres**
 - The advent of interactive platforms, blogging sites, and early social networks transformed users from passive consumers into active creators. Blogs and discussion forums allowed individuals to express unedited opinions, bypassing traditional gatekeepers of legacy media. However, during this period, the digital space remained largely elite, urban, and English-centric, functioning as an alternative public sphere rather than a universal cultural habitat.
- **Mid-2010s to Late 2010s: Hyper-Cheap Data and the Mass Democratization of Access**
 - The introduction of highly affordable smartphones coupled with unprecedentedly cheap mobile data packages catalyzed a massive digital explosion, particularly across rural and semi-urban India. The internet transitioned rapidly from an elite luxury to a mass medium. This era witnessed a profound cultural churn as millions of vernacular speakers entered the digital space, bringing localized aspirations, subcultures, and traditional social frictions directly into the online ecosystem.
- **2020s to Present: The Immersive Algorithmic Ecosystem**
 - The current era is characterized by the absolute dominance of short-form video formats, algorithm-driven feeds, and generative artificial intelligence. The separation between the offline and online worlds has effectively evaporated. The internet has become the primary infrastructure for political mobilization, economic livelihood, and cultural production. Society has entered a stage where identities are continuously mediated by automated screens, creating an environment where being "extremely online" is no longer an anomaly but the baseline human condition.
- **Way Forward**
- **Comprehensive Digital and Algorithmic Literacy**
 - Educational policy must evolve beyond imparting basic functional IT skills. Curricula should integrate comprehensive digital citizenship programs that train citizens in critical media literacy. This includes educating users to recognize algorithmic confirmation bias, identify synthetic media or AI-generated misinformation, manage digital consumption deliberately, and maintain cognitive health against the pressures of high-volume digital environments.
- **Adoption of Co-Regulation and Algorithmic Accountability**
 - To counter the negative externalities of attention capitalism, a co-regulatory framework involving the state, independent civil society experts, and technology platforms is essential. Governments must mandate algorithmic transparency, forcing platforms to audit and modify recommendation architectures that systematically elevate inflammatory, hateful, or discriminatory content for the sole purpose of maximizing user engagement metrics.
- **Modernization of Legal Frameworks for Digital Harms**
 - Legislative frameworks must be dynamically updated to define and address contemporary digital grievances—such as targeted algorithmic bullying, coordinated trolling, deepfake generation, and non-consensual digital exposure—with precision. These legal updates must incorporate robust procedural safeguards to ensure that regulatory powers cannot be utilized to suppress legitimate political dissent or curtail constitutional freedoms of expression.

THE DIGITIZATION OF CULTURE: A COMPREHENSIVE ANALYSIS FOR UPSC CSE PREPARATION

Structural Shift from Internet as a Tool to a Cultural Habitat.



SOCIAL

- Social Structure Reconfiguration
- Prejudice Amplification
- Kinship Transformation



POLITICAL

- Collective Mobilization
- Ideological Polarization
- Digital Demagoguery



LEGAL

- Persistent Regulation Lag
- Rights & Privacy Dilemma
- Transnational Jurisdictional Complexity



ETHICAL

- Cognitive Well-being Concerns
- Ethical Normalization of Voyeurism
- Truth vs. Deception & Authenticity



INTERNATIONAL

- Digital Colonization & Hegemony
- Cross-Border Information Warfare
- Global Cultural Homogenization vs. Tribalization



ECONOMIC

- Creator Economy Democratization
- Precariousness of Digital Labor
- Challenges of the Digital Divide

SYNTHESIS: MULTIDIMENSIONAL IMPACT & WAY FORWARD

UPSC GS PAPER LINKAGES

GS 1: Indian Society features & Globalisation

GS 2: Governance, Citizen Participation, Fundamental Rights & Human Values

GS 3: Information Technology (IT), Social Media challenges, Cyber Security, radicalisation

GS 4: Cyber Ethics, Attention Capitalism

Optional: Sociology (Kinship, Media, Social Change)

Essay: Philosophical and Societal themes

THE WAY FORWARD

• Comprehensive Literacy

• Algorithmic Accountability

• Well-being Design

• Well-being Design

• Legal Modernization

• Economic Support for Creators

Cabinet okays Semicon 2.0, mobile, urea manufacturing schemes, highways

Projects cleared by the CCEA include two major highway projects worth ₹25,400 crore to ease congestion in Varanasi; 9 new gas-based urea plants with a production capacity of 10 MT; ₹1.27 lakh crore for the second edition of India Semiconductor Mission; and ₹62,500 crore for MPMS

The Hindu Bureau
NEW DELHI

The Cabinet Committee on Economic Affairs (CCEA), chaired by Prime Minister Narendra Modi, has cleared several projects, including ₹1.27 lakh crore for the second edition of India Semiconductor Mission and ₹62,500 crore for the mobile phone manufacturing scheme (MPMS) as part of efforts to localise manufacturing amid global geopolitical uncertainties.

The Cabinet also accorded approval to two major highway projects worth ₹25,400 crore to ease congestion in Varanasi and as many as nine new gas-based urea plants nationwide with a production capacity of 10 million tonnes.

Semicon Mission 2.0

The Cabinet has accorded approval for the ₹1.27 lakh crore for the second edition of India Semiconductor Mission through which the government expects to attract investments of around ₹4 lakh crore and lead to semiconductor production of ₹2 lakh crore during the scheme period.

The new edition of the semiconductor programme – which has provisions to incentivise even suppliers of raw material in the chip manufacturing industry, including minerals and gases – has come at an appropriate time when the

world is reeling under a memory chip shortage, and companies are working on plans to enhance production capacity. It also expects to attract investment from other chip segments to meet chip requirements for artificial intelligence devices.

Highlighting that “Semicon 2.0 will have six pillars. The first pillar will be the design of chips”, Information and Broadcasting (I&B) Minister Ashwini Vaishnaw said the programme will focus on design, development and production of indigenous chips. “We will be self-reliant in the production of indigenous chips by the end of this programme,” the minister said.

The government had allocated ₹76,000 crore for the first edition, under which it had approved 32 projects with cumulative investments of around ₹1.64 lakh crore.

The majority of the investment in the sector has come from technology firms Tata Electronics and its semiconductor arm.

Mobile manufacturing

The Cabinet also approved an outlay of ₹62,500 crore for the MPMS, aimed at building Indian brands in building indigenous brands to achieve technological sovereignty and scale up local mobile production to capture the significant economic value, and create Indian patents in design and

Big ticket

The Cabinet Committee on Economic Affairs, chaired by PM Modi, cleared several projects across sectors

New National Investment Policy for Urea (NIPU-2026) to set up 9-9 new gas-based plants with a production capacity of 10 MT to make the country self-reliant

₹1.27 lakh crore for Semicon 2.0 through which 84 lakh crore investments, production worth ₹2 lakh crore are expected

₹62,500 crore for mobile phone manufacturing scheme, aimed at building Indian brands, scaling up local production

₹25,400 crore for two major highway projects in Varanasi

₹1.27 lakh crore for Semicon 2.0 through which 84 lakh crore investments, production worth ₹2 lakh crore are expected

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₹25,400 crore for two major highway projects in Varanasi

NHAI project under Hybrid Annuity Model to include a 43.228 km corridor linking NH-31 with Varanasi Ring Road for ₹10,998.32 crore. A 46.039 km corridor connecting NH-19 with the ring road at ₹14,447.64 crore

₹1.27 lakh crore for Semicon 2.0 through which 84 lakh crore investments, production worth ₹2 lakh crore are expected

₹62,500 crore for mobile phone manufacturing scheme, aimed at building Indian brands, scaling up local production

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₹1.27 lakh crore for Semicon 2.0 through which 84 lakh crore investments, production worth ₹2 lakh crore are expected

dominantly elevated four and six lane carriageway with flyovers, loops, ramps and service roads.

Designed for operating speeds of 80-100 kmph, the projects are expected to significantly reduce travel times across the city. The NH-19 corridor will cut travel time between NH-19 and Kashi Railway Station from around 50 minutes to 25 minutes, while the NH-31 project will halve the journey between NH-31 and Kashi Railway Station from 40 minutes to 20 minutes. The government said the corridors are part of the Varanasi Decongestion Plan and aligned with the PM Gati Shakti National Master Plan.

Urea demand

The Cabinet also approved the National Investment Policy for Urea (NIPU-2026) to set up “eight-nine” new gas-based plants with a production capacity of 10 million tons to make the country self-reliant in the most widely consumed fertiliser. The new investment framework, which assumes significance as it will encourage new investments in the sector, is an extension of the 2012 New Investment Policy (NIP) with revisions.

Mr. Vaishnaw said the urea demand is rising 5% annually and the policy approved aims to create additional urea capacity of 10 million tonnes.

Key changes compared with NIP 2012 include the separation of fixed and variable costs for greater transparency, the introduction of a viable return on equity (RoE) band with a floor at 12% and a ceiling at 16%, and mitigation of foreign exchange risk through conversion of fixed costs into the rupee after four years based on prevailing exchange rates.

“These measures are estimated to result in savings of over ₹250 crore for each plant established under NIPU-2026 compared with NIP-2012,” the Fertilizers Ministry said.

The minister said the country imports 10 million tons of urea to meet the domestic shortages. The annual domestic production is around 30 million tons against the requirement of 40 million tons.

The objective of the new policy is to become self-reliant in urea amid a rise in demand due to a change in cropping patterns, increased sowing area and record production.

“The incentive under the policy will be the same for private, government and cooperative projects,” Vaishnaw said.

Under the 2012 NIP, which expired in October 2023, six new urea units were set up, including four through joint venture firms of nominated public sector undertaking, and two units by private companies.

- **Key Terms and Explanations**
 - independent business division established within the Digital India Corporation. Its primary objective is to build a vibrant semiconductor and display ecosystem, enabling India to emerge as a global hub for electronics manufacturing and design.
 - **Hybrid Annuity Model (HAM):** A public-private partnership (PPP) variant utilized in infrastructure development. It combines features of the EPC (Engineering, Procurement, and Construction) model and the BOT (Build-Operate-Transfer) model. The government pays 40% of the project cost in fixed installments during the construction phase, while the remaining 60% is paid as variable annuities over the operational period based on the developer's performance.
 - **Technological Sovereignty:** A political and economic concept where a nation asserts its strategic autonomy by minimizing its reliance on foreign critical technologies and supply chains. This ensures that vital data, communication networks, and defense hardware cannot be cut off or manipulated by external geopolitical actors during crises.
 - **Return on Equity (RoE) Band:** A regulatory financial mechanism that establishes a floor (minimum guaranteed profit margin) and a ceiling (maximum permissible profit margin) for capital investments in heavily regulated sectors.
 - **PM Gati Shakti National Master Plan:** A transformative, digital platform that integrates the infrastructure schemes of various Union Ministries and State Governments (such as Bharatmala, Sagarmala, and inland waterways). It relies on GIS-based spatial planning to eliminate institutional silos, optimize multimodal connectivity, and reduce India's overall logistics cost.
- **Main Arguments and Substantive Parts**
 - The current policy shift reveals a clear, multi-pronged economic thesis: India is systematically de-risking its economy by addressing strategic structural vulnerabilities in advanced technology, heavy infrastructure, and food security inputs.
 - **The High-Tech Leap: Scaling from Assembly to Ecosystem**
 - A major shift is taking place in India's industrial policy. The evolution from early electronics initiatives to advanced semiconductor programs signifies a transition from low-value device assembly to high-value component manufacturing. By introducing capital incentives for raw material suppliers—including specialized minerals and process gases—the state is looking to secure the foundational layers of the tech supply chain. The massive financial outlays aim to draw in private capital, establish domestic design patents, and transition local brands from domestic players into global exporters.
 - **Agriculture De-risking: Eliminating the Urea Structural Deficit**
 - Food security remains highly vulnerable to international supply chain shocks, particularly regarding fertilizer inputs. The domestic demand for urea stands at approximately 40 million tonnes, while domestic production is capped at 30 million tonnes, leaving a structural deficit of 10 million tonnes met through imports. By revising the National Investment Policy for Urea, the state seeks to build out gas-based plants to close this gap. The core policy argument rests on structural cost-saving: separating fixed and variable costs and managing foreign exchange volatility helps protect domestic manufacturers, saving hundreds of crores per plant while shielding agricultural production from international price swings.
 - **Targeted Infrastructure: Decongestion via Multimodal Convergence**
 - Infrastructure investment is shifting from general, broad expansions to high-impact, targeted corridors. Utilizing the Hybrid Annuity Model (HAM) for critical bottlenecks—such as the Varanasi corridors—shows an intent to connect major freight lines like ovNH-19 and NH-31 directly into municipal ring roads. These projects align with the PM Gati Shakti National Master Plan, aiming to reduce regional travel times by more than half, lower freight transit erheads, and create strong multipliers for regional trade.

- **Historical Evolution of the Issue**
- **The Post-Independence & Green Revolution Era:** Industrial policy focused heavily on heavy engineering and basic public sector inputs. The Green Revolution necessitated massive expansions in public sector fertilizer units to achieve food grain self-sufficiency. However, high-technology areas like electronics and semiconductors were largely omitted from early industrial planning.
- **The Post-1991 Liberalization Miss:** While the 1991 reforms unlocked India's service sector—turning the country into a global software hub—hardware manufacturing lagged behind. The country relied heavily on imports for electronic items, microchips, and telecommunications equipment, which created a structural vulnerability in the current account balance.
- **The 2012 Policy Benchmark:** To reverse growing import dependencies, the government rolled out the National Investment Policy (NIP) 2012 to invite private and cooperative capital into the fertilizer sector. While it successfully added domestic capacity, structural inefficiencies, changing cropping patterns, and volatile global gas prices kept the import burden high.
- **The Post-Pandemic Reshoring Wave:** The supply chain disruptions of the early 2020s, combined with growing geopolitical uncertainties, highlighted the vulnerability of depending on concentrated geographic hubs for microchips and fertilizers. This gave rise to the "Atmanirbhar Bharat" paradigm, leading to the rollout of early chip manufacturing policies and culminating in the current, heavily funded iterations of these programs.

- **Way Forward**

- **Cultivating a High-Skill Talent Pipeline**

- Capital incentives alone cannot sustain an advanced technology ecosystem. India needs to build a highly skilled workforce by updating engineering and science curricula at major universities to focus on VLSI design, nanotechnology, and chemical engineering, ensuring a steady talent pipeline for domestic fabrication units.

- **Securing Raw Material and Critical Mineral Supply Lines**

- To safeguard advanced manufacturing ecosystems from raw material bottlenecks, India should pursue strategic bilateral and multilateral partnerships—such as through the Mineral Security Partnership (MSP)—to secure long-term access to essential inputs like rare earth elements, gallium, germanium, and high-purity process gases.

- **Transitioning Toward Green Fertilizer Alternatives**

- While expanding gas-based urea plants solves immediate supply shortages, long-term agricultural policy should gradually integrate cleaner technologies. Phasing in green hydrogen-based ammonia production can help align national food security goals with international net-zero carbon commitments.

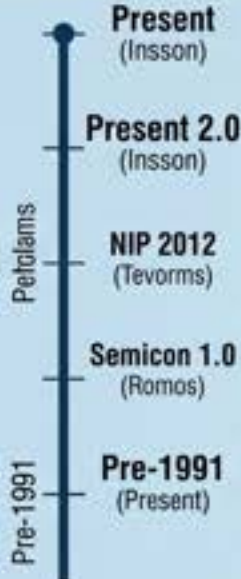
- **Optimizing Project Delivery Regimes**

- To prevent cost overruns and delays in large infrastructure corridors, the state should utilize the integrated planning tools of PM Gati Shakti to establish single-window environmental clearances and transparent, digitized land acquisition frameworks before construction begins.

INDIA'S MACRO-ECONOMIC INDUSTRIAL & INFRASTRUCTURE PIVOT: A COMPREHENSIVE ANALYSIS

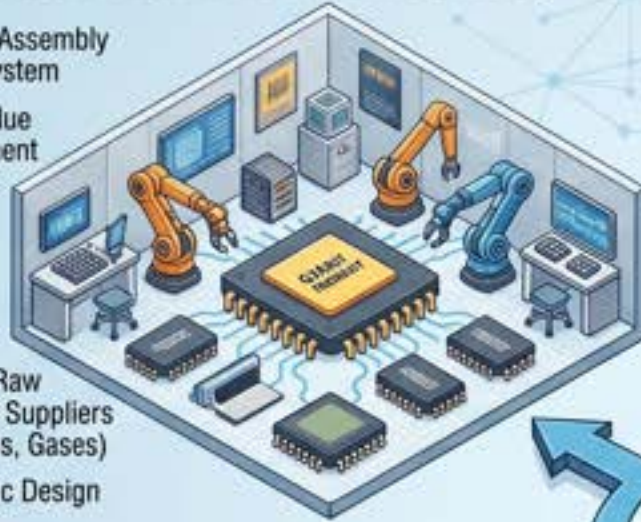
HISTORICAL EVOLUTION OF POLICY PIVOT

HISTORICAL EVOLUTION OF POLICY PIVOT



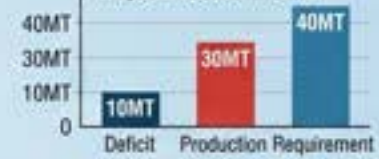
HIGH-TECH LEAP (Semicon 2.0)

- Scaling Assembly to Ecosystem
- High-Value Component Mfg
- Secure Raw Material Suppliers (Minerals, Gases)
- Domestic Design Patents



AGRICULTURE DE-RISKING (Urea 2026)

Import Deficit: 10MT



- Eliminate 10MT Urea Import Deficit
- Build 8+ New Gas-Based Plants
- Manage Forex Volatility
- Structural Cost-Savings (Fixed vs. Variable)



STRUCTURAL PIVOT TOWARDS SELF-RELIANCE

TARGETED LOGISTICS (Highway Projects)



- Varanasi Decongestion (NH-19, NH-31)
- Hybrid Annuity Model (HAM)
- Multi-modal connectivity
- PM Gati Shakti National Master Plan

MULTIDIMENSIONAL IMPACTS



KEY TERMS & CONCEPTS

ISM

India Semiconductor Mission:
A comprehensive program aiming to establish an extensive ecosystem for electronics manufacturing and design within the nation.

HAM

Hybrid Annuity Model:
A public-private partnership model in infrastructure projects that combines features of PPP and BOT, mitigating risk for private developers.

Gas-Based Fertilizer

Tech Sovereignty

Strategic Autonomy:
A nation's ability to maintain its freedom of choice in critical technologies, reducing vulnerability to global supply chain disruptions.

PM Gati Shakti

National Master Plan:
An integrated platform designed to foster multimodal connectivity and infrastructure development across India through enhanced synergy.

PM Gati Shakti

Multi-Modal Connectivity:
Linking various modes of transport to reduce logistics costs, eliminate bottlenecks, and enhance supply chain efficiency.

PYQ FOCUS:

Critical Mineral Security, Agri Subsidies, HAM Model

UPSC CSE SYLLABUS LINKAGES

- GS1:** Economic Geography
- GS2:** Government Policies
- GS3:** Economy, S&T, Agriculture



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Govt launches 8th round of critical minerals auction, 20 blocks on offer

NEW HIGH. Mines Ministry auctioned a record 212 blocks in FY26, the highest since start of the auction regime

Our Bureau
New Delhi

Coal and Mines Minister G Kishan Reddy on Wednesday launched the Eighth Tranche of Auction of Critical and Strategic Mineral Blocks.

The tranche comprises 20 critical and strategic mineral blocks spread across nine States, including 13 newly identified blocks and seven being offered under the second attempt.

With seven tranches completed, the Ministry of Mines has successfully auctioned 56 out of 88 critical and strategic mineral blocks, achieving a success rate of over 63 per cent.

The mineral sector achieved a historic milestone in FY26, with 212 mineral blocks auctioned, the highest in any financial year since the commencement of the auc-



Union Minister for Coal and Mines G Kishan Reddy

tion regime. This included 22 critical and strategic mineral blocks, reaffirming the government's commitment to securing critical mineral resources essential for India's economic growth, technological advancement and clean energy transition.

Mines Secretary Piyush Goyal, highlighted the strategic importance of critical

minerals in securing India's energy transition, advanced manufacturing capabilities and long-term economic growth.

He emphasised the government's continued focus on creating a transparent, competitive and investor-friendly mining ecosystem through progressive policy reforms and accelerated

exploration.

Announcing the forthcoming launch of the 8th round of Critical and Strategic Mineral Blocks auctions, he said the initiative will further strengthen domestic availability of critical minerals, encourage greater private sector participation, attract investment and reinforce India's resilient mineral value chains.

INDIA MINING WEEK

At the event, the Minister also formally announced the India Mining Week 2026, India's largest conference-cum-exhibition for the mining and minerals sector, scheduled to be held on November 15-17 in New Delhi.

Reddy said the event would serve as a premier international platform to bring together governments, industry, investors, technology

leaders, researchers, start-ups and academia to strengthen partnerships, promote innovation and shape the future of sustainable and technology-driven mining.

The Minister expressed confidence that the event would strengthen global partnerships, showcase India's mineral potential and technological capabilities, and contribute to realising the vision of Aatmanirbhar and Viksit Bharat. He urged all technology innovators, researchers, industries and other stakeholders to be part of the India Mining Week 2026.

Coal Secretary Vikram Dev Dutt said the event comes at an important juncture for the mining sector, as the country continues to accelerate reforms and unlock new opportunities for sustainable growth.

- **Key Terms and Explanations**
- **Critical Minerals:** These are metallic or non-metallic elements that are essential for the economic and national security of a country, yet whose supply chain is vulnerable to disruption. They form the bedrock of modern green technologies.
- **Strategic Minerals:** A subset of minerals vital for defense, aerospace, telecommunications, and high-tech industrial applications. Their scarcity or control by hostile nations poses an immediate risk to sovereign security.
- **Auction Regime (Tranche System):** A market-driven, transparent allocation mechanism where mineral blocks are awarded to the highest bidder through competitive electronic auctions. This replaced the older, discretionary administrative allocation system to eliminate corruption and maximize state revenue. A "tranche" refers to a specific, sequential round or batch of blocks put up for bidding.
- **Mineral Value Chain:** The comprehensive, end-to-end process that begins with geological exploration and moves through extraction, processing, refining, and alloying, before ending with integration into final manufactured goods.
- **Energy Transition:** The structural, long-term shift of the global energy sector from fossil-fuel-dominated systems (coal, oil, and gas) to renewable energy sources like solar, wind, and green hydrogen, which inherently demand high volumes of critical mineral inputs.

- **Main Arguments and Substantive Parts**
- **Core Thesis**
- Securing India's long-term economic sovereignty, advanced manufacturing capabilities, and clean energy transition depends heavily on establishing a transparent, resilient, and private-sector-led domestic mining infrastructure for critical and strategic minerals.
- **Key Pillars & Supporting Evidence**
- **Structural Optimization of Resource Allocation:** The transition toward a highly structured, multi-round auction system has successfully accelerated resource monetization. The conclusion of consecutive auction rounds, yielding a record-breaking operational output in recent fiscal cycles—such as the allocation of over 200 blocks in a single financial year—demonstrates that market-driven processes can effectively reduce delays in the mining sector.
- **High Market Response and Success Rates:** The bidding ecosystem indicates strong corporate confidence, with historical success rates for critical and strategic mineral block auctions exceeding 60 percent. This high conversion rate demonstrates that clear regulatory bidding guidelines can successfully mitigate the traditional risks associated with high-capital resource exploitation.
- **Geographic Diversification of Supply Strategy:** Dispersing the mineral blocks across multiple states safeguards the domestic supply chain against localized disruptions, structural bottlenecks, or regional regulatory delays. This geographical spread ensures a balanced, pan-India contribution to the national mineral inventory.
- **Private Capital Mobilization:** By transitioning away from public sector monopolies, the current framework positions private capital, technological innovation, and startup agility as the primary drivers to unlock deep-seated mineral deposits.
- **Systemic Challenges and Counterarguments**
- **The Exploration-Exploitation Gap:** While auctioning blocks marks a significant administrative achievement, the actual conversion of an auctioned block into an operational, producing mine typically takes several years due to lengthy environmental clearances and land acquisition processes.
- **Technological Deficits in Processing:** India possesses raw extraction capabilities, but lacks the advanced metallurgical infrastructure required to refine crude ores into high-purity, manufacturing-ready materials. Without domestic refining capabilities, extracted resources may simply be exported as raw material, preserving import dependencies for finished components.
- **High Financial Risk in Deep-Seated Exploration:** Unlike surficial minerals like coal or iron ore, critical minerals are often deep-seated, requiring high-risk, capital-intensive exploration techniques that many private players are hesitant to fund without guaranteed long-term returns.

- **Historical Evolution of the Issue**
- **Pre-1991: The State-Led Command Model:** Following independence, the legislative framework was governed entirely by the **Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act)**. Resource extraction was heavily centralized, reserving strategic and deep-seated minerals exclusively for Public Sector Undertakings (PSUs). Private participation was highly restricted, which limited advanced technological exploration.
- **1991–2014: Liberalization and Allocational Bottlenecks:** The **National Mineral Policy of 1993** attempted to open the sector to private investment. However, the retention of discretionary administrative allocations led to systemic inefficiencies, lack of transparency, and legal disputes. This era was characterized by low exploration budgets and an over-reliance on importing critical tech-minerals.
- **2015–2022: The Shift to Transparency and Competitive Bidding:** The landmark **MMDR Amendment Act of 2015** fundamentally transformed the sector by mandating electronic auctions for all mineral allocations, eliminating administrative discretion. While this resolved transparency issues for major surficial minerals like iron ore and bauxite, critical minerals remained largely unexploited due to rigid regulatory classifications.
- **2023–Present: The Critical Mineral Revolution:** The **MMDR Amendment Act of 2023** introduced structural reforms by removing six key minerals (including Lithium and Titanium) from the restrictive atomic minerals list, allowing them to be auctioned to the private sector. It also introduced specialized **Exploration Licences (EL)** to incentivize private junior mining firms. This setup directly enabled modern multi-state auctions, targeting full import substitution and domestic supply resilience.
- **Way Forward**
- **Accelerating Operational Clearances via Single-Window Portals:** To reduce the time between successful auctions and actual extraction, the government should introduce an integrated, fast-tracked single-window clearing system for environmental and forest approvals specifically for critical minerals.
- **Incentivizing Advanced Midstream Processing and Refining:** Auctioning raw mineral blocks should be paired with fiscal incentives, such as Production Linked Incentive (PLI) schemes, aimed at building domestic chemical refining plants. This ensures extracted ores are processed into battery-grade materials within the country.
- **Enhancing R&D for Deep-Seated Exploration:** India needs to expand collaboration between the Geological Survey of India (GSI), mineral startups, and international research bodies to deploy advanced geophysical and geochemical techniques required to locate deep-seated deposits.
- **Strengthening ESG Frameworks and Community Trusts:** To reduce social friction and local resistance in mining zones, state governments must ensure transparent, auditable utilization of DMF funds, prioritizing long-term community rehabilitation and ecological restoration.
- **A Dual Strategy of Domestic Extraction and Global Partnerships:** Domestic auctions should be paired with active international sourcing through joint ventures, securing overseas assets via public-private partnerships to ensure a stable, multi-layered supply chain.

SECURING INDIA'S CRITICAL MINERALS:

A STRATEGY FOR ECONOMIC SOVEREIGNTY & GREEN TRANSITION

HISTORICAL EVOLUTION



**Pre-1991
STATE-LED COMMAND**

- MMDR Act 1957
- PSU Monopoly



**1991-2014
LIBERALIZATION & POLICY DISTORTIONS**

- NMP 1993
- Low efficiency

2015-2022



**SHIFT TO
TRANSPARENCY**

- MMDR 2015
- E-auctions

2023-Present



**CRITICAL MINERAL
REVOLUTION**

- MMDR 2023
- 8th Auction Tranche
- Removing Key Minerals

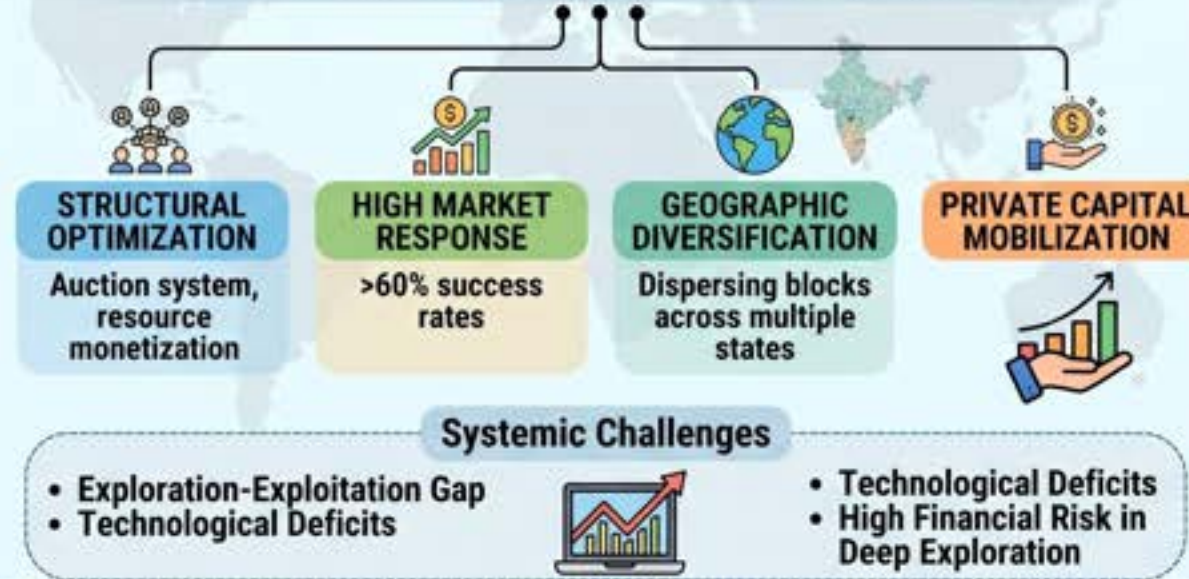
KEY TERMS & EXPLANATIONS

- Critical Minerals
- Strategic Minerals
- Auction Regime
- Mineral Value Chain
- Energy Transition



CORE THESIS:

Transparent, Resilient, Private-Sector-Led Domestic Mining is essential for Economic Sovereignty, Advanced Manufacturing, and Clean Energy Transition.



LOGICAL & PHILOSOPHICAL BASE



Resource Sovereignty vs Interdependence



Market Rationalism



Developmental Imperative vs Ecological Responsibility



Cooperative Federalism



NCERT & UPSC CSE LINKAGES

- NCERT Class X & XII
Geography - distribution & distribution & policy mapping
- UPSC GS 1
1: Resource distribution
GS 2: Governance
GS 3: Economic Dev/Science/Env
GS 4: Ethics, Essay & Optionals

SOCIAL



- Community Displacement
- DMF Benefits
- Employment

POLITICAL



- Center-State Dynamics
- Geopolitical Resource Diplomacy
- Resource Nationalism

LEGAL



- Evolving Statutory Frameworks
- Regulatory Bottlenecks
- Contractual Enforcement

ETHICAL



- Intergenerational Equity
- Environmental Justice
- Supply Chain Integrity

INTERNATIONAL



- Countering Monopolies
- Strategic Global Alliances like MSP
- Cross-Border Co-investment

ECONOMIC



- Import Substitution
- Catalyzing Manufacturing
- Resource Monetization

WAY FORWARD



- Single-Window Clearance
- Midstream Processing Incentives
- R&D for Deep Exploration
- Stronger ESG
- Dual Strategy



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