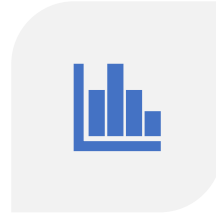
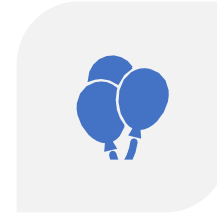




AXIA IAS ACADEMY



EDITORIAL ANALYSIS



AUGUST 14



**CONSISTENT
COMPREHENSIVE
AND CREDIBLE**



**UNIQUE AND BEST IN
QUALITY**

- 1. MMDR, The Sultanate's Surcharge
(THE ECONOMIC TIMES)**
- 2. Supreme Court has nurtured environmental law. Is
it distancing itself from its legacy? (THE INDIAN
EXPRESS)**
- 3. India needs an 'anti-fragile' pathway to Viksit
Bharat (MINT)**
- 4. Europe's AI rules may become India's opportunity
(THE HINDU)**





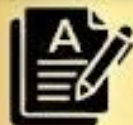
AXIA IAS ACADEMY

UPSC CSE CLASSES

RISE ABOVE THE REST



EXPERT
FACULTY &
GUIDANCE



COMPREHENSIVE
SYLLABUS
COVERAGE



STRATEGIC
TEST SERIES &
MENTORSHIP

ADMISSIONS OPEN

- Prelims + Mains + Interview
- Current Affairs Focus
- Personalized Attention
- Online & Offline Batches



WEBSITE: axiaiasacademy.com



CONTACT: +91 6002-417488



MMDR, The Sultanate's Surcharge



**Rahul Basu &
Claude Alvares**

The new Mines and Minerals (Development and Regulation) Amendment Bill 2023 was passed by Parliament on Thursday. The Statement of Objects and Reasons cites increased tax burdens, unpredictability and non-uniformity of mineral taxation across states, warning that these may hamper production, necessitate imports and slow economic growth.

But behind the pretext of ensuring 'uniformity' lies a bid to neutralise a Supreme Court ruling, protect mining companies, and strip mineral-rich states of constitutional fiscal powers — at the expense of federalism and future generations.

The immediate provocation is the 9-member constitution bench judgment in 'Mineral Area Development Authority v Steel Authority of India' on July 25, 2024, which ruled that states have authority to impose taxes on mineral-bearing lands and mineral rights under the state list. The court directed payment of taxes due from April 1, 2005, in instalments over 12 yrs, without interest or penalties. During the hearings, Govt informed the court that the unpaid state taxes were so

large that they exceeded the net worth of some mining navratnas and maharatnas. These amounts are payable to states as taxes, not to private parties.

The response has been legislation that effectively removes this state-taxing power. It also rewards those who didn't pay after the judgment by declaring such amounts no longer recoverable.

National Mineral Policy 2019 states that 'natural resources, including minerals, are a shared inheritance' and that the state is trustee on behalf of the people, ensuring that future generations also receive the benefit of that inheritance. It also says state governments will endeavour to ensure that the full value of extracted minerals is received by the state.

Auctions of major mineral leases have been fairly successful. In Goa, the weighted average winning bid in 18 iron ore lease auctions is 123% of the mine-gate price, including 15% royalty.

Un-auctioned 'grandfather' leases, whether held by government companies or private parties before 2015, pay only royalty, and in some cases a premium far below what an auction would fetch. Older leases, therefore, enjoy a significant cost advantage over auctioned leases. One way for states to bring these leases towards parity is to impose mineral rights taxes on such leases.

The argument that state taxes create uncertainty is true of taxation generally. Tax regimes change everywhere. GST is one example. MMDR Amendment Act 2023 itself 'increased lessees' National Mineral Exploration and Development Trust (NMEDT) contribution by 50%. States, meanwhile, have a



Bully-doing federalism

fundamental interest in continued mining and strong incentives not to destroy an important sector merely to extract higher taxes. It's unlikely they would commit fiscal — and political — harakiri by imposing unreasonable levies.

So, who benefits from this amendment? Follow the money and it becomes clear: private mining companies and central PSUs. A tax otherwise payable to a state disappears, or is restricted. That is an economic benefit to a few, and comes at the cost of mining states, and their citizens.

No surprise that mining companies are happy: Economic Survey 2016-17 documented that mining states tend to have lower HDI. This is yet another blow against true equity, clothed as equality. Uniform tax rates across states can actually produce greater inequality.

This is not the first time Govt has used MMDR Act to centralise functions traditionally exercised by states. MMDR Amendment Act 2023 permits the Centre to auction mining leases even where minerals are owned by the state. Such power can override location-specific decisions properly belonging to the

mineral-bearing state, including whether a particular block should be mined at all. Clearly Delhi Sultanate thinks it knows best.

Supreme Court has settled the constitutional allocation of taxing power. Parliament may alter the legal regime prospectively within its own field of competence. What it can't do is treat a constitutional allocation of power as a regulatory inconvenience to be neutralised whenever its fiscal consequences become uncomfortable.

The constitutional question, therefore, has not disappeared and is bound to return in litigation: can Parliament, under cover of its legislative power over mines and minerals, substantially reallocate fiscal benefits of mineral resources between Union and states in a manner that undermines the federal structure? Federalism is part of the Constitution's 'basic structure'. Unless mineral-bearing states fight back, this steady demodding of their powers will leave them increasingly helpless before further encroachments.

There was another way: If the Centre truly believes in federalism, it could have called a meeting to discuss tax uncertainty and its economic impact. National Mineral Policy 2019 itself provides for an inter-ministerial authority under ministry of mines, with representation from central ministries and states, to examine issues including royalties and dead rent.

Instead of using that mechanism to take everyone along, the Centre preferred issuing a firman.

The writers are with Goo Foundation

- **Key Terms and Concepts**
- **Mines and Minerals (Development and Regulation) Act (MMDR Act)**
 - The primary statutory framework governing the mining sector in India. Enacted in 1957, it regulates the grant of mining leases, prospecting licenses, and conservation of minerals. Successive amendments (2015, 2023, 2025, and 2026) have shifted the sector toward competitive auctions, expanded central intervention in critical/deep-seated minerals, and altered the financial obligations of mine operators.
- **Fiscal Federalism**
 - The division of taxing powers, expenditure responsibilities, and financial resources between different levels of government (Union and States). In the Indian context, it is governed by Schedule VII of the Constitution, balancing national economic unity with state-level financial autonomy.
- **Legislative Lists (Schedule VII: List I, List II, List III)**
 - **List I (Union List) - Entry 54:** Empowers Parliament to regulate mines and mineral development to the extent declared by law to be expedient in the public interest.
 - **List II (State List) - Entry 49:** Empowers State Legislatures to levy taxes on lands and buildings.
 - **List II (State List) - Entry 50:** Grants States the authority to levy taxes on mineral rights, subject to any limitations imposed by Parliament by law relating to mineral development.
- **Mineral Area Development Authority (MADA) v. Steel Authority of India Ltd. (SAIL) [2024]**
 - A historic 9-judge Constitution Bench ruling of the Supreme Court of India (decided 8:1 in July 2024). The Court held that:
 - Royalty paid by mining lessees is a contractual consideration, not a tax.
 - States possess the constitutional authority to tax mineral-bearing lands under List II Entry 49 and mineral rights under List II Entry 50.
 - States could collect retrospective tax arrears dating back to April 1, 2005, staggered over a 12-year period without interest or penalties.
- **Grandfathered Leases vs. Auctioned Leases**
 - **Grandfathered Leases:** Mining leases granted prior to the 2015 MMDR Amendment through administrative allocation. These lessees pay standard statutory royalties and statutory contributions (e.g., NMET, DMF) but do not pay auction premiums.
 - **Auctioned Leases:** Leases granted post-2015 through competitive bidding. Winning bidders pay a high percentage of the mine-gate price (sometimes exceeding 100% of the base price) as an auction premium in addition to standard royalty.
- **Public Trust Doctrine and Intergenerational Equity**
 - **Public Trust Doctrine:** A legal principle establishing that natural resources such as minerals, forests, and water bodies are held by the state as a trustee for the benefit of the general public, rather than as private property.
 - **Intergenerational Equity:** The ethical and ecological commitment to manage finite, non-renewable resources so that present depletion does not deprive future generations of their rightful inheritance.
- **Resource Curse (Paradox of Plenty)**
 - An economic phenomenon where regions rich in non-renewable natural resources (such as coal, iron ore, and bauxite) experience lower economic growth, poorer Human Development Index (HDI) metrics, higher poverty rates, and weaker governance compared to resource-poor regions.
- **Mine-Gate Price, Royalty, and NMET**
 - **Mine-Gate Price:** The value of the mineral at the point of extraction before transportation or processing costs are added.
 - **Royalty:** A statutory payment made by a leaseholder to the resource owner (the State) for the extraction and removal of minerals.
 - **National Mineral Exploration Trust (NMET):** A statutory body funded by mine lessees (as a percentage of royalty) to promote baseline mineral exploration across India.

- **Core Arguments and Conceptual Structure**
- **The Conflict: Central Regulatory Uniformity vs. State Fiscal Autonomy**
- The ongoing debate over mineral taxation centers on two competing structural priorities:
 - **The Union's Imperative:** Ensuring a uniform, predictable taxation regime across state borders to protect industrial investments, prevent inflationary pressures on core sectors (steel, power, cement), and safeguard Central Public Sector Enterprises (CPSEs) from massive retrospective tax liabilities.
 - **The States' Imperative:** Exercising constitutional taxing power to raise revenue from non-renewable resource extraction. This revenue funds local infrastructure, offsets environmental damage, and addresses long-standing social deficits in mining belts.
- **Detailed Breakdown of the Centralizing Perspective**
 - **Economic Predictability and Capital Inflow:** Proponents of centralized regulation argue that disparate, state-level mineral taxes create regulatory chaos. Uncontrolled state levies could discourage domestic and foreign direct investment in core extractive industries.
 - **Protection of Public Sector Enterprises:** Unpaid tax liabilities dating back to 2005 pose a substantial risk to Central PSUs (such as SAIL, NMDC, and Coal India). The financial exposure from retrospective state demands could erode the net worth of these Navratna and Maharatna enterprises, disrupting national industrial supply chains.
 - **Single Market Integrity:** Unregulated tax imposition by mineral-bearing states could lead to export levies or internal trade barriers, fragmenting India's unified domestic market.
- **Detailed Breakdown of the State-Centric Perspective**
 - **Constitutional Mandate:** The Constitution explicitly grants States the power to tax mineral rights (List II Entry 50) and land (List II Entry 49). Subverting this power through statutory amendments dilutes the federal design.
 - **Correcting the Legacy Parity Disparity:** Legacy leases granted before 2015 operate at significantly lower costs than leases acquired through post-2015 auctions. State mineral-rights taxes serve as an economic tool to level the playing field between grandfathered operators and new auction winners who pay steep premiums.
 - **Mitigating the Human Development Deficit:** Mining regions often bear severe environmental degradation, displacement, and health burdens while registering low Human Development Index (HDI) scores. State taxation provides a direct mechanism to capture economic rent and fund local development.
 - **Rejection of the Retrospective Neutralization:** Nullifying valid state tax claims validated by a 9-judge Supreme Court bench denies mineral-bearing states legitimate revenues meant for regional development over a 12-year window.

- **Historical Evolution of Mineral Taxation and Federal Rights**
- **1. Post-Independence Setup (1950s–1980s)**
 - **Enactment of MMDR Act (1957):** Parliament exercised its power under List I Entry 54 to pass the MMDR Act. The law aimed to ensure centralized regulation for strategic mineral conservation, while assigning basic royalty collection to the states where minerals were located.
 - **Cooperative Federal Framework:** During this era, mineral royalty rates were periodically revised by the Union government to ensure states received steady, non-tax revenue streams.
- **2. The Judicial Shift: *India Cements Ltd. v. State of Tamil Nadu* (1989)**
 - **The 7-Judge Bench Ruling:** The Supreme Court held that "royalty is a tax."
 - **Consequence:** This interpretation effectively restricted states from imposing additional taxes or cesses on mineral rights or mineral-bearing lands. It consolidated the Union's control over mineral taxation for over three decades and limited state revenue options to standard statutory royalties.
- **3. The Structural Reform Era: Auction Regime & Policy Evolution (2015–2019)**
 - **MMDR Amendment Act 2015:** Introduced mandatory competitive auctions for major mineral concessions, ending the administrative allocation era. This created two distinct operator classes: pre-2015 legacy lessees (paying lower fees) and post-2015 auction winners (paying high revenue-share premiums).
 - **National Mineral Policy (2019):** Formalized the principle of minerals as a "shared inheritance" held in public trust. It mandated that the state capture the full economic value of extracted minerals to ensure long-term sustainability and intergenerational equity.
- **4. Incremental Centralization and Judicial Reversal (2023–2024)**
 - **MMDR Amendment Act 2023:** Authorized the Union Government to auction mining concessions for critical and deep-seated minerals, even when those minerals were geographically owned by individual states.
 - **Landmark *MADA v. SAIL* Judgment (July 2024):** A 9-judge Constitution Bench overruled the 1989 *India Cements* verdict. The Court clarified that royalty is a contractual fee, not a tax, thereby affirming that States have the constitutional authority under List II Entries 49 and 50 to tax mineral land and rights. To prevent immediate fiscal shock to mining companies, the Court allowed states to collect arrears accumulated since April 1, 2005, spread over 12 years starting April 2026.
- **5. Legislative Override Attempts (2025–2026)**
 - **MMDR Amendments (2025–2026):** In response to the 2024 Supreme Court ruling, Parliament introduced legislative amendments aimed at standardizing mineral taxation nationwide. The changes restricted state-level tax variations and limited historical liability claims to protect industry financial stability.

UNDERSTANDING THE MINES & MINERALS (DEVELOPMENT & REGULATION) AMENDMENT BILL 2026 & CONFLICTING FISCAL FEDERALISM: AN EDUCATIONAL OVERVIEW



AXIA
IAS ACADEMY

1 SUPREME COURT VERDICT (2024): MINERAL AREA DEVELOPMENT AUTHORITY V. SAIL



LIST II, ENTRIES 49 & 50
STATES HAVE RIGHT TO TAX
MINERAL-BEARING LANDS
AND RIGHTS



2 MMDR AMENDMENT BILL 2026: STATED OBJECTS VS. PERCEIVED EFFECTS



STATED OBJECTS

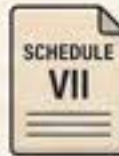
- Ensure Uniformity
- Increase Predictability
- Reduce Tax Burden



PERCEIVED EFFECTS (user analysis)

- NEUTRALISE SC RULING
- STRIP STATE FISCAL POWERS
- PROTECT MINING COMPANIES

3 CONSTITUTIONAL FRAMEWORK & POLICY



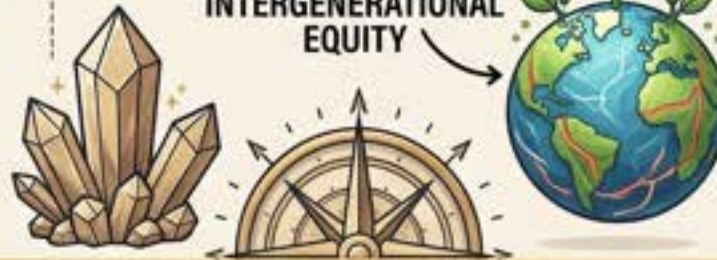
UNION LIST
(ENTRY 54)



STATE LIST
(ENTRIES 49/50)

NATIONAL MINERAL POLICY 2019:
"SHARED INHERITANCE"

INTERGENERATIONAL
EQUITY



4 ECONOMIC & HDI IMPACT IN MINING STATES

MINING-RICH STATES



OTHER STATES



VS



- RESOURCE CURSE? (LOWER HDI)
- STATE TAXES FOR LOCAL DEVELOPMENT



GRANDFATHERED LEASES	AUCTIONED LEASES
₹ 5,000	₹ 1,500
₹ 2,000	₹ 2,000
₹ 5,000	₹ 35,000

5 FLOWCHART OF CONFLICT & CONSEQUENCES



- **Logical and Philosophical Foundations**
- **Subsidiarity and True Federalism**
 - **The Subsidiarity Principle:** Mandates that governance and fiscal decisions should be handled by the lowest capable authority. States bear the immediate socio-economic, environmental, and infrastructural costs of mining activities. Restricting their authority to tax local resource extraction violates this governance principle.
 - **Constitutional Federalism as Basic Structure:** As established in *S.R. Bommai v. Union of India*, federalism is an indispensable feature of the Constitution. Fiscal federalism requires that states maintain predictable revenue sources rather than relying entirely on Union transfers or GST compensation devolutions.
- **The Public Trust Doctrine and Intergenerational Equity**
 - **Trustee Mandate:** The sovereign holds natural resources in trust for the public. When non-renewable minerals are extracted, the state's capital stock diminishes permanently.
 - **Fiscal Compensation for Resource Depletion:** To preserve intergenerational equity, the value derived from mineral extraction must be converted into long-term capital investments—such as human capital, healthcare, and sustainable infrastructure. Depriving states of mineral tax revenue makes it harder for them to build replacement assets for future generations.
- **Economic Rationales: Pigouvian Taxation vs. Harmonization**
 - **Pigouvian Taxation (Internalizing Externalities):** Mining causes negative local externalities, including deforestation, groundwater depletion, air pollution, and displacement. State-level mineral taxes function as Pigouvian levies, raising funds to offset these local environmental and social costs.
 - **Market Harmonization:** The counter-argument relies on national market efficiency. Excessive regional tax variations can introduce distortions, leading to tax arbitrage, market fragmentation, and higher costs for downstream industrial inputs across state lines.



- **Multidimensional Analysis**
- **A. Social Dimension**
 - **Poverty and the HDI Paradox:** States rich in mineral deposits (such as Jharkhand, Odisha, and Chhattisgarh) frequently report below-average Human Development Index scores. The lack of localized fiscal revenue limits state investments in primary education, healthcare, and clean water.
 - **Displacement and Indigenous Vulnerability:** Mining projects predominantly affect tribal and forest-dwelling communities. When state governments lack sufficient revenue from mining operations, local rehabilitation and welfare programs often suffer from funding shortages.
- **B. Political Dimension**
 - **Centre-State Friction:** Preempting state taxing powers through legislative overrides creates political friction, fueling claims of economic centralisation and coercive federalism.
 - **Erosion of Local Accountability:** State governments remain directly accountable to voters for regional development and environmental damage caused by mining. Removing their taxing power disconnects their governance responsibilities from their financial resources.
- **C. Legal and Constitutional Dimension**
 - **Scope of Legislative Override:** Parliament can alter the legal framework prospectively within its constitutional domain. However, using statutory laws to nullify a Constitutional Bench's interpretation of Schedule VII risks violating the separation of powers.
 - **The Doctrine of Colorable Legislation:** Applying Union regulatory powers (List I Entry 54) to curtail state taxing powers (List II Entry 50) risks violating the principle that what cannot be done directly cannot be done indirectly.
- **D. Ethical Dimension**
 - **Distributive Justice:** Extracting mineral wealth from economically depressed regions to supply industrial hubs elsewhere, without returning fair compensation to the source states, undermines regional equity.
 - **Corporate Welfare vs. Public Interest:** Shielding corporate miners and public sector enterprises from historical tax liabilities, while denying mineral-rich states revenue meant for public welfare, raises fundamental questions about social fairness.
- **E. International Dimension**
 - **Global Supply Chain Resilience:** Securing critical and strategic minerals (such as lithium, cobalt, and rare earth elements) is essential for energy transition and international geopolitics. Tax unpredictability can discourage international mining firms from committing long-term FDI to India's mining sector.
 - **Alignment with Global ESG and EITI Standards:** International frameworks like the Extractive Industries Transparency Initiative (EITI) emphasize transparent tax regimes, fair revenue distribution, and local community benefit sharing.
- **F. Economic Dimension**
 - **Legacy vs. Auction Cost Disparities:** Old, pre-2015 leases pay lower fees compared to new leases acquired through auctions (where winning bids can exceed 100% of the mine-gate price). State mineral taxes give states a tool to reduce this cost gap between legacy operators and new market entrants.
 - **CPSE Balance Sheet Impact:** Requiring Central Public Sector Enterprises to pay retrospective tax arrears back to 2005 could strain their balance sheets, potentially limiting their capital expenditure in energy and infrastructure.

- **Linkages with NCERT Textbooks**
- **1. Class 11 Political Science: *Indian Constitution at Work***
 - **Chapter 7: Federalism**
 - *Core Linkage:* Explores the division of powers under Schedule VII, the rationale for strong central coordination, and the conflict over financial resources between the Union and States.
 - *Application:* Helps students contextualize the legal tension between List I Entry 54 and List II Entry 50 as a structural feature of Indian federalism.
 - **2. Class 12 Geography: *India: People and Economy***
 - **Chapter 7: Mineral and Energy Resources**
 - *Core Linkage:* Details the geographical concentration of mineral belts in eastern and central India (the Chota Nagpur Plateau, Odisha, Chhattisgarh) alongside their socio-economic indicators.
 - *Application:* Explains the spatial reality behind the "Resource Curse," demonstrating why mineral-rich regions often face development deficits.
 - **3. Class 11 Economics: *Indian Economic Development***
 - **Chapter 9: Environment and Sustainable Development**
 - *Core Linkage:* Defines the concepts of environmental degradation, economic externalities, and intergenerational equity.
 - *Application:* Provides the theoretical background for analyzing the National Mineral Policy 2019, public trust obligations, and the economic rationale for state mineral taxation.

- **Syllabus Mapping for UPSC CSE**
- **GS Paper 1: Indian Geography & Society**
 - **Resource Distribution:** Geographical concentration of minerals and its impact on regional development.
 - **Social Impact:** Industrialization, tribal displacement, and regional imbalances in resource-rich states.
- **GS Paper 2: Polity, Governance, and Federalism**
 - **Centre-State Legislative and Fiscal Relations:** The legal boundary between Union regulatory mandates (List I Entry 54) and State taxing authority (List II Entry 50).
 - **Separation of Powers & Judicial Review:** Parliament's authority to amend laws versus the Supreme Court's role in interpreting the Basic Structure.
 - **Inter-State Governance:** Institutional mechanisms like the Inter-State Council (Article 263) for resolving fiscal disputes.
- **GS Paper 3: Economic Development, Environment & Infrastructure**
 - **Mineral Sector Reforms:** The transition to competitive auctions, mining economics, and mineral supply security.
 - **Inclusive Growth:** Addressing the Resource Curse and using District Mineral Foundations (DMF) to support mining-affected populations.
 - **Sustainable Development:** Environmental impact assessments, industrial policy, and intergenerational equity.
- **GS Paper 4: Ethics and Integrity**
 - **Public Trust Ethics:** The duty of the state to manage finite natural resources for public benefit rather than short-term fiscal relief.
 - **Distributive Justice:** Balancing national economic priorities with fair compensation for local mining-affected communities.
- **Optional Subjects**
 - **Law:** Constitutional law, Schedule VII interpretation, doctrine of colorable legislation, and legislative override limits.
 - **Public Administration:** Intergovernmental financial relations, administrative federalism, and policy implementation in the extractive sector.
 - **Political Science & IR (PSIR):** State autonomy, federal bargaining dynamics, and political economy of natural resources.
 - **Geography:** Advanced resource management, regional planning, and spatial inequalities.



- **Way Forward and Policy Options**
- **1. Consensus-Based Floor and Ceiling Rates**
 - Instead of using statutory amendments to preempt state taxing powers entirely, the Centre and States should negotiate standardized floor and ceiling rates for mineral-rights taxes. This approach protects state constitutional autonomy while establishing a predictable tax ceiling for mining investors.
- **2. A Dedicated Mechanism for Legacy Lease Parity**
 - To address the cost gap between pre-2015 grandfathered leases and post-2015 auctioned leases, the Centre and States could implement a unified resource-rent surcharge on legacy leases. Standardizing this adjustment would prevent individual states from applying arbitrary levies while bringing legacy operators closer to competitive market rates.
- **3. Phased, Structured Arrears Settlement**
 - To reduce the financial impact of historical tax arrears on CPSEs and major mining firms, states could accept a structured, long-term payment schedule. Combining longer payment windows with targeted tax offsets for infrastructure investments in mining belts would help protect company balance sheets while ensuring states receive legitimate revenue over time.
- **4. Institutionalizing Consultative Federalism**
 - Rather than relying on unilateral legislative overrides, the Union Government should engage institutional channels such as the Inter-State Council (Article 263) or the inter-ministerial mechanisms under the National Mineral Policy 2019. Joint deliberations help build consensus on mineral royalty revisions, NMET contributions, and state tax limits.
- **5. Direct Deployment of Mining Revenues for Local Human Development**
 - A dedicated portion of state mineral tax receipts should be statutorily ring-fenced for the District Mineral Foundations (DMF) and regional socio-economic infrastructure. Directing these funds toward healthcare, educational institutions, and environmental restoration helps address the Resource Curse and supports long-term intergenerational equity.



- **UPSC CSE Mains Questions**

- **1. GS Paper 2: Polity & Federalism (2020)**

- *"The distribution of fiscal powers under the Indian Constitution favors the Centre, leaving States financially dependent." Critical evaluate this statement with reference to recent legislative changes in natural resource governance and taxation regimes. (15 Marks, 250 Words)*

- **2. GS Paper 2: Constitutional Law & Judiciary (2022)**

- *"While Parliament possesses the authority to override judicial decisions by altering the legal framework prospectively, it cannot arbitrarily subvert constitutional divisions of legislative power." Analyze this statement in light of Centre-State friction over legislative overrides. (15 Marks, 250 Words)*

- **3. GS Paper 3: Resource Governance & Economy (2021)**

- *Examine the concept of the 'Resource Curse' in the context of India's mineral-rich belts. How far can policy initiatives like the District Mineral Foundation (DMF) and competitive auctioning help resolve this paradox? (10 Marks, 150 Words)*

- **4. GS Paper 4: Ethics (2019)**

- *Natural resources are a public trust, held by the state for present and future generations. Discuss the ethical implications when economic policies prioritize corporate tax stability over the socio-ecological rehabilitation of mining-affected communities. (10 Marks, 150 Words)*

- **APSC (Assam Public Service Commission) Questions**

- **1. Mains GS Paper 2: State Autonomy & Federalism (2021)**

- *Discuss the constitutional division of legislative and taxing powers between the Union and the States in India. How do legislative amendments by Parliament impact the fiscal autonomy of mineral-bearing states? (15 Marks, 250 Words)*

- **2. Mains GS Paper 3: Regional Development & Resource Management (2023)**

- *Evaluate the challenge of achieving balanced regional development in resource-rich but economically underdeveloped regions of India. Suggest policy measures to ensure fair revenue distribution to extraction states. (10 Marks, 150 Words)*

SC has nurtured environmental law. Do its decisions look distant today?

IN THE early years of Indian independence, there was no precise environmental policy. The Constitution of India had a few provisions regarding the environment, though the word "environment" was not expressly mentioned.

In 1976, Parliament drew upon the commitment made by India at the UN Conference on Human Environment held at Stockholm. The views expressed at the Stockholm Conference form the core of the environmental philosophy of India that has found expression in various statutes and policy pronouncements. These provisions were inserted in the Constitution by the Constitution (forty-second amendment) Act, 1976 (the Amendment Act), which included Article 48A and Article 51A (g).

Article 48A is a directive principle of state policy. It advises the state that while framing laws or executing policy decisions, it should endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country. Article 51A is a separate provision under Part IVA providing for fundamental duties of citizens. It says that it shall be the duty of every citizen to protect and improve the natural environment.

The Amendment Act introduced a host of provisions, starting from amendments to the Preamble. Some of its provisions became highly controversial, both substantively and in the political and constitutional context as Internal Emergency was then in force. Shanti Bhushan, one of India's most prominent lawyers, became the law minister when a new government came to power in 1977. There was clamour all around that all the amendments should be removed lock, stock and barrel. It is to his eternal credit that, notwithstanding his sharp political disagreement with the outgoing PM and despite overwhelming public demand, he did not touch any of the provisions.

Though we had the statutory framework before and after the Stockholm Conference, it is the Bhopal gas leak tragedy of 1984 that really galvanised the Supreme Court into action. In *Union Carbide vs Union of India*, the Supreme Court developed the doctrine of absolute liability. This is based on the principle that when an enterprise involves inherently dangerous activity and harm results to anybody because of a mishap attributable to the enterprise or activity, the enterprise would be obligated to repay each one of the injured or affected individuals. The polluter pays principle was introduced by the Rio Summit of 1992 and was applied for the first time in India in the case of *Indian Council for Environmental Action vs. Union of India*.

In the case of *Vellore Citizens' Welfare Forum vs Union of India*, the Supreme Court declared that the precautionary principle includes three major conditions: the state must anticipate, prevent and attack the cause of environmental degradation. It is a preventive principle based on precaution.

In my dissenting judgment in *Consolidation of Rural Estate Development of India (CREDE) vs Venuhakti*, which reviewed the original *Venuhakti* judgment, I have said that the precautionary principle is the cornerstone of environmental jurisprudence. Polluter pays is only a principle of reparation. In other words, if at all there has to be a grading of the environmental principles, precautionary principle has to be placed above the principle of polluter pays.

The principle of sustainable development means that the state must make efforts to maintain a balance between the environment and development. In *Vellore Citizens' Welfare Forum*, the Supreme Court held that the precautionary principle and polluter pays principle are essential features



UJJAL
BHUYAN

FOR THE
record

of sustainable development. Sustainable development has come to be accepted as a part of customary international law.

In the case of *M.C. Mehta vs Kamal Nath*, famously known as the *Span Motel* case, the Supreme Court developed the concept of the public trust doctrine. While *Span Motel* had to bear the cost of compensation and had to face penalties under the polluter pays principle, it was the Himachal Pradesh government which was pulled up for breaching public trust. The Supreme Court also emphasised the principle of inter-generational equity, holding that the present generation has a duty to protect the environment for future generations. From these judgments, and there are many more, we can conclude that if Indian environmental jurisprudence has a parent, it is the Supreme Court. It has nurtured environmental law from its infancy. But having said that, I ask myself: Today, do these decisions look very distant?

My former colleague in the Bombay High Court, Justice Gautam Patel, has analysed Supreme Court judgments dealing with the environment in an aptly titled 'Consistently Inconsistent: Environmental Law and the Supreme Court'. Justice Patel finds that by and large, the Supreme Court has supported the environmental cause raised by non-governmental organisations. It has not shown the same degree of support to cases challenging infrastructure projects. Justice Patel says

it is precisely this area that an intervention of the Supreme Court is vital, and yet it is here that we find a reluctance to come down on the side of the environmentalists. He says the jurisprudential inconsistency is apparent when one sets these decisions against the principles that the Supreme Court itself repeatedly enunciates in the broadest possible terms. It is that inconsis-

ent inconsistency that exacerbates the threats to the environment.

Is there any conflict between environment and development? The answer, according to me, is an emphatic no. Three decades ago, the Supreme Court had observed in the *Vellore Citizens* case that the traditional concept that development and ecology are opposed to each other is no longer acceptable. In my *Venuhakti* review judgment, I have said that it is unfortunate that a false narrative is being created pitting environment against development. Both are part of the constitutional construct of sustainable development.

When a conscientious citizen approaches the Court with a grievance that a particular project is in breach of environmental norms, what should be the approach of the court? Should the Court throw out the challenge at the threshold by asking aloud, almost posing a leading question to itself, whether any development project in India has gone unchallenged? It is true that there are many busybodies who file frivolous petitions. However, such attempts have been deprecated by the courts, but that cannot be the reason to paint all challengers with the same brush. There are committed environmentalists in our country who continue to espouse the cause of the environment. Where would they go if the doors of the courts are closed? According to me, that cannot be the approach of a constitutional court. Instead, the Court should ask: Has the project complied with the environmental norms? The Court should assure itself and citizens that all projects, big or small, infrastructure or otherwise, should comply with the environmental norms.

The writer is a Supreme Court Justice. Edited excerpts from a speech he delivered on August 5 at Vivekananda Kendra, Guwahati

When a conscientious citizen approaches the Court with a grievance that a particular project is in breach of environmental norms, what should be the approach of the Court?

- **Key Terms and Explanations**
- **1. Absolute Liability**
 - **Definition:** A strict legal doctrine established by the Supreme Court of India in the *M.C. Mehta v. Union of India (1987)* case following the 1984 Bhopal Gas Leak. It mandates that an enterprise engaged in an inherently dangerous or hazardous activity owes an absolute, non-delegable duty to the community to ensure no harm results.
 - **Distinction:** Unlike the traditional English doctrine of *Strict Liability (Rylands v. Fletcher)*, Absolute Liability allows **no exceptions** (such as acts of God, sabotage, or third-party intervention). The compensation must be correlated with the magnitude and capacity of the enterprise to act as a deterrent.
- **2. Polluter Pays Principle**
 - **Definition:** An economic and legal principle stipulating that the party responsible for producing pollution must bear the financial costs of managing, preventing, and repairing the environmental damage caused.
 - **Scope:** It is primarily a **reparative mechanism** focused on internalizing negative environmental externalities. First recognized internationally at the 1992 Rio Earth Summit, it was formally woven into Indian law in *Indian Council for Enviro-Legal Action v. Union of India (1996)*.
- **3. Precautionary Principle**
 - **Definition:** A proactive regulatory approach stating that where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent degradation.
 - **Key Conditions:** The State must **anticipate, prevent, and attack** the causes of environmental degradation. It shifts the burden of proof onto the project proponent to demonstrate that their action will not cause harm.
- **4. Public Trust Doctrine**
 - **Definition:** A legal theory holding that certain natural resources—such as air, sea, waters, and forests—are inherently owned by the public as a whole. The State acts merely as a trustee, not an absolute owner.
 - **Judicial Precedent:** Formally applied in *M.C. Mehta v. Kamal Nath (1997)* (Span Motel Case). The Supreme Court held that the government cannot alienate or divert public trust resources for private commercial gain.
- **5. Inter-Generational Equity**
 - **Definition:** An ethical concept asserting that the current generation holds the Earth in trust for future generations and has a moral and legal duty to pass on an environment in no worse condition than it was received.
 - **Core Logic:** It places a temporal boundary on resource exploitation, demanding that economic growth today does not strip basic ecological security from tomorrow's citizens.
- **6. Articles 48A and 51A(g) of the Indian Constitution**
 - **Article 48A (Directive Principle of State Policy):** Mandates that the State shall endeavor to protect and improve the environment and safeguard the country's forests and wildlife.
 - **Article 51A(g) (Fundamental Duty):** Imposes a duty on every citizen of India to protect and improve the natural environment, including forests, lakes, rivers, and wildlife, and to have compassion for living creatures.

- **Main Arguments and Substantive Parts**
- Indian environmental law is built on constitutional evolution, judicial innovation, and operational paradoxes. The core argument rests on the understanding that the judiciary acted as the primary architect of environmental governance, yet now grapples with systemic inconsistencies when handling large-scale development projects.
- **1. The Judicial Origin of Indian Environmental Law**
- The Constitution of 1950 contained no explicit reference to the environment. The judicial interpretation of the 1980s and 1990s gave practical life to environmental protection. By expanding **Article 21** (Right to Life) to encompass the "Right to a Healthy and Wholesome Environment," the Supreme Court transformed discretionary administrative duties into enforceable fundamental rights.
- **2. Primacy of the Precautionary Principle over Polluter Pays**
- A critical structural insight is the hierarchy of environmental principles. While both doctrines form the core of sustainable development, the **Precautionary Principle is fundamentally superior**:
 - *Precaution* is **ex-ante (preventive)**: It stops ecological destruction before it occurs.
 - *Polluter Pays* is **ex-post (reparative)**: It comes into play only after damage has occurred.
 - Monetary compensation under Polluter Pays can never fully restore an extinct species, an eroded coastline, or an ancient forest ecosystem. Therefore, legal systems must prioritize precaution over financial restitution.
- **3. The Paradox of "Consistent Inconsistency"**
- Despite constructing a sophisticated body of law, the judiciary displays a dual approach:
 - When dealing with small-scale polluters, local industrial units, or public interest litigations (PILs) brought by non-governmental organizations against localized harms, the courts apply environmental doctrines strictly.
 - When faced with **large state-sponsored infrastructure projects** (such as highways, river linkages, port expansions, or mining concessions), courts often show deference to executive discretion, citing national economic interest.
 - This creates a **jurisprudential dissonance**: principles articulated in absolute terms during theoretical rulings are frequently diluted when applied to mega-development challenges.
- **4. Debunking the "Environment vs. Development" False Binary**
- A recurring flaw in policy debates is framing ecology and economic growth as mutually exclusive choices.
 - **Constitutional Synthesis**: Both ecology and growth are complementary pillars of Sustainable Development.
 - Development achieved through environmental destruction is economically self-defeating in the long run, as it induces climate shocks, resource depletion, and public health crises.
 - Constitutional courts must avoid dismissing petitions against projects by assuming every challenge is a nuisance. Courts must objectively examine whether statutory environmental compliance has occurred.

- **Historical Evolution of the Issue**
- **Phase 1: Post-Independence Statutory Fragmentation (1950–1971)**
 - **Constitutional Silence:** The original 1950 text lacked explicit provisions on environmental protection. Early legislation was fragmented, dealing with resource extraction rather than conservation (e.g., the *Indian Forest Act, 1927* or sectoral water rules).
 - **Resource Exploitation Paradigm:** Early economic planning prioritized rapid industrialization, dam construction, and agricultural expansion, viewing natural resources primarily as inputs for economic output.
- **Phase 2: The Stockholm Catalyst & Constitutional Amendment (1972–1976)**
 - **The Stockholm Conference (1972):** Prime Minister Indira Gandhi represented India at the landmark UN Conference on the Human Environment, emphasizing that "poverty is the greatest polluter" while committing to global environmental standards.
 - **The 42nd Constitutional Amendment Act (1976):** Parliament formally embedded environmental stewardship into the Constitution by introducing:
 - **Article 48A:** Directing the State to protect forests, wildlife, and the environment.
 - **Article 51A(g):** Imposing a Fundamental Duty on citizens to protect the natural environment.
 - **Seventh Schedule Re-alignment:** Shifted "Forests" and "Protection of Wild Animals and Birds" from the State List to the Concurrent List, giving Parliament overarching legislative authority.
 - **Bipartisan Post-Emergency Consensus (1977):** When Law Minister Shanti Bhushan reviewed Emergency-era constitutional amendments, the environmental clauses were retained due to bipartisan recognition of ecological preservation.
- **Phase 3: The Bhopal Catastrophe & Judicial Golden Era (1984–1990s)**
 - **Bhopal Gas Leak (1984):** The industrial disaster exposed severe gaps in common law tort liability and regulatory enforcement.
 - **Statutory Enactments:** Parliament passed the umbrella **Environment (Protection) Act, 1986**, creating a framework for central environmental authorities and setting environmental standards.
 - **Judicial Doctrines Formulated:**
 - *M.C. Mehta v. Union of India (1987):* Established **Absolute Liability**.
 - *Subhash Kumar v. State of Bihar (1991):* Declared clean environment a part of Article 21.
 - *Vellore Citizens' Welfare Forum (1996):* Embedded **Precautionary** and **Polluter Pays** principles into domestic law.
 - *M.C. Mehta v. Kamal Nath (1997):* Introduced the **Public Trust Doctrine**.
- **Phase 4: Institutionalization & Infrastructure Tensions (2000s–Present)**
 - **Creation of National Green Tribunal (NGT Act, 2010):** Established a specialized judicial body with technical experts to handle environmental disputes efficiently.
 - **Emergence of Jurisprudential Conflicts:** Fast-tracked infrastructure projects (highways, mining, coastal development) led to executive attempts to dilute Environmental Impact Assessment (EIA) notifications.
 - **Current Dilemma:** The Supreme Court navigates a fine line between enforcing environmental norms and accommodating economic growth imperatives.

EVOLUTION OF INDIAN ENVIRONMENTAL JURISPRUDENCE & SUSTAINABLE DEVELOPMENT

POST-INDEPENDENCE (1947-Early 1970s)

Early state priority: Development.
Precise environmental policy absent.



1976 CONSTITUTION (42ND AMENDMENT) ACT

Catalyst: Stockholm Conference (1972).

Introduced Key Articles:

- Art 48A (DPSP: State's duty to protect environment, forests, wildlife).



1984 BHOPAL GAS LEAK TRAGEDY

Catalyst for Judicial Activism.
M.C. Mehta cases lead to absolute liability.



Doctrine of Absolute Liability



AXIA
IAS ACADEMY
KEEP ABOVE THE REST

SUSTAINABLE DEVELOPMENT (Synthesis)

- Held in Vellore Citizens case as core principle.
- Balance: Environment and Development.
- Rejects traditional view of opposition.



KEY ENVIRONMENTAL DOCTRINES (Vellore Citizens, M.C. Mehta, Rio Summit)

PRECAUTIONARY PRINCIPLE
(State must Anticipate, Prevent, Attack cause; primary; preventive)

POLLUTER PAYS PRINCIPLE
(Enterprise repays each affected individual; reparative; from Rio Summit 1982)

PUBLIC TRUST DOCTRINE
(State is trustee, not owner; resources for public use; Inter-generational equity)



MODERN CHALLENGES & THE JUDICIARY



Judiciary: Parent of Env. Law.

Challenge: Justice Gautam Patel on "Consistent Inconsistency" (hesitant on infra vs. supportive for NGOs).

Avoid Fake Narrative
(Environment vs. Dev.)

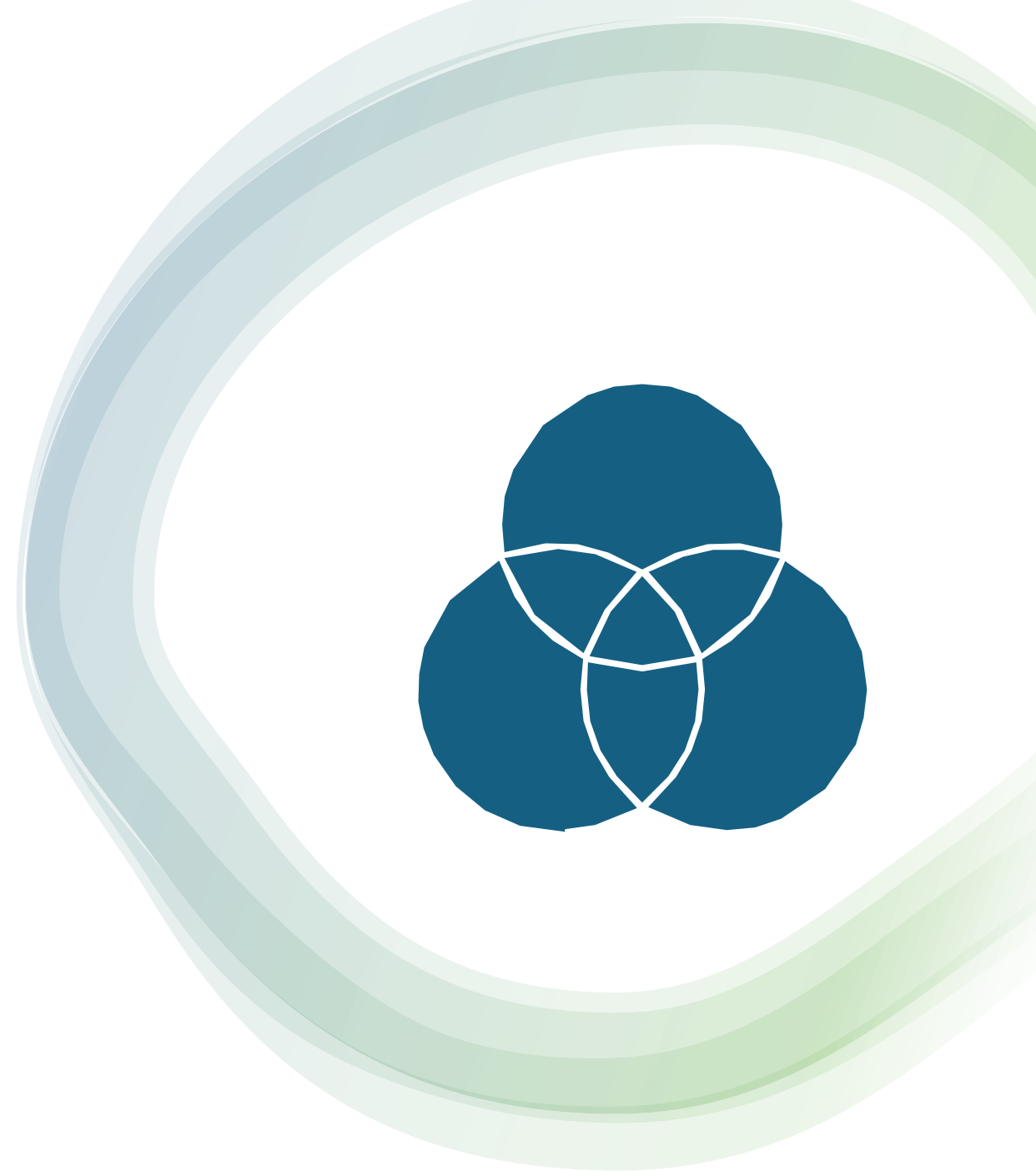
Court focus: Has project complied with norms?



- **Logical and Philosophical Base**
 - **1. Shift from Anthropocentrism to Ecocentrism**
 - **Anthropocentrism:** Views nature strictly in terms of its utility to humans. Environmental protection is valued only to the extent that degradation harms human health or economic production.
 - **Ecocentrism:** Recognizes that nature has **intrinsic value**, independent of its usefulness to humanity. Indian environmental law has progressively moved toward ecocentrism (*T.N. Godavarman Thirumulpad v. Union of India*), acknowledging that flora, fauna, and rivers possess inherent legal rights to exist without degradation.
 - **2. Public Trust Doctrine (*Res Communes*)**
 - **Roman Law Origins:** Grounded in the ancient legal classification of *res communes*—things common to all, such as air, running water, the sea, and the seashore.
 - **Democratization of Resource Ownership:** It denies sovereign ownership of essential ecological commons. The State acts as a fiduciary trustee. When a government privatizes an essential natural resource for commercial gain, it commits a structural breach of trust that invalidates its administrative action.
 - **3. Epistemic Uncertainty and the Precautionary Principle**
 - **Scientific Uncertainty:** Ecological systems are highly complex, non-linear, and often unpredictable. Environmental impacts may manifest decades after an intervention.
 - **Philosophy of Risk Management:** In conditions of high uncertainty and high potential damage, waiting for absolute scientific proof before acting is irrational. The Precautionary Principle reverses the standard burden of proof: safety must be demonstrated before an intervention proceeds, rather than proving harm after the fact.
 - **4. Inter-Generational Ethics and Rawlsian Justice**
 - **John Rawls' Veil of Ignorance:** Extended across time, no generation knows which era it will inhabit. Justice requires that the present generation avoid consuming resources or degrading ecosystems in ways that handicap future generations.
 - **Stewardship Model:** Humans are temporary custodians of the Earth's natural capital, responsible for delivering a stable biosphere to future generations.
-

- **Multidimensional Analysis**
- **1. Social Dimension**
 - **Environmental Justice:** Vulnerable, lower-income, and marginalized communities rely heavily on common pool resources (forests, rivers, grazing lands) and bear a disproportionate burden of ecological damage.
 - **Public Health:** Industrial air pollution, river contamination, and toxic waste dumping disproportionately cause respiratory illnesses and waterborne diseases among urban poor and rural populations.
 - **Tribal Rights:** Forest dwellers' cultural identity and livelihoods are tied to forest ecosystems. Weak legal enforcement leads to involuntary displacement and loss of traditional ways of life.
- **2. Political Dimension**
 - **Regulatory Capture:** Environmental enforcement bodies (State Pollution Control Boards, Forest Advisory Committees) can face political pressure from industrial lobbies to compromise regulatory standards.
 - **Federal Friction:** Natural resources often cross state lines. Federal disagreements occur when the Union government grants environmental clearances for central projects over the objections of local communities or state governments.
 - **Electoral Time Horizon:** Electoral cycles run on short terms (5 years), whereas ecological restoration operates over decades. This mismatch creates incentives for governments to prioritize fast-tracked projects over sustainable ecological planning.
- **3. Legal Dimension**
 - **Institutional Framework:** India possesses comprehensive legislation—the *Water Act (1974)*, *Air Act (1981)*, *Environment (Protection) Act (1986)*, and *Forest Conservation Act (1980)*. However, execution remains fragmented.
 - **Implementation Gaps:** Pollution Control Boards often lack sufficient technical staff, monitoring equipment, and financial autonomy, weakening their ability to prosecute offenders.
 - **Standing and Access to Courts:** Public Interest Litigation (PIL) expanded access to environmental justice. However, recent trends showing casual dismissals of legitimate public interest petitions risk closing the courtroom door to valid environmental grievances.
- **4. Ethical Dimension**
 - **Duty vs. Exploitation:** Article 51A(g) establishes environmental care as a moral duty for citizens. Unchecked consumption and ecological degradation represent a failure of civic ethics.
 - **Corporate Accountability:** Corporations often treat pollution costs as business expenses rather than addressing their ethical duty to cause no harm.
- **5. International Dimension**
 - **Customary International Law:** Principles such as Sustainable Development, Precautionary Action, and Polluter Pays are widely accepted norms of Customary International Law.
 - **Treaty Commitments:** India is a signatory to major multilateral environmental agreements, including the UNFCCC, Convention on Biological Diversity (CBD), and the Paris Agreement. domestic legal coherence is essential to meeting these international commitments.
 - **Global Climate Leadership:** Maintaining high domestic standards strengthens India's credibility when advocating for climate finance and technology transfer in global negotiations.
- **6. Economic Dimension**
 - **Externalities & Market Failure:** Pollution is an unpriced negative externality. Unregulated markets fail to capture the true ecological cost of industrial production, leading to resource misallocation.
 - **Natural Capital Accounting:** Traditional Gross Domestic Product (GDP) metrics misread the depletion of natural capital as economic growth. Integrating Green GDP metrics provides a more accurate picture of long-term wealth creation.
 - **Stranded Assets:** Bypassing environmental norms during project planning can lead to legal stay orders, delayed execution, stranded investments, and financial non-performing assets (NPAs) in the banking sector.

- **Linkages with NCERTs**
- **1. Class 11 Political Theory**
 - **Chapter 8: Rights:** Explores how fundamental rights expand over time through judicial interpretation. Demonstrates how the Supreme Court broadened Article 21 to include the right to clean air and water as an essential part of the right to life.
 - **Chapter 10: Development:** Analyzes alternative models of growth, contrasting top-down economic models with human-centric and sustainable approaches. Highlights structural displacement caused by mega-infrastructure projects.
- **2. Class 11 Indian Constitution at Work**
 - **Chapter 2: Rights in the Indian Constitution:** Directly maps the relationship between Directive Principles of State Policy (Article 48A) and Fundamental Duties (Article 51A(g)), demonstrating how state obligations and civic duties reinforce fundamental rights.
 - **Chapter 7: Federalism:** Explores the division of powers under the Seventh Schedule. Explains the shift of "Forests" to the Concurrent List via the 42nd Amendment, balance of authority between the Union and States on resource management.
- **3. Class 11 Indian Economic Development**
 - **Chapter 9: Environment and Sustainable Development:** Explores concepts such as resource depletion, environmental absorptive capacity, and market externalities. Provides economic context for the Precautionary Principle and the Polluter Pays Principle.
- **4. Class 12 Contemporary World Politics**
 - **Chapter 7: Environment and Natural Resources:** Details global negotiations, including the 1972 Stockholm Conference and the 1992 Rio Earth Summit. Explains how international commitments influence domestic environmental legislation and judicial rulings.



- **Linkages with UPSC CSE Syllabus**
- **General Studies Paper 1 (Indian Society & Geography)**
 - **Urbanization and Environmental Degradation:** The ecological toll of rapid, unplanned urban expansion on water bodies and air quality.
 - **Geographical Features and Vulnerable Ecosystems:** The vulnerability of ecologically fragile zones (such as the Western Ghats and the Himalayan belt) to infrastructure development.
- **General Studies Paper 2 (Polity, Governance, & Constitution)**
 - **Constitutional Amendments & Provisions:** Evolution of Articles 21, 48A, and 51A(g) via the 42nd Amendment Act.
 - **Judicial Review and Separation of Powers:** The Supreme Court's role in creating environmental doctrines, set against debates over judicial activism and judicial overreach.
 - **Statutory & Regulatory Bodies:** The performance of the National Green Tribunal (NGT), Central Pollution Control Board (CPCB), and State Pollution Control Boards (SPCBs).

- **General Studies Paper 3 (Environment, Ecology, & Economy)**
 - **Environmental Impact Assessment (EIA):** Regulatory processes, post-facto clearances, and statutory compliance mechanisms.
 - **Conservation and Sustainable Development:** Reconciling infrastructure growth with ecological conservation; applying the Precautionary Principle.
 - **Environmental Pollution & Degradation:** Remedial mechanisms based on the Polluter Pays Principle and absolute liability models.
- **General Studies Paper 4 (Ethics, Integrity, & Aptitude)**
 - **Environmental Ethics:** Anthropocentrism vs. Ecocentrism; moral duties toward non-human species.
 - **Inter-Generational Justice:** Ethical considerations in consuming finite natural resources today at the expense of future generations.
 - **Public Trust and Administrative Integrity:** Fiduciary duties of public officials when leasing or allocating common natural resources to private entities.
- **Optional Subjects**
 - **Law (Paper 2):** Environmental Law doctrines, Constitutional rights expansion, public law remedies, and tortious absolute liability.
 - **Public Administration:** Regulatory policy execution, institutional autonomy of SPCBs/CPCB, and challenges in enforcing environmental regulations.
 - **Geography:** Sustainable resource management, environmental impact analysis, and eco-sensitive zone management.

- **Way Forward**
- **1. Establish an Independent National Environmental Regulator**
 - **Structural Reform:** Establish an autonomous, statutory National Environment Appraisal and Monitoring Authority—as recommended by the Supreme Court in the *Lafarge Umiam Mining* case (2011).
 - **Objective:** Remove conflict-of-interest pressures by separating appraisal and clearance functions from ministry control, relying on objective, science-based evaluations.
- **2. Strengthen EIA Integrity and Eliminate Post-Facto Clearances**
 - **Enforce Precautionary Standards:** Eliminate the practice of granting "post-facto" environmental clearances, which undermines the Precautionary Principle by allowing illegal operations to pay monetary fines after harm has occurred.
 - **Third-Party Audits:** Require independent, third-party scientific environmental impact assessments paid for through an arms-length government fund, preventing developers from commissioning biased assessments.
- **3. Establish Consistent Benchmarks for Judicial Scrutiny**
 - **Standardized Review Framework:** Establish clear, transparent standards for judicial review of mega-infrastructure projects, ensuring environmental principles apply consistently regardless of project scale.
 - **Strengthen NGT Capacity:** Provide the National Green Tribunal with regional benches, technical staff, and financial resources to resolve environmental disputes efficiently without overburdening regular courts.
- **4. Transition to Green Accounting and Ecological Economics**
 - **Redefine Growth Metrics:** Integrate Natural Capital Accounting (such as the UN System of Environmental-Economic Accounting) into national budgeting to offset traditional GDP against natural resource depletion.
 - **Internalize Externalities:** Use fiscal policies, such as carbon pricing and environmental tax reform, to align commercial incentives with ecological preservation.
- **5. Empower Grassroots Communities and Local Bodies**
 - **Strengthen Decentralized Governance:** Ensure strict adherence to the *Forest Rights Act (FRA), 2006* and *PESA (Provisions on the Panchayats Extension to Scheduled Areas) Act, 1996*.
 - **Community Stewardship:** Require informed consent from local Gram Sabhas for resource allocation projects, reinforcing the Public Trust Doctrine through community oversight.

- **UPSC CSE Mains Questions**

- **General Studies Paper 2**

- **(2021):** *"The expansion of Article 21 by the Supreme Court of India has transformed the nature of constitutional rights and environmental governance."* Elucidate with the help of relevant judicial precedents. (15 Marks, 250 Words)
- **(2019):** Highlight the constitutional provisions that empower the judiciary to safeguard environmental rights in India. Is judicial activism in environmental matters leading to an overlap with executive functions? Critically analyze. (15 Marks, 250 Words)

- **General Studies Paper 3**

- **(2023):** Environmental Impact Assessment (EIA) notification is a critical tool for achieving sustainable development. Discuss the challenges associated with recent revisions and dilutions in the EIA framework in India. (10 Marks, 150 Words)
- **(2020):** Describe the major doctrines evolved by the Supreme Court of India for environmental protection. How far have these doctrines been successful in balancing industrial growth with ecological integrity? (15 Marks, 250 Words)
- **(2018):** Discuss the 'Polluter Pays Principle' and 'Precautionary Principle' as defined by the Supreme Court. Examine their efficacy in mitigating industrial pollution in light of recent case studies. (15 Marks, 250 Words)

- **General Studies Paper 4 (Ethics)**

- **(2022):** What do you understand by "Environmental Ethics"? How can the principles of Inter-Generational Equity and Public Trust be integrated into public administration decision-making? (10 Marks, 150 Words)

- **APSC CCE Mains Questions (Assam Public Service Commission)**

- **(2022 - GS Paper 3):** Discuss the role of the judiciary and the National Green Tribunal (NGT) in protecting the fragile ecosystem of the North-Eastern region, with special reference to Assam. (15 Marks, 250 Words)
- **(2020 - GS Paper 2):** Examine the constitutional mechanisms available under Articles 48A and 51A(g) for forest and wildlife conservation in India. How effective have they been in curbing biodiversity loss? (10 Marks, 150 Words)
- **(2018 - GS Paper 3):** Define "Sustainable Development." Explain how the Precautionary Principle acts as a preventive tool against irreversible environmental damage caused by major developmental projects in ecologically sensitive zones. (15 Marks, 250 Words)

India needs an 'anti-fragile' pathway to Viksit Bharat

DEEP MUKHERJEE



is a risk management and AI consultant, and a member of the visiting faculty, IIM Ahmedabad and IIM Calcutta.

India's Viksit Bharat aspiration of becoming a developed country by 2047 is an apt north star. Achieving this objective would require the Indian economy, currently at almost \$4.2 trillion, to grow roughly seven times its size to \$30 trillion. That is steep, but lofty goals are meant to stretch institutions and organizations to re-imagine, re-configure and then execute accordingly.

After the 1991 liberalization of India's economy, its annual real GDP growth has averaged about 6.5%. Even after the 2008 global financial crisis, this rate has stayed about the same. But volatility around this seemingly stable long-term average pace of growth has surged. Between 1992 and 2008, the lowest and highest growth rates were 3.3% and 8.8%. After 2008, the range has widened to between -5.5% and 9.7%, with both extremes occurring in the last 10 years. If one uses standard deviation to measure GDP-growth volatility, it has increased by two-and-a-half times over the past decade compared to the period before 2008.

Arguably, this volatility is predominantly due to external shocks. India's worst years have been on account of events beyond its control. If we ignore GDP data for three years—2001 (the dot-com bubble aftermath), 2008 (global financial crisis) and 2020 (covid pandemic)—the average from 1992 till date rises to 6.8%, and to 7.1% for the period after 2008.

Clearly, reducing growth variability and managing one-off shocks to the economy are critical if the size being targeted over the next couple of decades is to be achieved. At a steady 7% rate over 10 years, the economy's size nearly doubles. But a growth rate of 8-9% in nine out of 10 years and -5% in a shock year would deliver a smaller economy than in the steady scenario.

Aim to be anti-fragile, not just resilient: The list of potential external shocks has been lengthening—disruptive new technologies, intensifying climate extremes and geopolitical choke-points, alongside abrupt tariff and supply-chain shocks. Their frequency and intensity has also been increasing. This is where Nassim Nicholas Taleb's construct of anti-fragility becomes pertinent. To explain, a fragile system is one that breaks under stress. An anti-fragile economy is the opposite; it gets stronger under stress. This differs

from resilience, which refers to a system that quickly bounces back after the stress is gone. India has been among the most resilient of large economies, as seen in past crises (including covid). However, the country still needs to weave anti-fragility measures into its policy initiatives.

Applying anti-fragility to nations: Anti-fragility may be achieved by focusing on five aspects. *One*, create planned redundancy for critical utilities. *Two*, let minor disruptions and experiments reveal emerging weaknesses and strengths. *Three*, decentralize relevant authority. *Four*, ensure skin-in-the-game among decision-makers. And *five*, take some national bets that can withstand global crises and shocks (and ideally benefit from these).

Diversity of economic activity, skill-sets, federal polity and even climate already offers India a strong foundation for anti-fragility. So, failure in a particular industry, firm or state is unlikely to cascade into a systemic

failure. Still, shocks do dent long-term economic growth. So anti-fragility is a must.

Some policy initiatives already have traits of anti-fragility. However, the focus needs to be sharper and cover all policy thinking. Here are a few areas.

Competitive federalism: Allow states enhanced fiscal and regulatory space to nurture different industries and experiment with seeding new ones. These should go beyond industry clusters and states should do their own tinkering with business models, technologies, skilling programmes and

labour engagements; the Centre's role would be to track systemic risk, set standards and provide budgetary support.

Planned redundancy: Digital utilities such as internet connectivity, payment systems and data assets get efficiency from scale. But in crisis, a single point of failure can cause disruption. India needs parallel systems.

Adopt a barbell strategy for economic initiatives: This refers to an invest-

ment strategy where one puts the bulk of one's investment in low-risk, tested activities and a small portion in initiatives that are high risk but can offer exponential returns—say, in case of a crisis or black-swan outcome. A barbell strategy would suit India well. Thus, most effort should go into ensuring a stable and resilient base, especially in terms of consumption, infrastructure and small firms-driven growth. At the same time, calibrated high-risk bets could be taken on R&D in quantum computing, climate technology, space tech, bio-engineering and medical tourism. Mid-risk strategies that offer some upside but with a notable downside in case of a crisis are avoidable. For example, solely application-focused artificial intelligence without any core capability or intellectual property; this may increase import dependency of tokens and see much of the value generated flow out of India as profit repatriation.

The most difficult for any country to adopt may be the 'skin in the game' doctrine. Yet, decision-makers whose choices result in increased systemic fragility should ideally face palpably adverse consequences.

The road to Viksit Bharat runs through an increasingly shock-prone world. India needs to understand its vulnerabilities and adopt anti-fragile thinking.

QUICK READ

India's GDP growth path has been getting more uneven amid external shocks that may grow in frequency and intensity. Resilience is about bouncing back but that's not enough.

We need an economy that's 'anti-fragile'—one that actually gains strength under stress. A risk-calibrated strategy for this would require sharper policies in five specific areas.

- **Key Terms and Conceptual Framework**

- **Viksit Bharat @2047:** The national strategic objective to transform India into a fully developed, high-income economy by the centenary year of its independence. It implies expanding the Gross Domestic Product (GDP) to approximately **\$30 trillion**, while simultaneously raising per capita income, human development indicators, and technological self-reliance.
- **Resilience vs. Anti-Fragility:**
 - *Resilience* refers to a system's capacity to absorb stress, resist damage, and return to its original state following a crisis (e.g., a bamboo tree bending in a storm and standing back up).
 - *Anti-Fragility* (a concept coined by Nassim Nicholas Taleb) describes a system that does not merely resist stress, but actively **improves, adapts, and gains strength** when exposed to shocks, volatility, and uncertainty (e.g., the human immune system strengthening after controlled exposure to pathogens).
- **Volatility Drag:** A mathematical phenomenon where extreme fluctuations in annual growth rates reduce the overall long-term compound growth rate, even if the arithmetic mean growth rate appears high.
- **The Barbell Strategy:** An asymmetric risk-management approach where resource allocation is split between two extremes: placing the majority (~80–90%) in ultra-safe, low-risk foundational activities, and a small portion (~10–20%) in high-risk, high-reward speculative bets, while avoiding moderate-risk middle ground.
- **Planned Redundancy:** The intentional creation of duplicate or parallel systems within critical infrastructure (e.g., energy, telecommunications, digital payments) so that the failure of one primary node does not collapse the entire ecosystem.
- **Competitive Federalism:** A governance framework in which sub-national units (states and union territories) compete with one another to attract investment, spur innovation, and reform regulatory environments, supported by a central authority that ensures systemic stability.
- **Skin in the Game:** An ethical and operational doctrine asserting that decision-makers must directly share in the negative consequences (downside risk) of their policy choices, aligning authority with systemic accountability.

Core Economic Arguments & Structural Analysis

The Volatility Drag Paradox

A simple arithmetic mean can disguise long-term economic contraction caused by volatility.

Illustrative Comparison:

- **Scenario A (Steady Growth):** An economy growing at a stable **7% annually for 10 years** compounds smoothly, nearly doubling its real GDP.
- **Scenario B (Volatile Growth):** An economy growing at **8.5% for 9 years**, but suffering a **-5% contraction** in year 10 due to an unmanaged external shock, ends up at a **smaller final economic size** than Scenario A, despite averaging a higher growth rate in non-crisis years.

Exogenous global shocks—such as the 2001 dot-com bust, the 2008 GFC, and the 2020 COVID-19 pandemic—are the primary drivers of India's growth dips. Removing these three shock years elevates India’s baseline growth average to **6.8% (1992–present)** and **7.1% (post-2008)**.

Managing shocks and dampening volatility are therefore essential prerequisites for compounding wealth.

The Mathematics of Growth Volatility

India's post-1991 average real GDP growth rate stands at approximately **6.3%**. Interestingly, this long-term average remained nearly identical before and after the 2008 Global Financial Crisis (GFC). However, the *variance* surrounding this average expanded dramatically:

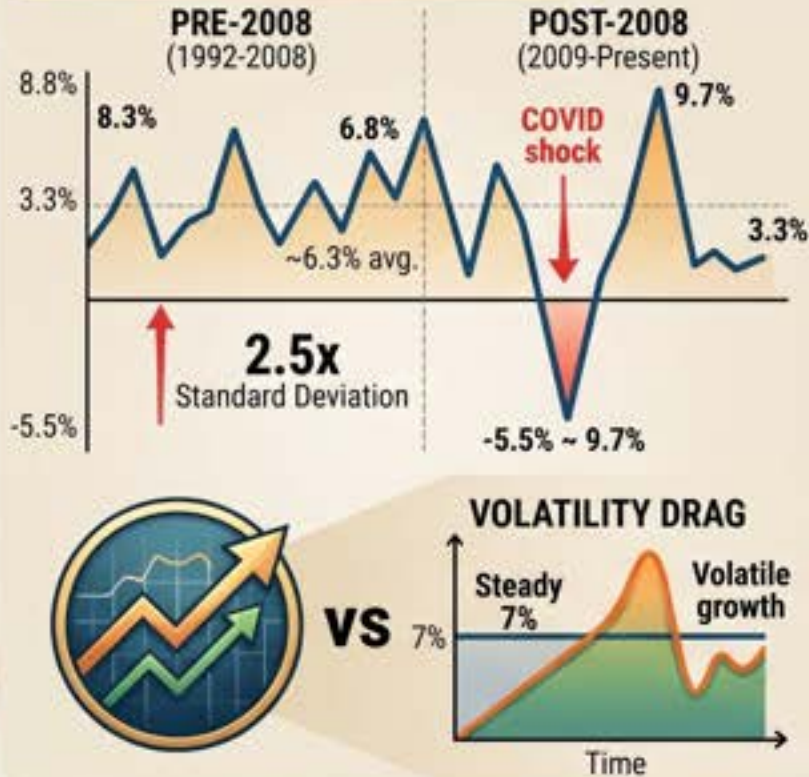
Metric / Period	Pre-2008 (1992–2008)	Post-2008 (2009–Present)
Minimum Growth Rate	3.3%	-5.5% (COVID Shock)
Maximum Growth Rate	8.8%	9.7% (Post-COVID rebound)
Growth Spread (Range)	5.5 percentage points	15.2 percentage points
Standard Deviation	Baseline	~2.5x increase

- **Historical Trajectory of India's Economic Volatility**
- **Phase 1: The Command Economy & External Fragility (1947–1991)**
 - **Characteristics:** Characterized by the "Hindu Rate of Growth" (averaging ~3.5% annually) under an inward-looking, import-substitution policy framework.
 - **Vulnerabilities:** Heavy structural dependence on monsoon cycles for agricultural output, recurring Balance of Payments (BoP) crises (1966, 1973, 1980, 1991), and susceptibility to global oil price shocks.
 - **Outcome:** Highly fragile architecture culminating in the 1991 BoP crisis, where foreign exchange reserves fell to under two weeks of import cover.
- **Phase 2: Post-Liberalization Stabilization (1991–2008)**
 - **Characteristics:** Structural reforms (Liberalization, Privatization, Globalization - LPG) deregulated industrial licensing, lowered tariffs, and opened capital accounts.
 - **Growth Dynamics:** Growth averaged ~6.3%, driven by the services sector boom, software exports, and expanding private consumption.
 - **Volatility Profile:** Relatively narrow growth corridor between 3.3% and 8.8%. External shocks were absorbed reasonably well due to low overall financial integration with Western banking systems.
- **Phase 3: Post-GFC Volatility Expansion (2008–2019)**
 - **Characteristics:** Deeper integration into global trade and capital flows exposed India directly to global macro-financial shocks.
 - **Growth Dynamics:** Domestic issues like the **Twin Balance Sheet crisis** (overleveraged corporates paired with non-performing assets in public sector banks) combined with external shocks like the 2013 "Taper Tantrum."
 - **Volatility Profile:** Standard deviation of GDP growth widened noticeably, showing increased sensitivity to foreign institutional investor (FII) capital outflows and global growth slowdowns.
- **Phase 4: The Era of Polycrisis & Structural Reorientation (2020–Present)**
 - **Characteristics:** Overlapping global disruptions—including the COVID-19 pandemic, global inflation spikes, supply chain realignments, and geopolitical conflicts.
 - **Growth Dynamics:** Extreme volatility ranging from an unprecedented **-5.5% contraction** (FY21) to a rapid **9.7% recovery** (FY22).
 - **Strategic Shift:** High resilience demonstrated through digital public infrastructure and proactive fiscal policy, highlighting the need to embed true **anti-fragility** into the macroeconomic architecture.



VIKSIT BHARAT @ 2047: Building an Anti-Fragile Economy for \$30 Trillion

1. THE VOLATILITY CHALLENGE



RESILIENCE



Withstands Stress,
Bounces Back

vs. ANTI-FRAGILITY

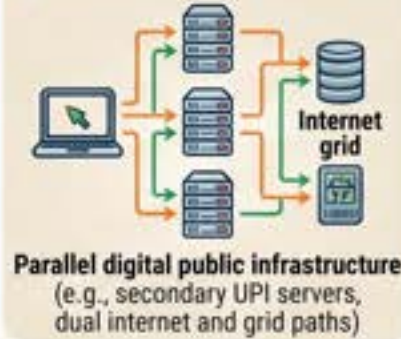


Gains Strength
from Stress

SHIFT STRATEGY: GROW VIA STRESS

2. FOUR PILLARS FOR AN ANTI-FRAGILE INDIA

1 PLANNED REDUNDANCY



2 BARBELL STRATEGY R&D



3 DYNAMIC FEDERALISM



4 INSTITUTIONAL ACCOUNTABILITY



UPSC CSE SYLLABUS MAPPING

GS II (Polity/Governance) **GS IV** Ethics - "Skin in the Game")
GS III (Economy/Technology) **GS IV** Essay

NCERT CURRICULUM LINKAGES

• **Class 11** Economics
• **Class 12** Macroeconomics
• **Class 11** Pol Sci (Federalism)
• **Class 12** Pol Sci (Politics in India)

- **Philosophical and Theoretical Foundations**
- **Nassim Nicholas Taleb's Triad**
- Taleb categorizes all physical, social, and economic systems into three distinct behaviors when exposed to stressors:
- **Complex Adaptive Systems (CAS) Perspective**
- Modern macroeconomies are not mechanical systems that return to a predictable equilibrium. They are **Complex Adaptive Systems** marked by non-linearities, feedback loops, and emergent behaviors.
 - **Linear Thinking:** Assumes small shocks yield small effects, and large shocks yield large effects.
 - **Complex Reality:** Minor supply-chain bottlenecks (e.g., semiconductor shortages) can freeze global automotive production. Anti-fragile policy treats the economy as an ecosystem that benefits from localized, small failures, preventing massive, systemic meltdowns.
- **The Doctrine of Subsidiarity & Hayekian Knowledge**
- Anti-fragility draws heavily on Friedrich Hayek's concept of **dispersed knowledge**. Centralized economic planners can never process all local information effectively. By delegating decision-making authority to local units—such as state governments and regional authorities—a nation creates multiple distributed nodes capable of fast adaptation during crises.

- **Multidimensional Analysis**
- **Economic Dimension**
 - **Capital Accumulation:** High growth volatility increases the risk premium demanded by foreign and domestic investors. Stabilizing growth reduces the cost of capital and accelerates gross fixed capital formation (GFCF).
 - **Fiscal Space Cushioning:** Exogenous shocks force governments into unplanned counter-cyclical spending, inflating fiscal deficits and sovereign debt. Anti-fragile structural buffers protect fiscal resources for productive capital expenditure.
 - **Avoiding the Mid-Risk Trap:** Investing in superficial tech layers (like application-only AI without core intellectual property) leaves a nation vulnerable. Value creation flows outward via royalty payments and profit repatriation, increasing systemic import dependencies during crises.
- **Social Dimension**
 - **Protecting Vulnerable Populations:** Economic contractions hit the informal sector and daily-wage earners hardest. High growth variability risks pushing millions back into poverty, erasing years of social gains.
 - **Human Capital Development:** Anti-fragile education and skilling models emphasize adaptability over rigid specialization, preparing the labor force for technological shifts like automation and generative AI.
- **Political and Governance Dimension**
 - **Empowerment through Competitive Federalism:** Giving state governments fiscal and regulatory room to experiment creates dynamic policy laboratories. If a policy fails in one state, the systemic impact is contained; if it succeeds, it can be scaled nationally.
 - **Decentralization of Decision-Making:** Over-centralized administrative frameworks struggle during crises due to bureaucratic bottlenecks. Localized authority allows rapid, contextual responses.
- **Legal and Institutional Dimension**
 - **Institutionalizing "Skin in the Game":** Policymakers and corporate leaders must face tangible consequences when their decisions introduce systemic fragility. Regulatory frameworks (like the Insolvency and Bankruptcy Code) help ensure that bad bets lead to restructurings rather than moral hazards and unmitigated bailouts.
 - **Regulatory Sandboxes:** Legal frameworks must permit safe, controlled spaces for market experimentation in financial technology, biotech, and clean energy, allowing risks to surface and be managed early.
- **International and Geopolitical Dimension**
 - **Navigating Geopolitical Chokepoints:** Global supply chains are increasingly weaponized through trade sanctions, export controls, and tariff hikes. Anti-fragility requires building redundant, multi-sourced supply pathways for critical inputs like rare earth elements, active pharmaceutical ingredients (APIs), and semiconductors.
 - **Strategic Autonomy:** Economic strength provides the foundation for independent foreign policy. Minimizing growth volatility shields the national interest from external pressure during global crises.

Linkages with NCERT Curriculum

NCERT CURRICULUM MAPPING MATRIX	
NCERT Textbook & Grade	Relevant Core Concept
Class 11 Economics: Indian Economic Development (Chapters 3 & 8)	• Post-1991 LPG reforms & exposure to global macro volatility. • Infrastructure bottlenecks & reliance on imported energy resources.
Class 12 Macroeconomics: Introductory Macroeconomics (Chapters 5 & 6)	• Foreign exchange fluctuations & capital account vulnerabilities. • Fiscal deficit management during exogenous shocks.
Class 11 Political Science: Indian Constitution at Work (Chapter 7: Federalism)	• Division of powers and sub-national policy space. • Asymmetric federalism as an anti-fragile shock absorber.
Class 12 Political Science: Politics in India Since Independence (Chapter 3)	• Evolution of India's planning framework from centralized command model to NITI Aayog's cooperative federalism.

- **Direct Syllabus Mapping for UPSC CSE**

UPSC SYLLABUS MAPPING		
Syllabus Module	Direct Topic Linkages	
GS Paper II: Governance & Polity	• Issues and challenges pertaining to the federal structure; devolution of powers. • Institutional mechanisms for risk management and policy execution.	
GS Paper III: Indian Economy & Technology	• Indian Economy: Mobilization of resources, growth, development, and employment. • Indigenization of technology and deep-tech R&D (Quantum, Bio-tech, Space). • Infrastructure: Digital Public Infra, energy security, and supply chain integrity	
GS Paper IV: Ethics, Integrity & Aptitude	• Accountability, moral hazard, and "Skin in the Game" in policy governance. • Ethical dilemmas in economic policy choices	
Essay Paper	• Themes on resilience vs anti-fragility, Viksit Bharat, and managing global chaos.	
Optional Subjects (Econ / PSIR / Pub Ad)	• Economics: Volatility in open economies. • PSIR: Federal balances & global shocks. • Pub Ad: Decentralized crisis management.	

- **Strategic Action Plan: Path to Anti-Fragility**
- **Pillar 1: Build Planned Redundancy into Critical Systems**
 - **Dual-Track Digital Infrastructure:** Unified Payments Interface (UPI) and national data pipelines require alternative, redundant clearing architecture. A localized technical glitch or targeted cyberattack should not disrupt national commerce.
 - **Energy & Supply Chain Diversification:** Accelerate the expansion of strategic petroleum reserves, decentralized solar micro-grids, and alternative maritime and overland freight corridors to buffer against geopolitical disruptions.
- **Pillar 2: Operationalize the Barbell Strategy in R&D and Industrial Policy**
 - **Protect the Core (~80-90% Allocation):** Direct the majority of capital toward low-risk, foundational economic drivers—expanding transport infrastructure, boosting domestic manufacturing consumption, and streamlining credit access for micro, small, and medium enterprises (MSMEs).
 - **Take High-Risk, Exponential Bets (~10-20% Allocation):** Allocate venture-style public funding to transformative, high-reward technologies:
 - Quantum Computing & Cryptography
 - Climate-tech and Advanced Battery Chemistry
 - Space-tech commercialization
 - Synthetic Biology and Advanced Medical Therapeutics
 - **Avoid the Mid-Risk Trap:** Refuse subsidies for superficial application layers that lack domestic intellectual property, preventing long-term foreign royalty dependency.
- **Pillar 3: Empower States through Competitive Federalism**
 - **Policy Experimentation Spaces:** Allow states to test distinct economic models, labor arrangements, and industrial incentives. Successes can be adopted nationally, while failures remain localized and informative.
 - **Fiscal Flexibility:** Grant states broader autonomy to raise developmental capital through green bonds and sub-national infrastructure funds, reducing reliance on central transfers during downturns.
- **Pillar 4: Enforce "Skin in the Game" across Public Administration**
 - **Aligning Authority with Accountability:** Link executive decision-making to long-term systemic outcomes. Regulators and administrative heads should face clear accountability mechanisms if their choices build hidden fragility into financial or civil infrastructure.
 - **Clawback Provisions:** Incorporate performance clawbacks in public-private partnerships (PPPs) to prevent corporate actors from privatizing profits while socialized losses are passed to the state during crises.

UPSC CSE Mains Questions

- **GS Paper III (2023):** *"Faster economic growth requires increased rate of investment accompanied by higher growth of productivity. Evaluate India's growth performance in the light of this statement."*
- **GS Paper III (2022):** *"Do you agree that the Indian economy has recently experienced V-shaped recovery? Give reasons in support of your answer."*
- **GS Paper II (2021):** *"How far has decentralization of power to local bodies in India changed the governance landscape at the grassroots level? Analyze in the context of crisis management."*
- **GS Paper IV (2020):** *"Distinguish between 'Personal Ethics' and 'Professional Ethics'. How can institutional design ensure that public officials maintain 'skin in the game' when approving high-value development projects?"*

APSC (Assam Public Service Commission) Mains Questions

- **GS Paper 3 (APSC 2023):** *"Discuss the vulnerability of Assam's economy to natural shocks like annual floods. What anti-fragile policy measures can be adopted to ensure uninterrupted economic growth?"*
- **GS Paper 3 (APSC 2022):** *"Examine the role of Competitive Federalism in accelerating industrial growth among North-Eastern states of India."*

Europe's AI rules may become India's opportunity

The Government of India has recently indicated that it is considering a standalone legislation to govern Artificial Intelligence (AI). However, the pressure on the AI supply chain is already felt due to the European Union (EU)'s AI Act which was entered into force in August 2024 and became applicable on August 2, 2026. The Act has adopted a risk-based approach to artificial intelligence ("AI") regulation – prohibiting certain AI systems, regulating high-risk ones, and imposing lighter checks for limited-risk use cases.

While most Indian firms are likely aware that the Act applies when their AI systems produce results in Europe, there is a more consequential story that goes beyond a compliance checklist.

A post-approval issue

The Act was drafted with a particular picture in mind, and that picture does not match how India's technology industry actually works. This mismatch, more than the law's long reach, is what Indian companies should be watching. The Act assumes that software, once built and approved, is sold as a finished product. India's technology industry has never worked that way. The devil lies in the legal consequences when an AI is updated post-approval.

Before a 'high-risk' AI system, used for sensitive decisions such as hiring or education, can enter the European market, it must clear a 'conformity assessment' under Article 43: proof that it meets the law's standards on testing, documentation and human oversight. For most such systems the provider assesses itself against the Act's criteria and signs its own declaration; only a narrow set, mainly certain biometric tools, must be checked by an independent body. Either way, once the box is ticked, the system can run undisturbed. However, if the system is "substantially modified", the process must be repeated. A substantial modification is a change



Mustafa Rajkotwala

Lawyer based out of Mumbai who focuses on the technology law space



Dhruv Jadhav

Lawyer based out of Mumbai who focuses on the technology law space

India could build an industry around the paperwork and proof required under the European Union's Artificial Intelligence (AI) Act

not contemplated at the time of the original assessment, one that affects its compliance or alters its intended purpose.

In June 2026, the EU gave final approval to a package easing its own timelines, pushing the compliance deadline for these standalone high-risk AI systems to December 2027 and to August 2, 2028 for high-risk AI-embedded in regulated products. It retained a grandfathering clause under which systems already on the market before this date are exempted from the Act's obligations until substantially modified. A foreseen change examined during the original conformity assessment does not trigger a fresh one, while an unanticipated change likely does.

This distinction is not just a technicality. It would likely favour business models built on predictable product road maps. Providers of standardised AI products can assess planned upgrades during the initial assessment. Businesses that rely on bespoke services, offering competitive adaptability to individual client needs, may find it harder to demonstrate that future changes fall within the scope of the original assessment.

Unplanned improvement and regulation

India's technology industry, from the large IT services firms to the global capability centres in Bengaluru and Hyderabad, runs on exactly this kind of responsive adaptation. The Act also tethers liability to firms that substantially modify someone else's high-risk system. Such firms may be treated as the provider of the modified system, inheriting every one of the original maker's obligations. Thus, for an industry whose very promise is improvement on demand, an unplanned improvement that changes an AI system's intended purpose may trigger a fresh regulatory exercise.

Yet, the Act also presents an opportunity. High-risk compliance is operationalised through

paperwork and proof. Most providers will be permitted to carry out that conformity assessment themselves, but they will do so against harmonised technical standards still being drafted. The underlying work – governance measures, technical documentation, testing regimes – has to be done in volume. The scale of this obligation is likely to generate demand for quality legal and technical professionals, which India can provide. Indian professional services firms have supported clients across data protection, financial regulation and technical assurance. They can provide regulatory capability for the Act too.

Tap the trade agreement

A longer-term vision extends beyond compliance services. The Act creates a pathway for conformity assessment bodies established in third countries to be recognised and perform the functions of notified bodies, where the EU has concluded an appropriate agreement, and those bodies satisfy the requirements. This recognition is a question for treaty negotiation, and India has just signed a treaty capable of carrying it.

The India-EU Free Trade Agreement that was concluded in January includes standing machinery and regulatory cooperation provisions. If India can secure institutional arrangements as part of its partnership with the EU, it could become not just a supplier of AI compliance services but also a participant in the EU's conformity assessment ecosystem. Going ahead, it would provide the legal gateway through which qualified Indian conformity assessment bodies could eventually perform functions recognised under the Act. Europe has written itself a mountain of compliances and India has the capacity to do it. There is a version of this where the rules India fears become the work it sells. Which version arrives is still being decided, and not for much longer.

- **Key Terms and Explanations**
- **Risk-Based Approach**
 - A regulatory framework that categorizes AI systems by the potential harm they pose to fundamental rights, health, and safety, applying proportional regulatory mandates.
 - **Prohibited Risk:** Systems posing unacceptable risk (e.g., cognitive behavioral manipulation, social scoring) are banned outright.
 - **High-Risk:** Systems used in critical sectors (e.g., recruitment, credit scoring, critical infrastructure, educational access) must meet strict compliance standards.
 - **Limited/Minimal Risk:** Systems requiring basic transparency obligations (e.g., chatbots declaring they are non-human, spam filters).
- **Conformity Assessment (Article 43)**
 - A formal verification procedure proving that a high-risk AI system meets statutory mandates—such as risk management, data quality, logging, technical documentation, and human oversight—before entering the market.
 - *Example:* A hiring tool developed by an Indian IT vendor for a European bank must complete a conformity assessment to prove its screening algorithms do not discriminate based on protected characteristics.
- **Substantial Modification**
 - Any post-deployment change to an AI system that was not anticipated in the initial conformity assessment and affects the system's compliance or alters its intended purpose.
 - *Example:* If a vendor tweaks an AI model designed for routine customer service so that it now evaluates credit risks for loans, this unexamined expansion triggers a fresh conformity assessment.
- **Brussels Effect**
 - The phenomenon where rules enacted by the European Union become global standards because non-EU companies find it commercially inefficient to run separate operations for European and non-European markets.
 - *Example:* Just as the General Data Protection Regulation (GDPR) forced global firms to overhaul data handling, the EU AI Act dictates global AI development pipelines.
- **Notified Bodies & Conformity Assessment Bodies (CABs)**
 - Independent testing organizations officially designated by national regulators to audit and certify high-risk technologies before market launch.
- **Global Capability Centres (GCCs)**
 - Offshore strategic units owned by global corporations operating in tech hubs like Bengaluru, Hyderabad, and Pune to handle R&D, advanced software engineering, and risk management.

- **Main Arguments and Substantive Parts**
- The global governance of AI presents a fundamental structural conflict between Western regulatory models and India's tech delivery system.
- **The Architectural Mismatch: Product vs. Service Paradigm**
- The EU AI Act was designed around a classical industrial model—assuming software is developed, tested, certified, and packaged as a finished, static product.
- **The Indian Reality:** The Indian IT and GCC ecosystem operates on bespoke services, continuous integration, and agile software development (CI/CD). Systems are updated continuously to meet evolving business needs.
- **The Regulatory Friction:** Every custom update or model retraining risks being classified as a *substantial modification*. This requirement forces firms back into costly, time-consuming compliance cycles, eroding the speed advantage of Indian tech providers.
- **Re-allocation of Legal Liability**
- Under the Act, any entity that substantially modifies a high-risk AI system created by another firm is legally reclassified as the "provider" of that system.
- Indian service providers tweaking or fine-tuning third-party foundational models for European clients unwittingly inherit primary legal liability for the entire system, including systemic risks created by the original developer.
- **The Paradox of Grandfathering Clauses**
- The EU framework grants exemptions to existing AI systems deployed before statutory deadlines until they undergo a "substantial modification."
- This creates a compliance trap: Indian firms offering "continuous improvement" risk stripping their European clients of grandfathered exemptions, making ongoing maintenance a liability rather than a value-add.
- **Converting Compliance Overhead into an Export Engine**
- While compliance creates operational drag, it also generates massive demand for technical documentation, algorithmic auditing, bias testing, and governance frameworks.
- Because most high-risk systems permit self-assessment, European enterprises will outsource the heavy lifting of compliance documentation and testing.
- India's deep pool of software engineers, legal assurance professionals, and data scientists can establish a "Compliance-as-a-Service" (CaaS) export industry, converting regulatory barriers into high-margin service exports.
- **The Trade Policy Lever: Strategic Regulatory Diplomacy**
- Future competitiveness depends on treaty negotiation.
- The Act allows third-country Conformity Assessment Bodies (CABs) to audit high-risk systems if backed by formal trade agreements.
- India can leverage the regulatory cooperation provisions of the India-EU Free Trade Agreement to certify domestic CABs, allowing Indian firms to validate AI systems locally for the European market.

- **Historical Evolution of the Issue**

- **Pre-1990s to Early 2000s: The Bespoke Software Era**

- India's IT revolution was built on custom software, cost arbitrage, and contract maintenance. The Y2K crisis established Indian IT firms as the engine room of enterprise software, cementing a business model built on continuous client-driven updates rather than standardized off-the-shelf software products.

- **The 2010s: The Agile Shift and Rise of GCCs**

- As enterprise computing moved to the cloud, static software updates were replaced by Agile methodologies and Continuous Integration/Continuous Deployment (CI/CD). Global Capability Centres (GCCs) proliferated across India, moving up the value chain from basic IT back-office work to core technology research, advanced analytics, and proprietary AI deployment.

- **May 2018: The GDPR Epoch and Brussels Effect 1.0**

- The implementation of the General Data Protection Regulation (GDPR) proved that European regulatory choices reshape global software architecture. Indian IT firms had to invest heavily in data protection compliance, privacy impact assessments, and enterprise data restructuring to maintain access to European client markets.

- **April 2021 – August 2024: The AI Act Architecture**

- The European Commission unveiled its risk-based AI Act in April 2021, establishing strict rules for artificial intelligence based on potential social harm. The law formally entered into force in August 2024, creating an enforcement schedule that challenged global software delivery pipelines.

- **June 2026 – August 2, 2026: Phased Implementation & Adjustment**

- Recognizing technical and logistical bottlenecks, the EU adjusted its implementation timelines in June 2026. Deadlines for standalone high-risk systems were extended to December 2027, and high-risk AI embedded in regulated products was pushed to August 2, 2028. However, on August 2, 2026, the law's broader cross-border obligations became fully applicable, forcing non-EU developers to confront its compliance framework.



EU AI ACT CONTEXT & CONFORMITY

Risk-Based AI Tiers



Article 43: Conformity Assessment Process



Brussels Effect



THE CORE CONFLICT: DYNAMIC SERVICES VS STATIC PRODUCTS

STATIC PRODUCT MODEL (EU assumption)



Limited Updates

?

Substantial Modification?

Unplanned Improvement & Regulation: Liability Transfer if Modified

DYNAMIC SERVICE MODEL (Indian Reality)



Continuous Integration/Continuous Delivery



INDIA'S STRATEGIC OPPORTUNITIES

Immediate: Compliance-as-a-Service Export Hub



Long-Term: Global Ecosystem Participation



UPSC/APSC LINKAGES & PYQ THEMES



GS2

- Bilateral Relations
- Regulatory Policy
- FTA Diplomacy



GS3

- Economy
- S&T
- Service Export Growth



GS4

- Ethical AI
- Bias

Way Forward Recommendations

- Domestic Interoperable Law
- MREs
- Build CAB Infrastructure
- Workforce Upskilling/MLOps

- **Logical and Philosophical Base**
- **The Conflict of Legal Philosophies**
 - The tension between European AI rules and the Indian technology sector stems from a collision between two fundamental legal and innovation philosophies:
 - **The Precautionary Principle (European Model):** Anchored in Continental civil law traditions, this philosophy holds that technology with uncertain risks must be restricted ex-ante (before market entry) through strict safety checks. It prioritizes fundamental rights, human dignity, and systemic risk prevention over speed and experimentation.
 - **Permissionless Innovation and Agile Evolution (Indian/Common Law Paradigm):** Grounded in Market-Driven Common Law and India's service-oriented ecosystem, this framework views technology as an evolving process. It relies on iterative testing, continuous improvement, and ex-post remedies (fixing issues as they arise) to maximize flexibility and lower barriers to entry.
- **The Illusion of Technological "Completion"**
 - The EU Act relies on the assumption that software can reach a static state of "completion"—a point where a system is fully built, evaluated, certified, and sealed.
 - Modern AI, especially systems based on machine learning and deep learning, is fundamentally fluid. AI systems continuously process new data, adjust weights, and adapt outputs. Framing adaptive software as a fixed physical item creates a structural disconnect between law and technical reality.
- **Rights-Centric Paternalism vs. Market-Driven Agility**
 - **European Union:** Views AI through a human-rights lens. An unmonitored or changing algorithm is seen as a potential threat to equality, non-discrimination, and democratic processes.
 - **Indian Tech Sector:** Operates on contractual agility—providing rapid solutions customized to specific client requirements.
- When regulation treats every tailored software modification as a potential safety risk, client-responsiveness is reclassified as a compliance violation.

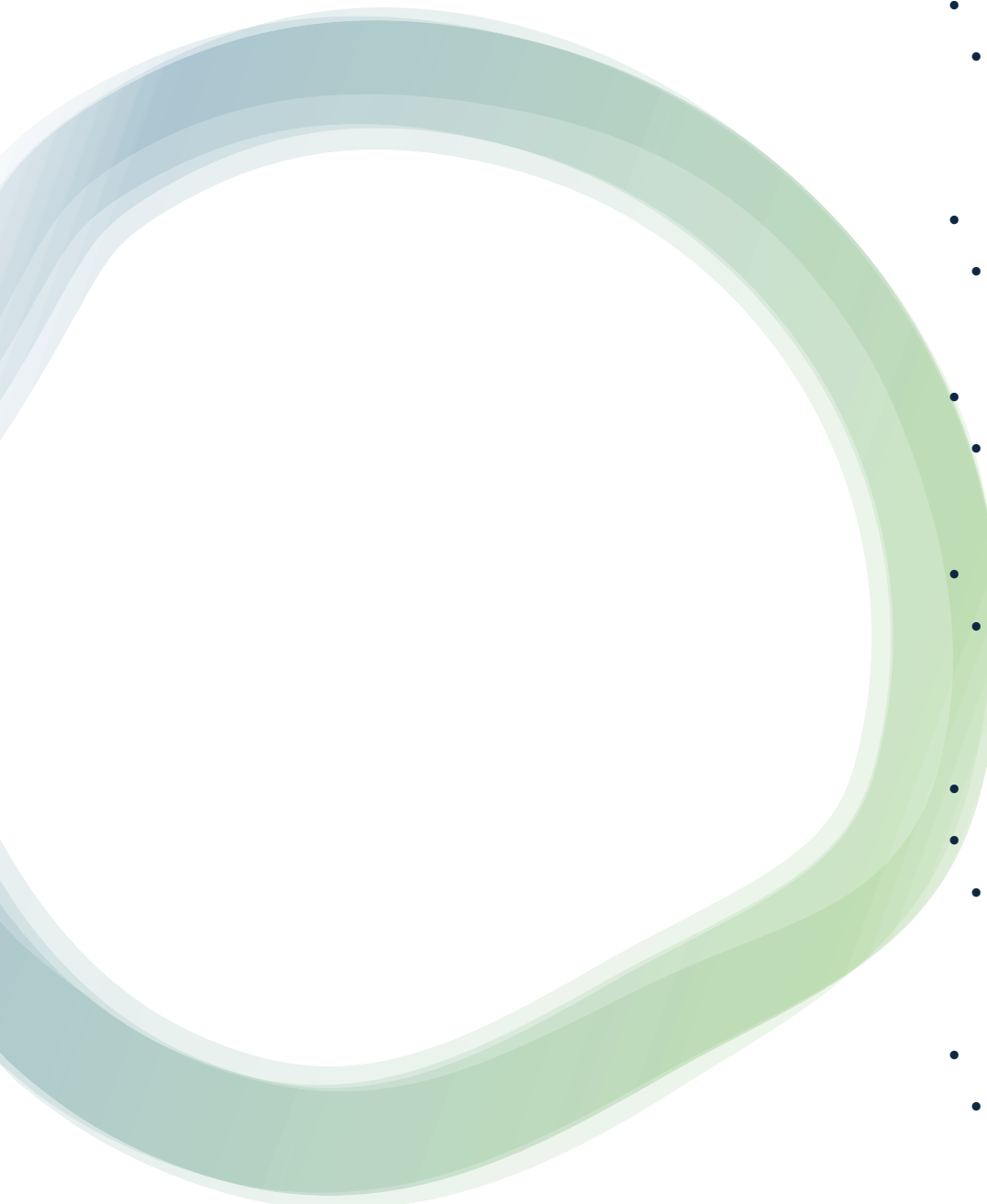
- **Multidimensional Analysis**
- **Social Dimension**
 - **Workforce Transformation:** The demand for standalone coding skills will shift toward hybrid skill sets that combine computer science, law, and ethical auditing.
 - **Protection Against Algorithmic Discrimination:** Strict testing requirements for high-risk domains (such as hiring and education) protect citizens from historical biases embedded in automated screening tools.
 - **Digital Inequality Risks:** High compliance costs may concentrate AI development within well-funded tech giants, squeezing out smaller startups and social-impact AI projects.
- **Political Dimension**
 - **Digital Sovereignty & Normative Power:** The EU uses its large consumer market to export its legal standards globally ("Normative Power Europe").
 - **Strategic Alignment for India:** India must choose between adopting foreign regulatory models, building its own sovereign regulatory framework, or positioning itself as a bridge between Western compliance regimes and the Global South.
 - **Multilateral Tech Diplomacy:** AI regulation has become a key element of statecraft, influencing discussions within the G20, Global Partnership on AI (GPAI), and India-EU Trade and Technology Council (TTC).
- **Legal Dimension**
 - **Extraterritorial Jurisdiction:** Article 2 of the EU Act applies to developers located outside Europe if their AI system's output is used within the EU, overriding traditional territorial boundaries.
 - **Contractual Risk Realignment:** Indian IT companies must rewrite client contracts to manage liability risks tied to system updates, model fine-tuning, and scope shifts.
 - **Domestic Legislative Interoperability:** India's proposed standalone AI legislation must balance local innovation priorities with compatibility for key export markets like the EU and US.
- **Ethical Dimension**
 - **Operationalizing Ethics:** The law pushes AI ethics from theoretical principles into concrete compliance mandates—requiring documented proof of fairness, transparency, and human oversight.
- **International Dimension**
 - **Geopolitical Tech Blocks:** The emerging global regulatory landscape is splitting into three distinct models:
 - *The EU:* Risk-averse and rights-focused.
 - *The US:* Market-led and innovation-driven.
 - *China:* State-controlled and security-focused.
- **Economic Dimension**
 - **Compliance Costs and Margin Pressures:** Initial compliance burdens will raise R&D expenses and delay time-to-market, squeezing operating margins for Indian software exporters.
 - **The "Compliance-as-a-Service" Opportunity:** Algorithmic auditing, technical documentation, and compliance verification offer Indian service providers a multi-billion-dollar global export market.

- **Linkages with NCERTs**
- **Class 12 Political Science: *Contemporary World Politics***
 - **Chapter 4: Alternative Centres of Power**
 - *Linkage:* Explains how the European Union uses its economic scale and single-market rules to exert global regulatory influence ("Normative Power Europe") without relying on military force.
- **Class 12 Economics: *Indian Economic Development***
 - **Chapter 6: Employment: Growth, Informalisation and Other Issues & Chapter 7: Globalization**
 - *Linkage:* Explores how India's economy pivoted directly from agriculture to service exports. Demonstrates how changes in foreign regulatory policies impact domestic services growth, technology jobs, and export revenue.
- **Class 11 Political Science: *Political Theory***
 - **Chapter 2: Freedom & Chapter 8: Rights**
 - *Linkage:* Evaluates the balance between individual liberties and regulatory state oversight. Examines how negative rights (protection from algorithmic harm) justify statutory limits on private technology firms.
- **Class 11 Sociology: *Understanding Society***
 - **Chapter 3: Environment and Society**
 - *Linkage:* Connects to Ulrich Beck's concept of the "*Risk Society*", showing how advanced industrial societies create new categories of technological and manufactured risk that require specialized regulatory systems.

- **Linkages with UPSC CSE Syllabus**
- **General Studies Paper 2: Governance, Constitution, Polity & IR**
 - **Bilateral & Multilateral Groupings:** India-EU relations, the Trade and Technology Council (TTC), and negotiations surrounding the India-EU Free Trade Agreement.
 - **Regulatory Institutions & Policy Design:** How foreign legislation creates extraterritorial compliance mandates for domestic institutions.
 - **Effect of Policies of Developed Nations:** The direct impact of Western regulations on Indian economic interests and service exports.
- **General Studies Paper 3: Science & Technology, Economy**
 - **IT & Emerging Technologies:** Artificial intelligence, machine learning, MLOps lifecycle, and algorithmic bias management.
 - **Services Sector & Trade:** Growth trajectories of Indian IT services, GCC expansion, software export stability, and technical barriers to trade (TBT).
 - **Sovereign Regulations:** India's draft standalone AI legislative framework and national technology strategy.
- **General Studies Paper 4: Ethics and Human Interface**
 - **Ethics in Technology:** Algorithmic bias, non-discrimination in automated decision-making, and transparency in high-risk AI deployments.
 - **Corporate Governance & Professional Ethics:** Protecting public safety, user privacy, and systemic fairness against corporate pressure for rapid deployment.



- **Way Forward**
- **Constructing an Interoperable Domestic AI Framework**
- India's upcoming standalone AI legislation should avoid copying foreign regulatory frameworks outright or taking a completely hands-off approach.
 - Adopt an **interoperable risk-based framework** that aligns risk tiers with international standards while maintaining flexible compliance pathways for iterative software updates.
 - Introduce **regulatory sandboxes** with safe-harbor protections, allowing companies to test continuous updates and model fine-tuning without immediately triggering severe legal penalties.
- **Leveraging Trade Diplomacy for Mutual Recognition Agreements (MRAs)**
- The Indian government must prioritize regulatory alignment during trade negotiations.
 - Use the regulatory cooperation provisions of the **India-EU Free Trade Agreement** to sign Mutual Recognition Agreements (MRAs) for technical conformity.
 - Ensure that testing certificates issued by accredited Indian Conformity Assessment Bodies (CABs) are recognized by the EU as equivalent to European audits under Article 43.
- **Expanding Accredited Conformity Assessment Bodies (CABs)**
- India needs to build out its domestic testing and certification infrastructure.
 - Empower agencies like the **Standardisation Testing and Quality Certification (STQC)** Directorate and **NABL** to accredit private-sector AI testing laboratories.
 - Build technical facilities to evaluate algorithms for bias, security vulnerabilities, and robustness, making India a trusted global hub for AI verification.
- **Embedding MLOps and Automated Compliance Infrastructure**
- Indian technology services and Global Capability Centres (GCCs) must move from manual compliance to automated governance systems.
 - Integrate continuous automated testing directly into software delivery pipelines (CI/CD) using **Machine Learning Operations (MLOps)** tools.
 - Automate model tracking, training data lineage, and drift detection so that technical compliance documentation updates automatically whenever a model changes.
- **Developing Specialized Hybrid Talent**
- Educational institutions, national law universities, and industry bodies like NASSCOM should create specialized training programs.
 - Launch cross-disciplinary programs combining **Data Science, AI Engineering, Technology Law, and Regulatory Audit**.
 - Build a workforce capable of navigating complex international regulations, securing India's position as a global leader in AI compliance services.



- **UPSC CSE Mains**
- **2023 (GS Paper 3)**
 - **Q.** "Artificial Intelligence (AI) holds the potential to introduce unprecedented changes across economic and social sectors, but it also introduces critical ethical and safety concerns." Analyze the necessity of a regulatory framework for AI governance in India, taking into account global developments. *(15 Marks, 250 Words)*
- **2020 (GS Paper 3)**
 - **Q.** What are the key features of the National Strategy for Artificial Intelligence formulated by NITI Aayog? How can AI be harnessed to drive inclusive growth in developing economies while mitigating risks? *(10 Marks, 150 Words)*
- **2019 (GS Paper 2)**
 - **Q.** "The 'Brussels Effect' demonstrates how non-military regulatory power can shape global business operations." In light of this, evaluate how European regulatory standards impact Indian technology exports and data governance frameworks. *(15 Marks, 250 Words)*
- **2018 (GS Paper 4 - Ethics)**
 - **Q.** Automated decision-making tools and algorithmic processes are increasingly replacing human judgment in critical social services. Discuss the ethical dilemmas involved in delegating sensitive decisions—such as recruitment, judicial sentencing, and resource allocation—to AI systems. *(10 Marks, 150 Words)*
- **APSC CCE Mains (Assam Public Service Commission)**
- **2023 (GS Paper 3)**
 - **Q.** Discuss the growth potential of Assam and the North-Eastern region as emerging destinations for technology services and digital infrastructure. What measures are needed to prepare local youth for global technological compliance and advanced software roles? *(10 Marks, 150 Words)*
- **2022 (GS Paper 3)**
 - **Q.** Explain the concept of Artificial Intelligence (AI). How can AI applications improve governance, disaster management, and public service delivery in Assam? *(15 Marks, 250 Words)*



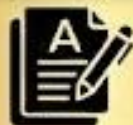
AXIA IAS ACADEMY

UPSC CSE CLASSES

RISE ABOVE THE REST



EXPERT
FACULTY &
GUIDANCE



COMPREHENSIVE
SYLLABUS
COVERAGE



STRATEGIC
TEST SERIES &
MENTORSHIP

ADMISSIONS OPEN

- Prelims + Mains + Interview
- Current Affairs Focus
- Personalized Attention
- Online & Offline Batches



WEBSITE: axiaiasacademy.com



CONTACT: +91 6002-417488

