ForumIAS

7 PM COMPILATION

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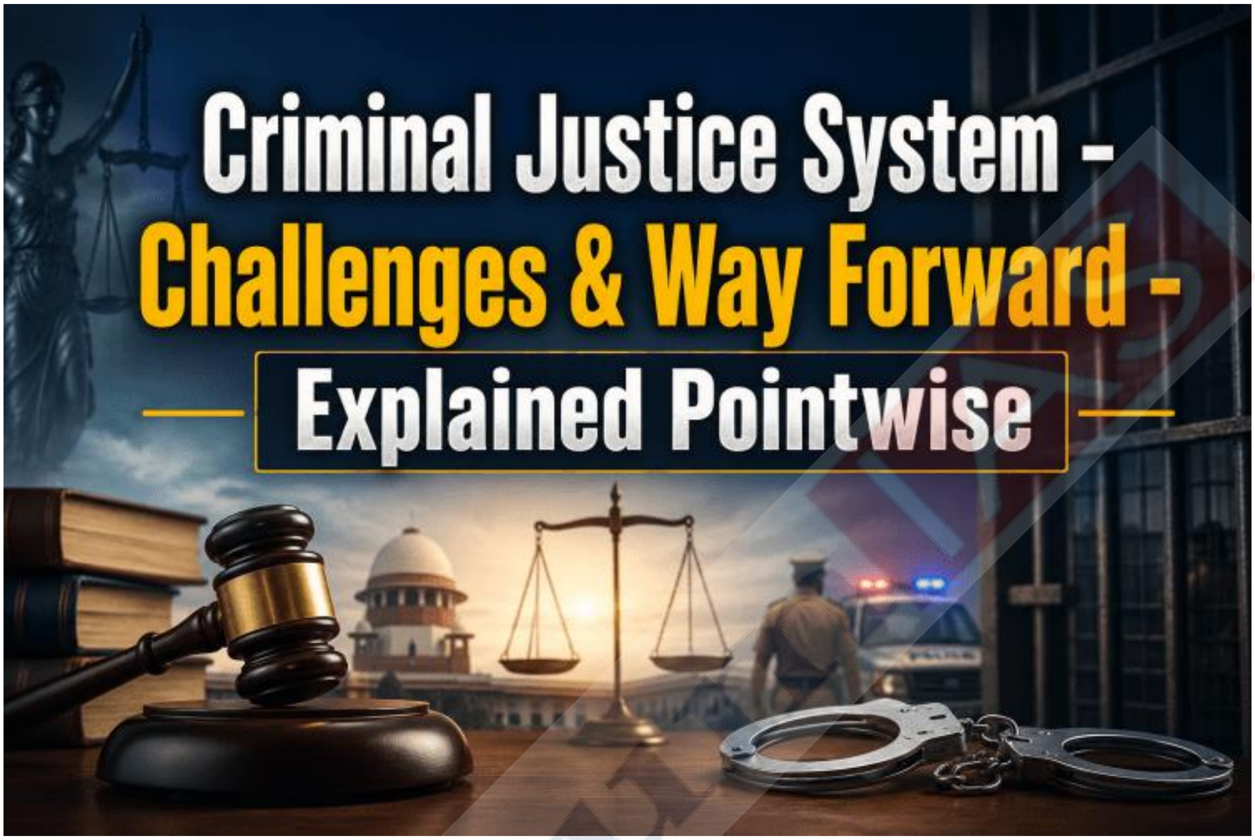
Criminal Justice System – Challenges & Way Forward – Explained Pointwise



India is accelerating the digitisation of its Criminal Justice System to enhance efficiency, transparency, and accessibility. Initiatives such as the Interoperable Criminal Justice System (ICJS), e-Courts, and Crime and Criminal Tracking Network & Systems (CCTNS) seek seamless data integration among police, courts, prisons, and forensic institutions, enabling faster justice delivery.

What is the Criminal Justice System, and What are its Components?

- The Criminal Justice System (CJS) encompasses a series of institutions, agencies, and processes established by the government to curb crime in the nation, and sanction those who violate laws with criminal penalties.
- The CJS is traditionally divided into **three key components:**

Law Enforcement (The Police)	○ **Role:** They are the first point of contact for the public. ○ **Responsibilities:** They maintain law and order, investigate reported crimes, gather evidence, and apprehend suspects. After an arrest, they prepare detailed reports and present the collected evidence to prosecutors.

The Judiciary (The Courts)	○ **Role:** This is the adjudication branch where the guilt or innocence of the accused is determined.
	○ **Responsibilities:**
	    ○ **Prosecution:** Attorneys who represent the state, reviewing evidence and presenting it in court to prove the defendant's guilt.
	    ○ **Defense Counsel:** Attorneys who ensure the accused receives a fair trial and vigorously defend their case against the state's charges.
	    ○ **Courts & Judges:** Judges oversee trials, ensure legal procedures are followed, determine guilt based on evidence, and hand down sentences.

Corrections (The Penal System)	○ If an individual is convicted and sentenced, they are handed over to the corrections system. ○ It includes **jails** (for short-term stays or awaiting trial), **prisons** (for long-term confinement), **probation** (supervision in the community instead of jail), and **parole** (supervised early release from prison). ○ Modern correctional philosophy ideally aims for a balance between **retribution** (punishment), **deterrence** (preventing future crime), **incapacitation** (keeping the public safe), and **rehabilitation** (helping offenders successfully reintegrate into society).

What are the issues with the Criminal Justice System in India?

Law Enforcement	1. **Shortage of Police Personnel:** Against a UN norm of 222 police personnel per lakh of population, India's officially sanctioned strength is a paltry 181, and the actual strength is an abysmal 137. 2. **Poor Quality of Investigation:** Indian police often lack advanced forensic tools, specialized training, and modern infrastructure. Consequently, investigations rely heavily on oral testimonies rather than scientific data, resulting in a **low conviction rate** for major crimes. 3. **Lack of infrastructure:** There are also enormous shortfalls in the number of police chowkis, weapons, forensic science laboratories (FSLs). For example, Nearly a million items sent for forensic examination in India, representing a shocking 38% of all such cases, remain unattended for a year or more. Low adoption of forensic methods, outdated tools, and lack of technological infrastructure compromise investigation quality. 4. **Police Misconduct and Human Rights Violations:** Transparency International found that 62% of people reported paying bribes during their interactions with the police. Misaligned incentives to arrest persons (for example, to demonstrate the progress of investigations) have resulted in 60% of all arrests being "unnecessary or unjustified". Reports of **custodial deaths, torture, sexual assault, and unlawful detentions** reflect inadequate oversight and accountability. 5. **Political Interference and Corruption:** Police forces frequently experience political pressure, which can lead to biased investigations, selective enforcement of the law, or the targeting of vulnerable groups.
Judiciary	1. **Massive Case Backlog and Judicial Delays:** Indian courts face a staggering backlog of over 50 million pending cases. The system suffers from a massive backlog of cases, primarily due to a shortage of judges, magistrates, and court infrastructure. The slow pace of trials means "justice delayed" is effectively "justice denied" for millions, as the principle of "speedy trial" remains a constitutional promise frequently unfulfilled. 2. **Shortage of judges:** India has only about **21 judges per million people**, violating recommended ratios and leading to overburdened courts, poor facilities, and systemic inefficiency. 3. **Weak Prosecution**: The prosecution system is often understaffed and lacks the specialized skills needed to effectively argue complex cases. This is sometimes made worse by poor coordination between the police and the prosecution. 4. **Weak Witness Protection**: Witnesses frequently turn hostile due to threats, intimidation, or prolonged court appearances, which collapses the prosecution's case and is a major contributor to the high rate of acquittals. 5. **Low Conviction Rates:** India's conviction rate remains low compared to global benchmarks, reflecting ineffective investigation and prosecution. 6. **Inaccessible Legal Aid:** While the National Legal Services Authority (NALSA) provides free legal aid, the quality of representation for marginalized and poor communities is often weak compared to expensive private defense attorneys. This creates a severe socio-economic divide in who gets justice.

Correction System	1. **Overcrowded Prison:** A significant number of undertrials are languishing in prisons for prolonged periods, often for crimes they may not have committed, leading to severe overcrowding. 2. **Lack of Rehabilitation:** Despite the legislative intent of treating prisons as correctional institutions, there is a distinct lack of vocational training, psychological support, and robust re-entry programs. This increases the risk of recidivism (repeat offenses).
Others	1. **The Colonial Legacy**: The foundation of the system rests on colonial-era codes (IPC, CrPC, and Indian Evidence Act), which were focused more on maintaining state authority than delivering justice to the individual. 2. **Modern Implementation Hurdles:** The transition into the digital era (e-courts, digital filing, and integrating tech-driven investigative standards) faces major roadblocks due to regional disparities in internet connectivity, tech infrastructure, and a general institutional resistance to change.

What are the consequences of an ineffective Criminal Justice System in our country?

1. **Loss of Public Trust and Disillusionment**: Justice delayed is justice denied. When the system fails to investigate crimes swiftly or hold perpetrators accountable, citizens lose faith in state institutions. This disillusionment forces people to feel disconnected from the laws designed to protect them, often leading to social unrest and mob violence as individuals attempt to take matters into their own hands.
2. **Human Rights Violations and Imprisonment of the Innocent**: When the system is slow and inefficient, jails become severely overcrowded with "undertrials" – people awaiting trial who have not been proven guilty. In India, over 66% of the prison population consists of undertrials. This strips them of their dignity, livelihoods, and citizenship rights.
3. **Escalation of Corruption**: Procedural delays and overburdened police forces create fertile ground for corruption. When processes drag on indefinitely, officials may exploit the system to demand "speed money" or bribes to move a case forward.
4. **Economic Costs and Crippling Backlogs**: A poor criminal justice system is financially draining. Tens of millions of pending cases across courts tie up immense state resources, deter foreign investment, and stifle economic growth. Meanwhile, poor victims and defendants bear the brunt of mounting legal fees, travel costs, and lost daily wages just to attend endless, unresolved court hearings.
5. **Weakened Deterrence and Rising Crime Rates**: The fundamental goal of the criminal justice system is to deter crime through the certainty of punishment. When a system is plagued by poor investigation, lack of modern infrastructure, and low conviction rates, the fear of consequences vanishes. This emboldens offenders & leads to higher crime rates.
6. **Celebration of "Encounter Killing":** A tragic consequence of a slow judiciary is that the public often celebrates extrajudicial police killings ("encounters"). While it reflects desperation for quick justice, it subverts the rule of law and risks innocent lives.
7. **Criminalization of Politics:** The delay in the legal system allows individuals with serious criminal charges to contest elections and enter parliament or state assemblies, as final convictions take decades to secure.

What have been various initiatives to improve the Criminal Justice System?

Legislative Reforms	1. **Bharatiya Nyaya Sanhita (BNS), 2023:** This replaces the Indian Penal Code (IPC). It aims to decolonize the penal code, introduce new provisions for contemporary crimes like mob lynching and organized crime, and consolidate scattered sections. 2. **Bharatiya Nagarik Suraksha Sanhita (BNSS), 2023:** This replaces the Code of Criminal Procedure (CrPC). It introduces strict deadlines for investigations, mandates forensic examinations for serious crimes, and promotes the use of digital evidence. 3. **Bharatiya Sakshya Adhiniyam (BSA), 2023:** This replaces the Indian Evidence Act. It formally recognizes electronic and digital records as evidence, modernizing the rules of evidence to align with the digital age.
Judicial Reforms	1. **Interoperable Criminal Justice System (ICJS):** This project aims to integrate the five pillars of the criminal justice system – **police, courts, prisons, forensic labs, and prosecution –** through a single digital platform. This reduces delays and human errors caused by manual record-keeping. 2. **e-Courts Project:** This initiative focuses on the computerization of courts. It includes the digitization of case records, online filing of petitions, and live streaming of court proceedings to enhance transparency and accessibility. 3. **Fast-Track Courts:** Established to handle specific categories of cases, such as those involving sexual offenses against children (POCSO Act) and other serious crimes, to ensure speedy disposal.
Prosecution Reforms	1. **Witness Protection Scheme:** This scheme provides security to witnesses and their families to prevent intimidation and ensure they can testify without fear, thereby strengthening the prosecution's case. 2. **Digital Evidence:** The legal system now officially recognizes digital records and mandates audio-video recording of search/seizure and other proceedings. 3. **National Automated Fingerprint Identification System (NAFIS):** Adoption of digital forensic databases and evidence management systems for improved conviction rates.

Police Reforms	1. **Strict Timelines for Police Investigation:** The new laws require police to complete investigations within 90 days, with similar deadlines for charge-sheet filing and trial framing, addressing delays and case backlog. This makes the process transparent and time-bound, ensuring speedier justice delivery. 2. **Mandatory Forensic Investigations:** Under the new laws, forensic investigation is now mandatory for any crime carrying a punishment of 7 years or more. This forces law enforcement to shift from a "confession-based" model to a scientific, "evidence-based" model. 3. **Crime and Criminal Tracking Network & Systems (CCTNS):** This initiative connects over 16,000 police stations across India into a unified national database, making it possible to track a criminal's record instantly across state borders. 4. **Zero FIR:** This mechanism allows a victim to file a First Information Report (FIR) at *any* police station, regardless of where the crime took place. The case is later transferred to the appropriate jurisdiction, preventing police stations from turning away victims on bureaucratic grounds.
Prison Reforms	1. **Decarceration of Undertrials:** Under the BNSS, guidelines have been loosened to allow first-time offenders who have served up to one-third of their maximum sentence as undertrials to be released on personal bonds, drastically freeing up space in overcrowded jails. 2. **Model Prison Manual:** A comprehensive manual was introduced to shift the focus of prisons from punitive locking-up to modern **rehabilitation**, emphasizing psychological counseling, skill development, and post-release support. 3. **Legal Aid Schemes:** Programs like the *Tele-Law Service* and targeted initiatives by legal service organizations help provide pro-bono counsel to underprivileged undertrials.

What can be the way forward?

1. **Strengthen Implementation of New Laws:** The new codes (Bharatiya Nyaya Sanhita, Bharatiya Nagarik Suraksha Sanhita, Bharatiya Sakshya Adhiniyam) specify strict deadlines for investigation, chargesheet filing, and judgments. Ensuring compliance, backed by adequate staffing and infrastructure upgrades, is crucial for reducing delays and case backlog.
2. **Police Reforms:**
    - **Separate Investigation and Law & Order:** A long-standing recommendation is to separate the police's investigative and law and order functions. This would allow a specialized team to focus solely on investigations, leading to higher quality and more timely outcomes.
    - **Insulate Police from Political Control:** Establish independent **State Security Commissions** to oversee postings, transfers, and promotions, ensuring police officers can investigate powerful individuals without fear of sudden punitive transfers.
3. **Judicial Reforms:**
    - **Increase the Judge-to-Population Ratio:** India needs to double its current strength of judicial officers to effectively tackle the 50-million case backlog.
    - **Reduce Backlog:** Substantially increase the subordinate judiciary's strength, establish more fast-track courts, and consider institutional reforms like the All-India Judicial Service.

- **Strengthen ADR Mechanisms:** Mandate mediation, conciliation, and the use of *Gram Nyayalayas* (village courts) and *Lok Adalats* (people's courts) to resolve minor disputes amicably, leaving the main judiciary free to focus on serious criminal trials.
- **AI Integration**: Explore the responsible integration of Artificial Intelligence in India's Judiciary for automated documentation and predictive case management to speed up disposal times.

4. **Prison reforms:**
    - **Bail Liberalization:** Apply the principle of "bail, not jail" (especially for non-violent offenders) to reduce chronic prison overcrowding.
    - **Rehabilitation Focus:** Shift the primary objective of prisons from mere punishment to rehabilitation, skill-building, and education.
    - **Free Legal Aid**: Strengthen the National Legal Services Authority (NALSA) to ensure indigent undertrials receive competent legal representation without delay.
5. **Mass Scaling of Forensic Infrastructure**: Every district in India needs a fully equipped mobile forensic van and a localized forensic science laboratory (FSL) to prevent the current bottleneck where DNA and ballistic reports take years to return.
6. **Widen Digital Infrastructure:** Expand the Crime and Criminal Tracking Network & Systems (CCTNS) and e-courts, ensuring all police stations and courts have reliable internet, equipment, and digital training.
7. **Make Justice System Victim centric:** The system should be victim centric to ensure that the victims get justice. The victim should get a chance to put forth his case and quick completion of trials is needed to ensure that they do not lose faith in the system. Fixing responsibility quickly and transparently will maximise the sense of justice to the victim.
8. **Malimath committee's recommendations:** Malimath committee has recommended many reforms which need to be implemented.

Malimath Committee:

- "**Committee on Reforms of Criminal Justice System**" constituted by Government of India in 2000 under the chairmanship of Justice VS Malimath.
- Its mandate was to review and suggest comprehensive reforms for India's criminal justice system.
- Some of its recommendations were:
    - Need for more judges to dispose-off a large number of pending cases.
    - Constitution of a **National Judicial Commission** to deal with the appointment of judges to the higher courts and amendment of Article 124 to make impeachment of judges.
    - Creation of separate criminal division in higher courts that have judges specialising in criminal laws.
    - Article 20(3) of the Constitution, which protects the accused from being compelled to be a witness against himself/herself, needs to be modified. The courts should be given freedom to question the accused to give information and draw an adverse inference against the accused in case the latter refuses to answer
    - **Victim Compensation Fund** should be created under the victim compensation law and the assets confiscated from organised crimes should be made a part of it.

Conclusion:

Criminal Justice System in India is currently in a state of uncertainty and is highly unpopular due to its inefficiency. Clearly, the reforms in India's Criminal Justice System are a need of the hour. The reforms should not only make CJS more efficient but also be sensitive to both the innocent and the needs of the law enforcing officers.

Read More: The Hindu
UPSC GS-2: Polity

Delhi Government's Electric Vehicle Policy (2026) – Explained Pointwise

The Delhi government's newly launched EV Policy 2.0 (2026–2030) marks a aggressive paradigm shift in the capital's battle against toxic air pollution. Moving beyond simple financial incentives, the policy introduces hard, mandatory phase-out deadlines for conventional vehicles to fast-track a target of 30% total fleet electrification by 2030.

What are the key features of the Delhi Government's Electric Vehicle (EV) Policy, 2026?

1. **Phased Transition to Electric Mobility:** The hallmark feature of the policy is the shift from "encouraging" the EVs to mandating them by capping new Internal Combustion Engine (ICE) registrations:

- **Three-Wheelers & Small Trucks:** From **January 1, 2027**, only electric passenger auto-rickshaws and electric N1 goods carriers can be newly registered in Delhi.
- **Two-Wheelers:** From **April 1, 2028**, no new petrol or CNG scooters and motorcycles will be registered. Anyone buying a new two-wheeler after this date **must** choose electric.
- **School Buses:** Introducing a phased shift where schools must ensure 10% of their bus fleet is electric within two years, scaling up to 30% by **March 31, 2030**.
- **Government fleet:** All new hired or leased vehicles must be electric from the date of notification.

2. **Financial Incentives:** The government has structured financial benefits to lower the entry cost of ownership:
   - **Electric 2-Wheelers:** Up to ₹30,000 (highest in the first year, tapering off in subsequent years to promote early adoption).
   - **Electric 3-Wheelers:** Up to ₹50,000.
   - **Electric N1 Cargo Vehicles:** Up to ₹1,000,000.
3. **Tax Benefits:** EVs will enjoy a **100% waiver on road tax and lifetime registration charges**. However, the road tax exemption for electric passenger cars is strictly **capped on models priced up to ₹30 Lakh.**
4. **Expansion of Charging Infrastructure:**
   - Delhi Transco Limited (DTL) has been designated to execute a fast-tracked deployment plan to install **over 30,000 public charging points.**
   - Every EV manufacturer (OEM) operating in Delhi must set up at least one public charging facility at each of its dealerships.
   - Resident Welfare Associations (RWAs) to introduce shared community charging inside residential blocks.
5. **Single-Window Clearance System:** Introduction of a **single-window approval mechanism** for setting up charging stations to simplify and expedite approvals.
6. **Large Public Investment:** Proposed investment of around **₹15,000 crore** over the policy period to support incentives, charging infrastructure, and ecosystem development.
7. **Promotion of Commercial EVs:** To reduce daytime vehicular smog, the first 1,000 medium-sized electric commercial trucks purchased under the policy will get a **10-year total exemption from Delhi's "No Entry" timing restrictions**, allowing logistics companies to operate clean freight seamlessly 24/7.
8. **Scrappage Incentives**: To remove older, high-emission vehicles off the grid, the policy provides financial reward for scrapping old conventional vehicles when upgrading to an EV:
   - **Private Cars:** Up to ₹1 Lakh scrapping bonus
   - **Commercial / Goods Vehicles:** Up to ₹50,000
   - **Auto-rickshaws:** Up to ₹25,000
   - **Two-Wheelers:** Up to ₹10,000
9. **Battery Recycling**: The Department of Environment will ensure vehicle manufacturers comply with battery waste management rules, while the Delhi Pollution Control Committee (DPCC) will develop battery collection centres under a public-private partnership model.
10. **Institutional Mechanism**: A **Delhi Electric Vehicle Apex Committee** will manage strategic operations — making decisions on implementation, recommending amendments, and advising government on future clean-fuel technologies like hydrogen.
11. **Digital Transparency**: A dedicated EV portal will track vehicle registrations and subsidy claims.

What are the key objectives of the EV Policy?

1. **Accelerate EV Adoption**: Drive rapid uptake of electric vehicles across all categories — two-wheelers, three-wheelers, cars, and goods vehicles — to move Delhi toward a fully electric mobility ecosystem.
2. **Improve Air Quality**: Directly tackle vehicular pollution, which a CAQM report identified as contributing roughly 23% of Delhi's air pollution, particularly during winter months. This is framed as the policy's core justification, drawing on Article 21 of the Constitution (right to a healthy environment).
3. **Reduce Dependence on Conventional Fuels**: Shift the transport sector away from petrol and diesel toward clean energy sources, reducing fossil fuel consumption in urban mobility.
4. **Priority-Based Electrification of High-Impact Segments**: Specifically target two-wheelers (67% of Delhi's vehicle fleet) and high-mileage categories like three-wheelers, commercial cars, and N1 goods vehicles, since these contribute disproportionately to pollution due to daily usage patterns.
5. **Build Comprehensive Charging & Battery-Swapping Infrastructure**: Expand the charging network at scale (32,000 charging points planned) and establish battery-swapping capability, positioning Delhi Transco Ltd as the nodal agency for planning and rollout.

What is the significance of the EV Policy?

1. **Addresses Delhi's Most Persistent Public Health Crisis**: Air pollution in Delhi is a chronic, life-threatening issue, and vehicular emissions are the single largest identified contributor (23%, per CAQM) especially in winter. By targeting the largest and most polluting vehicle segments first, the policy is significant as a direct, evidence-based public health intervention rather than a generic sustainability gesture.
2. **Shifts from Incentive-Only to Mandate-Driven Transition**: Earlier EV policies (including Delhi's own 2020 policy) relied primarily on subsidies to nudge adoption. This policy is significant because it introduces **hard registration deadlines**. This marks a shift from "encouraging" EVs to actively phasing out fossil-fuel vehicle sales in specific categories, a much stronger regulatory instrument.
3. **Data-Driven, Segment-Specific Targeting**: Rather than a blanket approach, the policy is grounded in emissions data — recognizing that two-wheelers dominate Delhi's fleet (67%) while three-wheelers, commercial cars, and N1 goods vehicles cover disproportionately high daily mileage. This targeted design is significant for policy efficiency: it concentrates resources where pollution impact per vehicle is highest.
4. **Constitutional and Legal Grounding**: By explicitly invoking Article 21 (right to life, interpreted to include a healthy environment), the policy strengthens its legal standing and signals that clean air is being treated as a rights-based issue, not just an environmental preference.
5. **National Model**: By blending Central government support (PM E-Drive scheme) with state funding, and by aiming to position Delhi as a leading EV adoption model in India, the policy has significance beyond the city — it could serve as a template other states or the Centre reference for future policy design.
6. **Alignment with National Initiatives**: Complements government programmes such as the **PM E-DRIVE Scheme**, **National Electric Mobility Mission Plan**, and broader goals of green growth and sustainable development.

What are the challenges in the implementation of the EV Policy?

1. **Strict Two-Wheeler Bans:** The mandate stopping registrations of non-electric two-wheelers by April 1, 2028, and three-wheelers by January 1, 2027, has raised concerns about penalizing lower-income families who rely heavily on these segments.
2. **Upfront Cost Barriers:** Even with subsidies (which fade over subsequent years), the initial purchase cost of a high-quality EV remains significantly higher than conventional ICE vehicles.

3. **Home Charging Inequities:** The mandate places heavy stress on private charging. However, a large percentage of Delhi's population lives in dense residential clusters and resettlement colonies that lack dedicated parking or the electrical load capacity to install private chargers.
4. **Peak Load Pressures:** Mass charging of commercial and private vehicles simultaneously (especially overnight or during hot summer peak periods) will put intense structural stress on Power Distribution Companies (DISCOMs).
5. **Inter-State Leaks**: Delhi does not exist in an economic vacuum; it shares highly porous borders with Haryana (Gurugram/Faridabad) and Uttar Pradesh (Noida/Ghaziabad). Since, neighboring states do not share Delhi's absolute registration bans on petrol/CNG two-wheelers and three-wheelers, individuals may circumvent the rules by buying and registering their vehicles in NCR cities and driving them into Delhi daily.
6. **Early Bus Phase-Outs:** The policy's aggressive 2030 deadline to phase out fossil-fuel school and contractual buses is highly contested. Operators who recently invested in BS-VI diesel and CNG buses argue this will strand their assets long before their mandated 15-year lifespans.
7. **Lending Hesitancy:** Commercial drivers and individual buyers struggle to secure vehicle loans. Lenders often treat EVs as uncertain assets due to concerns over rapid battery degradation and unpredictable resale values.

What should be the way forward?

1. **Time-of-Day (ToD) Tariff Incentives:** Introduce dynamic electricity pricing where EV owners are charged significantly lower rates for charging their vehicles during off-peak hours (e.g., midnight to 6 AM) or during peak solar generation hours in the afternoon.
2. **Support for Gig Workers:** The government must provide interest-free loans, social protection, and affordable charging networks to ease the financial transition for delivery personnel, auto drivers, and ride-share gig workers.
3. **Unified Regional Framework:** Delhi's EV policy cannot succeed in geographical isolation due to its highly porous borders with Haryana and Uttar Pradesh. The National Capital Region Transport Corporation (NCRTC) or a joint inter-state committee must harmonize EV incentives, charging infrastructure standards, and commercial mandates across Noida, Gurugram, Faridabad, and Ghaziabad.
4. **Phased Transition for School Buses**: Allow operators who purchased BS-VI fossil-fuel buses between 2023 and 2025 a longer fiscal cushion or structured tax rebates, slowly tapering their transition rather than forcing premature scrappage.
5. **Fix Home and Residential Charging Barriers**: Clear building codes and standards are needed for installing private chargers in multi-family housing, along with designated authorities to resolve disputes with resident welfare associations that currently obstruct installation.
6. **Adopt a Multi-Pronged Pollution Strategy, Not EVs Alone**: Since vehicle emissions are only one source of Delhi's air pollution, along with construction dust, poor road conditions, and emissions from nearby thermal power plants, the EV Policy should be part of a broader NCR-wide airshed management strategy. This requires coordination with neighboring states and simultaneous efforts to control construction dust and industrial emissions.

UPSC GS-3: Environment
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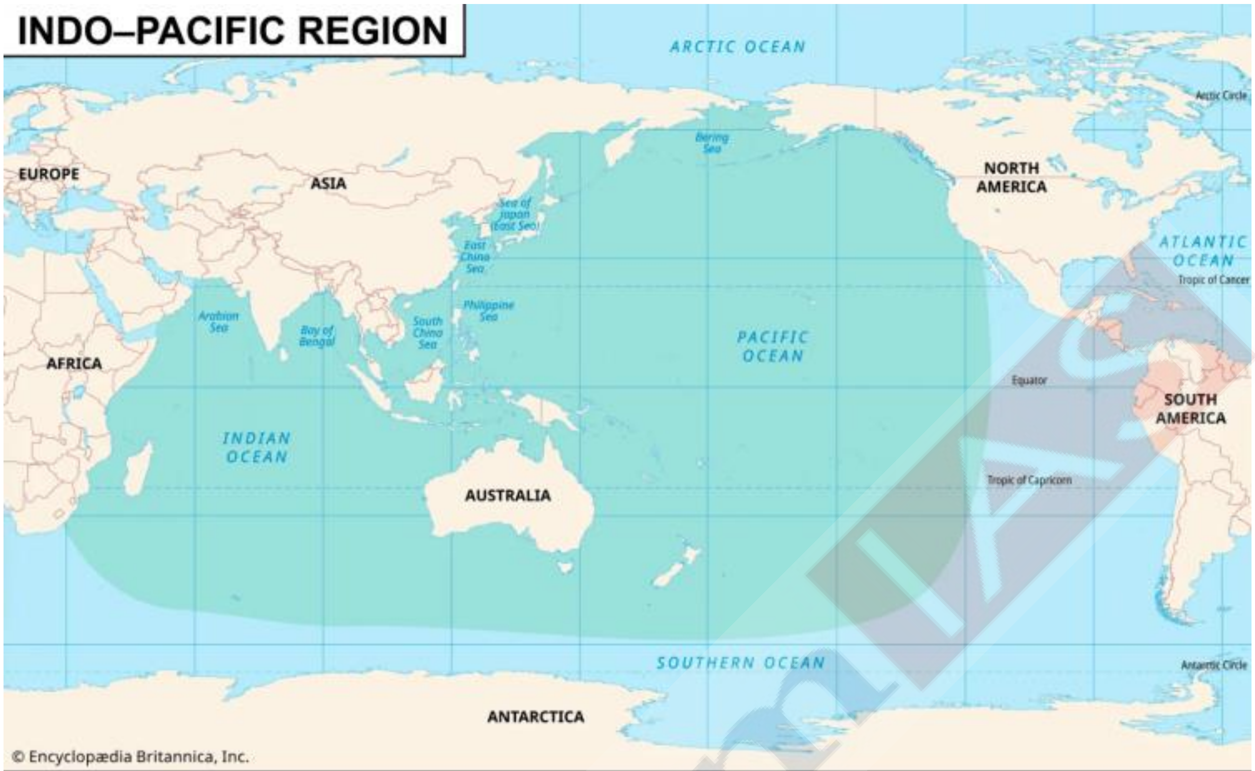
Indo-Pacific Region – Significance & Challenges – Explained Pointwise

In a highly symbolic move, USA has moved to downplay the overarching "Indo-Pacific" rhetoric in favor of a direct **"Pacific-First"** framework, even reverting the name of its military command from **INDOPACOM** back to **PACOM (Pacific Command)**. Regardless of shifts in U.S. policy, the Indo-Pacific remains central to global trade, maritime connectivity, economic growth, and strategic stability.
The Indo-Pacific is the most important concept in 21st-century geopolitics and strategy. It is a modern term that defines a unified, interconnected, and dynamic super-region that stretches across two oceans.

What is the Indo-Pacific Region?

- The Indo-Pacific region refers to the vast, interconnected maritime area that spans the Indian Ocean and the Pacific Ocean, including the seas and straits that link them.
- **Geographic Scope**: Broadly, the Indo-Pacific encompasses:
    1. **The Indian Ocean:** Stretching from the eastern coast of Africa and the West Asia, past South Asia (India), all the way to western Australia.
    2. **The Pacific Ocean:** Stretching from the waters of East Asia and Southeast Asia across to the western coasts of North and South America.
    3. **The Connecting Waters:** Crucial maritime choke points like the **Strait of Malacca**, which connects the two oceans through Southeast Asia.
- The Southeast Asian seas, especially the South China Sea and the Strait of Malacca, form the crucial geographical and economic nexus connecting the two oceans.


INDO–PACIFIC REGION
ARCTIC OCEAN
EUROPE
ASIA
NORTH AMERICA
ATLANTIC OCEAN
AFRICA
PACIFIC OCEAN
INDIAN OCEAN
AUSTRALIA
SOUTH AMERICA
SOUTHERN OCEAN
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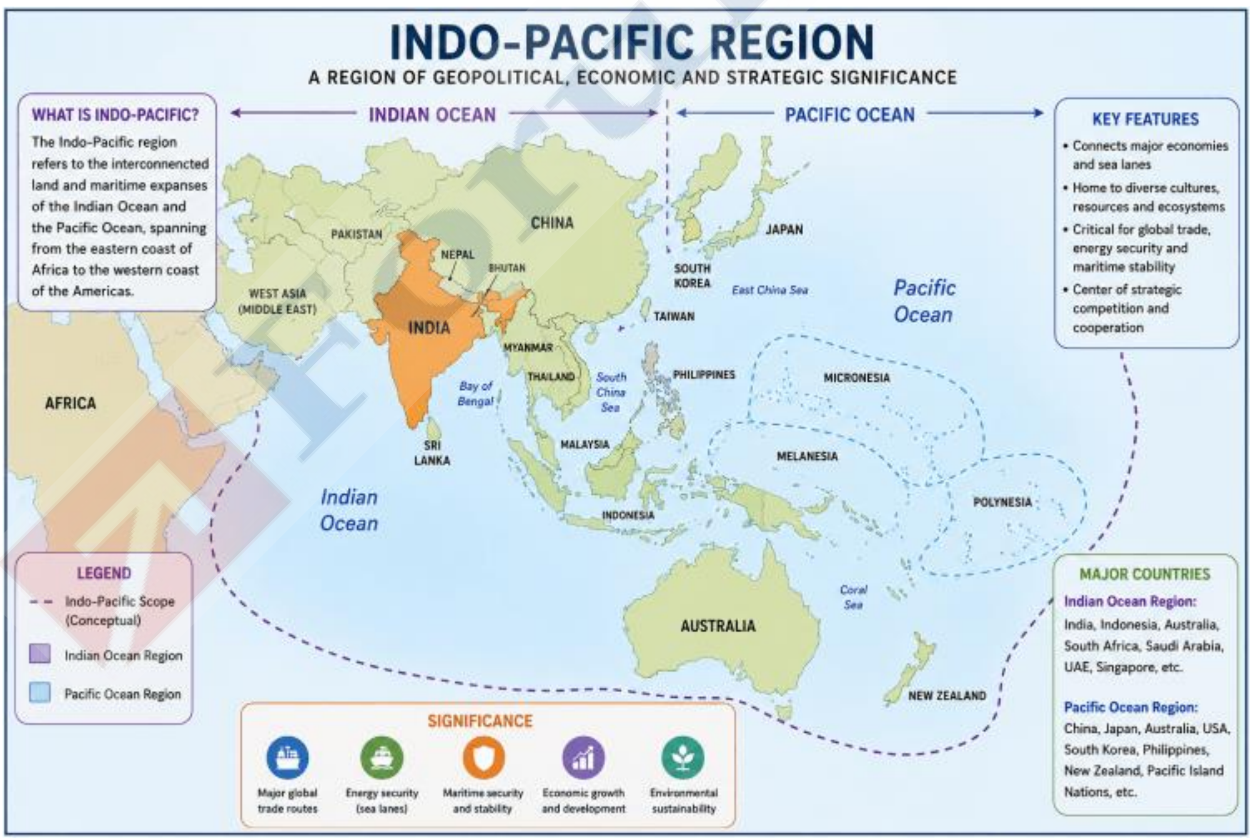
INDO-PACIFIC REGION
A REGION OF GEOPOLITICAL, ECONOMIC AND STRATEGIC SIGNIFICANCE
WHAT IS INDO-PACIFIC?
The Indo-Pacific region refers to the interconnencted land and maritime expanses of the Indian Ocean and the Pacific Ocean, spanning from the eastern coast of Africa to the western coast of the Americas.
INDIAN OCEAN
PACIFIC OCEAN
KEY FEATURES
• Connects major economies and sea lanes
• Home to diverse cultures, resources and ecosystems
• Critical for global trade, energy security and maritime stability
• Center of strategic competition and cooperation
PAKISTAN
CHINA
NEPAL
BHUTAN
INDIA
WEST ASIA (MIDDLE EAST)
JAPAN
SOUTH KOREA
TAIWAN
East China Sea
Pacific Ocean
MYANMAR
THAILAND
South China Sea
Bay of Bengal
PHILIPPINES
MICRONESIA
AFRICA
SRI LANKA
MALAYSIA
MELANESIA
POLYNESIA
INDONESIA
Indian Ocean
AUSTRALIA
Coral Sea
NEW ZEALAND
LEGEND
Indo-Pacific Scope (Conceptual)
Indian Ocean Region
Pacific Ocean Region
SIGNIFICANCE
Major global trade routes
Energy security (sea lanes)
Maritime security and stability
Economic growth and development
Environmental sustainability
MAJOR COUNTRIES
Indian Ocean Region:
India, Indonesia, Australia, South Africa, Saudi Arabia, UAE, Singapore, etc.
Pacific Ocean Region:
China, Japan, Australia, USA, South Korea, Philippines, New Zealand, Pacific Island Nations, etc.

What is the Significance of Indo-Pacific Region?

Economic Significance	● **Global GDP and Population:** ○ The region encompasses countries that account for over 60% of the world's population and generate over 60% of the global GDP. ○ It includes four of the world's largest economies: the United States, China, India, and Japan, along with the dynamic ASEAN bloc. ○ Home to the world's fastest-growing major economies (India, ASEAN states, China) – the region contributes the largest share of global GDP growth. ● **Maritime Trade Routes:** ○ Essential sea lanes of communication (SLOCs) pass through the region, including the Strait of Malacca, Lombok Strait, and South China Sea. ○ Roughly two-thirds of global maritime trade and a majority of global container traffic transits through Indo-Pacific waters. ○ Approximately 32.2 million barrels of crude oil pass through annually, with 40% of global exports originating from the region. ● **Natural Resources:** ○ The region contains vast offshore oil and gas reserves, with the South China Sea estimated to hold 11 billion barrels of oil and 190 trillion cubic feet of gas. ○ It holds significant mineral resources and fisheries, including 10% of the global fish catch. ○ The oceans in the Indo-Pacific contain immense biodiversity and are crucial for global fish stocks. Sustainable management of these resources is vital for the food security of billions of people in the region.
Geopolitical Significance	● **Centre of Great Power Competition:** ○ The region has become the primary theater of US-China strategic competition, with both powers vying for influence and control. ○ China's Belt and Road Initiative (BRI) represents focused efforts to extend Chinese economic and strategic influence, with investments exceeding $1 trillion as of 2023. ● **The Rise of India:** The concept of the Indo-Pacific itself highlights the crucial role of India as a rising democratic power. India's vast geography, massive population, and growing naval capacity are seen by many Western and regional powers as essential for upholding a rules-based international order. ● **Security Dynamics:** ○ The Indo-Pacific faces complex security challenges including territorial disputes in the South China Sea, tensions on the Korean peninsula, across the Taiwan Strait, and various regional conflicts. ○ The region is home to 7 of the world's largest militaries, making it a critical area for global security. ● **New Security Alliances:** The region has become a birthplace of new global alliances like:

	○ **The Quad:** A diplomatic and security partnership between the US, Japan, India, and Australia focused on regional stability, maritime security, and technology collaboration. ○ **AUKUS:** A trilateral defense pact where the US and UK are helping Australia acquire conventionally armed, nuclear-powered submarines to project power in the region.
Environmental Significance	● **Climate Change**: The region is highly vulnerable to rising sea levels, severe typhoons, and ocean acidification. Low-lying island nations in the Pacific face existential threats, while mega-cities along the Asian coast are at high risk for flooding. ● **Natural Disasters**: It is the most natural disaster-prone region globally, requiring coordinated responses to climate change impacts.

What are India's key interests in the Indo-Pacific Region?

1. **Security & Strategic Interests:**
    - **Maritime Security and Freedom of Navigation:** India depends heavily on the Indian Ocean for nearly 95% of its trade, including vital energy imports, making secure sea lanes and freedom of navigation crucial.
    - **Countering Chinese Influence:** India aims to counterbalance China's growing presence and assertiveness in the region, particularly through China's Belt and Road Initiative and militarization of the South China Sea.
    - **Net Security Provider:** India seeks to position itself as the dominant "net security provider" in the Indian Ocean Region (IOR). This involves working with regional partners (like Sri Lanka, Maldives, Mauritius, and Seychelles) to boost their maritime security capabilities and ensure that no single power dominates the area.
2. **Economic Interests:**
    - **Trade and Investment:** The Indo-Pacific region is central to India's ambitions to become a $10 trillion economy. India seeks to expand trade, maritime connectivity, and economic integration within the region.
    - **Act East Policy Integration:** The Indo-Pacific vision is the logical extension of India's "Act East Policy." India aims to better integrate its North-Eastern states with the dynamic economies of Southeast Asia through connectivity projects like the India-Myanmar-Thailand Trilateral Highway.
    - **Supply Chain Resilience:** Following the disruptions of the pandemic, India's interest lies in diversifying its supply chains away from a heavy reliance on a single nation. Cooperating with Quad partners on supply chain resilience in critical technologies (like semiconductors and pharmaceuticals) is a core economic goal.
3. **Environmental & Resource Security:**
    - **Sustainable Use of Marine Resources:** India aims to promote sustainable management of fisheries, offshore energy resources, and maritime ecosystems to support long-term regional prosperity.

- **Climate Change and Disaster Resilience:** Addressing environmental degradation and natural disaster risks tied to the fragile Indo-Pacific ecosystems is a key concern for India's regional engagement.

4. **Regional Leadership & Diplomacy:**
    - **Promoting a Rules-Based Order:** India advocates for a rules-based order that respects international law, particularly the United Nations Convention on the Law of the Sea (UNCLOS). This is a subtle way of countering unilateral territorial claims in the South China Sea and ensuring freedom of navigation.
    - **Strategic Autonomy:** India uses the concept of the Indo-Pacific to reinforce its commitment to strategic autonomy. India insists that the framework must be "inclusive" (not directed against any single country) and stresses the importance of ASEAN's centrality.
    - **Engagement with Regional Bodies**: Active engagement with ASEAN, BIMSTEC, IORA, and other regional organizations helps India strengthen diplomatic ties and regional cooperation.
5. **Cultural & Historical Links:** India has longstanding civilizational, cultural, and diaspora ties across the Indo-Pacific, which underpin its soft power and influence within the region.

What are the major initiatives undertaken in the Indo-Pacific Region?

1. **ASEAN Centrality:**
    - The Association of Southeast Asian Nations (ASEAN) is the geographic and institutional core of the Indo-Pacific. All major powers (US, China, Japan, India) explicitly support ASEAN's centrality.
    - ASEAN promotes dialogue through forums like the East Asia Summit (EAS) and the ASEAN Regional Forum (ARF), ensuring that regional cooperation remains dialogue-based.
2. **Quadrilateral Security Dialogue (QUAD):**
    - A strategic security forum involving India, US, Japan, and Australia.
    - Focuses on regional security challenges, maritime cooperation, infrastructure development, and humanitarian assistance.
    - Key areas of cooperation include:
        i. **Maritime Domain Awareness**: Sharing information and working to ensure freedom of navigation.
        ii. **Critical and Emerging Technologies**: Collaborating on 5G technology, semiconductors, and supply chain resilience.
        iii. **Health and Climate**: Joint initiatives on vaccine production and distribution, and climate change adaptation.
3. **AUKUS:**
    - Members: Australia, United Kingdom, and United States.
    - A security partnership designed for deeper defense integration and technological sharing.
    - **Pillar I** focuses on helping Australia acquire its first fleet of conventionally armed, nuclear-powered submarines to project power in the Pacific.
    - **Pillar II** focuses on joint development of advanced cyber capabilities, artificial intelligence, quantum technologies, and hypersonic weapons.
4. **Indo-Pacific Oceans Initiative (IPOI):**
    - Launched by India in 2019 at the East Asia Summit.
    - It is a voluntary, non-treaty arrangement focusing on practical cooperation in: maritime security, ecology, resource management, capacity building, disaster risk reduction, science and technology, trade and connectivity.
    - Builds upon India's SAGAR vision for inclusive and sustainable maritime growth.

5. **Indo-Pacific Economic Framework for Prosperity (IPEF)**:
    - **Led by:** The United States, alongside 13 other regional partners (including India, Japan, Australia, and several ASEAN nations).
    - **Focus:** Launched in 2022, IPEF is not a traditional free trade agreement. Instead, it focuses on four key pillars:
        i. **Connected Economy** (digital trade standards)
        ii. **Resilient Economy** (supply chain security for critical minerals and semiconductors)
        iii. **Clean Economy** (clean energy transitions)
        iv. **Fair Economy** (anti-corruption and tax compliance)
6. **SAGAR (Security and Growth for All in the Region):**
    - India's flagship vision launched in 2015 aiming to strengthen maritime security, economic development, and cooperative relations among Indian Ocean littorals and beyond.
    - Focuses on freedom of navigation, anti-piracy, disaster management, and blue economy development.
7. **MAHASAGAR** (Mutual and Holistic Advancement for Security and Growth Across Regions):
    - Announced in **2025**, MAHASAGAR is the strategic evolution of the SAGAR vision.
    - Rather than just a "net security provider", MAHASAGAR positions India as a preferred security partner and primary responder for Humanitarian Assistance and Disaster Relief (HADR) and Search and Rescue (SAR).
    - The vision is a strategic counter to China's expanding influence in the Indian Ocean. It focuses on sustainable infrastructure development, secure supply chains, and collective defense capabilities to promote long-term, non-transactional partnerships.
8. **Indo-Pacific Economic Framework (IPEF):**
    - Initiated in 2022, enhancing economic cooperation among Indo-Pacific partners.
    - Emphasizes resilient supply chains, clean energy transitions, fair trade, digital economy cooperation, and sustainable growth.
    - Partners include India, US, Australia, Japan and 10 other countries.
9. **Act East Policy:**
    - India's diplomatic and economic outreach to engage ASEAN and East Asian nations.
    - Aims to deepen connectivity, trade, cultural ties, and regional integration.
10. **Supply Chain Resilience Initiative (SCRI):**
    - Members: India, Japan, Australia.
    - To establish resilient and diversified supply chains to mitigate the risks of geopolitical shocks and reliance on single-country sources, especially in essential goods and raw materials.
11. **Regional Cooperation Platforms:**
    - India engages actively in regional groupings like the Indian Ocean Rim Association (IORA), Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), ASEAN Regional Forum (ARF), and others.
    - These platforms address issues like maritime security, climate resilience, and economic cooperation.
12. **Project MAUSAM**: A cultural and economic initiative managed by the Indian Ministry of Culture to reconnect nations across the Indian Ocean world, reviving ancient maritime routes and trade relations.

What are the major challenges facing the Indo-Pacific Region?

1. **Geopolitical Rivalries & Security Concerns:**

- **US-China Strategic Rivalry:** The region is the primary theater for great-power competition. China's assertive foreign policy, rapid military modernization, and infrastructure expansion challenge the traditional influence of the US and its regional allies.
- **Assertive Rise of China**: The rise of China's Belt and Road Initiative (BRI) and its territorial assertiveness challenge existing regional balances, leading to tensions among regional and extra-regional powers.
- **Flashpoints**: The risk of conflict escalation in flashpoints such as Taiwan, the South China Sea, Korean Peninsula, India-Pakistan war remains high.
- **Rapid Militarization**: The region is undergoing rapid militarization. Increased naval deployments, the development of long-range missile capabilities, and the formation of new security pacts (like AUKUS) escalate tensions.

2. **Economic & Development Challenges:**
    - **Infrastructure Debt Traps:** China's Belt and Road Initiative (BRI) offers much-needed infrastructure financing but has often resulted in unsustainable debt for smaller nations (like Sri Lanka and some Pacific Island countries), compromising their economic sovereignty and stability.
    - **Supply Chain Vulnerability:** The heavy concentration of global manufacturing in East and Southeast Asia creates a single point of failure. Geopolitical tensions or natural disasters can – and have – led to significant global supply chain shocks. Initiatives to diversify supply chains are still in their early stages.
    - **Development Gaps:** The region features immense economic disparity, stretching from highly developed nations (Japan, Australia) to developing economies (Bangladesh, Cambodia). Closing these gaps requires significant, sustainable investment and cooperation on trade facilitation.
    - **Lack of Regional Integration:** While trade within the wider Indo-Pacific is high, intra-regional trade within South Asia remains low due to political disputes and poor infrastructure. This failure to integrate economically limits collective growth potential.
3. **Non-Traditional Security Threats:**
    - **Maritime Security Challenges:** Non-state threats such as piracy, illegal, unreported, and unregulated (IUU) fishing, and maritime drug smuggling persist, requiring coordinated naval and coast guard cooperation across numerous jurisdictions.
    - **Cyber and Information Warfare:** The rapid adoption of digital technology, often without adequate cybersecurity protocols, leaves the region vulnerable to state-sponsored hacking, data theft, and sophisticated disinformation campaigns aimed at undermining democratic processes and national infrastructure.
    - **Freedom of Navigation:** Disputes over maritime boundaries, Exclusive Economic Zones (EEZs), and overlapping claims (notably in the South and East China Seas) threaten the safe passage of critical global trade routes.
4. **Climate Change and Environmental Degradation:**
    - **Extreme Weather and Sea-Level Rise:** The region is highly disaster-prone. Low-lying island nations (such as Tuvalu and the Maldives) and coastal areas face existential threats from rising sea levels and intensified cyclones, potentially triggering mass forced migration.
    - **Ecosystem Stress:** Fragile marine environments, including coral reefs and mangroves, face severe degradation from pollution and overfishing.
5. **Recent Shift in US Stance Toward the Indo-Pacific**: The recent shift in U.S. policy poses several challenges, including declining trust among allies, weaker deterrence against China due to the reduced focus on Taiwan and the Quad, greater security burdens on partners such as Japan and India, trade-

related tensions, and the risk of a strategic vacuum that could lead to a fragmented and competitive regional order.

What should be the way forward?

1. **Strengthening Multilateralism & Regional Cooperation:**
    - Promote inclusive regional frameworks such as ASEAN-led mechanisms, Indo-Pacific Oceans Initiative (IPOI), Indian Ocean Rim Association (IORA), and enhanced cooperation among Quad countries.
    - Encourage dialogue, conflict resolution, and confidence-building measures to reduce unilateral attempts and tension hotspots like the South China Sea and Taiwan Strait.
    - Major regional doctrines must actively synchronize. For example, the strategic alignment between India's **MAHASAGAR** initiative and Japan's **Free and Open Indo-Pacific (FOIP)** framework, which streamlines maritime defense and infrastructure investments without creating redundant overlapping programs.
2. **Upholding a Free, Open, Rules-based Order:** Adherence to international law, particularly the United Nations Convention on the Law of the Sea (UNCLOS), to ensure freedom of navigation, overflight, and peaceful dispute settlement.
3. **Enhancing Maritime Security & Safety:**
    - Joint exercises, information sharing, and coordinated response to piracy, terrorism, and natural disasters across the Indo-Pacific.
    - Capacity building for smaller and vulnerable coastal states to strengthen their maritime domain awareness.
4. **Promoting Sustainable Economic Growth & Connectivity:**
    - Develop resilient, interconnected infrastructure in transport, digital, and energy sectors to integrate regional markets inclusively.
    - Support supply chain diversification and green technologies via initiatives like the Indo-Pacific Economic Framework (IPEF).
5. **Addressing Environmental Challenges Collectively:**
    - Coordinate climate change mitigation, marine ecosystem conservation, disaster risk reduction, and pollution control efforts.
    - Share scientific research and best practices for adaptation to rising sea levels and ecosystem preservation.
    - Formalize and strengthen mechanisms for joint military and civilian responses to Humanitarian Assistance and Disaster Relief (HADR) operations, recognizing that cyclones, tsunamis, and earthquakes often require seamless regional cooperation.
6. **High-Quality Infrastructure Investment:** Ensure that infrastructure projects funded through initiatives like the Partnership for Global Infrastructure and Investment (PGII) offer transparent, high-standard, and sustainable alternatives to debt-trap financing. The focus should be on building connectivity that benefits the host nation, not just the donor nation.
7. **Empowering Smaller States:** Providing smaller Indo-Pacific and Indian Ocean nations with expanded, reliable options for both economic development and military capacity building.
8. **Securing Key Tech Frameworks:** Regional partners must formalize strict technological standards regarding Artificial Intelligence (AI), quantum computing, and semiconductors. Agreements must actively restrict critical technology transfers to volatile or non-transparent actors.
9. **Diversifying Away From Over-Reliance on the USA**: Given the demonstrated volatility in US commitment, the region's middle powers need to:

- **Deepen middle-power coalitions**: Japan-India, Japan-Philippines, Australia-Indonesia, and similar bilateral/plurilateral ties should be strengthened as insurance against US unpredictability.
- **Expand intra-Asian economic architecture**: Leaning further into CPTPP and RCEP as parallel economic anchors reduces dependence on the stalled IPEF trade pillar.

Conclusion: The Indo-Pacific region represents the epicenter of 21st-century geopolitics, where economic prosperity, security challenges, and strategic competition converge to shape the future global order. However, the major stakeholders in the region need to focus on building resilient, flexible, multi-stakeholder architecture that doesn't depend on any single power's constancy & keeping the region's founding "free, open, inclusive" ethos intact rather than sliding into rigid bloc politics.

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India-Japan Relationship – Significance & Challenges – Explained Pointwise

India and Japan share a **Special Strategic and Global Partnership** anchored in shared democratic values, economic cooperation, and a common Indo-Pacific vision. The recent visit of Japanese Prime Minister **Sanae**

Takaichi to India for the 16th Annual Summit further deepened collaboration in defence, artificial intelligence, critical minerals, semiconductors, energy security, and resilient supply chains.

How has the India-Japan Relationship evolved?

Ancient Period	• India and Japan share a historical close relationship that has existed since ancient times. • The exchange is said to have begun in the 6th century when Buddhism was introduced to Japan. • Indian culture, through the influence of Buddhism, has had a profound impact on Japanese culture.
Foundation Period (1950-1990)	• Diplomatic relations established in **1952**. • In the aftermath of World War II, India stood out by refusing to attend the **San Francisco Peace Conference** in 1951, choosing instead to sign a separate, bilateral peace treaty in 1952 that waived all reparation claims against Japan. • Japan supported India's post-independence development through Official Development Assistance (ODA). • Relations remained limited due to Cold War alignments.
Post-Cold War Realignment (1991-2000)	• Japan assisted India during the **1991 Balance of Payments crisis**. • Relations temporarily cooled after India's **1998 nuclear tests** due to Japanese sanctions but gradually normalized by 2000.
Strategic & Global Partnership (2000-2014)	• The partnership was formally elevated to a "**Global Partnership**" in 2000, and later to a "**Strategic and Global Partnership**" in 2006. • PM Shinzo Abe delivered his historic speech to the Indian Parliament in 2007, introduces the concept of the "**Indo-Pacific**", and laid the intellectual blueprint for the **Quadrilateral Security Dialogue (Quad)**. • Implementation of the **Comprehensive Economic Partnership Agreement (CEPA)** in 2011.
Special Strategic & Global Partnership (2014-2020)	• The partnership was elevated to a "**Special Strategic and Global Partnership**" in 2014. • Deep alignment under the "**Free and Open Indo-Pacific" (FOIP)** vision.

	● Agreement signed for the **Mumbai-Ahmedabad High-Speed Rail** (Bullet Train) project using Japanese Shinkansen technology.
Indo-Pacific & Technology Partnership (2020-Present)	● Cooperation expanded under the Quad, resilient supply chains, semiconductor collaboration, digital technologies, green energy, and defence interoperability. ● Japan has emerged as one of India's most trusted strategic partners amid changing regional geopolitics.

What are the key areas of cooperation between India and Japan that strengthen their bilateral relationship?

1. **Geopolitics & Maritime Security**:
    - **Strategic Convergence:** Joint efforts focus on linking India's **MAHASAGAR** (Mutual and Holistic Advancement for Security and Growth Across Regions) and **IPOI** (Indo-Pacific Oceans' Initiative) with Japan's **Free and Open Indo-Pacific (FOIP)** framework.
    - **The Quad:** India and Japan, along with the US and Australia, drive the Quad agenda, prioritizing infrastructure, maritime domain awareness, and humanitarian assistance in the Indo-Pacific.
    - **The "2+2" Dialogue:** Highly institutionalized ministerial-level interactions (Foreign and Defense Ministers) provide regular strategic reviews, with the 4th round scheduled in Tokyo later this year.
2. **Defence Cooperation**:
    - **Defense Co-Development:** Bilateral defense technology achieved a massive milestone with the finalization of technical designs for the **UNICORN (Unified Complex Radio Antenna)** masts for the Indian Navy – marking their first physical defense co-development program.
    - **Logistics & Maintenance:** Under the **Reciprocal Provision of Supplies and Services (RPSS)** pact, both militaries share logistics. New 2026 agreements are expanding this into naval **Maintenance, Repair, and Overhaul (MRO)** cooperation in the Indian Ocean.
    - **Tri-Service Exercises:** Regular combat interoperability is sustained via annual joint exercises, including **Dharma Guardian** (Army), **Shinyuu Maitri** (Air Force), and **JIMEX/Malabar** (Navy).
3. **Economic Cooperation**:
    - **Bilateral Trade**: Faced with unpredictable global trade routes, the **India-Japan Joint Declaration on Economic Security Cooperation** focuses heavily on reducing dependencies on single nations.
    - **The Semiconductor Hub:** Leading Japanese firms have integrated into India's semiconductor landscape. **Renesas Electronics** is launching mass production at its Gujarat plant this year, while **Tokyo Electron (TEL)** partnered with Tata Electronics to build front-end fabrication ecosystems.
    - **Critical Minerals:** Joint exploration and processing agreements secure the rare earth minerals required for green technology and electronic hardware manufacturing.

- **Industrial Competitiveness:** Under the India-Japan Industrial Competitiveness Partnership (IJICP), 12 targeted working groups manage manufacturing standards across logistics, textiles, and automotive sectors.

4. **Artificial Intelligence:** The Japan-India AI Cooperation Initiative (JAI) was reinforced at the 2026 summit with an explicit framework for trusted AI governance, open-source multilingual model training, and a digital corridor infrastructure.
5. **Space Frontier:** The Indian Space Research Organisation (ISRO) and the Japan Aerospace Exploration Agency (JAXA) are jointly developing the **LUPEX (Lunar Polar Exploration) Mission** to launch a rover to explore the Moon's south pole.
6. **Urban Mass Transit:** Beyond the flagship Mumbai-Ahmedabad High-Speed Rail (Bullet Train), Japan is heavily financing phase expansions of the **Mumbai Metro (Line 11)** and **Bengaluru Metro (Phase 3).**
7. **Human Resource Mobility:** Talent exchange programs like the Technical Intern Training Programme (TITP) and Specified Skilled Worker (SSW) bridge employment demands. Japan is inviting **500 highly skilled Indian AI professionals** to Tokyo by 2030 to build cross-border tech synergy.

Other Areas of India-Japan Cooperation

- **Healthcare**: In view of the similarities between the goals and objectives India's AYUSHMAN Bharat Programme and Japan's AHWIN, both sides had been consulting each other to identify projects for collaboration. Both sides have concluded a MoC to formalize cooperation in the field of Healthcare.
- **Act East Forum**: It was established in 2017 and aims to provide a platform for India-Japan collaboration under the rubric of India's '**Act East Policy**' and Japan's '**Free and Open Indo-Pacific Vision**'. The objective is to coordinate developmental projects in North-East India in areas of connectivity, forest management, disaster risk reduction and capacity building.
- **Supply Chain Resilience Initiative (SCRI)**: The Trade and Economy Ministers of **India, Japan and Australia** launched the (SCRI) in April 2021. The initiative seeks to **enhance the resilience of supply chains** in the Indo-Pacific Region and to develop dependable sources of supply and to attract investment.
- **Disaster Risk Reduction**: India and Japan signed an MoC in the field of Disaster Risk Reduction in 2017. India and Japan have jointly organized a series of workshops to exchange information on policy and measures on disaster risk reduction.

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What are the issues limiting India-Japan Relationship?

1. **Trade Deficit:** Total bilateral trade for FY2025–26 stood at a modest **$27.48 billion –** vastly eclipsed by both nations' trade volumes with China. Furthermore, the trade is heavily skewed in Japan's favor; India exported only $6.04 billion while importing $21.44 billion, leading to a steep **$15.39 billion trade deficit.**
2. **Non-Tariff Barriers (NTBs):** Despite the Comprehensive Economic Partnership Agreement (CEPA) eliminating tariffs on over 94% of items, India's core competitive sectors – **pharmaceuticals (generic**

drugs) and agriculture – face rigid Japanese phytosanitary (plant health) standards and complex regulatory hoops. For e.g. procedural and quarantine lapses regularly disrupt agricultural exports like premium Indian mangoes.

3. **Strategic & Diplomatic Divergence:** India prizes **"strategic autonomy,"** maintaining historical trade and defense ties with Russia. Conversely, Japan is tightly integrated into the US alliance system and enforces strict G7 sanctions against Russia, which occasionally misaligns their multilateral approaches.
4. **Defense Co-production Hurdles:** Although military ties are growing, technology transfers and joint manufacturing remain slow. Stricter regulations surrounding Japan's historic defense export bans have stalled major joint projects like the ShinMaywa US-2 amphibious aircraft procurement.
5. **Infrastructure Delays:** Mega-projects utilizing Japanese technology – such as the **Mumbai-Ahmedabad High-Speed Rail** (bullet train) – have suffered significant timeline extensions due to land acquisition challenges and complex regulatory compliance.
6. **Limited People-to-People and Cultural Ties**: Compared to the robust economic and strategic frameworks, the flow of tourism, academic exchange, and cultural understanding between the two populations remains relatively modest. This lack of deep grassroots connection can sometimes result in a lack of mutual social and cultural understanding, which is essential for sustaining a "Special" partnership over the long term.

What steps can be taken to further deepen India-Japan Relationship?

1. **Economic and Supply Chain Resilience**: Accelerating the review of the Comprehensive Economic Partnership Agreement (CEPA) to boost bilateral trade and promote over $67 billion in Japanese private investment in India over the next decade. Accelerating the pending review of the **Comprehensive Economic Partnership Agreement (CEPA)** and resolving regulatory and non-tariff barriers is critical.
2. **Critical Tech & AI Initiatives:** Formalize the first-ever co-development project, the **UNICORN naval radio antenna system.** Japan's recent relaxation of defense export rules creates a major opening for industrial collaboration.
3. **Defense and Security Co-development:** Expanding joint naval exercises and implementing the historic defense co-development agreement to jointly produce advanced military hardware under India's Make in India framework.
4. **People-to-People Mobility:** Achieve the **Action Plan for the exchange of 500,000 personnel in 5 years**, including 50,000 skilled Indian workers heading to Japan. Focus on Japanese language training and sector-specific skilling to improve integration and success rates.
5. **Energy & Clean Tech:** Collaborate on energy resilience, including strategic stockpiling and clean energy initiatives. Launch the **India-Japan Cooperative Biogas Initiative** to build 1,000 plants in India. Explore cooperation on **Small Modular Reactors (SMRs)** as a potential "game-changer" in clean energy.
6. **Political Cooperation**: Conduct regular **"2+2" dialogues** between foreign and defense ministers. Activate the **India-Japan Act East Forum** to ensure strategic follow-through on projects, especially in the Northeast.

Conclusion:

India and Japan are great democracies and aim at the ideals of a value-based order. The need to form the rules-based order was needed to tackle Chinese assertiveness and expansionism in the Indo-Pacific region. Further, India and Japan aim to form a new security architecture which mainly covers maritime security and cooperation. Therefore the deepening of India Japan relationship is not only important for the two countries, but also for the Indo-Pacific region and will encourage peace, prosperity and stability for the world. It is time to consolidate this shared heritage and to cooperate for a better and more prosperous tomorrow & achieve the potential of the '**confluence of two seas**'.

Syllabus: GS II, India and its Neighbourhood relations
Source: Indian Express, Ministry of External Affairs, ORF, Ministry of Foreign Affairs, Japan

India's Fisheries Sector – Significance & Challenges – Explained Pointwise

India ranks as the world's second-largest fish-producing nation, accounting for approximately **8%** of global output. The fisheries sector constitutes a vital component of national food security, employment generation, and income enhancement, particularly across coastal and rural economies. Reflecting its growing structural significance, fisheries account for nearly **7.43%** of Agricultural Gross Value Added (GVA), the highest share among the agriculture and allied sectors. In this regard, let us understand the significance of the fisheries sector & the challenges that it is presently facing, as well as the various policy intervention provided to promote its growth.

What is meant by the fisheries sector?

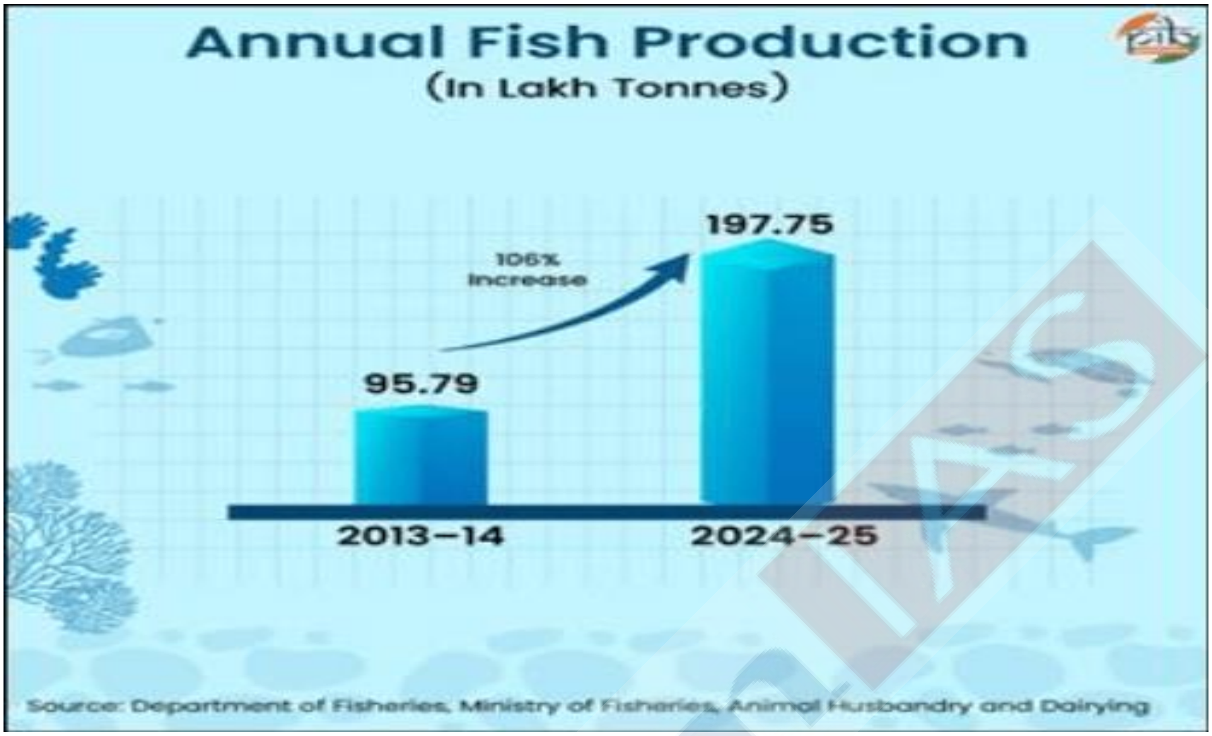
- The **fisheries sector** is a vital part of the global economy and food system. It involves the **harvesting, processing, distribution, and management of fish and other aquatic organisms** such as crustaceans (shrimp, crabs), mollusks (oysters, clams), and aquatic plants.
- Fisheries sector includes:

Marine Fisheries	Capture of fish from the seas and oceans: ○ **Coastal Fisheries:** Traditional and mechanized fishing within the territorial waters. ○ **Deep-Sea Fishing:** Operates in the **Exclusive Economic Zone (EEZ)** and high seas. ○ **Mariculture:** The farming of marine organisms in the open ocean or enclosed sections of the ocean.

Inland Fisheries	Largest contributor to India's total fish production (roughly **70%**).
	○ **Capture Fisheries:** Harvesting fish from open water bodies like rivers, canals, lakes, and reservoirs.
	○ **Aquaculture:** Farming of fish and aquatic organisms under **controlled conditions:**
	  ○ **Freshwater Aquaculture:** Farming in man-made ponds and tanks.
	  ○ **Brackishwater Aquaculture:** Farming in water that has more salinity than freshwater but less than seawater.

What is the current status of the fisheries sector in India?

- India has one of the world's largest inland reservoir networks, spanning approximately **31.5 lakh hectares,** offering significant potential for expanding inland fisheries.
- India's extensive coastline of over **11,099 km** and an Exclusive Economic Zone (EEZ) of approximately **24 lakh square kilometres** sustain the livelihoods of more than **50 lakh members** of the fishing community across 13 maritime States and Union Territories.
- Backed by sustained interventions, total fish output more than doubled from **95.79 lakh tonnes** in **FY 2013–14** to **197.75 lakh tonnes** in **FY 2024–25**, reflecting a **106%** increase over the period.



Source: PIB

Concurrently, seafood exports expanded significantly, reaching **₹62,408 crore** in **FY 2024–25**. Frozen shrimp remains the dominant export commodity, with the United States and China serving as key markets, highlighting the sector's expanding scale and growing global competitiveness.

Source: PIB

Marine Fish Stock Status of India:

ICAR–Central Marine Fisheries Research Institute (CMFRI) has assessed the status of India's commercially important marine fish stocks using scientific stock assessment methods. Some of the key findings are:

- **91.1% of the 135 commercially important fish stocks** assessed in 2022 were found to be **biologically sustainable**, indicating that current exploitation levels are generally within sustainable limits.
- Around **8.9% of the assessed stocks** were found to be **overfished or undergoing overfishing**, highlighting the need for targeted conservation and fishery management measures.
- CMFRI highlighted immense potential in seaweed farming, identifying **333 prospective seaweed farming sites** covering nearly 23,950 hectares. While India's current production is minor, the report noted it could provide substantial alternative revenue for coastal communities.

What is the significance of the fisheries sector and aquaculture?

1. **Food & Nutrition Security:** Fish is an affordable and accessible source of animal protein, vitamins, and omega-3 fatty acids, making it essential for combating malnutrition in rural and coastal communities. The sector is often vital to the dietary habits of vulnerable and marginalized populations.
2. **Economic Growth & Exports:** Fisheries are one of the fastest-growing allied agricultural sectors, contributing about 6.24 billion (₹62,408 crore) in seafood exports in recent years. India is a leading exporter of shrimp globally. The sector also contributes roughly 1-2% to the national GDP and nearly 7.5% to the Agricultural Gross Value Added (GVA).
3. **Livelihoods & Employment:** Providing income for more than 28 million fishers, fish farmers, and allied workers, the industry is a massive driver of rural development. It supports vital supplementary incomes for marginal farmers and provides active roles for women in processing, value-addition, and marketing. It strengthens rural and coastal economies and provides supplementary income to farmers.
4. **Resource Utilization & Potential:** India is blessed with vast resources, including over 8,000 km of coastline, vast estuaries, and millions of hectares of inland reservoirs and tanks. Modern aquaculture – such as brackish-water shrimp farming, cage culture, and advanced techniques like Recirculating Aquaculture Systems (RAS) – helps turn underutilized and even wastelands into highly productive assets.
5. **Empowering Women:** Aquaculture and fish processing are highly inclusive, providing significant employment and financial independence to women, who make up a large percentage of the post-harvest workforce (Women constitute **55-62% of the workforce**, especially dominant in post-harvest and processing operations (62%)).
6. **Biodiversity Protection:** Effective management of the sector – like implementing the sustainable practices outlined by institutes like CMFRI – ensures marine ecosystems remain balanced and resilient against climate change.
7. **Poverty Alleviation & Equity:** Fisheries sector provides supplementary income to small and marginal farmers. It offers livelihood options for landless and vulnerable communities through community-based or cage farming.
8. **Environmental & Ecosystem Benefits:** Fisheries sector:
    - Supports aquatic biodiversity when managed sustainably.

- Promotes carbon sequestration and coastal resilience through mangrove-linked systems.
- Reduces pressure on wild fish stocks, aiding marine conservation.

What issues are being faced by the fisheries sector and aquaculture?

1. **Overexploitation & Resource Sustainability**:
   - Although official data indicate that most of India's marine fish stocks are sustainable, the Food and Agriculture Organization (FAO) argues that India's marine fish production has reached a plateau, as most major fish stocks are already fully exploited. Scientific data indicates that 4.4% of India's fish stocks are already overfished, with another 8.2% under intense pressure. The situation is critical along the northwest coast, where **54.2% of fish stocks are overfished.**
   - Small-scale, mechanized trawling has caused significant seabed damage, and coastal states often **lack sufficient staff/patrol boats** to enforce the 5-nautical-mile no-trawling zone meant to protect inshore ecosystems.
2. **High Post-Harvest Losses**: Despite a 167% surge in inland aquaculture production to nearly 4 million tonnes, the sector suffers from high **Fish Loss and Waste (FLW)**. Marine fish losses have climbed to over 10%, while dry fish losses are critically high at 37%. These losses stem from inadequate cold-chain capacity, poor handling practices, and unhygienic landing sites.
3. **Lack of Export Market Diversification**: India exports **95% of its shrimp to the US and European markets**, creating a dangerous vulnerability. Potential tariff actions, like those from the US, could deliver a **50% blow** to the shrimp sector.
4. **Devastating Climate Change Impacts**:
   - Increased frequency of cyclones and unpredictable rainfall patterns disrupt fishing days and damage inland ponds. Rising sea surface temperatures are causing species like sardines and mackerel to shift their distribution, moving deeper or further north, which makes them harder for traditional boats to reach.
   - In 2025, unseasonal rains and cyclones in Palghar, Maharashtra, destroyed dried fish stocks worth an estimated **₹100 crore**, pushing over 1,00,000 fisherfolk to the brink. Despite being granted agricultural status, these fishing communities are often denied disaster relief packages available to farmers, leaving them with negligible compensation that fails to cover losses.
5. **Inshore Degradation and Destructive Fishing:** While deep-sea or overall fish stocks might occasionally show healthy numbers, **inshore coastal ecosystems are facing severe depletion**. The widespread use of non-selective bottom trawling destroys benthic habitats and results in massive amounts of "bycatch" (accidental capture of non-target, juvenile, or endangered species).
6. **Limited Value Addition**: India primarily exports raw frozen shrimp, missing out on the 30-40% additional value that competitors like Vietnam capture through processing. This is due to inadequate cold-chain capacity, inconsistent farm supply, and weak integration between farmers, processors, and exporters.
7. **Slow Adoption of Advanced Technology:** While high-tech solutions like **Recirculating Aquaculture Systems (RAS)**, AI-driven feeding, and automated water-quality monitors exist, their high initial capital costs keep them out of reach for the vast majority of traditional farmers.
8. **High Input Costs:** Feed constitutes nearly **70% of production costs**. Rising prices of fishmeal and ingredients make it difficult for small farmers to maintain profitability.
9. **Global Competition:** India faces stiff competition from countries like Vietnam and Ecuador, which have more integrated cold chain systems and lower shipping tariffs.

What are the various government initiatives aimed at promoting the fisheries sector in India?

Blue Revolution	**The Blue Revolution**, launched in 2015, seeks to increase fish production and strengthen the fisheries value chain across inland and marine sectors by enhancing productivity, expanding infrastructure, and promoting modern practices. To build on these efforts and further advance post-harvest management, traceability, fisher welfare, and market linkages, the Government launched the **Pradhan Mantri Matsya Sampada Yojana** (**PMMSY)** in **2020** to accelerate the sector's transformation.
Pradhan Mantri Matsya Sampada Yojana (PMMSY)	The PMMSY seeks to enhance **fish production and productivity,** upgrade quality standards, promote technological modernisation, strengthen post-harvest infrastructure, and improve fisheries governance. The scheme prioritises technology-driven aquaculture systems that improve productivity while optimising resource use. It promotes high-density, water-efficient models such as **Recirculatory Aquaculture Systems (RAS)** and **Bio-floc technology**, which enhance output, maintain quality, enable nutrient recycling, and support environmentally sustainable fish farming.
Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY)	The **Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY)** is a Central Sector sub-scheme implemented under the umbrella of the **PMMSY.** The scheme facilitates the structural transformation of the fisheries sector by advancing formalisation, **expanding insurance coverage, strengthening access to institutional finance, and promoting quality assurance** and **traceability** across the fisheries value chain. 

Kisan Credit Card for Fisheries	The Kisan Credit Card (KCC) scheme has become a pivotal instrument for advancing **financial inclusion** within India's agrarian economy. Structured to provide timely and affordable access to working capital, it enables farmers to finance the purchase of critical inputs and meet liquidity requirements for crop cultivation and allied activities. Since 2019, the scope of the scheme has been expanded to include animal husbandry, dairy, and fisheries. The Government has raised the lending limit under the KCC scheme for fisheries from **Rs 2 lakh to Rs 5 lakh**, thereby improving access to credit for **fishers, farmers, processors, and other stakeholders.**
Fisheries and Aquaculture Infrastructure Development Fund (FIDF)	FIDF was launched in 2018–19 to strengthen infrastructure across marine and inland fisheries and promote sustainable sectoral growth. The scheme offers a **credit guarantee cover**, helping fishers and entrepreneurs access much-needed credit with lower financial risk. It also provides an **interest subvention** of up to **3% per year.**
National Policy on Marine Fisheries (NPMF), 2017	Provides a comprehensive framework for **sustainable development, management, and conservation** of marine fisheries — the policy backbone for stock sustainability efforts.
Marine Fisheries Census 2025	The National Marine Fisheries Census (MFC) 2025, launched in **2025**, represents a significant advancement toward fully digital, georeferenced data collection in India's fisheries sector.
Mission Amrit Sarovars	Under Mission Amrit Sarovar, the Government has facilitated the development of **~70,000 Amrit Sarovars**, including **1,222 water bodies** integrated with fisheries activities, thereby promoting fish culture, livelihood diversification, and the enhancement of aquatic ecosystems – thus, tapping the immense potential of inland fisheries in India.
Blue Economy and Deep-Sea Fishing Framework	The government introduced a dedicated enabling framework to sustainably harness fisheries from the **Indian Exclusive Economic Zone (EEZ) and the High Seas.** Special focus and financial resources are being funneled into the Andaman & Nicobar and Lakshadweep Islands to build modern marine hubs.

	Financial assistance is provided to traditional fishers to upgrade their vessels or transition from over-exploited near-shore waters into deep-sea resource fishing.

What should be the way forward?

1. **Deep Sea Fishing and EEZ Utilization**: With near-shore waters facing overexploitation, attention is increasingly shifting towards deep-sea fishing. This requires investment in Blue Economy hubs in the Andaman & Nicobar and Lakshadweep Islands to support deep-sea fishing fleets. However, the FAO estimates that exploiting deep-sea resources would yield only a marginal increase in overall fish production.
2. **Prioritising Community-Led Models:** Fishermen Cooperative Societies and Fish Farmer Producer Organizations (FFPOs) will be given priority for deep-sea fishing operations. This empowers small-scale fishers by enabling them to access high-value resources like tuna.
3. **Good Aquaculture Practices (GAqP):** Implementing traceability standards from "pond to plate." This ensures that Indian seafood meets the stringent quality requirements of markets like the EU and USA, reducing the risk of export rejections.
4. **Climate Resilience and Sustainability:**
    - **Species Diversification:** Moving beyond just shrimp and carp to high-value species like seaweed, tilapia, and sea bass which are more resilient to changing water temperatures.
    - **Integrated Multi-Trophic Aquaculture (IMTA):** Encouraging systems where the waste of one species (like fish) becomes the food for another (like seaweed or shellfish), creating a circular and eco-friendly farm model.
    - **Stricter Trawling Regulations:** Phasing out destructive bottom trawling in ecologically sensitive zones and introducing stricter enforcement of seasonal fishing bans using satellite monitoring.
5. **Move from Volume-Driven to Value-Driven Growth**: Shift export composition away from raw frozen shrimp (currently 70%+ of earnings) toward **processed, ready-to-eat, and higher-margin seafood products** – reducing vulnerability to tariff shocks like the recent US duty hikes.
6. **Diversify Export Markets**: Reduce overdependence on the US and China by actively developing markets in the **EU, Southeast Asia, Middle East, and Africa**, cushioning against demand shocks or trade policy shifts in any single market.

Conclusion: The fisheries sector is a critical contributor to India's economy, supporting the livelihoods of nearly three crore people, particularly among marginalised coastal and inland communities. If we are able to address the challenges faced by the sector then we will be able to move towards a more inclusive and resilient blue economy while contributing meaningfully to achieving **Sustainable Development Goal 14:** Life Below Water by sustainably managing fisheries and aquaculture.

UPSC GS-3: Agriculture
Read More: PIB, The Hindu

Ethanol Blending Programme – Significance and Challenges – Explained Pointwise

India's Ethanol Blended Petrol (EBP) Programme successfully achieved its 20% blending target (E20) ahead of schedule. However, citing consumer pushback over vehicle mileage loss, engine compatibility issues for older fleets, and the need for broader vehicle technical validations, the government is deferring its proposed shift to the higher E25 blend. In this regarded let us examine the significance & challenges of the ethanol blending programme of the government.

What is the Ethanol Blending Programme?

Ethanol Blending Programme:

- Ethanol Blended Petrol (EBP) Programme has emerged as a key pillar of India's energy transition and biofuel strategy. It aims to improve energy security, support farmers, and reduce environmental impacts. The programme also promotes greater use of domestically produced renewable fuel.
- Under the EBP Programme, ethanol blending has increased from less than 1.5% in 2013-14 to **20%** in 2025-26. India achieved the 20% blending target five years ahead of schedule.
- To support the programme, ethanol production capacity has expanded nearly fivefold, from 421 crore litres in 2014 to about 2,000 crore litres in 2026.
- From 2014-15 to May 2026, the EBP program led to an estimated:
    - **₹1.90+ lakh crore** saved in foreign exchange.
    - **310+ lakh metric tonnes** of crude oil substituted.
    - **~930 lakh metric tonnes** of CO2 emissions reduced.
    - **₹1.60+ lakh crore** in additional farmer earnings.

Sources of Bio Ethanol Production in India:

Sugarcane	Sugarcane gives rise to three main related products, in the order of decreasing sugar content. a. Sugarcane juice and syrup b. B-heavy molasses c. C-heavy molasses (Sugarcane juice and syrup, and B-heavy molasses typically go into making sugar, as they have higher sugar content.) In a bid to up the ethanol production, the government had started permitting the diversion of Sugarcane juice and syrup, and B-heavy molasses. However, in December 2023, the government restricted the diversion of Sugarcane juice, syrup, and B-heavy molasses, over fears of falling sugar stocks.
Maize	The use of maize for ethanol blending has been increasing to produce more fuel ethanol to compensate for restrictions on using Sugarcane juice, syrup, and B-heavy molasses.
Surplus rice & damaged grains	Surplus rice and damaged grains have been permitted by the government for use as a feed in grain-based distilleries.

Ethanol for blending

With the government restricting the use of B-heavy molasses and sugarcane juice for ethanol production from December 2023, grain-based ethanol production has increased to maintain blending percentages

Ethanol supplied to oil marketing companies

Supply-year	C-heavy molasses	B-heavy molasses	Sugarcane juice	Surplus rice	Damaged grains	Maize	Total in litre crore; blending % in brackets
2019-20	74	68	15	0	16	0	173 (5.00)
2020-21	39	183	39	2	39	0	302 (8.10)
2021-22	11	265	85	49	24	0	434 (10.02)
2022-23	6	235	128	74	32	32	506 (12.06)
2023-24*	39	95	56	0	76	135	401 (13.00)

Supply years are December-November, December to October for 2022-23 and November to October for 2023-24 *Data available only for November-June

Source- The Hindu

Biofuels

- Biofuels are the fuel derived from the biomass of plants or animal wastes. It is commonly produced from corn, sugarcane and animal waste like cow dung.

Generation of biofuels

1st Generation Biofuel	Produced from edible items like sugar,corn,starch.	Higher carbon content and emit greenhouse gases.
2nd Generation biofuel	Produced from leftover food crops like rice husk, wood chips	Greenhouse content less than 1st generation biofuel
3rd Generation biofuel	Produced from microorganisms like algae.	Carbon Neutral (CO_2 emitted=CO_2 sequestered)
4th Generation biofuel	Produced from genetically engineered crops like GM crops	Carbon Negative

Common biofuels used

Bioethanol	Produced from corn and sugarcane using fermentation process. E10 is the most common blend in which 10 per cent composition is Ethanol
Biodiesel	Produced from vegetable oils like soybean oil or palm oil, vegetable waste oils and animal fats using transesterification process.
Biogas	Produced from organic matter like sewage from animals and humans by anaerobic decomposition.

Created- Forum IAS

What is the significance of Ethanol Blending Programme?

1. **Bolsters India's Energy security:** India has a high dependence on imported fuel to meet its energy needs. India has over **88.5% crude oil import dependence**. Such high import dependence, makes India's energy security vulnerable to global events like the Russia-Ukraine war or Blocking of Strait of Hormuz. Ethanol blending programme reduces India's dependence on imported oil, and in turn bolsters the energy security.
2. **Import Substitution:** Ethanol blending can help in strategically reducing the dependence on imported fossil fuels and conserve foreign exchange reserves. As blending levels rise, India conserves substantial foreign exchange (over ₹1.4 lakh crore saved in the last decade) and substantially lowers its annual

import bill. For E20 (20% ethanol), the annual savings are projected at $4 billion, directly improving the current account balance.

3. **Reduction of emissions:** Ethanol is a cleaner-burning fuel. Ethanol-blended fuels significantly reduce CO2 emissions, carbon monoxide, hydrocarbons, and particulate matter compared to pure petrol. As per NITI Aayog, petrol blended with 20% ethanol would reduce carbon monoxide emissions by 50% in two-wheelers and 30% in four-wheelers.
4. **Bolstering Rural Economy and Farmer's Income:** It bolsters the rural economy by promoting the cultivation of various crops (like maize, paddy) through an assured market. The programme has transformed farmers into "**Urjadaatas**" (energy providers). It has helped eliminate sugarcane payment arrears, improved the viability of maize cultivation.
5. **Job Creation:** The setting up, operation, and supply chains of the distilleries have created hundreds of thousands of green jobs in rural and semi-urban semi-industrial areas. As per the Asian Development Bank (ADB), the ethanol blending programme can help in generating about 18 million rural jobs in India.
6. **Ethanol is a High-Performance Fuel**: Ethanol is a high-octane fuel, with a research octane number of about 108.5, compared to 84.4 for petrol. E20 raises the effective octane rating of Indian petrol to around 95, improving combustion in modern engines. Vehicles calibrated for E20 can deliver better acceleration, smoother performance, and lower emissions.
7. **Aligning with Global Best Practices**: Ethanol blending is not unique to India. The United States has standardised E10 and is expanding E15, while Brazil, a global leader, mandates **E27** and targets 30%. India's achievement of **20% blending (E20)** by 2025-26, a full five years ahead of its original 2030 target, places it among leading nations in adopting this fuel strategy.

Read More- Significance of Biofuels-Explained,Pointwise

How has ethanol blending been adopted across different countries around the world?

Ethanol blending is now a globally accepted practice. Several major economies have built ethanol firmly into their fuel strategy such as:

Brazil	Brazil remains the global leader in ethanol use. It currently mandates E27 as its standard petrol blend. This is being raised further to around 35 percent. Over 80 percent of new cars sold are flex fuel vehicles. These run on E27, E30, or pure hydrous ethanol.
United States	E10 is the standard ethanol blended fuel nationwide. E15 is expanding rapidly, backed by the US government. Millions of vehicles are already flex fuel capable. These can run on blends as high as E85.
France	France has emerged as a unique market due to the legalization and subsidization of "E85 conversion kits." Drivers can install a small electronic box under the hood of normal petrol cars to safely run on **E85** (85% ethanol), which is taxed much lower than regular fuel.

European Union	Most member states use **E5** or **E10**, with the average blend rate projected to be around **8.2% by 2033.**

What are the Challenges to Ethanol Blending Programme in India?

1. **Vehicle Compatibility and Consumer Concerns**: A significant challenge is the suitability of India's existing vehicle fleet for higher ethanol blends. Since the rollout of E20 (20% ethanol), there have been complaints from motorists about reduced fuel efficiency and performance issues, particularly in older vehicles not originally designed for higher ethanol content. Also, vehicle owners in India currently do not have an option to choose different fuels at the petrol pump.
2. **Lower Energy Density:** Ethanol has lower calorific value than petrol i.e. ethanol contains less energy per liter than pure petrol, resulting in decreased fuel mileage with higher blends.
3. **Logistics and Storage**: The infrastructure for storing and transporting different ethanol blends (E10, E20, etc.) is a growing challenge. Ethanol cannot be handled like standard petroleum. Because it absorbs water easily, it cannot be transported through existing underground petroleum pipelines, which always contain trace amounts of moisture. Also, India's storage capacity for blended fuels is far behind its consumption needs.
4. **Financial vulnerability of Sugar Mills:** The lack of financial stability of the sugar mills to invest in biofuel plants, and their heavy concentration in certain regions, poses a significant challenge to the Ethanol Blending Programme.
5. **Barriers to inter-State movement of ethanol:** The Central government amended the Industries Development and Regulations Act to ensure smooth implementation and transportation of Ethanol across the country. But only 14 states have implemented the amended provisions. As a result, States that produce ethanol more than the requirement for blending cannot transport the ethanol to other States.
6. **Impact on India's Food security:** The diversion of food crops, such as rice for ethanol production, will hamper India's food and nutritional security ambitions. **For ex-** In 2022, close to 1 million metric tonnes of rice fit for human consumption from FCI's stocks was sold at subsidised prices to produce ethanol.
7. **Diversion of Agricultural Land:** Excessive blending target can lead to the conversion of agricultural land used for growing food crops, to cultivating biofuel feedstocks like sugarcane, corn, or oilseeds. Also, the increased cultivation of maize for ethanol can displace acreage for pulses and oilseeds, potentially increasing India's dependence on imports for these essential commodities.
8. **Intensive Water Use:** Producing ethanol from certain crops, especially rice, is extremely water-intensive. According to government data, producing one litre of ethanol from rice can require approximately **10,790 litres of water**, primarily used for irrigation. Moreover, many ethanol plants are located in already water-stressed states like Maharashtra and Uttar Pradesh, exacerbating the problem.
9. **Impact on Soil Health:** The practices of monocropping for biofuel feedstock crops (such as rice, sugarcane) can deplete the nutrients in the soil and make it infertile.
10. **Increase in Import of Agricultural Crops:** The use of crops like maize for ethanol blending increases the import bill and impacts related agricultural sectors such poultry sector and livestock feed. Poultry and livestock industries rely heavily on maize for feed (consuming roughly 60% of India's supply). Massive diversion to ethanol production has triggered price hikes in maize, indirectly raising fodder costs and hitting dairy and poultry farmers.

What should be the Way Forward?

1. **A Phased Roadmap**: To further advance the Ethanol Blending Programme, the government is evaluating a roadmap for introducing **E21 by 2027** and **E25 by 2029.** The staggered approach seeks to ensure that vehicle manufacturers, parts makers, and fuel suppliers can effectively prepare for the transition.
2. **Vehicle Compatibility:** Continued collaboration between the government, oil companies, and the automotive industry is crucial to ensure that vehicles are compatible with higher ethanol blends. Automakers need to accelerate the production of **E20 compliant vehicles**, while the government can offer incentives to encourage consumers to switch to these models.
3. **Consumer Awareness:** Persistent concerns about mileage reduction and engine damage need to be addressed with clear, consistent communication from the government and industry bodies. A minority mileage drop is acknowledged for older vehicles, but modern vehicles are calibrated for optimal performance on E20 and higher blends.
4. **Differential Pricing:** Pricing E20 (and future higher blends) slightly lower than legacy or pure petrol can offset the marginal drop in fuel mileage, incentivizing consumers to choose greener fuels.
5. **Upgrading Logistics and Storage:** The country's logistics network needs significant investment to handle the increased demand for ethanol. This includes building more dedicated storage facilities and improving transport infrastructure to efficiently move ethanol from production sites to blending units.
6. **Incentivize Flex-Fuel Vehicles (FFVs)**: The ultimate goal is to create a **multi-grade fuel ecosystem.** This would go beyond a single blend to include higher blends like **E30** and even flex-fuel options such as **E85 and E100.** These higher blends would operate alongside a dedicated fleet of flex-fuel vehicles. Offering lower GST or road tax incentives on Flex-Fuel Vehicles and retrofitting kits (similar to policies in France and Brazil) will incentivize production & adoption of FFVs.
7. **Increase in grain based distilleries:** According to the roadmap for achieving ethanol blending targets, prepared by the NITI Aayog, India must invest to increase the capacity of Grain-based distilleries from 258 to 740 crore litres.
8. **Interest Subvention Programmes:** Two interest subvention programmes should be provided for establishment of new distilleries and ramping up of ethanol generation capacity.
9. **Streamlining supply chain:** The Oil Marketing Companies (OMCs) should sign more long-term contracts with distilleries. The inter-state movement of ethanol should be facilitated to streamline supply-chain.
10. **Promotion of maize cultivation in rotation with sugarcane:** Maize is not water intensive. However, it degrades soil and cannot be the sole crop either. It should be cultivated in rotation with sugarcane to ensure that soil fertility is not degraded.
11. **Increase in fuel ethanol pricing:** Increased price support for fuel ethanol can decrease its diversion towards liquor use.

Conclusion:

Ethanol blending programme is a strategic initiative that has the potential to reduce the petroleum imports, enhance energy security & promote cleaner combustion. However, there are certain supply-side & demand-side issues which must be addressed promptly by diversifying the feedstocks, enhancing the infrastructure, introducing technological upgrades to help India in successfully completing its sustainable energy transition.

Read More- The Hindu Business Line, PIB, Indian Express

UPSC Syllabus- GS 3 Environment Conservation

Landslides – Causes, Impact and Management of Landslides in India – Explained Pointwise

Landslides are among India's most destructive natural hazards, particularly in the Himalayas and the Western Ghats. The recent landslide in Wayanad at a tunnel construction site, which claimed **at least three lives** and left several workers missing, has once again highlighted the vulnerability of ecologically fragile regions to extreme rainfall, unsafe construction practices, and inadequate disaster risk management. This catastrophe has again put the spotlight on the reports of the Madhav Gadgil Committee (2011) and the K Kasturirangan-led High Level Working Group (2013), which had recommended that these areas to be demarcated as Ecologically Sensitive Areas. However, these were met with resistance and never implemented.

What are landslides? What is the status of India's Vulnerability to Landslides?

- **Landslide:** Landslides are the downward movement of rock, soil, debris, or earth material along a slope under the influence of gravity. They occur when the stability of a slope is disturbed by natural factors such as heavy rainfall, earthquakes, volcanic activity, and erosion, or by human activities like deforestation, mining, road construction, and unplanned urbanization.
- **Types of Landslides:**

Landslide Classification

Types of Movement

Falls: Falls are rapid movements of rocks and boulders detached from steep slopes or cliffs along fractures, joints, and bedding planes.

Topple: It is the forward rotation of a mass of debris or rock out of a slope. The slope failure generally occurs at point near the base of the block of rock.

Slides: A slide is a downslope movement of material that occurs along a slip surface.

Rotational slide: In this slide the slide movement is roughly rotational about an axis which is parallel to the ground surface and transverse across the slide.

Translational slide: In this slide the landslide mass moves along a planar surface with rotation or backward tilting

Types of Materials

Rock: hard or firm mass.

Debris: 20% to 80% of the particles are larger than 2mm, and the remainder is less than 2mm".

Earth: material in which 80% or more of the particles are smaller than 2mm.

Soil: an aggregate of solid particles, generally of minerals and rocks.

Mud: material in which 80% or more of the particles are smaller than 0.06mm.

Types of flows

Debris flow: It is a form of rapid mass movement in which a combination of loose soil, rock, organic matter, slurry that flows downslope. They are commonly caused by intense precipitation or rapid snow melt.

Earth flow: It is down slope viscous flow of fine grained material saturated with water.

Mudflow: A mudflow is wet or viscous fluid mass of fine and coarse grained material flows rapidly along drainage channels.

Creep: Creep is the slow, steady, downward movement of material under gravity occurs in large area.

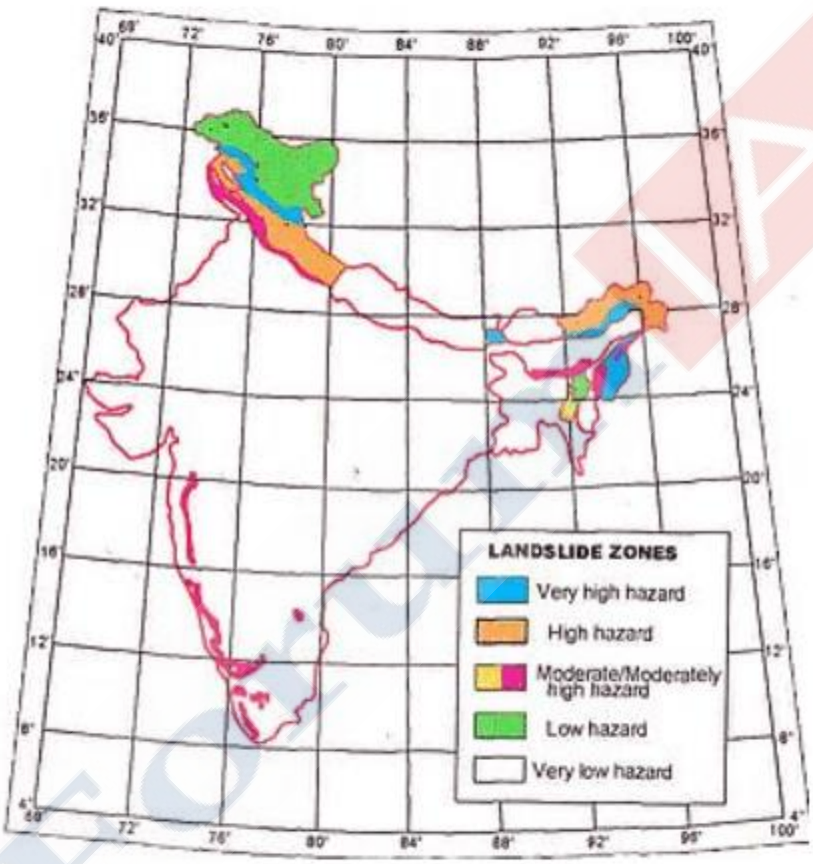
Lateral Spreads: It is the lateral movement usually occur on very gentle slopes or flat terrain. The failure is caused by liquefaction due to earthquake.

Source- ISRO Landslide Atlas of India

Vulnerability of India to Landslides:

ISRO's Landslide Atlas of India	According to ISRO's Landslide Atlas of India, India is among the top four countries with highest landslide risk. It has been estimated that loss of life per 100 km2 is greater than one.

India Landslide Susceptibility Map (ILSM) by IIT Madras	India accounts for about 8% of global fatalities due to landslides. 13.17% of the country is susceptible to landslides, and 4.75% is 'very highly susceptible'. Kerala is the most vulnerable state with over 14% of its land mass in the 'very high susceptibility' category.



Source- NDMA

Recent Incidents in India:

Wayanad (2024)	One of the deadliest landslides in India's recent history.

Created By Forum IAS

Factors behind the Wayanad Landslide:

1. Wayanad witnessed 140mm of rainfall, with some areas reporting more than 300 mm of rainfall. This rainfall was about five times more than IMD's projections.

2. Overflow in the Chaliyar river swept more sediment downstream. This was due to the fact that heavy rains in 2020 had caused the Chaliyar to strip swaths of its upstream areas of plant cover. This left more rocks and humus vulnerable to being displaced.

3. The heavy rainfall has saturated with moisture. The water reaches the rocks by flowing between the soil and the rock layers. This weakens the force that binds the soil to the rocks and triggers the movement.

4. Quarrying, linear infrastructure development, and construction activities have compromised ecosystems' ability to cope with changing natural conditions.

5. Monocropping, has resulted in the cut down of large, native trees, which serve to hold the

	topsoil to the bedrock. The replacement of these native trees with big plantation crops, such as tea and coffee having shallow roots, has increased the vulnerability. **6.** According to a study by the International Journal of Environment and Public Health, Wayanad has lost **60%** of its forests between 1950 and 2018. The erosion of the green cover has made Kerala susceptible to landslides. **7.** Climate Change has been leading to gradual warming of the Arabian Sea leading to the formation of a deep cloud system over parts of the Western Ghats.
Dharali (2025)	• Intense rainfall triggered landslides and debris flows in Uttarkashi district. • The disaster buried parts of Dharali village, causing significant casualties and widespread destruction. • Studies highlighted the role of unstable glacial deposits, extreme rainfall, and unplanned development.
Bilaspur (2025)	• Triggered by sudden, unseasonal heavy rainfall and localized thunderstorms, a major landslide struck Bilaspur city in the northern state of Himachal Pradesh.

Read More- National Landslide Susceptibility Map

What are the causes of landslides in India?

Natural Causes	1. **Heavy Rainfall:** The occurrence of heavy or continuous rainfall may lead to heavy landslides in the areas of steep slopes. Water works as a lubricating agent and loosens up the material. **For ex:** The 2013 Uttarakhand Cloudburst brought immense landslides in the region. 2. **Earthquakes:** The sudden shaking of earth's crust creates stress on materials resulting in their flow downwards. **For ex:** Tectonically active Himalayas enhance the probability of earthquakes, resulting in an increased vulnerability. 3. **Steep Slopes and Geomorphology:** Mountain slopes in regions like Uttarakhand, Himachal Pradesh, and the Konkan coast often exceed angles of 30 degrees. Gravity acting on these sheer angles naturally accelerates mass wasting. 4. **Nature of Rivers:** The youthful and mighty rivers increase the downcutting of earth on the mountain slopes. **For ex:** The increased flow in the Chaliyar river resulted in heavy sediment erosion, resulting in the Wayanad landslide catastrophe. 5. **Weathering:** The gradual, natural breaking down of rocks by wind, water, and temperature changes weakens slope stability over time.

Anthropogenic Causes	1. **Heavy Infrastructure Development:** The creation of roads, railways, dams, linear infrastructure development in the mountainous region, has resulted in increased landslides. **For ex:** The development of Konkan Railways in western ghats is considered a significant reason behind the frequent occurrences of the disaster in the region. 2. **Mining activities:** It involves removal of the surface of the earth for mineral exploration, which loosens the grip of material. **For ex:** Iron ore, bauxite, manganese, chromite, and limestone mining in the western ghats has increased the risks of this disaster. 3. **Increased Deforestation:** The cutting down of trees for agricultural and industrial activities, loosens the soil grip and makes the region more vulnerable to landslides. **For ex:** Plantation agriculture in Western ghats has resulted in loss of native trees and increased the disaster risk. 4. **Poor Drainage:** Inadequate water drainage systems in hilly regions allow water to seep deep into the slopes, artificially triggering landslides during minor rains. 5. **Unsustainable Tourism:** The rising tourist influx in the Himalayan region and Western Ghats puts greater pressure on land, as more infrastructure and amenities are needed to accommodate them. This leads to more construction and greater landslide risks. 6. **Climate change:** Anthropogenic activities has accelerated the climate change events, leading to increased glacial melts and rainfall. **For ex:** Warming of Arabian sea has resulted in increased rainfall in the Western Ghats region, leading to enhanced landslides.

What are the Impacts of Landslides in India?

1. **Loss of Lives:** The most traumatizing impact of a landslide is the loss of precious human and animal lives for e.g. in the Wayanad landslide, 298 people died.
2. **Economic Losses:** Landslide leads to enhanced economic losses as, significant amount is spent on reconstructing the lost infrastructure, rehabilitating the masses, and providing relief support to the impacted people.
3. **Infrastructural Damage and restricted Movement:** The mud, rocks, and debris moving down the slope result in infrastructural damage to houses, buildings, roads and create a barrier on critical transportation routes. This restricts the movement of goods and people.
4. **Damage to Hydropower Projects:** The immense silt and debris washed down by landslides accumulate in reservoirs, drastically reducing the operational lifespan and power-generation capacity of critical multi-purpose river and hydroelectric projects.
5. **Displacement and Migration:** Landslides force communities to evacuate and migrate. This leads to social disruption and psychological stress among affected populations.
6. **Devastation of the Tourism Sector:** In tourist-dependent states like Himachal Pradesh and Uttarakhand, recurrent landslides result in huge losses of tourism-related revenue. Travel cancellations hit local businesses, hotels, and transport operators deeply.
7. **Loss of Fertile Topsoil:** Hill communities rely heavily on terraced farming and orchards. Debris flows smother agricultural lands with rocks and sand, completely stripping the fertile topsoil and crippling long-term agricultural productivity.

What initiatives have been taken by the Government to mitigate the risks due to landslides?

National Landslide Susceptibility Mapping (NLSM)	Geological Survey of India initiated the National Landslide Susceptibility Mapping (NLSM) program in 2014 to map the landslide areas on a Macro Scale (1:50,000). The goal is to map the 0.42 million sq. km landslide-prone areas across the country.
National Landslide Risk Management Strategy (2019)	Formulated by the NDMA, it addresses all the components of landslide disaster risk reduction and management, which includes: a. Hazard mapping, monitoring, and early warning system, awareness programs. b. Capacity building, training, regulations, and policies, stabilization and mitigation.
National Disaster Management Authority (NDMA) Guidelines on Landslide Hazard Management (2009)	It proposes measures that should be taken to avoid or mitigate the risk posed by landslide hazards. Some of the guidelines are as follows: a. Delineating areas susceptible to landslide hazards. b. Encouraging implementation of successful remediation and mitigation technologies. c. Developing institutional capacity and training for geoscientists, engineers, and planners is necessary for the effective management.
National Institute of Disaster Management (NIDM)	It is a premier institute that provides capacity building support to various National and State level agencies in the field of Disaster Management & Disaster Risk Reduction.
National Landslide Forecasting Centre (NLFC)	Established by the Geological Survey of India (GSI) in Kolkata, the NLFC coordinates data directly from the Indian Meteorological Department (IMD) and the National Remote Sensing Centre (NRSC). It integrates real-time rainfall data to generate and issue regional **landslide forecast bulletins** across highly vulnerable districts.
National Landslide Risk Mitigation Project (NLRMP)	The government has approved this mega-project with a substantial financial outlay of **₹1,000 crore**. Funded by the National Disaster Mitigation Fund (NDMF), it spans **15 landslide-prone states** (including Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Kerala, and Northeastern states) to scale up disaster preparedness and active slope stabilization.

What are the challenges in implementation of measures proposed for landslide Mitigation?

1. **Non implementation of Gadgil and Kasturirangan committee reports:** The Gadgil committee report proposed to regulate developmental activities in the entire 1,60,000 sq km stretch of the

Western Ghats. K Kasturirangan report recommended demarcation of 37% of the Western Ghats as an ecologically sensitive area (ESA) and complete ban on mining and quarrying in these protected zones. These reports have not been implemented with resistance by all states and parties across the political spectrum in the biodiverse region.

2. **Scale Incompatibility:** Most existing Landslide Hazard Zonation (LHZ) maps created by agencies like the GSI are at a macro-scale (1:50,000). While useful for national planning, they are completely inadequate for village or town-level town planning (1:1,000 or 1:5,000).
3. **Lack of landslide mitigation plan:** Many States vulnerable to landslides including Kerala lack landslide mitigation plan. These maps and plans help to explain the route a landslide can take once it has been triggered.
4. **Insufficient Monitoring Systems:** Many regions lack effective monitoring and early warning systems, which are crucial for timely evacuation and disaster preparedness. The absence of real-time data lead to increased casualties and damage during landslide events.
5. **Policy and Regulatory Gaps:** Bureaucratic and regulatory bodies often struggle to enforce strict land-use zoning restrictions. Despite high-risk classifications, unauthorized constructions of multi-story hotels, commercial resorts, and heavy infrastructure projects continue to creep up on unstable slopes.
6. **Low Community Awareness and Participation:** Low levels of public awareness regarding landslide risks and preparedness measures impede community involvement in disaster management. For early warnings to be effective, the public must understand them and know how to respond. Without robust community engagement, even the best forecasts are rendered useless.
7. **Resistance to Evacuation:** Offering generic financial compensation fails to replace lost agricultural livelihoods. Families frequently refuse to relocate to safe, flat terrains offered by the state because those locations lack immediate economic opportunities or connection to their community roots.

What Should be the Way Forward?

1. **Micro-Zonation:** The Geological Survey of India (GSI) and state authorities must prioritize high-resolution, site-specific mapping (1:1,000 to 1:5,000 scale) for all highly vulnerable hill towns and municipal areas.
2. **Drawing up of Route Maps:** Route maps help in marking out areas which should be out of bounds for settlements or any activities. These maps also map out the routes that landslides are likely to take after they have been triggered. The route maps need to be drawn at the earliest to complement the susceptibility maps.
3. **Proper Environment Impact Assessment (EIA):** Proper implementation of EIA norms must be carried out before initiating mining or dam construction, in the ecologically fragile mountainous regions.
4. **Demarcation of ecologically sensitive areas in Western Ghats:** The panel headed by Sanjay Kumar must finalise the draft notification on ecologically sensitive areas for the western Ghats. This will help in reducing engineering projects in ecologically sensitive areas.
5. **Mandatory Carrying Capacity Audits:** Scientific assessments of a hill station's carrying capacity (maximum population, vehicles, and structures it can support) must guide all future tourism and urban development plans.
6. **Prioritize Nature-Based Solutions**: While concrete retaining walls are necessary, they are expensive and can fail. India should heavily integrate **Ecosystem-based Disaster Risk Reduction (Eco-DRR):**
    - Stabilize loose topsoil using geo-textiles (coir/jute mats) combined with the plantation of deep-rooted, soil-binding native trees and grasses (like Vetiver grass).

- Prioritize the regular clearing, maintenance, and construction of dedicated surface and sub-surface drainage networks. Controlling the flow of water across a slope is often the single most effective way to prevent a landslide.

7. **Community-Led Conservation:** Train local communities to monitor their slopes, identify early warning signs (like new cracks in walls or ground subsidence), and maintain local drainage networks, turning them into active guardians of their ecosystem.
8. **Leverage AI and New Models:** Invest in AI, Machine Learning, and Deep Learning to develop more reliable, field-validated multi-hazard models. **For e.g.** IIT Roorkee is developing models to forecast fast-moving debris flows, a particularly deadly type of landslide.

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UPSC Syllabus- GS 3- Disaster and its Management

Cooperative Sector – Benefits & Challenges – Explained Pointwise

Established in 2021, the Ministry of Cooperation completes five years in 2026, strengthening India's cooperative movement through reforms, digitisation, and inclusivity. The cooperative sector in India is very prominent, comprising over **8.44 lakh cooperative societies** with a membership exceeding **32 crore people.** This positions India as home to about 25% of all cooperatives globally, demonstrating its role as a cornerstone of the country's economy and social fabric. Governed by policies like the National Cooperation Policy 2025 and the Ministry of Cooperation, the sector generates 13% of direct employment and drives rural financial inclusion.

What are Cooperatives?

- Cooperatives are an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise.
- Cooperatives are guided by seven core principles:
    1. **Voluntary and Open Membership:** Anyone who can use their services and is willing to accept the responsibilities of membership can join, free from discrimination.
    2. **Democratic Member Control:** Members have equal voting rights and actively participate in setting policies and making decisions.
    3. **Member Economic Participation:** Members contribute equitably to the capital of their cooperative and democratically control that capital.
    4. **Autonomy and Independence:** Cooperatives are self-help organizations controlled by their members.
    5. **Education, Training, and Information:** They provide education and training to their members, elected representatives, managers, and employees so they can contribute effectively to the development of their cooperative.
    6. **Cooperation among Cooperatives:** By working together through local, national, regional, and international structures, cooperatives better serve their members and strengthen the cooperative movement.
    7. **Concern for Community:** Cooperatives work for the sustainable development of their communities through policies approved by their members.
- Cooperation is a **State subject** (Entry 32, State List), thus, States have their own Cooperative Societies Acts.
- The **97th Constitutional Amendment (2011)** inserted **Article 43B** (a Directive Principle promoting cooperatives) and **Part IX-B**, laying down provisions for the composition, term of office, and conduct of elections in cooperative societies to improve governance, autonomy, and accountability.
- There are 2 types of co-operative structures in the country i.e. **State Cooperative Societies** and **Multi-State Cooperative Societies** (MSCS). The **Multi-State Cooperative Societies come under the Union Government** and the **State Cooperative Societies are under the State Governments**.

What is the significance of the cooperative sector?

Economic Significance	1. **Driving Financial Inclusion:** Cooperatives, particularly Primary Agricultural Credit Societies (PACS), serve as the backbone of rural finance, providing credit to small farmers and entrepreneurs who might not have access to traditional banking. 2. **Rural Development**: They function as multi-service hubs in villages, offering everything from banking and insurance to access to government schemes, thus acting as a catalyst for grassroots development. 3. **Creating Jobs and Livelihoods:** The sector has immense potential for employment generation. It is estimated that cooperatives could create **55 million direct jobs and 56 million self-employment opportunities in India by 2030**. For e.g. Uralungal Labour Contract Cooperative Society (ULCCS) in Kerala, which employs over 18,000 workers, show how this model can provide stable, dignified work. 4. **Price and market stability:** Marketing cooperatives (such as sugar cooperatives in Maharashtra, cotton cooperatives in Gujarat) help farmers get better price realization by aggregating produce and reducing dependence on middlemen. 5. **Fostering Innovation and Self-Reliance:** The cooperative model is evolving beyond traditional roles to become a driver of innovation. In India, cooperatives are now actively involved in digital services, renewable energy, and organic farming. For e.g. Dhondi Solar Energy Producer Cooperative Society in Gujarat, which lets farmers sell surplus solar power to the grid.
Social Significance	1. **Empowerment of vulnerable groups:** Cooperatives have historically empowered women (e.g. self-help group-linked cooperatives), Dalits, and marginalized farmers by giving them collective bargaining power. 2. **Grassroots democracy:** The "one member, one vote" principle fosters democratic participation and leadership skills at the local level, complementing Panchayati Raj institutions. 3. **Social capital and trust:** Cooperatives build community-level trust and cooperation, which is valuable for local development initiatives.
Political Significance	1. **Decentralization tool:** Cooperatives support the constitutional vision of local self-governance and subsidiarity, reducing over-centralization of economic activity. 2. **Buffer against corporate concentration:** They offer an alternative economic model where control rests with primary producers rather than external capital. 3. **Instrument of policy delivery:** Government schemes increasingly channel benefits (credit, insurance, procurement) through cooperative structures for last-mile delivery.

The Lijjat Papad Success Story:

In 1959, seven women in Mumbai borrowed ₹80 to start making papads on a building terrace. Today, the **Shri Mahila Griha Udyog Lijjat Papad** is a massive cooperative employing over 45,000 women across India, providing them with reliable, dignified livelihoods and complete financial independence.

What are the major challenges faced by the cooperative societies in India?

1. **Excessive Political Interference & Bureaucracy**: Since cooperatives control massive vote banks and handle large amounts of rural capital, they are frequently hijacked by local politicians. Politicians use co-ops to distribute favors, contracts, and jobs to their supporters.
2. **Bureaucratic overreach:** Instead of functioning as independent businesses, co-ops frequently have to wade through layers of red tape for routine approvals. State Registrars of Cooperative Societies often exercise excessive control over internal affairs, eroding the functional autonomy.
3. **Top-Down Formation and Weak Ownership:** Many cooperatives were created to meet targets, leading to weak grassroots ownership and a lack of genuine community engagement. When farmers primarily join to access government subsidies, their interest fades once the incentives end.
4. **Insufficient Capital:** Many cooperatives struggle with insufficient equity and working capital, which limits their ability to invest in markets, technology, and necessary infrastructure.
5. **Weak elections and accountability:** Despite the 97th Amendment's Part IX-B provisions mandating timely elections, many states delay cooperative elections or manipulate the process.
6. **Elite Capture and Exclusion:** Wealthier and more powerful members often dominate board and leadership positions. They can use the cooperative to secure subsidies, credit, and inputs for themselves, while marginal and landless farmers face exclusion or exploitation.
7. **Lack of Professional Management**: Cooperative leadership is often elected rather than appointed on merit, leading to a shortage of technical and managerial expertise. Management roles are often filled based on nepotism or seniority rather than professional expertise in business administration, supply chains, or finance.
8. **Regional Imbalances**: The success of the cooperative movement in India is highly skewed geographically, leaving vast parts of the country underserved. The movement is highly successful in western and southern states like **Maharashtra, Gujarat, Karnataka, and Tamil Nadu** (especially in dairy, sugar, and banking). However, it remains weak, poorly managed, or practically non-existent across much of northern and eastern India, including states like Bihar, Jharkhand, and Uttar Pradesh.

What are the various initiatives introduced by the government to promote the cooperative sector in India?

1. **National Cooperation Policy 2025 (NCP 2025)**: This is the central, long-term policy framework for the sector. It provides a roadmap for strengthening cooperatives as dynamic economic entities, promoting technology adoption, and expanding into new sectors like organic farming and renewable energy to realize the vision of **'Sahkar-se-Samriddhi' (Prosperity through Cooperation).**
2. **Ministry of Cooperation**: Established in 2021, this dedicated ministry signals the government's strong commitment to fostering a cooperative-centric economic model and driving these reforms. The ministry provides a separate administrative, legal and policy framework for strengthening the cooperative movement in the country.
3. **Multi-State Co-operative Societies Act, 2002**: The Multi-State Co-operative Societies (MSCS) Act, 2002 allows cooperatives whose operations span more than one Indian state to register as a single

entity. It provides benefits like limited liability and functional autonomy without restricting business across state borders.

4. **National Cooperative Database (NCD)**: This comprehensive database was launched to enable data-driven decision-making and policy formulation. It offers a single point of access for data on over 8,00,000 cooperative societies and their 290 million members, ensuring greater transparency and effective collaboration within the sector.
5. **Computerisation of PACS**: A Centrally Sponsored Scheme to digitally enable PACS by March 31, 2027. This will bring them onto a common, ERP-based software platform, linking them with NABARD and other financial institutions to improve transparency, reduce transaction costs, and enhance coordination.
6. **New National-Level Apex Multi-State Societies**: To boost trade and quality control, the government established three new mega-cooperatives under the Multi-State Cooperative Societies Act:
   a. **National Cooperative Organics Limited:** To aggregate, brand, and market chemical-free organic produce under a trustworthy banner.
   b. **National Cooperative Export Limited:** To act as an umbrella clearinghouse that helps local farmers export their products directly to international markets.
   c. **Bharatiya Beej Sahkari Samiti Limited:** A dedicated seed cooperative focusing on the research, enhancement, and distribution of high-yield certified seeds.
7. **International Year of Cooperatives (IYC) 2025:** India played a central role in the UN's International Year of Cooperatives, officially launched at the International Cooperative Alliance Global Cooperative Conference in New Delhi, drawing delegates from over 100 countries.
8. **Bharat Taxi (Sahakar Taxi Cooperative):** India's first cooperative-based mobility platform, with 6.37 lakh registered drivers and 35.77 lakh registered customers, offering a driver-owned alternative to conventional ride-hailing apps.
9. **"Tribhuvan" Sahkari University:** India's first cooperative university (previously known as the **Institute of Rural Management Anand** (**IRMA**)), located in Anand, Gujarat. Its mandate is to support the professional management of rural organizations.

What should be the way forward?

1. **Depoliticization:** Ensure genuine implementation of Part IX-B provisions (97th Amendment) for timely, fair elections and fixed tenures of boards to reduce political capture.
2. **Professional management:** Introduce qualified CEOs/managers for cooperative banks and large PACS, separating day-to-day management from elected boards (similar to corporate governance models).
3. **Limiting bureaucratic control:** Reduce excessive discretionary powers of Registrars of Cooperative Societies, and move toward a more autonomous, self-regulatory model as envisioned under the Model Cooperative Societies Act.
4. **Value addition and agro-processing:** Encourage cooperatives to move up the value chain (processing, branding, packaging) rather than remaining limited to primary produce aggregation, following models like AMUL.
5. **Focusing on Underserved Zones:** Targeted government setup and investment are crucial to build functional milk and agricultural unions in states like Bihar, Jharkhand, and Uttar Pradesh.
6. **Centre-State cooperation:** Since cooperation is a State subject, the Ministry of Cooperation should function as a facilitator rather than a controller, respecting federal principles while enabling convergence of central schemes (PM-KISAN, PMMSY, PM-MKSSY) with cooperative delivery

mechanisms. Also, encourage states to adopt a model law that balances autonomy with accountability, reducing legal fragmentation across states.

7. **New National Cooperative Policy:** Update the 2002 policy to reflect contemporary challenges, focusing on ease of doing business for cooperatives, taxation parity, and integration with the formal economy.

Conclusion: Cooperatives can play a vital role in the rural transformation. Provision of adequate financial and technical assistance can enable them to address rural challenges and contribute to India's growth story. Government should take all possible steps to facilitate growth ecosystem for the Cooperatives.

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India-Australia Relationship – Significance & Challenges – Explained Pointwise

India and Australia have emerged as close strategic partners, driven by shared democratic values and converging interests in the Indo-Pacific. Prime Minister Narendra Modi's landmark visit to Melbourne in July 2026 for the Annual Leaders' Summit significantly strengthened this bond. The talks advanced key defense agreements, critical minerals cooperation, and business ties, anchoring security and prosperity across the Indo-Pacific.

How has the India-Australia relationship evolved?

Pre-Independence Period	• **1944 =** Diplomatic relations established
Cold War Inertia (1947–1990s)	• Despite opening diplomatic offices in the 1940s, relations remained lukewarm. • India's non-aligned stance and close ties to the Soviet Union clashed with Australia's position as a staunch US ally. • Relationship often described as the "three Cs": **Commonwealth, Curry, Cricket** • Ties hit a low point in 1998 when Australia strongly condemned India's Pokhran-II nuclear tests.
Strategic Convergence (2000-2014)	• Growing concerns over regional security and maritime stability brought the two countries closer. • **2009** = The two nations upgraded their partnership to a **Strategic Partnership.** • Australia lifted its ban on uranium exports to India in 2011–12.
Deep Strategic Partnership (2014-2020)	• Prime Minister Narendra Modi's 2014 visit to Australia – the first by an Indian PM in 28 years – marked a turning point. • Regular high-level visits, defence exercises, and cooperation in the Indo-Pacific increased. • Bilateral ties expanded across trade, energy, education, and technology.
Comprehensive Strategic Partnership (2020-Present)	• Driven by shared concerns over an increasingly assertive China, the two nations upgraded to a **Comprehensive Strategic Partnership (CSP)** in 2020. • Signing of the **India–Australia Economic Cooperation and Trade Agreement (ECTA)** in 2022 boosted economic ties. • Collaboration has expanded in critical minerals, clean energy, supply chains, cyber security, maritime security, and emerging technologies. • **Annual Summits** institutionalized.

What is the significance of the India-Australia Relationship?

Strategic & Geopolitical Significance	1. **Indo-Pacific balancing:** Australia and India are two of the four Quad members, and together they anchor the Indo-Pacific's eastern and western maritime flanks. For India, Australia is critical to extending strategic reach into the Pacific; for Australia, India is the counterweight it needs in the Indian Ocean. 2. **Maritime security:** The India-Australia Maritime Security Collaboration Roadmap aims to deepen bilateral maritime engagement – significant given both countries' Indian Ocean/Pacific coastlines and shared concern over sea lane security.
Economic Significance	1. **Economic Synergy**: The bilateral trade exceeded **$48 billion USD in 2024.** Both countries have set a goal to achieve **$100 billion AUD in bilateral trade by 2030.** Economically, the two countries complement each other perfectly. They do not compete, they complete each other: ○ Australia has critical minerals, uranium, and energy resources India needs for its clean-energy transition. ○ India has manufacturing scale, a growing market, and a services/tech sector Australia wants access to. 2. **Energy Security**: Australia is a reliable supplier of coal, LNG, uranium, and critical minerals such as lithium and cobalt. Cooperation between the two countries supports India's clean energy transition and renewable energy ambitions. 3. **Global Supply Chains**: The COVID-19 pandemic and subsequent geopolitical tensions exposed how vulnerable global supply chains are when concentrated in one country. The India-Australia partnership is crucial to building **Supply Chain Resilience.** 4. **Critical Minerals Partnership**: Australia possesses some of the world's largest reserves of critical minerals necessary for green energy, electric vehicles, and high-tech manufacturing. Given China's dominance in critical mineral processing, an Australia-India minerals partnership has direct relevance to India's supply chain diversification and "China+1" strategy.
Security Significance	1. **Defence Cooperation:** The relationship has advanced from joint exercises to deeper military coordination and intelligence sharing, with agreements to share critical data and cooperate on maritime security and undersea awareness. 2. **Counter-terrorism:** Intelligence sharing on terrorist threats, and expanded cooperation against violent extremism, terror financing, and online radicalisation.
Soft Power	1. **Diaspora:** The ~1,20,000+ Indian students and a roughly 8,00,000-strong Indian diaspora in Australia give this relationship a people-to-people density most of India's other Indo-Pacific partnerships lack. This diaspora functions as both an economic bridge (remittances, business networks) and political constituency.

What are the areas of cooperation in India-Australia Relations?

1. **Economy & Trade:** The relationship is commercially driven by the **Economic Cooperation and Trade Agreement (ECTA)**, which eliminates tariffs on the vast majority of goods traded between the two nations. Both countries are actively working to upgrade this into a full **Comprehensive Economic Cooperation Agreement (CECA)**.
2. **Defence & Maritime Security**:
   - **Joint Military Exercises:** Cooperation spans all three military branches through major war games like **AUSINDEX** (Naval), **AUSTRAHIND** (Army), and India's regular participation in Australia's **Exercise Pitch Black** (Air Force).
   - **Logistics & Interoperability:** A **Mutual Logistics Support Arrangement** allows their militaries to use each other's bases for refueling and maintenance.
3. **Critical minerals:** India and Australia have strengthened their **Critical Minerals Partnership** to secure reliable supplies of lithium, cobalt, rare earth elements, and other strategic minerals. Partnerships between government agencies, companies, and research institutions to secure long-term supply, offtake arrangements, and processing/value-addition capabilities.
4. **Energy**:
   - **Civil Nuclear Energy:** A major commercial milestone includes a civil nuclear energy pact enabling the stable supply of Australian uranium for India's domestic nuclear power projects.
   - **Renewable energy:** The Australia-India Renewable Energy Partnership covers solar PV, green hydrogen, energy storage, recycling, two-way investment, and skills.
5. **Science, Technology & Cyber**:
   - **Australia-India PACTS:** Partnership on Cyber, Critical Technologies and Supply Chains, enhancing information-sharing and collaboration on strategic technologies.
   - **Space:** Indian NewSpace firms like Skyroot are launching satellites for Australian customers, with an Australian satellite scheduled for launch on an Indian rocket in 2026.
6. **Education & Skills**:
   - **Higher Education:** Indian students are the second-largest foreign student group in Australia (~120,000, 17% of all international students in Australia).
   - **Campuses in India:** Prominent Australian universities (such as Deakin and Wollongong) operate independent branch campuses directly within India.
   - **The MATES Program:** The Mobility Arrangement for Talented Early-professionals Scheme facilitates streamlined, temporary pathways for top-tier Indian STEM graduates and professionals to live, work, and contribute to industries in Australia experiencing deep skills shortages.
7. **Multilateral Cooperation**: Both the countries coordinate with each other in the Quad, G20, East Asia Summit, Indian Ocean Rim Association (IORA), and the United Nations. Australia has generally supported India's case for permanent UNSC membership.
8. **Diplomatic Framework:** This multi-sector cooperation is managed through a highly formal structural architecture, including regular **Annual Prime Ministerial Summits**, the **2+2 Foreign and Defence Ministerial Dialogues.**

Key Agreements and Outcome Documents Signed During the Annual Leaders' Summit (2026):

- **Joint Declaration on Defence and Security Cooperation (JDDSC)**: Replaces the 2009 Joint Declaration on Security Cooperation. Expands cooperation in defence industrial collaboration, maritime security, cyber security, interoperability, counter-terrorism, humanitarian assistance and disaster relief (HADR), and support for a rules-based Indo-Pacific.
- **Maritime Security Collaboration Roadmap (MSCR)**: Establishes a framework for enhanced maritime cooperation. Focuses on maritime domain awareness, information sharing, operational coordination, and capacity building.
- **India–Australia Joint Statement on Energy Security**: Reaffirms cooperation on energy security amid global geopolitical disruptions. Promotes collaboration in LNG, coal, clean energy, and investment while supporting progress toward the Comprehensive Economic Cooperation Agreement (CECA).
- **Finalisation of the Administrative Arrangement under the India–Australia Civil Nuclear Agreement**: Operationalises the 2014 Civil Nuclear Cooperation Agreement. Enables commercial exports of Australian uranium for India's civilian nuclear energy programme.
- **Partnership on Cyber, Critical Technologies and Supply Chains (PACTS)**: Deepened cooperation under the Australia-India Partnership on Cyber, Critical Technologies and Supply Chains (PACTS), enhancing information-sharing on strategic technologies.

What are the challenges in India-Australia Relations?

1. **Geopolitical and Strategic Divergences**: While both nations are members of the Quad to balance regional threats, their fundamental foreign policy outlooks differ. Australia aligns tightly with Western defense coalitions (such as the US and AUKUS), while India historically champions strategic autonomy.
2. **Trade Imbalances**: The bilateral economic relationship is heavily asymmetrical and narrow. Australia's exports to India are overwhelmingly dominated by coal and coke, creating an uncomfortable reliance for a nation attempting to meet global net-zero targets. Ongoing negotiations for a more comprehensive Comprehensive Economic Cooperation Agreement (CECA) continue to grapple with these sticky issues.
3. **Agricultural Market Access**: India continues to protect politically sensitive sectors, particularly dairy, from Australian competition. Given the dependence of millions of farmers on the dairy sector, any major market-opening concessions carry significant domestic political and economic costs. This sensitivity mirrors the concerns that influenced India's decision to withdraw from the Regional Comprehensive Economic Partnership (RCEP).
4. **Visa & Labour Mobility Friction**: Australia's domestic sensitivity around skilled/temporary migration has historically been a friction point in trade talks. India pushes for greater professional mobility provisions (especially for IT services) while Australia faces domestic political pressure to limit visa expansion.
5. **China Factor**: Both countries have concerns regarding China's growing influence, but their economic dependence on China differs. Divergent approaches towards managing relations with China creates policy differences.
6. **Geographical Distance and Connectivity**: Large geographical separation increases transportation and logistics costs. The limited direct connectivity constrains trade and people-to-people exchanges.

What can be done to strengthen India-Australia Relations?

1. **Upgrade ECTA to CECA**: The ECTA primarily focused on goods. A CECA is essential to unlock deeper liberalization in **services, investment, and regulatory cooperation**, which represent significant untapped commercial potential.
2. **Diversify Trade Beyond Raw Materials**: India and Australia should move beyond the existing pattern of coal and gas exports in exchange for refined goods and focus on value-added manufacturing partnerships. Critical minerals present a key opportunity, with Australia supplying mineral resources and India developing midstream processing and manufacturing capabilities to create more resilient and diversified supply chains.
3. **Expand Defence Cooperation**: Build on the 2026 Joint Declaration by moving toward more complex, multi-domain exercises (not just naval) and explore co-development/co-production in defense manufacturing under India's "Atmanirbhar Bharat" framework. Use the new Annual Defence Ministers' Dialogue to institutionalize technology transfer discussions, not just exercises.
4. **Green Energy Grid Architecture**: Collaborate on green hydrogen, renewable energy, energy storage, and low-carbon technologies. Australia possesses vast land resources and abundant solar potential. India offers cost-effective engineering expertise and large-scale manufacturing capabilities in solar panels and electrolyzers. By combining Australia's resource advantages with India's manufacturing strength, the two countries can build resilient clean-energy supply chains.
5. **Expand Education and Skill Cooperation**: Increase academic partnerships, joint research programs, and student exchanges. Facilitate easier mobility for students, professionals, and tourists. Deepen India–Australia ties by expanding mutual recognition of academic and professional qualifications.

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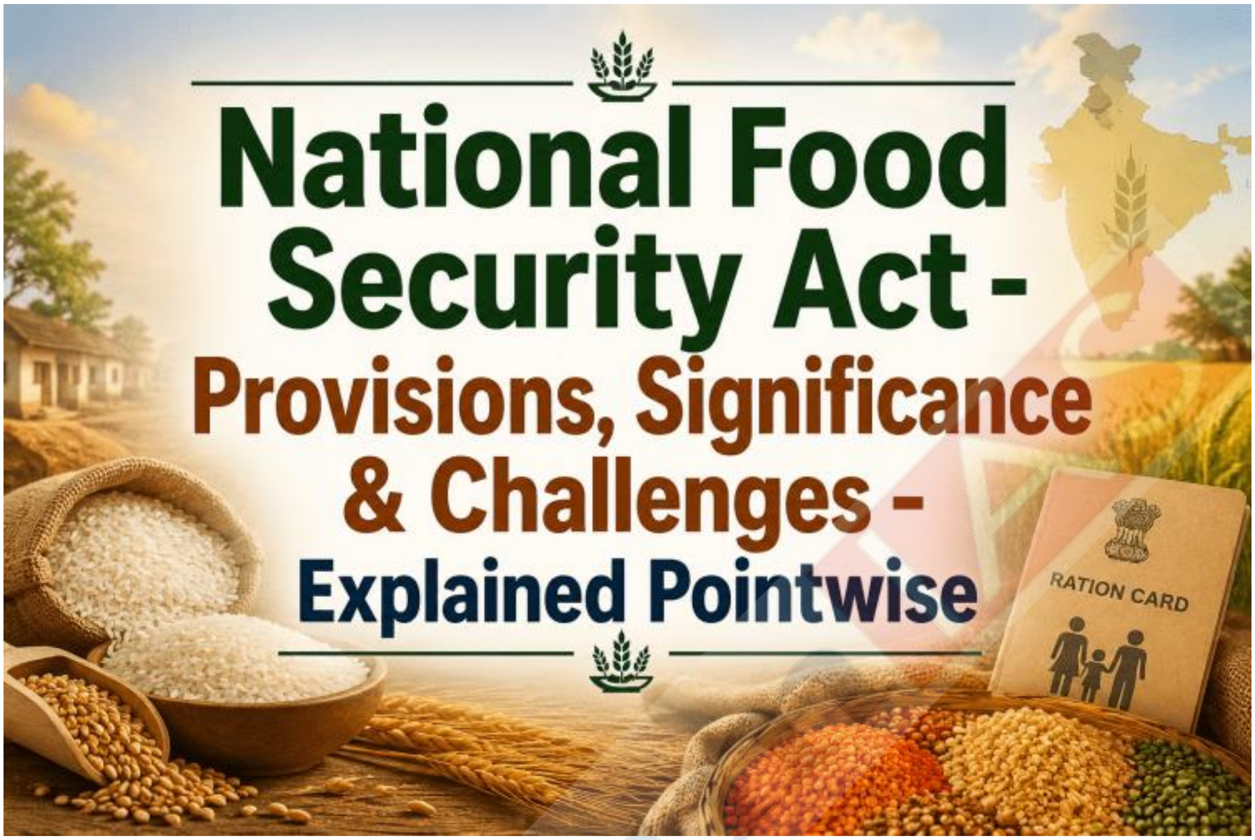
National Food Security Act – Provisions, Significance & Challenges – Explained Pointwise



The Central Government has proposed amending the National Food Security Act (NFSA) to shift Antyodaya Anna Yojana (AAY) entitlements from a flat **35 kg per household** monthly allocation to a per-capita **7 kg per person** model (capped at 35 kg). However, the move faces stiff opposition from States like Tamil Nadu and Kerala – arguing that the revised formula disproportionately slashes foodgrain quotas for small nuclear families and elderly households, effectively penalizing States that successfully stabilized their populations through family planning.
India's journey towards food security reached a significant milestone with the enactment of the National Food Security Act (NFSA) 2013, transforming the "right to food" into a legal entitlement and marking a shift from a welfare to a rights-based approach.

What is the National Food Security Act (NFSA), 2013?

- The National Food Security Act 2013 was enacted with the objective of providing food and nutritional security by ensuring access to adequate quantity of quality food at affordable prices for people to live a life with dignity.
- The Act covers up to **75% of the rural population** and up to **50% of the urban population** for receiving subsidized good grains under the Targeted Public Distribution System (TPDS), thus covering about two-thirds of the population.

What are the key provisions of the Act?

- Under NFSA, the government is obliged to give subsidized foodgrains every month to the beneficiaries identified by each state government based on the economic status of households.

- **Identification of Beneficiaries:** The identification of eligible households is done by the State Governments, adhering to inclusion/exclusion criteria set by the central government.
- **Two categories of beneficiary households:**
  - **Antyodaya Anna Yojana (AAY):** AAY households receive 35 kg of foodgrains monthly.
  - **Priority Households (PHH):** Each PHH member gets 5 kg of foodgrains monthly, including rice at Rs 3/kg, wheat at Rs 2/kg, and coarse grain at Rs 1/kg.
- **Nutritional Support for Children:** Children between 6 months and 14 years receive nutritious, free meals through the Integrated Child Development Services (ICDS) and Mid-Day Meal (MDM) schemes.
- **Maternity Entitlement:** Pregnant women and lactating mothers are entitled to a maternity benefit of at least ₹6,000 for six months to partially compensate for wage loss and ensure nutritional support.
- **Institutional Framework:**
  - Establishes State Food Commissions for monitoring and implementation.
  - Creates a grievance redressal mechanism at district level.
  - Mandates transparency and accountability through social audits.

What is the importance of the Act?

1. **Philosophical Shift: From Welfare to Rights:** The most significant contribution of the NFSA is the paradigm shift it mandated in India's approach to public assistance. By explicitly stating that food access is a legal right for two-thirds of the population, the NFSA ensures that the government is legally obligated to provide subsidized food grains. This allows citizens to seek judicial recourse if entitlements are denied.
2. **Food & Nutritional Security:** Through the Public Distribution System (PDS), the Act ensures monthly entitlements of rice, wheat, and coarse grains at highly subsidized rates to over 810 million beneficiaries. By guaranteeing affordable access to staples, the NFSA combats undernutrition and food insecurity among the poor.
3. **Enhanced Social Inclusion:** The Act prioritizes marginalized sections, including SC/STs, women, and children, helping to address inequality. It also ensures women's empowerment with provisions for female household heads as ration card holders.
4. **Poverty Reduction:** The assured supply of foodgrains acts as a form of income transfer. By reducing household expenditure on essential food items, it frees up a significant portion of the income of poor families, allowing them to spend on education, health, and other needs. This indirectly aids in poverty reduction.
5. **Crisis Management:** During national crises, such as the COVID-19 pandemic, the NFSA mechanism allowed the government to immediately scale up distribution (e.g. through schemes like PMGKAY), ensuring no person went hungry when livelihoods were lost. The existing buffer stock and distribution network were instrumental in this massive relief effort.
6. **Driver of PDS Reforms & Accountability:** The NFSA necessitated and accelerated long-pending reforms in the Public Distribution System (PDS), drastically improving its efficiency and reducing leakage such as:
   - **Technology Integration:** The mandate for effective delivery led to the widespread adoption of e-PDS (electronic PDS), including Aadhaar linking and the use of Point of Sale (PoS) devices at Fair Price Shops. This has significantly eliminated "ghost" beneficiaries and reduced the diversion of grains.

- **Grievance Redressal:** The requirement for state-level and district-level Grievance Redressal Officers and mandatory Vigilance Committees has built a layer of institutional accountability into the food distribution system, enhancing transparency.
- **Portability (ONORC):** The success of the NFSA is closely tied to the One Nation, One Ration Card (ONORC) scheme, which ensures that NFSA entitlements are portable. This means a beneficiary can collect their subsidized food grains from any Fair Price Shop (FPS) across the country, hugely benefiting migrant workers.

What are the major limitations of the Act?

1. **Leakages and Inefficiency in PDS:**
    - Persistent leakages, diversion of foodgrains, and corruption in the Public Distribution System (PDS) undermine efficient delivery of benefits.
    - Errors in beneficiary identification and exclusion/inclusion issues result in deserving households missing out or ineligible ones receiving benefits.
2. **Quality of Foodgrains:**
    - Beneficiaries often receive poor-quality or spoiled food grains, undermining the nutritional objectives of the Act.
    - There is little provision within the Act for pulses, oils, or more nutritious foods.
3. **Fiscal Burden and Sustainability:**
    - **Food Subsidy:** The difference between the Minimum Support Price (MSP) paid to farmers and the Central Issue Price (CIP) charged to beneficiaries (₹1, ₹2, ₹3) is borne by the government as the food subsidy. This subsidy is one of the largest items of non-developmental expenditure, putting pressure on the national fiscal deficit.
    - **Buffer Stocks:** Maintaining adequate buffer stocks for distribution requires significant investment in storage and incurs heavy costs related to interest, storage, and wastage.
4. **Supply Chain and Infrastructure Gaps:**
    - Shortcomings in logistics, transportation, and storage infrastructure lead to wastage and inefficiency.
    - Old and insufficient warehouses, especially in remote regions, make timely and quality delivery challenging.
5. **Exclusion and Inclusion Errors:**
    - **Exclusion Errors:** Genuinely poor and eligible households are left out of the list (often due to outdated data or complex documentation requirements), meaning those who need the food the most don't receive it.
    - **Inclusion Errors:** Non-poor or ineligible households manage to acquire subsidized ration cards, leading to wastage of public resources.
    - Migration, urbanization, and inter-state movement are not addressed adequately.
6. **Limited Nutrition Focus:** The Act focuses mainly on calorie security through grains, neglecting dietary diversity and micronutrient requirements. Provisions for pulses, oils, and fresh foods are minimal or absent.
7. **Functioning of Fair Price Shops (FPS):** While the implementation of PoS devices has improved transparency, challenges remain. These include internet connectivity issues in remote areas, resulting in transaction failures, and residual corruption by FPS dealers regarding timing, weighing, and behavior.

8. **Weak Enforcement:** State-level Grievance Redressal Officers (GROs) often lack the authority, resources, or political will to effectively penalize violators or ensure timely resolution of complaints. The mandated Vigilance Committees are often defunct or non-functional.

What should be the Way Forward?

1. **Updating Population Coverage:** The Act must be amended to use current population estimates instead of the rigid 2011 Census figures. This change is crucial to include families who have moved into poverty or who were born after 2011, thereby reducing exclusion errors.
2. **Dynamic Exclusion Criteria:** Instead of relying solely on old BPL (Below Poverty Line) lists, States should implement dynamic exclusion criteria using technology and data points (e.g., vehicle ownership, government employment status, electricity consumption) to regularly update and clean beneficiary lists.
3. **Universalizing ONORC:** While the One Nation, One Ration Card (ONORC) scheme has been implemented, continuous investment in seamless biometric and internet infrastructure is needed. The goal should be to make ration portability a frictionless experience, especially for internal migrant workers.
4. **Mandating Fortification:** Central and state governments should mandate the fortification of all rice and wheat supplied through the PDS with essential micronutrients like Iron, Folic Acid, and Vitamin B12. This is a highly cost-effective public health measure.
5. **Integrating with Local Produce:** Pilot programs should be launched to link Fair Price Shops (FPS) with local self-help groups (SHGs) or farmer producer organizations (FPOs) to provide seasonal, locally sourced, and subsidized fresh fruits and vegetables to beneficiaries, particularly through ICDS and Mid-Day Meal schemes.
6. **Smart Procurement and Storage:** Modernize the food supply chain by shifting from traditional bag storage to steel silos and implementing End-to-End Computerization of the PDS. This drastically reduces storage costs and physical wastage (spoilage and theft).

Conclusion:

The NFSA can evolve from a basic food distribution program into a dynamic, transparent, and nutrition-sensitive social security pillar for the nation if its challenges are addressed & next-gen reforms are implemented properly.

UPSC GS-3: Agriculture
Read More: Vikaspedia, The Hindu

AI in Judiciary – Significance & Challenges – Explained Pointwise

The Supreme Court's AI Committee recently released the **Draft Regulations for the Use of AI in Courts, 2026**. The draft seeks to establish a governance framework for the use of AI in the judiciary by prescribing guiding principles and creating an institutional mechanism for its oversight. The regulations aim to facilitate the responsible use of AI in court processes and enhance the efficiency of court administration.

What are the salient features of the Draft Regulations for the Use of AI in Courts, 2026?

The **Draft Regulations for Use of Artificial Intelligence (AI) in Courts, 2026** is a comprehensive regulatory blueprint released by the Supreme Court of India's AI Committee. Released for public consultation, this document marks India's first official framework to govern, standardize, and draw boundaries around how AI is used across the entire judicial hierarchy.

Some of the salient features of the Draft Regulations are:

1. **Wide Applicability**: Applies to AI use, deployment, or integration in any judicial, adjudicatory, or administrative function of the Supreme Court, High Courts, and all courts, including tribunals and statutory commissions performing adjudicatory functions across India.
2. **Five Foundational Principles**: Human primacy, transparency, accountability, data protection, and judicial independence are embedded throughout the document's architecture.
3. **Human Primacy as Non-Negotiable Core**: AI must function strictly in an assistive capacity. The ultimate power to evaluate facts, apply the law, and render justice remains exclusively with human judges.

4. **Individual Accountability**: The responsibility and accountability for any decision taken with the assistance of AI shall remain solely with the concerned officer and cannot be delegated to the AI system.
5. **Mandatory Disclosure Regime**: Any party or legal representative utilizing AI in the preparation of pleadings or submissions must explicitly disclose such use and furnish a duly executed declaration or certificate in the prescribed format.
6. **Permissible Uses of AI**: AI may be used for:
    a. Legal research and precedent retrieval
    b. Document drafting assistance
    c. Translation and transcription
    d. Case management and scheduling
    e. Court administration and litigant assistance
    f. Workflow automation
7. **Prohibited Uses**: AI cannot be used for:
    a. Decide cases, judgments, or sentences
    b. Determine bail eligibility
    c. Predict judicial outcomes or recidivism
    d. Assess witness credibility or profile litigants
    e. Influence adjudicatory discretion in any manner
8. **Layered Institutional Governance**:
    a. **Apex Body**: a permanent, full-time body at the Supreme Court chaired by an SC judge nominated by the CJI, comprising two High Court Chief Justices, two High Court judges, a representative from an institution of national importance, a Joint Secretary from MeitY, and experts in finance, cybersecurity, technology law, and data privacy.
    b. **AI Committees & Secretariats**: every High Court must set up its own AI Committee and Secretariat for local supervision and incident handling.
    c. **CoRE-AI**: a Centre of Research and Excellence conducting original research, evaluating AI tools/prototypes, and publishing white papers.
9. **Strict Data Protection Norms**: Sensitive judicial data cannot be transferred to external systems without express written authorisation. Anonymisation is mandatory before use in training/testing AI systems.
10. **Regulated Private Sector Engagement**: Private entities may engage only after comprehensive evaluation of technical capability, legal compliance, ethical standards, data security, and financial standing, with written approval required.
11. **Annual Transparency Reporting**: Every High Court, Tribunal, and Commission must submit an annual AI adoption Transparency Report covering systems in use, audit outcomes, and recorded incidents, published on its official website.
12. **Grievance Redressal Mechanism**: Any party harmed by prohibited AI use may file an application before the court where the system was deployed.

What is the significance of AI in Judiciary?

1. **Enhancing Administrative Efficiency & Reducing Case Backlogs & Delays:** AI can automate routine and repetitive tasks such as document review, case classification, and scheduling, thereby enabling judges to devote more time to substantive legal analysis and decision-making.

2. **Promoting Accessibility & Inclusivity:** AI-powered tools like the Supreme Court Vidhik Anuvaad Software (SUVACE) can translate legal documents and judgments from English to various Indian languages, breaking down language barriers and making legal information more accessible to the public. Similarly, chatbots and virtual assistance can guide ordinary citizens through court procedures without needing a lawyer for basic queries.
3. **Legal Research & Drafting:** AI tools can scan vast case law databases to surface relevant precedents, statutes, and legal principles in seconds rather than hours. AI can assist lawyers and judges in drafting orders, summarizing lengthy case files, and identifying inconsistencies.
4. **Predictive Analytics:** AI can analyze patterns in past judgments to provide predictive insights into potential case outcomes. This can contribute to a more consistent application of the law, reducing the element of subjective judgment in similar cases. However, this is primarily for informational purposes and does not determine the final ruling.
5. **Transparency & Public Trust:** Digital records and AI-powered dashboards improve transparency in judicial processes, enabling effective monitoring and public accountability. The e-Courts initiative and AI tools make court proceedings and orders more visible and easier to follow for the public.

What are the ways in which AI is being integrated into the Indian judicial system?

e-Courts Project	India's judiciary is integrating AI primarily through the e-Courts Mission Mode Project with the aim of improving administrative efficiency and reducing case backlog.
SUPACE **(Supreme Court Portal for Assistance in Court Efficiency)**	SUPACE uses machine learning to help process case files, extract facts, and assist judges with research and summarization. It scans large volumes of case files to identify relevant precedents, statutes, and legal principles. It does not pronounce judgments, serving instead as a research aid.
SUVAS **(Supreme Court Vidhik Anuvaad Software)**	SUVAS facilitates automated translation of judgments from English to regional languages, improving accessibility. It has translated over 36,271 Supreme Court judgments into Hindi, and by 2026 supports bi-directional translation between English and 19 Indian languages.
LegRAA	A generative AI tool for legal research.
TERES	Real-time transcription of court proceedings.
Su-Sahayak	An interactive chatbot launched via a Supreme Court circular, helping visitors access case status, cause lists, orders, and judgments.

Adalat.AI	In 2025, the **Kerala High Court** mandated the use of **Adalat.AI** in its subordinate courts to record witness depositions. It converts speech to text instantly, replacing manual stenography and speeding up trial proceedings.

What are the challenges in the use of AI in the judiciary?

1. **Biasness & Ethical Concerns:** AI can perpetuate prejudices found in historical legal data, leading to potentially discriminatory outcomes based on race, gender, or socio-economic status. If historical court or police data contains systemic biases such as disproportionate targeting of marginalized communities, specific castes, or certain socio-economic classes – the AI will internalize these patterns. Such biasness can undermine the principles of justice and fairness.
2. **Accuracy & Reliability** (**AI hallucinations**)**:** AI tools may produce inaccurate results, fabricate information, or generate fake legal citations and facts, which poses dangers for judicial decision-making. Dependence on unreliable or incomplete databases can further skew outcomes. *For e.g. Last year, a trial court judge in Vijayawada dismissed a case citing four Supreme Court judgments; however, it was later found that none of those judgments actually existed.* The SC released a **'White Paper on AI & Judiciary'** in Nov 2025 – which identified 'Fabrication of Cases & Hallucination' as the primary risk associated with the use of AI. The document noted that AI tools can hallucinate judgments, citations, quotes, or refer to any legislation that may not be in existence.
3. **Compromise of Human Judgment & Legal Reasoning:** Human judgment in law involves nuanced interpretation, contextual understanding, moral reasoning, and empathy, which AI currently struggles to replicate.
4. **Human Rights & Due Process:**
   Replacing or heavily supplementing human judgment with algorithmic decision-making can threaten fundamental rights – such as the right to a fair trial and appeal. Over-reliance could reduce complex human experiences to mere statistics.
   At more structural level, AI risks reducing adjudication into rule-based interferences, overlooking the combination of human judgement, a specific context, and relevance of precedents that impact judicial decision making.
5. **Constitutional concerns:** Integrating AI into judicial process risks algorithmic bias, threats to privacy, accountability gaps, and erosion of reasoned decision-making under Articles 14 and 21 (equality, privacy, and fair trial).
6. **Lack of Regulation:** India lacks comprehensive legislation or clear policy for regulating AI use in the judiciary; most existing rules are adapted from older laws not tailored for AI's complexities. As a result, courts in India have shown inconsistent approaches to AI adoption, with some encouraging cautious use and others, like Kerala High Court, banning AI tools from judicial decision-making.

What can be the way forward?

1. **Enact a dedicated statutory framework:** Move beyond draft regulations to binding legislation specifically governing judicial AI use, since India currently does not have dedicated AI legislation, with only local policies and guidelines emerging for lawyers and judges.
2. **Capacity Building:** Conduct nationwide training for critical AI literacy for judges, court staff, and lawyers to raise awareness, build digital literacy, and promote effective use of AI tools. In addition to capacity building to use AI tools, programmes are also required to understand the limitations of the systems deployed. Judicial academies & bar associations, in collaboration with AI governance experts, are well placed to facilitate such capacity building.

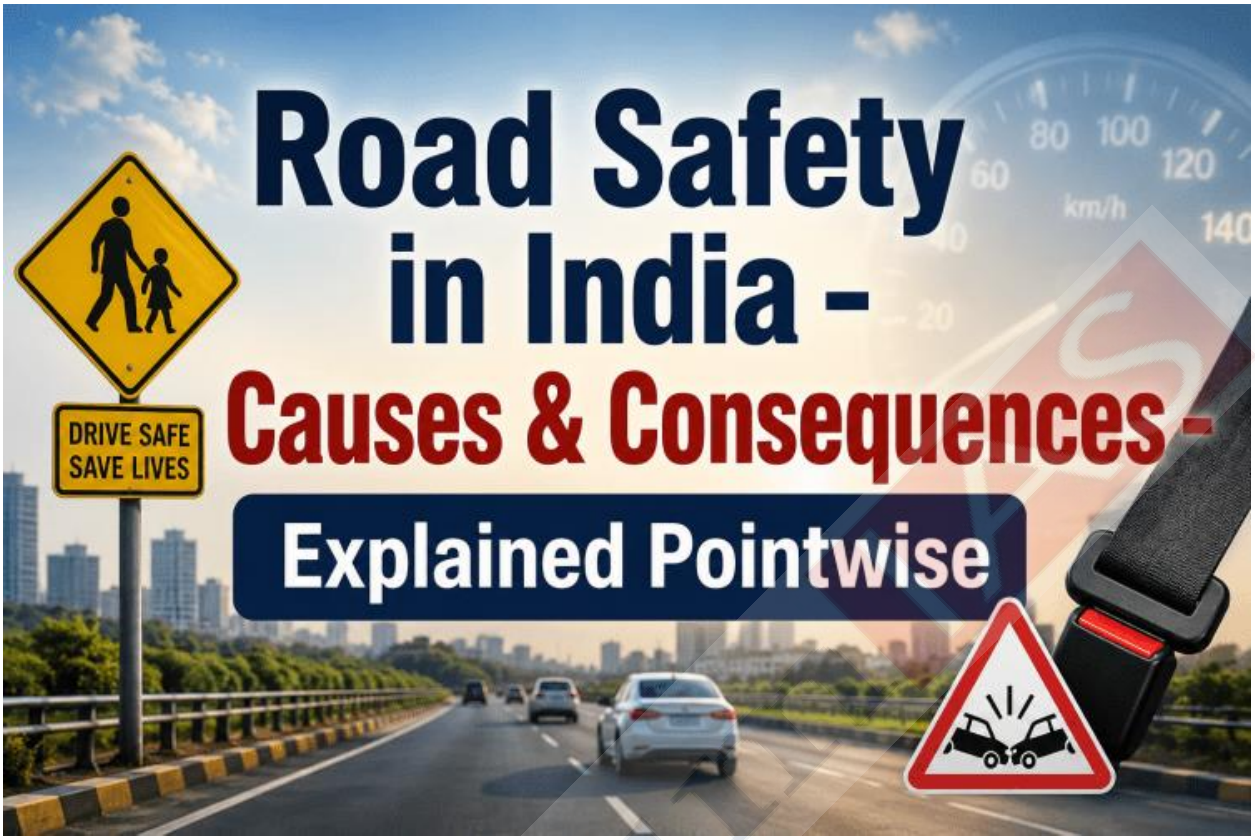
3. **Phased Adoption:** Implementing AI systems progressively. Lower-risk administrative tasks (transcription, scheduling) should be standardized first, while any system interacting with case data must undergo "Controlled Environment Testing" (sandboxing) before deployment.
4. **Human Oversight & Judicial Discretion:** AI should be an assistive, not a substitute, tool – final decision-making authority must always remain with human judges. Require judicial officers to review and, if necessary, override AI-recommended outcomes when context or justice so demand.
5. **Develop Regulatory & Ethical frameworks:** Enact legislation and guidelines that define the permissible uses of AI in courts with emphasis on human rights, fairness, accountability, and explainability. Mandate regular audits and ethical reviews of AI tools used in judicial processes to ensure they are unbiased and transparent.
6. **Address Biasness Issue:** Use diverse, updated, and representative datasets for developing and training AI systems to minimize bias and errors. Continually monitor, validate, and retrain AI models to avoid perpetuating systemic injustice.
7. **Right to be informed:** If AI is used in adjudication process, litigants must have a right to be informed. Similarly, litigants & lawyers have a right to know if AI is being used in certain courtrooms. Litigants may be allowed to opt-out of pilots or fully-deployed AI if they have any concerns about safeguards or human oversight.
8. **Empowering Dedicated Oversight Bodies:** Establishing permanent bodies like the proposed **Apex Body at the Supreme Court** and dedicated **AI Committees at High Courts**. These committees must feature multidisciplinary experts (judges, data scientists, and ethicists) tasked with vetting all software before it interacts with court databases.

Conclusion:

Adoption of AI in judiciary is significant to make it more efficient, accessible & transparent, however, it should not eclipse the nuanced reasoning & human decision-making that is at the heart of the adjudicatory process.

Read More: The Hindu, The Indian Express
UPSC GS-2: Judiciary

Road Safety in India – Explained Pointwise



With over 1.7 lakh annual fatalities, India suffers the world's highest road crash burden, draining 3% of its GDP and pushing vulnerable families into poverty. India not only ranks first in the world in road accidents fatalities, but its numbers are also far ahead of the second & third ranked countries (China accounts for just 36% & USA for just 25% of India's total road deaths). Thus, addressing this crisis is not just a transport issue, but an urgent humanitarian and developmental priority to safeguard lives, human capital, and sustainable growth.

What are the key findings of various reports on road accidents in India?
Findings of Road Crash Statistics (by NGO SaveLIFE Foundation):

Road engineering	59% of all road accidents fatalities do not involve any traffic violation, indicating that road engineering is one of the biggest contributory factors for deaths. According to the report, damaged crash barriers, absent or faded pavement marking, unprotected hard structures, damaged or wrong signage, and inadequate illuminations are among the top 20 most common engineering issues on the road.

Crash-prone Sites	Most accidents are concentrated in known locations, including specific road stretches & crash-prone spots (58% of the total deaths were recorded on the crash-prone locations). The report suggested that if the govt schemes & budgets are directed toward such locations, a significant number of deaths could be prevented. **RECURRING PROBLEMS ON THE ROAD** **42%** of all fatalities were recorded on critical corridors. **58%** fatalities were recorded on critical crash-prone sites. **72%** of the fatalities were recorded in rear-end, head-on and pedestrian crashes. • Around 8 in 10 victims were hospitalised by means other than the government's 108 ambulance service, or not hospitalised at all. Source: Zero Fatality Districts: A Collaborative Framework to Reduce Road Crash Deaths, for 2023 and 2024 Source: Indian Express
States with road accidents	UP (20 districts) > Tamil Nadu (19) > Maharashtra (11) > Rajasthan (8)

Findings of India Status Report on Road Safety (2024):

Road accidents remain a major public health challenge	Road traffic injuries remain a major public health challenge in India. There has been little progress in reducing fatalities, despite advancements in other sectors. Road traffic injuries were the 13th leading cause of death in India and the 12th leading cause of health loss (measured in Disability-Adjusted Life Years, or DALYs) in 2021.
Indian States unlikely to meet the UN target	Most Indian States are unlikely to meet the United Nations Decade of Action for Road Safety goal to halve traffic deaths by 2030.

Most common victims of road accidents	Pedestrians, cyclists, and motorised two-wheeler riders are the most common victims of road accidents. Trucks are responsible for the highest proportion of impacting vehicles.
Lack of Basic Traffic Measures	India lacks basic traffic safety measures like traffic-calming, markings, and signage. Helmet usage in rural areas is particularly low, and trauma care facilities are inadequate.
Increase in India's road accident fatalities	India has large gap in road safety as compared with other developed countries like Sweden and other Scandinavian nations, which have excelled in road safety governance. An Indian was 40% more likely to die in a road accident than someone in these countries, in 1990. By 2021, this figure had soared to 600%, indicating a sharp rise in road fatalities.

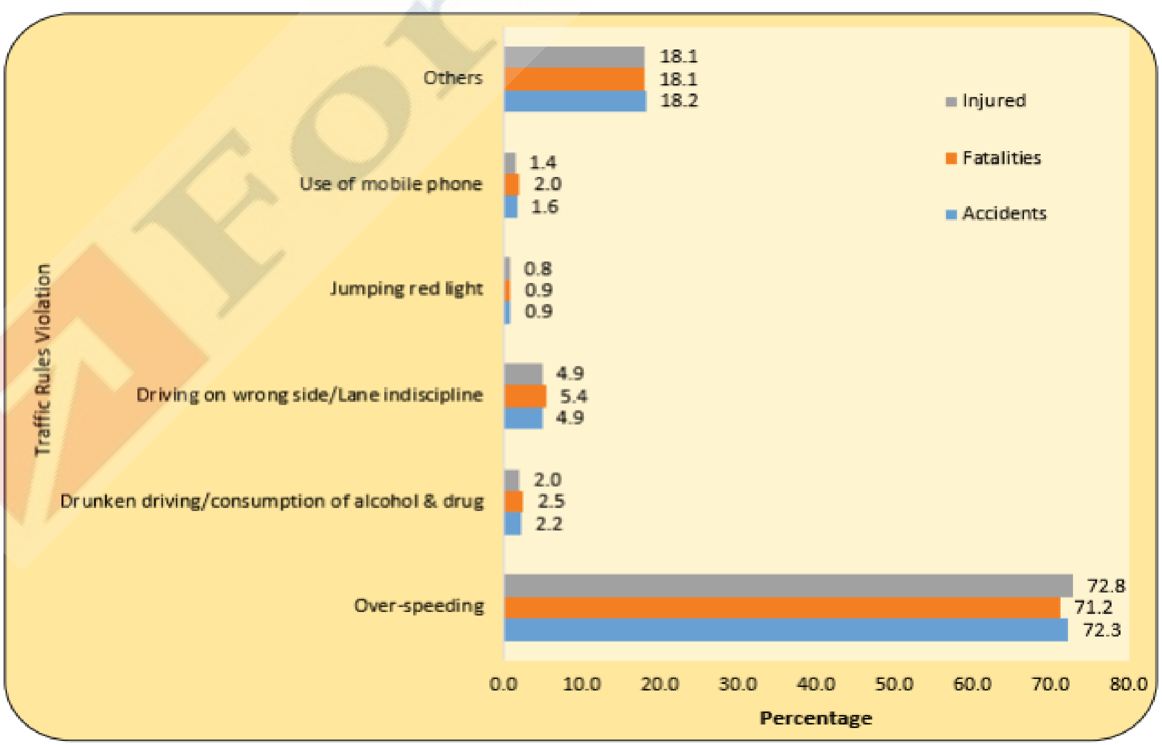
What are the major causes of road accidents in India?

India's high rate of road accidents is a complex issue resulting from the interplay of multiple systemic, behavioral, and infrastructural factors.

1. **Human & Behavioral Factors:**

Reckless Driving: Over speeding is the major cause of road accidents in India and it accounts for 71.2% of the persons killed due to road accidents. Driving on the wrong side is the second reason accounting for 5.4% deaths.

Chart 3.1: Road Accidents by type of Traffic Rules Violation during 2022



   a. **Driving Under Influence**: Widespread drink-driving, especially among commercial and private vehicle drivers.
   b. **Driver Fatigue**: Long, uninterrupted shifts for commercial drivers (trucks, buses) leading to loss of concentration.
   c. **Lack of Training & Licensing Lapses**: Corruption in driving tests, poor training standards, and fake licenses.
   d. **Non-use of Safety Gear**: Helmets (especially among two-wheeler riders) and seat belts are often ignored.
   e. **Distracted Driving**: Approximately 8% of accidents happens because of distracted driving, especially mobile phone use, which impairs attention and reaction time.
2. **Vehicular & Mechanical Factors:**
   a. **Poor Vehicle Maintenance**: Old vehicles, faulty brakes, worn-out tires, and inadequate lighting.
   b. **Overloading**: Especially in trucks, buses, and three-wheelers, affecting stability and braking.
   c. **Poor Safety Standards**: Many vehicles lack basic safety features like airbags, ABS, or crashworthy structures. Crash tests carried out by the Global New Car Assessment Programme (NCAP) in 2014 revealed that some of India's top-selling car models failed the UN's frontal impact crash test.
3. **Road Infrastructure & Design Deficiencies:**
   a. **Poor Road Design & Engineering**: Faulty road engineering leading to blackspots, poor designing of junctions, inadequate signage, haphazard planning of state highways and city roads are also some major factors causing road accidents.
   b. **Mixed Traffic Flow**: High-speed vehicles share space with slow-moving vehicles, cyclists, and even animals on the same road.
   c. **Lack of Pedestrian Infrastructure:** Pedestrians account for nearly **20% of road fatalities** in India. The lack of designated footpaths, zebra crossings, and overhead bridges forces pedestrians to walk directly on fast-moving lanes.
   d. **Uncontrolled Access Points**: Too many entry/exit points on highways without proper merging lanes.
   e. **Poor Maintenance of Roads**: Maintenance of highways receive only 35 to 40% of estimated funding in India.
4. **Systemic & Governance Issues:**
   a. **Weak Enforcement of Laws**: Corruption, understaffed traffic police, and inconsistent penalty systems reduce deterrence.
   b. **Lack of Emergency Medical Care**: Delayed ambulance services and inadequate trauma care increase fatalities.
   c. **Lack of Golden Hour Treatment:** Lack of rapid trauma care on highways leads to high fatalities.
   d. **Delayed Implementation of Safety Laws**: The **Motor Vehicles (Amendment) Act, 2019** introduced stricter penalties, but enforcement is uneven across states.
   e. **Jurisdictional Fragmentation**: Subjects like roads, police, public health, and vehicle regulation are divided across Union list, State list, and Concurrent list in the Constitution. Such fragmentation of the governance structure ensures that no single institution owns the prevention of road accidents.

What are the impacts of road accidents in India?

1. **Loss of Life and Disability:** India has one of the world's highest numbers of road accident fatalities – over **1.7-1.8 lakh deaths annually –** translating to 20 deaths and 55 accidents every hour. A traffic accident claims a life every three minutes in India.
2. **Disability and Long-Term Injury Burden:** Beyond fatalities, lakhs of people are injured annually, many suffering permanent disabilities that impose lifelong medical and rehabilitation costs on families and the state.
3. **Economic Burden:** The World Bank estimates road accidents cost India **3-5% of its GDP annually**. This includes:
    - **Medical Costs:** Immediate emergency care, long-term treatment, and rehabilitation.
    - **Loss of Productivity:** Victims' lost income and reduced earning capacity, plus caregivers' lost work time.
    - **Administrative & Legal Costs:** Police, insurance, and court expenses.
4. **Destruction of Human Capital:** 83.4% of all fatalities occur within the productive working-age bracket of **18 to 60 years**. The premature death or permanent disability of young earners drains the national workforce and lowers long-term industrial productivity.
5. **Gender-Specific Impact:** According to World Bank's report "Traffic Crash Injuries and Disabilities: The Burden on Indian Society 2021", about 50% of Indian women were severely affected by the decline in their household income after a crash.
6. **Increased Poverty:** Medical expenses and loss of income push millions of households below the poverty line each year.
7. **Overburdened Courts:** Millions of accident-related cases clog the judicial system, leading to long delays in compensation.
8. **Undermines India's Global Standing and SDG Commitments:** India recorded the highest absolute number of road accident deaths worldwide in 2023, directly jeopardizing progress toward SDG Target 3.6 (halving road traffic deaths) and India's goal to cut road deaths by 50% under the UN Decade of Action for Road Safety (2021–2030).

What measures have been taken in India to reduce road accidents?

1. **Formulation of National Road Safety Policy (NRSP), 2010:** The policy was formulated based on the recommendations of **S. Sundar Committee**. Some important highlights are:
    a. Establishment of **Road Safety Information Database**.
    b. Periodical review of road design standards and vehicle safety standards.
    c. Creation of a **National Road Safety Council** to supervise matters related to road safety.
2. **Establishment of District Road Safety Committees (DRSC):** Established under the Section 215 of the Motor Vehicle Act of 1988. These have been entrusted with creation of a district road safety plan and an emergency medical plan.
3. **Supreme Court Directives**: In S. Rajaseekaran v. Union of India (2014), the Supreme Court issued wide-ranging orders, including:
    a. Strict enforcement of helmet laws, using cameras to identify violators.
    b. Audit and improve existing footpaths and pedestrian crossings in 50 cities to address the alarming number of pedestrian deaths.
    c. Ban illegal strobe lights and hooters, and regulate vehicle headlight luminance.
4. **Passage of Motor Vehicles (Amendment) Act 2019:** Govt of India has tried to enhance the road safety measures through this Act.
    a. Creating a **National Road Safety Board** to advise the government on traffic management.
    b. Higher fines for traffic rule violations such as ₹10,000 for drunken driving.

c. Recalling defective vehicles which are dangerous for the environment and people.
d. Creation of a '**Solatium Fund**' for victims of hit-and-run accidents.
e. Punishment to the owner for violations committed by Juvenile.
f. Automated testing for driver's licence and fitness certificate (FC).
g. Protection of Good Samaritans from civil and criminal liability.

5. **National Road Safety Board Rules, 2025**: This new central body was established to coordinate road safety efforts between the central and state governments, promote awareness, develop a road safety information system, and ensure safer road infrastructure.
6. **AI-Led Surveillance (ANPR Systems):** High-resolution Automatic Number Plate Recognition (ANPR) and AI-enabled cameras are live across major metros. These cameras automatically issue e-challans by tracking stop-line violations, lane discipline etc.
7. **Vehicle Scrapping Policy:** A structural initiative to systematically phase out unscientific, old, and unfit commercial and private vehicles that pose heavy breakdown risks on fast-moving expressways.
8. **Scientific Rectification of "Black Spots":** The Ministry of Road Transport and Highways (MoRTH) has invested over ₹40,000 crore specifically into improving road geometry. Under this initiative, thousands of high-fatality "black spots" (accident-prone stretches) are identified & have been structurally re-engineered.
9. **New Delhi Road Safety Declaration (2026)**: This declaration outlines a roadmap to halve road fatalities by 2030, focusing on five pillars: **road safety management, safer vehicles, safer road users, post-crash response,** and **safer driving environments**.
10. **International Commitments**: India was among the initial 100+ countries to sign the **Brasilia Declaration** in 2015 & committing to SDG 3.6 which aims to halve the global deaths and injuries from road accidents by 2030.

To systematically reduce road accidents, the Government of India operates a multi-pronged strategy structured around the **"4Es of Road Safety"**: **Education, Engineering (Roads & Vehicles), Enforcement, and Emergency Care.**

Read More: Motor Vehicles (Amendment) Act 2019

Some global initiatives for Road Safety:

Brasilia Declaration on Road Safety (2015): India is a signatory to the Declaration. The countries plan to achieve Sustainable Development Goal 3.6 i.e., to halve the number of global deaths and injuries from road traffic accidents by 2030.
Decade of Action for Road Safety (2021-2030): The UN General Assembly adopted resolution "Improving Global Road Safety" with the ambitious target of preventing at least 50% of road traffic deaths and injuries by 2030.

What measures must further be adopted to reduce road accidents in India?

1. **Create a unified body:** Creating a unified, statutory **National Road Safety Authority (NRSA)**. Currently, road safety is fragmented across MoRTH, state transport departments, municipal corporations, and traffic police, resulting in a lack of coordinated accountability. Such a single road safety body, modelled on the GST Council, would enable the Centre and States to jointly formulate and

implement standards for road design, vehicle fitness, emergency medical care, and accident fatality reporting.

2. **Fix the Engineering Gap**: Re-engineer roads by eliminating high-risk black spots, construct physically segregated lanes for vulnerable road users, and introduce crash-absorbing barriers and roundabouts to prevent fatal high-speed collisions.
3. **Indian Vehicles safety features must conform to global best standards:** The European Union's General Safety Regulation which prescribes features like advanced emergency braking technology and intelligent speed assistance must be adopted in India.
4. **Implementation of important recommendations of KS Radhakrishnan panel on Road Safety:** The important ones are:
    a. Compulsory audit on road safety by the State governments.
    b. Creating awareness among people on road safety rules, insurance policies.
    c. Providing enough compensation to victims on time.
5. **Separation of Traffic:** High-speed heavy vehicles, passenger cars, and Vulnerable Road Users like pedestrians and cyclists should never share the same lane. Dedicated, physically segregated lanes for non-motorized transport are essential.
6. **Strengthen Trauma Care and Emergency Response**: Strengthen trauma care systems, as efficient ambulance services, well-equipped trauma centres, and prompt emergency response can significantly reduce accident-related fatalities. This is particularly important because nearly 50% of road accident deaths occur within the "Golden Hour" due to inadequate trauma care facilities along highways.
7. **Strict implementation of the existing rules:** The enhanced fines for traffic rules violations will also help in reduction of road accidents in India.
8. **Improve Public Transport**: India must strengthen its public transport system to reduce overall traffic exposure and dependence on two-wheelers, which bear the highest fatality burden.
9. **Database for fatal crashes:** A national database for fatal crashes should be established which will help in evidence-based policy making, identifying the 'black spots' and will foster greater transparency & accountability. The central and the state governments must undertake efforts towards it.
10. **Constitutional Reform:** Amend the Seventh Schedule of the Constitution to bring roads and traffic more firmly within Parliament's legislative domain. This would help address the constitutional gaps that often limit the effectiveness of advisory bodies in ensuring uniform road safety standards across the country.

Conclusion: The approach to road safety has to be proactive, rather than reactive. The public has as much role to play as the Government. A concerted and focused effort from both the government and the citizens can help bring down road accidents and help save precious lives.

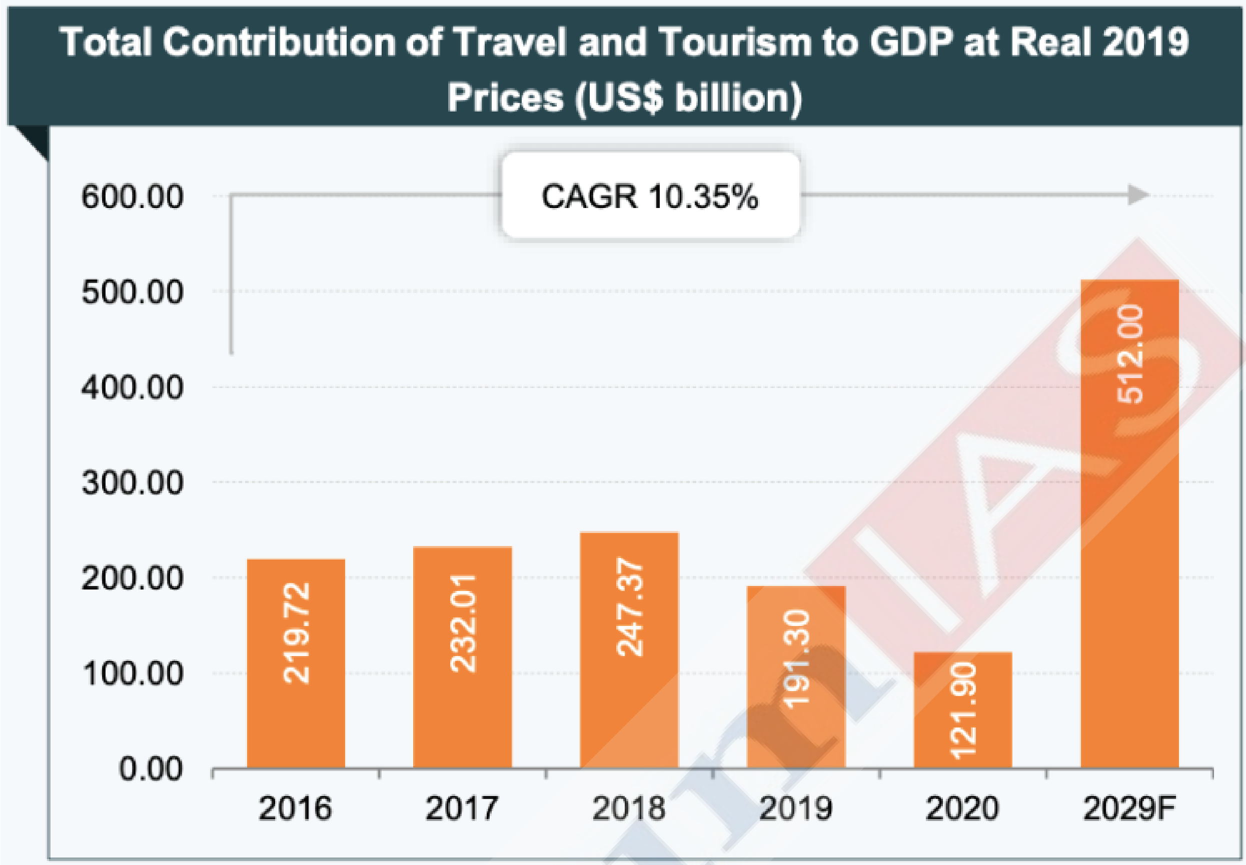
Read More: The Indian Express
UPSC Syllabus: Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

Tourism Sector – Significance & Challenges – Explained Pointwise

The tourism sector is a broad and dynamic industry encompassing all the businesses and services that facilitate travel, leisure, and recreation. It's one of the world's largest economic sectors, connecting people to new places, cultures, and experiences.
India's tourism sector is a major driver of economic growth, employment generation, foreign exchange earnings, and cultural exchange. Endowed with diverse landscapes, rich heritage, and vibrant traditions, India attracts millions of domestic and international tourists annually. The sector plays a crucial role in promoting inclusive development and regional prosperity.

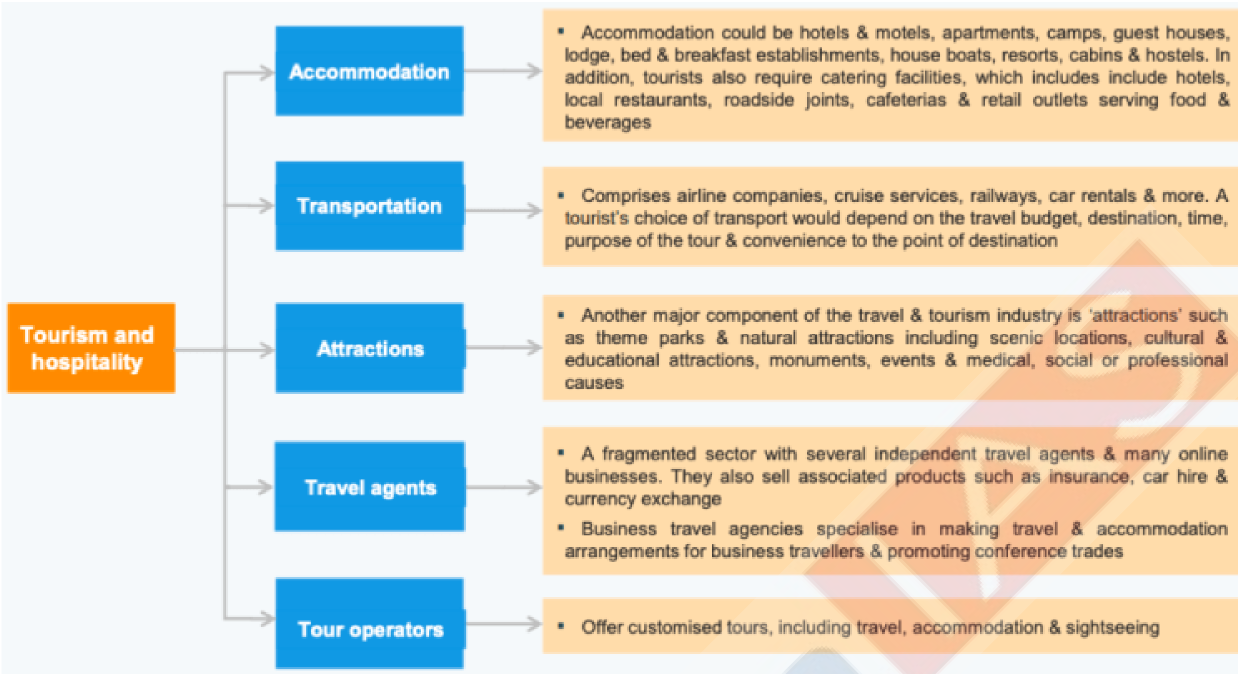
What is the current status of the Tourism Sector in India?

- Before the onset of the pandemic, the contribution of the tourism sector to India's GDP had reached ~US$ 250 billion in 2018. However, the contribution had fallen to US$ 122 billion in 2020 due to the pandemic. In 2025, tourism contributed about $231.6 billion to GDP (approx. 7%), making India the world's 8th largest tourism economy. The sector is projected to reach 4th position globally within the next decade.



Source: IBEF

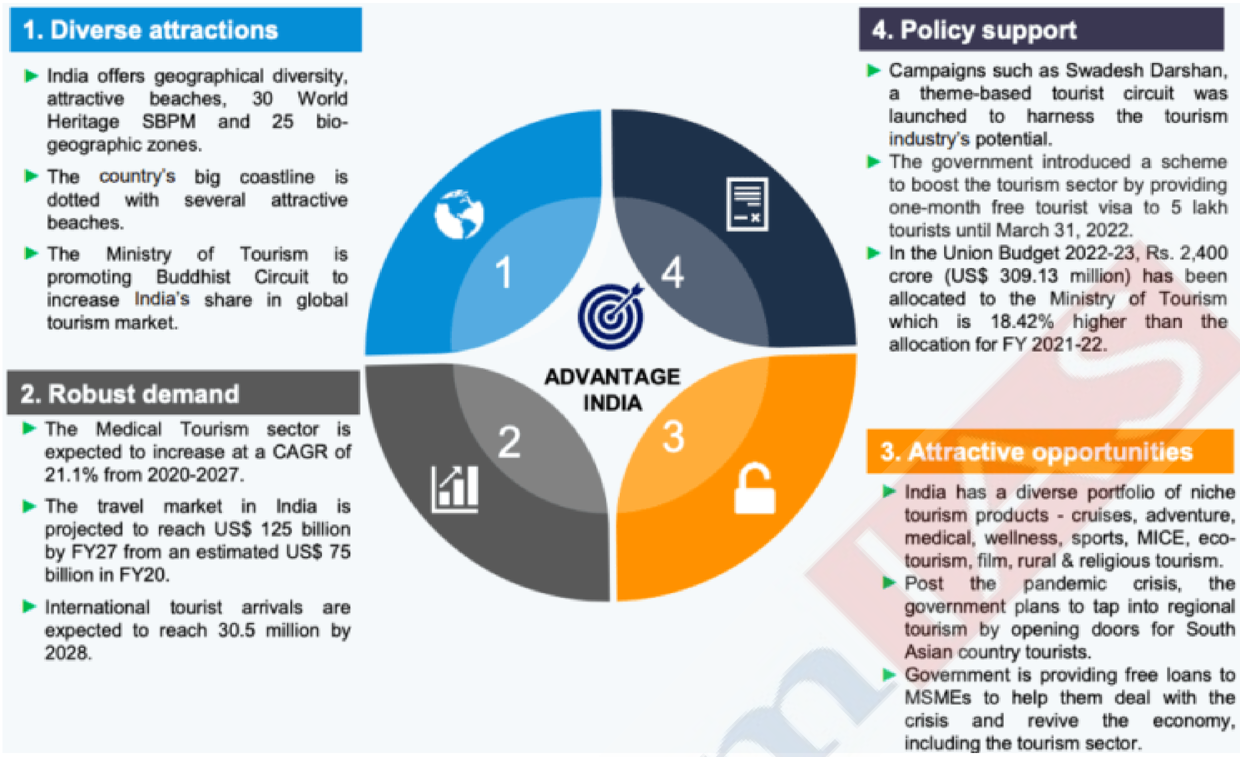
- The share of Tourism to GDP has hovered around **~5-6%.** In 2023-24, tourism contributed 5.22% to national GDP and generated approximately **84.63 million jobs (around 13.34% of total employment)**, both direct and indirect.
- India recorded approximately **4.13 billion Domestic Tourist Visits** in **2025 (provisional)**, reflecting sustained growth in domestic travel.
- **International Tourist Arrivals** reached **20.57 million in 2024**, surpassing the pre-pandemic level of 2019.
- Tourism generated approximately **₹2.74 lakh crore** in foreign exchange earnings during **2025 (provisional)**, making it an important source of foreign currency.
- India's tourism and hospitality sector is poised to reach nearly US$60 billion by 2028, with traveler spending expected to triple by 2034.
- India was ranked 39th in the **Travel & Tourism Competitiveness Report 2024** published by the World Economic Forum.
- The Economic Impact 2019 Report published by the World Tourism and Travel Council (WTTC) has noted that between 2014-19, India witnessed the strongest growth in the number of jobs created (6.36 million), followed by China (5.47 million) and the Philippines (2.53 million).
- The tourism sector provides diverse opportunities for jobs like in hospitality/hotels/accommodation, transportation, tour guides, travel operations etc.



Source: IBEF

What are the driving factors of the Tourism Sector in India?

The Tourism Sector in India is driven by various factors like diverse attractions, robust demand (like for medical tourism) and attractive opportunities.



Source: IBEF

What is the significance of the Tourism Sector?

1. **Economic Contribution**: The travel and tourism sector contributed approximately **$249 billion** (about 6% of India's GDP) and is on a trajectory to reach a **$3 trillion** tourism economy by 2047. It spurs growth in allied sectors such as hospitality, transport, handicrafts, and retail, amplifying economic impact.
2. **Employment Generation:** Tourism is highly labor-intensive sector. It accounts for 13.34% of total employment in India, supporting over 46 million jobs. Crucially, for every ₹10 lakh invested in tourism, it is estimated to create nearly 90 jobs – a employment multiplier far higher than manufacturing.
3. **Low Barrier to Entry:** Because the sector requires diverse skill sets, it provides immediate livelihoods for women, youth, and low-skilled workers in rural areas through homestays, local transport, guiding, and artisanal crafts.
4. **MSME and entrepreneurship boost:** Homestays, local guides, small tour operators, and artisan shops thrive on tourist footfall, which leads to the development of grassroots entrepreneurship – particularly in remote & rural areas.
5. **Cultural & Heritage Preservation:** Tourism incentivizes the conservation of India's rich cultural heritage, historic monuments, art forms, and traditional crafts by generating revenue and global interest. Pilgrimage and heritage tourism help sustain religious traditions and local communities.
6. **Balanced Regional Development & Inclusive Growth:** Tourism drives infrastructure development in tier-2 and tier-3 cities, promoting balanced regional growth. Community-based and rural tourism empower local populations, improve quality of life, and reduce urban migration. For e.g. when

travelers visit spiritual hubs in Uttarakhand, monastery trails in the Northeast, or wildlife sanctuaries in Madhya Pradesh, money flows directly into remote, rural, and tribal economies.

7. **Forex Earning:** Tourism is one of India's largest sources of net foreign exchange. In 2024, international tourists directly injected **$28 billion** into the Indian economy.
8. **Environmental Conservation:** Eco-tourism and wildlife sanctuaries (like the tiger reserves of Central India) prove to local communities that protecting forests and wildlife is far more profitable than deforestation or poaching.
9. **Projection of Soft Power & Diplomacy**: Through campaigns like **Incredible India** and specialized focus areas like **Spiritual Tourism** (e.g. the Buddhist Circuit) and **Wellness Tourism** (Yoga and Ayurveda), India projects its ancient heritage as a source of global healing and peace. It fosters deep "people-to-people" ties, which serves as a very powerful tool for geopolitical diplomacy & smoothing international relations.

What are the challenges faced by the Tourism Sector in India?

1. **The Value Gap**: While India sees massive tourist footfall, it struggles to translate this volume into economic value. Tourism contributes only about **5-6% to India's GDP**, which is roughly half the global average of 10%.
2. **Lack of Awareness**: Despite promotional campaigns by the Government, the awareness regarding India as a tourist destination remains low. Even among domestic tourists, the choice is limited to few popular destinations which remain overcrowded, while many other potential places receive low footfalls of tourists.
3. **Infrastructure Deficit**: India has only 1.8 lakh branded hotel rooms against demand of 5–6 lakh – which creates **accommodation gap**. Many popular destinations lack air connectivity, especially in the hilly regions. There is a lack of proper hygienic facilities in many places.
4. **Safety Concerns**: There are safety concerns especially among foreign visitors because of few cases of harassment. Poor experience of some tourists leads to bad word-of-mouth information impacting perception of potential tourists.
5. **Communication**: Many tourists face communication problems while in India. This makes them dependent on tourist guides or travel operators to curate their travel in India.
6. **Lack of Skilled Manpower**: There is dearth of skilled manpower especially multi-lingual tour guides or hotel staff. The sector is dominated by small unorganized players who can't spend on skilling their employees or sensitising them to cultural values of the foreign tourists. This impacts tourist experience.
7. **Visa Process**: India's visa policies are seen as restrictive. The country ranks below the global average on the UN Tourism Visa Openness Index. This, combined with issues like slow e-visa processing and limited visa-on-arrival access, deters potential travelers.
8. **Widening travel trade deficit:** India is earning less from foreign visitors than what Indians spend traveling abroad, with a travel trade deficit of more than $2.6 billion in the July–September quarter of the last fiscal year.
9. **High Taxation and Cost Competitiveness**: India has become an expensive destination due to high taxes and expensive services, with 18% GST on tourism-related services, undermining price competitiveness against neighboring destinations.
10. **Environmental & Sustainability Concerns:** Popular eco-tourism sites in the Himalayas and coastal Goa are buckling under the weight of **overtourism**. Problems range from severe plastic pollution to construction booms that exceed the "carrying capacity" of the land, triggering landslides and biodiversity loss.

11. **Socio-Cultural Costs**: Commercialization of tourism often leads to commodification of local traditions, art forms, and festivals to appeal to foreign audiences.
12. **Seasonality of Tourism Demand:** Demand fluctuates seasonally, leading to underutilized infrastructure and unstable income for providers during off-peak periods.

What steps have been taken for the development of the Tourism Sector in India?

Flagship Schemes	● **Swadesh Darshan 2.0:** This revised scheme takes a theme-based approach to develop **55 major destinations** across 32 states into comprehensive, sustainable tourism hubs. The focus areas include eco-tourism, cruise tourism, and heritage management. ● **PRASHAD Scheme (Pilgrimage Rejuvenation and Spiritual Heritage Augmentation Drive):** This initiative targets the holistic development of historic spiritual hubs. It includes makeovers of Varanasi's Kashi Vishwanath Corridor, the Ayodhya redevelopment, and Kedarnath temple complexes. ● **PM-JUGA (Dharti Aaba Janjatiya Gram Utkarsh Abhiyan):** Will build 1,000 tribal homestays as a Swadesh Darshan sub-scheme, linking the tourism sector to socio-economic uplift of tribal communities.
Infrastructure	● **Road & Railway Expansion**: The Government has been increasing investments in strengthening the country's road and rail networks and promoting port development is a significant driver for the growth of the Tourism sector. ● The **Adarsh Station Scheme** is helping modernize railway stations. ● **The UDAN (RCS) Scheme:** The Regional Connectivity Scheme has operationalized dozens of previously ignored tier-2 and tier-3 airports. Remote hotspots like Khajuraho, Lakshadweep, and Darbhanga are now connected by affordable, direct commercial flights.
Promotional Campaign	● Promotional activities such as the **Incredible India 2.0** campaign focuses on niche tourism products including yoga, wellness, luxury, cuisine wildlife among others. ● "**Find the Incredible You**" **Campaign:** Focuses on the promotion of niche tourism products of the Country on digital and social media. ● **"Chalo India" Campaign:** Launched globally, this unique initiative leverages the vast Indian diaspora. It encourages Non-Resident Indians to act as cultural ambassadors and incentivize at least five non-Indian friends to travel to India. ● **Medical Tourism Promotion**: The government is actively promoting the **"Heal in India"** initiative to boost medical tourism.
Information Helpline	● The government has introduced the concept of **e-tourist and e-medical visas** which has helped increase inbound tourists to the country.

	● Additional initiatives such as ***Atithi Devo Bhava***, a 24×7 multi-lingual Tourist Helpline, among others have helped improve the **safety and security** of tourists. ● On a pilot basis, an '**Incredible India Helpline**' has been set up to guide the tourists.
Safety	● The Ministry of Tourism has adopted a **code of conduct for safe tourism**, which contains a set of guidelines to encourage tourism activities to be undertaken with respect to basic rights like dignity, and safety of both tourists and local residents, in particular women and children.
Investment	● The government allows **100% Foreign Direct Investment** in the Travel and Tourism sector through the automatic route to increase investments across the sector. ● The GST rate cut on hotel room tariffs will boost the sector's competitiveness globally.
Cleanliness and Hygiene	● A major cleanliness campaign has been launched under the ***Swachh Bharat*** movement for **protecting and preserving the sanctity of monuments of national heritage.** ● The Ministry of Tourism has also launched an awareness campaign to ensure cleanliness of surroundings and help create a ***Swachh Bharat, Swachh Smarak.***
Skill Development	● The Ministry of Tourism has introduced the **Incredible India Tourist Facilitator** (IITF) and **Incredible India Tourist Guide** (IITG) **Certification Programme** to create an online learning platform of well-trained tourist facilitators and guides across the country. ● The Ministry of Tourism had launched an initiative called **SAATHI (System for Assessment, Awareness & Training for Hospitality Industry)** by partnering with the Quality Council of India (QCI) in October 2020. The initiative was focused on effective implementation of guidelines/SOPs issued with reference to COVID-19 for safe operations of hotels, restaurants, and other units.
Collaboration with States	Tourism is a **State subject** – which makes coordination between State governments & Central government key to boost the sector.

	● **Financial Support for States**: The government provides interest-free loans for 50 years to states under the **Special Assistance to States for Capital Investment (SASCI)** scheme. ● **Developing 50 Top Destinations**: The Union Budget 2025-26 announced a key initiative to develop 50 top tourist destinations in partnership with state governments, using a "challenge mode" approach to ensure high-quality outcomes.
Digital Initiatives	● **Utsav Portal:** Launched in 2022 to broadcast events, festivals, and Live Darshans across India, and provide information on tourist attractions and accommodation. ● **Bharat Ranbhoomi Darshan app:** Launched by the Ministry of Defence in collaboration with the Ministry of Tourism and Indian Army to promote battlefield tourism, showcasing India's military heritage. ● **Digital Platform**: A revamped **Incredible India Digital Platform (IIDP)** has been launched, featuring an AI-powered tool that personalizes visitor experiences with real-time updates and allows seamless travel bookings.

What should be the way forward?

1. **Infrastructure Expansion & Modernization:** Accelerate development of transport connectivity (roads, railways, airports) to underserved and emerging tourist destinations. Upgrade accommodation, sanitation, and visitor facilities, focusing on quality and accessibility.
2. **Promotional Campaigns:** The government should continue to promote India's diversity and rich heritage to re-establish its position as a tourist paradise. The promotional campaigns should target both domestic and foreign tourists. Similarly, the extent of theme-based tourist circuits can be expanded.
3. **Skill development & Capacity Building:** The skilling initiatives should be scaled-up. The tourism sector has a potential to provide a lot of livelihood opportunities in smaller cities/towns (below tier-2 level). It can help address the issue of jobless growth. Also expand the training programs for frontline workers, hospitality professionals, and local guides to uplift service standards.
4. **Visa Process Reform:** Expand e-Visa coverage, reduce processing delays & overhaul the e-visa portal to fix technical glitches. Also introduce a 90-day, multiple-entry Visa-on-Arrival framework for primary source markets.
5. **Unified Tourism Interface**: India needs to integrate its powerful digital public infrastructure (DPI) into a seamless travel application ecosystem. By unifying **UPI** (instant payments), **DigiYatra** (biometric airport entry), **DigiLocker** (digital document storage), and the **ONDC** (Open Network for Digital Commerce) a single, friction-free digital layer can be created.
6. **Grant infrastructure status to hospitality:** It would lower the cost of capital, unlock institutional funding, and enable sustainable capacity creation in Tier-II/III cities and pilgrimage circuits.
7. **Sustainable Tourism:** There is a need to balance the promotion of tourism with safeguarding the physical, social, and cultural environment in the destination areas. The government should also promote green and sustainable tourism to tackle issues relating to water crisis, pollution, waste management, etc.

8. **Policy & Regulatory Reforms:** The Government should further reform the tourist visa norms and processes to facilitate tourism. The Government should also explore the possibility of expanding the visa-on-arrival facility.
9. **Emerging Segments of Tourism:** The focus should also be on supporting and promoting the emerging segments of tourism – such as:

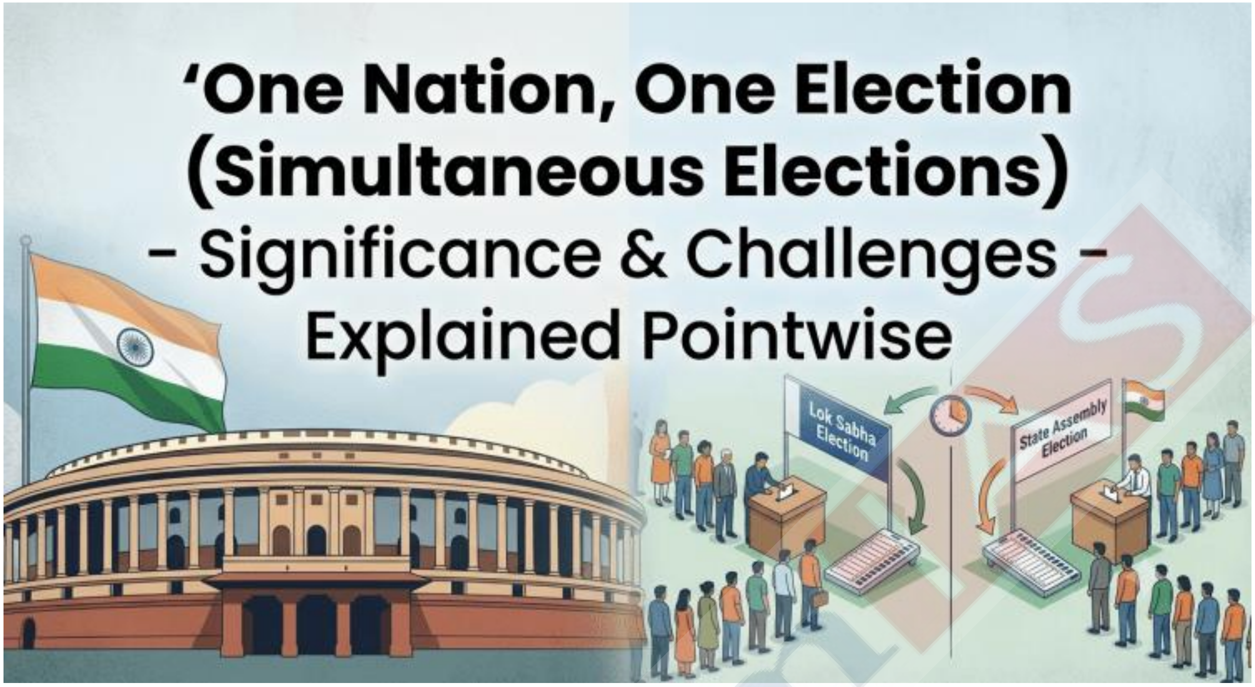
Source: IBEF. Emerging Segments of Tourism.

Conclusion:

The tourism sector is a powerful force for both economic development and cultural connection. It has huge untapped potential in India. The multiplier effect associated with the tourism sector can help raise the income levels and ensure inclusive growth. Thus, tourism is a powerful pathway to national growth, prosperity, and global influence – hence realizing the essence of "**Incredible India, Invaluable Economics**".

Syllabus: GS III, Indian Economy and issues related to growth.
Source: The Hindu, Hindustan Times, IBEF, Indian Express

One Nation, One Election (Simultaneous Elections) – Significance & Challenges – Explained Pointwise



India's Parliament is set to take up the Constitution (129th Amendment) Bill to synchronize the Lok Sabha & all State assemblies elections. The Bill requires a 2/3rd majority in both the Houses & ratification by half the States. After a High Level Committee chaired by formed President Ram Nath Kovind, the government has committed to introduce this reform.
India's democratic framework thrives on the vibrancy of its electoral process, enabling citizens to actively shape governance at every level. Since independence, over 400 elections to the Lok Sabha and State Legislative Assemblies have showcased the Election Commission of India's commitment to fairness and transparency. However, the fragmented and frequent nature of elections has sparked discussions on the need for a more efficient system. This has led to the resurgence of interest in the concept of "**One Nation, One Election.**"

What are Simultaneous Elections (One Nation, One Election)?

- Simultaneous elections, popularly known as "**One Nation, One Election**" (ONOE), refers to the idea of holding elections to the Lok Sabha & all State Legislative Assemblies together for the same constituency on the same day. This would allow voters to cast their ballots for both tiers of government on the same day in their constituencies, though voting could still occur in phases across the country.
- The concept of simultaneous elections is not a new idea in India. The idea is rooted in India's initial electoral system, but disrupted by political instability:

The Norm of Simultaneous Elections (1951-1967)	○ Following the adoption of the Constitution, elections to the Lok Sabha and all State Legislative Assemblies were conducted simultaneously from 1951 to 1967. ○ The first general elections to the Lok Sabha and State Assemblies were held together in 1951-52, a practice that continued for three subsequent general elections in 1957, 1962, and 1967.

	○ For the 1957 elections, some State assemblies were even dissolved early to achieve synchronization.
Disruption of the Cycle (1968-)	○ The cycle of synchronised elections was disrupted in 1968 and 1969 due to the premature dissolution of some State Legislative Assemblies. ○ The **Fourth Lok Sabha** was also dissolved prematurely in 1970, with fresh elections held in 1971. ○ Unlike the First, Second, and Third Lok Sabha, which completed their full five-year terms, the **Fifth Lok Sabha**'s term was extended until 1977 under Article 352 because of the declaration of Emergency. ○ Since then, only a few Lok Sabha terms have lasted the full five years, such as the **Eighth**, **Tenth**, **Fourteenth**, and **Fifteenth**. Others, including the **Sixth, Seventh, Ninth, Eleventh, Twelfth**, and **Thirteenth**, were dissolved early. ○ State Assemblies have faced similar disruptions over the years. Premature dissolutions and term extensions have become a recurring challenge. ○ These developments have firmly disrupted the cycle of simultaneous elections, leading to the current pattern of staggered electoral schedules across the country.

- The idea of ONOE has been recommended by various committees & bodies from time to time such as:
    a. **Election Commission of India (1983):** In its annual report, the Commission highlighted the desirability of restoring simultaneous elections to the Lok Sabha and State Legislative Assemblies.
    b. **Law Commission of India (170th Report, 1999):** Recommended synchronizing elections to the Lok Sabha and State Assemblies and suggested measures to maintain the stability of elected governments.
    c. **Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice (79th Report, 2015):** Endorsed the idea of simultaneous elections and proposed a phased implementation strategy.
    d. **NITI Aayog Working Paper (2017):** Advocated simultaneous elections to reduce election-related expenditure and governance disruptions caused by the Model Code of Conduct.
    e. **Law Commission of India (Draft Report, 2018):** Examined the constitutional, legal, and practical aspects of simultaneous elections and suggested necessary amendments for implementation.
    f. **High-Level Committee on Simultaneous Elections in India (Kovind Committee):** This committee, chaired by former President **Ram Nath Kovind**, was constituted in September 2023. It submitted its comprehensive report in March 2024, providing a detailed roadmap and recommendations for implementing "One Nation, One Election." Its recommendations were accepted by the Union Cabinet in September 2024.

What is the significance of Simultaneous Elections?

1. **Prevents Policy Paralysis:** The implementation of the Model Code of Conduct during elections disrupts routine administrative activities and developmental initiatives. This disruption not only

hampers the progress of vital welfare schemes but also leads to governance uncertainty. Holding simultaneous elections would mitigate the prolonged enforcement of the MCC, thereby reducing policy paralysis and enabling continuous governance.

2. **Mitigates Resource Diversion:** The deployment of a substantial number of personnel for election duties can lead to significant diversion of resources from their core responsibilities. ONOE would reduce the frequency of this diversion, allowing the administration to focus on its core responsibilities.
3. **Preserves Regional Party Relevance:** Holding simultaneous elections does not undermine the role of regional parties. In fact, it encourages a more localized focus during elections, enabling regional parties to highlight their unique concerns and aspirations. This setup fosters a political environment where local issues are not overshadowed by national election campaigns, thus preserving the relevance of regional voices.
4. **Enhances Political Opportunities:** Conducting elections simultaneously entails a more equitable allocation of political opportunities and responsibilities within political parties. Currently, it is not uncommon for certain leaders within a party to dominate the electoral landscape, contesting elections at multiple levels and monopolizing key positions. In the scenario of simultaneous elections, there arises greater scope for diversification and inclusivity among political workers representing various parties, allowing a wider range of leaders to emerge and contribute to the democratic process.
5. **Focus on Governance:** The ongoing cycle of elections across the country diverts attention from good governance. Political parties focus more on election-related activities to secure victories, leaving less time for development and essential governance. Synchronised elections would allow parties to dedicate their efforts to addressing the needs of the electorate, reducing instances of conflicts and aggressive campaigning.
6. **Reduced Financial Burden:** Conducting simultaneous elections could significantly cut down the financial costs associated with multiple election cycles. The Joint Parliamentary Committee (JPC) has claimed that ONOE could save the country nearly **₹7 lakh crore.** These savings are projected from reduced logistical costs and more efficient deployment of manpower and security forces.
7. **Mitigating Social Polarization**: Continuous election cycles make the political parties perpetually locked in aggressive campaign modes. To secure quick wins, the election campaigns often become highly polarized along caste, communal, or regional lines. Restricting campaigns to a single, focused window reduces the constant, wearying social friction that back-to-back state elections can generate.
8. **Boosting Voter Turnout**: Multiple elections leads to 'voter fatigue' – where citizens are asked to vote for local bodies, state assemblies, and parliament at completely separate times – which leads to low turnout of voters. ONOE will help in making it a singular, high-stakes national event that typically boosts overall voter participation.
9. **Positive Economic Impact:** Some studies cited by the High Level Committee (HLC) suggest that simultaneous elections could boost India's GDP growth by **1.5 to 1.6 percentage points**, primarily by creating certainty for investors and reducing economic disruption.

What are the key challenges associated with Simultaneous Elections?

1. **Major Constitutional Overhaul:** Implementing ONOE requires amending several articles of the Indian Constitution, including **Articles 83** (duration of Houses of Parliament), **85** (dissolution of Lok Sabha), **172** (duration of State Legislatures), **174** (sessions, prorogation and dissolution of State Legislatures), and potentially **356** (President's Rule). Thus, a key constitutional question is whether such amendments would violate the Basic Structure Doctrine.
2. **Impact on Federalism:** Critics argue that forcing State Assembly terms to align with the Lok Sabha's term (either by curtailing or extending them) goes against the spirit of federalism and the autonomy

of States. States have their own unique political cycles and democratic mandates, and altering their terms without their full and willing consent is seen as an encroachment on their powers.

3. **Nationalization of Elections:** In a combined election, there's a strong possibility that national issues and the popularity of national leaders might overshadow regional and local concerns. Voters might simply vote for the same party at both the central and state levels, influenced by the national narrative.
4. **Disadvantage to Regional Parties:** Regional parties, which often thrive on local issues and leaders, could be significantly disadvantaged as they might struggle to compete with the resources and broad appeal of larger national parties in a simultaneous election environment. This could lead to a homogenization of political discourse.
5. **Reduced Accountability at State Level:** If State elections are always tied to national elections, the accountability of State governments to their electorates might be diluted, as their performance could be overshadowed by Central government's achievements or failures.
6. **Scenario of Hung Assemblies/No-Confidence Motions:** A major challenge is what happens if a government (either at the Centre or in a State) falls prematurely due to a no-confidence motion, a hung assembly, or a split.
7. **Questionable Claim on Economic Benefits:** The argument that simultaneous elections automatically boost economic growth is not supported by historical evidence. During the period of simultaneous elections (1952–1967), India recorded an average growth rate of around 3.5% (often termed the 'Hindu Rate of Growth'), whereas the economy grew at around 8–9% during 2003–2011, when staggered elections had become the norm.
8. **Massive Scale of Operations:** Conducting elections for the entire country (Lok Sabha, all State Assemblies, and potentially local bodies) simultaneously would be an unprecedented logistical challenge. It would require:
    - **Enormous Number of EVMs and VVPATs:** Far more than currently available, requiring massive procurement, storage, and transport infrastructure.
    - **Vast Deployment of Personnel:** A huge number of polling officials, security forces, and administrative staff would be needed, diverting them from their regular duties on an unprecedented scale.

What can be the way forward? (Kovind Committee's Recommendations)

1. **Phased Approach for Synchronization:**
    - **Phase 1: Lok Sabha and State Legislative Assemblies:** The committee recommended that elections to the Lok Sabha and all State Legislative Assemblies should be held simultaneously.
    - **Phase 2: Local Body Elections:** Within 100 days of the Lok Sabha and State Assembly elections, elections to Municipalities and Panchayats should be synchronized.
2. **Constitutional Amendments Required:** The committee identified the need for significant constitutional amendments to facilitate simultaneous elections. Key proposed amendments/insertions include:
    - **New Article 82A:** To be inserted into the Constitution to establish the process for transitioning to a system of simultaneous elections for Lok Sabha and State Assemblies. It would empower Parliament to make laws for the conduct of simultaneous elections.
    - **Amendments to Articles 83(4) and 172(4):** These Articles, dealing with the duration of Houses of Parliament and State Legislatures, would be amended to ensure that any Lok Sabha or State Assembly elected to replace a dissolved one would serve only for the **remaining unexpired term** of the immediately preceding full term, not a fresh five-year term. This is crucial for maintaining synchronization.

- **New Article 324A:** To empower Parliament to make laws to ensure that municipality and panchayat elections are held simultaneously with Lok Sabha and State Assemblies.
- **Amendments to the Representation of the People Act, 1951:** Necessary changes to the RPA, 1951, to align electoral procedures with the simultaneous election framework.

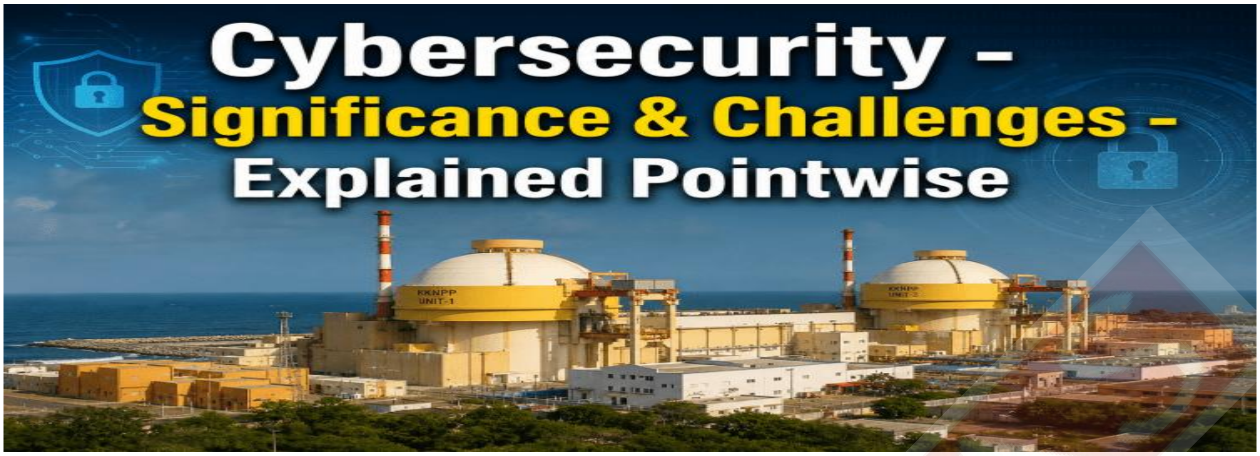
3. **"Appointed Date" and Synchronization Cycle:** The President, through a notification issued on the first sitting of the Lok Sabha after a general election, would set an "Appointed Date." All State assemblies elected after this date would have their terms aligned to conclude at the end of the Lok Sabha's full five-year term, regardless of their own individual five-year period.
4. **Handling Hung Houses/No-Confidence Motions:** In the event of a hung House, a no-confidence motion, or any other event leading to premature dissolution, fresh elections would be held. However, the new Lok Sabha or State Assembly constituted after such fresh elections would serve **only for the unexpired term** of the immediately preceding full term of the House. This ensures that the overall cycle of simultaneous elections remains intact.
5. **Constructive Vote of No-Confidence**: While the Kovind panel felt the existing parliamentary rules regarding no-confidence motions were sufficient, the **Law Commission of India** and various parliamentary panels have strongly urged adopting the **German Model** of Constructive Vote of No-Confidence – where an opposition cannot table a No-Confidence motion unless they simultaneously table a Confidence Motion proving they have the numbers to instantly form an alternate government.
6. **Logistical Preparedness:** The ECI should plan and estimate in advance, in consultation with SECs, for all logistical requirements. This includes the procurement of a large number of EVMs and VVPATs, deployment of adequate manpower, polling personnel, and security forces.
7. **Single Electoral Roll**: The committee proposed creating a single, unified electoral roll and voter ID cards for all elections, to be prepared in consultation with State Election Commissions.

Conclusion:

The High-Level Committee on Simultaneous Elections, led by former President Ram Nath Kovind, has laid the groundwork for a transformative shift in India's electoral process. By aligning the election cycles of the Lok Sabha and State Legislative Assemblies, the committee's recommendations promise to address long-standing challenges associated with frequent elections. The proposed phased approach to implementing simultaneous elections, along with constitutional amendments, could pave the way for a more efficient and stable electoral environment in India.

Read More: [The Hindu], [PIB], [Indian Express]
UPSC GS-2: Polity

Cybersecurity – Significance & Challenges – Explained Pointwise



The recent ransomware leak exposing blueprints and supplier data for the Kudankulam Nuclear Plant underscores the growing threat of cyber espionage. While the core reactor networks remained safe and isolated, breaches targeting third-party contractors expose operational vulnerabilities. It highlights that robust cybersecurity is paramount to safeguard critical infrastructure, national security, and public trust.

What is cybersecurity?

- **Cybersecurity** refers to the body of technologies, processes & practice of protecting computer systems, networks, programs, and data from digital attacks, unauthorized access, damage, or theft.
- Cybersecurity is not merely an IT issue. it is a **strategic necessity** that ensures the **confidentiality, integrity**, and **availability** (the **CIA Triad**) of a nation's critical information infrastructure.
- **Key Dimensions:**
    1. **Confidentiality:** Ensuring information is accessible only to authorized users.
    2. **Integrity:** Ensuring data is accurate and unaltered by unauthorized parties.
    3. **Availability:** Ensuring systems and data remain accessible when needed.

- **The Three Pillars of Cybersecurity:**

What are the major cyber threats faced by India?

1. **Ransomware Attacks**: Malicious software that encrypts/locks data, demanding ransom for release. Increasingly targets critical infrastructure and PSU contractors for e.g. the 2026 Kudankulam-linked breach.
2. **Attacks on Critical Information Infrastructure (CII)**: Targeting power grids, nuclear facilities, banking systems, telecom networks, and transport systems for e.g. 2020 Mumbai power grid outage suspected to involve Chinese state-linked malware (RedEcho).
3. **State-Sponsored Cyber Espionage**: Attributed largely to China- and Pakistan-linked Advanced Persistent Threat (APT) groups targeting defence, government, and strategic sectors for intelligence gathering for e.g. China-linked **RedEcho** and Pakistan-linked **Transparent Tribe** continuously run target campaigns against the Indian defense sector, aerospace, and government networks.
4. **Cyberterrorism and Radicalisation**: Use of encrypted platforms and dark web by terrorist organisations for recruitment, propaganda, fundraising, and coordination.
5. **Data Breaches and Data Theft**: Theft of personal, financial, or corporate data from government portals, banks, e-commerce platforms, and healthcare systems. For e.g. AIIMS patient data breach, various Aadhaar-linked data leak controversies.
6. **Financial Cyber Fraud**: India is among the world's leading countries in digital payment volumes. However, a major concern arising from the rapid expansion of digital financial inclusion is the increasing incidence of cyber frauds, including UPI and digital payment frauds, phishing attacks, SIM-swap frauds, and banking trojans.
7. **Social Media Manipulation and Disinformation**: The spread of fake news, deepfakes, and coordinated inauthentic behaviour poses a significant threat to democratic processes, social harmony, and national security. Deepfake technology has intensified these challenges.

8. **Supply Chain and Third-Party Risks:** Attacks are increasingly entering organizations through third-party service providers or software supply chains. For e.g. Kudankulam 2026 breach – where sensitive data was compromised not from the core nuclear network, but from a contractor's third-party server.

What is the significance of cybersecurity for India's digital economy and governance?

1. **Protecting Economic Value and Growth**: The digital economy is a significant and growing part of India's GDP. It contributes **13.42% of GDP.** Cybersecurity is essential to protect this economic value from being eroded by financial crimes, data breaches, and ransomware attacks.
2. **Building Digital Trust and Resilience**: India's DPI stack – Aadhaar, UPI, DigiLocker, CoWIN, ONDC - handles billions of transactions and vast citizen data. A breach or systemic compromise could undermine public trust in the entire digital governance architecture that underpins DBT, financial inclusion, and service delivery.
3. **Enabling Trust in E-Governance**: Government services (income tax e-filing, e-courts, DigiLocker, GeM procurement) depend on citizens trusting that their data is secure. Cybersecurity breaches in government systems damage the legitimacy of "Digital India" as a governance model.
4. **Securing Critical Infrastructure**: Power grids, banking, telecom, transport, and nuclear facilities are increasingly getting connected to each other. A successful attack can cause cascading economic and safety consequences. Economic sectors like BFSI (banking, financial services, insurance) are prime targets given their centrality to GDP.
5. **National Security Dimension**: Cyberattacks are now a recognized tool of hybrid warfare. Espionage, sabotage of defence networks, and disinformation campaigns directly threaten sovereignty and internal security.
6. **Enabling India's Global Digital Leadership Ambitions**: India champions DPI exports (UPI stack, Aadhaar model) to Global South countries. Credible cybersecurity practices are essential to sustaining this soft-power and technology-diplomacy role e.g. G20 DPI agenda, India-UAE UPI linkages.
7. **Protecting Citizen Rights and Constitutional Values**: Post the **Justice K.S. Puttaswamy** judgment (2017) recognizing privacy as a fundamental right under Article 21, cybersecurity is integral to operationalizing the right to privacy in the digital realm, especially under the DPDP Act, 2023.
8. **Economic Cost of Cyber Incidents**: Cyberattacks impose direct costs (ransom, remediation, downtime) and indirect costs (reputational damage, regulatory penalties, loss of investor confidence). In 2024 alone, India reported cyber fraud losses exceeding **₹22,845 crore**, with over 36 lakh fraud cases logged.

What are the major challenges in ensuring cybersecurity in India?

1. **Fragmented Institutional Architecture**: Multiple agencies such as CERT-In, NCIIPC, I4C, RBI, SEBI, and TRAI are involved in cybersecurity. However, overlapping responsibilities and limited coordination among them often create confusion in incident response and accountability. Moreover, India lacks a single unified cybersecurity authority or national cyber command to coordinate efforts effectively.
2. **Weak Supply Chain and Third-Party Security**: Weak cybersecurity practices among contractors, vendors, and third-party service providers pose a major risk to critical infrastructure. The Kudankulam data leak exposed this vulnerability, highlighting the need for mandatory cybersecurity audits of vendors in strategic sectors.
3. **Legacy and Outdated IT Systems**: Many public sector systems, especially in critical infrastructure (power, railways, PSU banks), run on legacy software with unpatched vulnerabilities, increasing exposure to exploitation.

4. **Dependence on Foreign Technology:** A significant portion of India's cybersecurity infrastructure (estimated at **30-40%** in critical segments) depends on foreign "black-box" technologies. This creates supply chain risks in a volatile geopolitical environment and undermines strategic autonomy.
5. **Shortage of Skilled Cybersecurity Workforce**: India faces a significant shortage of trained cybersecurity professionals, limiting its ability to prevent, detect, and respond to cyber threats. The country has an estimated **300,000** cybersecurity professionals, but this falls far short of demand. A shortage of **1 to 1.5 million** skilled workers is projected, with about **39,000** positions currently unfilled.
6. **Low Cybersecurity Awareness and Cyber Hygiene**: A lack of awareness about cyber threats, weak passwords, unsafe online practices, and poor adherence to security protocols make individuals and organizations vulnerable to phishing, malware, identity theft, and financial fraud.
7. **Inadequate Regulatory and Legal Framework**: India's cybersecurity governance is constrained by an evolving regulatory framework that has not fully kept pace with the rapidly changing cyber threat landscape. The primary law governing cybercrime, the **Information Technology (IT) Act, 2000**, was enacted before the emergence of modern threats such as ransomware, deepfakes, AI-enabled cyberattacks, and large-scale data breaches.
8. **Rise of Sophisticated and Evolving Threats**: Ransomware-as-a-service, AI-generated phishing/ deepfakes, and zero-day exploits evolve faster than defensive capacities. State-sponsored APT groups (often linked to China and Pakistan) possess resources and sophistication that outpace many Indian institutions' defensive capabilities.

What measures has the Government of India undertaken to strengthen India's cybersecurity architecture?

Institutions & Bodies	• **CERT-In (Indian Computer Emergency Response Team):** The national nodal agency for responding to cybersecurity incidents. It issues alerts, conducts mock drills, coordinates response, and provides guidelines on security practices. • **NCIIPC (National Critical Information Infrastructure Protection Centre):** Nodal agency for protecting **Critical Information Infrastructure (CII)**. It provides threat intelligence and advice to sectors like power, banking, and transport. • **I4C (Indian Cybercrime Coordination Centre):** Established by the MHA to combat cybercrime in a coordinated manner. It manages the National Cybercrime Reporting Portal and the Cyber Fraud Mitigation Centre. • **NCCC (National Cyber Coordination Centre):** Operates as a control room to scan cyberspace for threats. It shares metadata with other agencies for coordinated action. • **NCSC (National Cyber Security Coordinator):** Coordinates cyber security efforts among different agencies under the National Security Council Secretariat. • **CyMAC (Cyber Multi Agency Centre):** A unified platform for real-time monitoring, threat intelligence sharing, and coordinated response among agencies like IB, CERT-In, and NCIIPC.

Legal, Regulatory and Policy Framework	● **IT Act, 2000** (amended 2008): Primary legislation criminalizing hacking, data theft, and cyberterrorism (Section 66F). ● **Digital Personal Data Protection Act (DPDPA), 2023**: This Act is a major step forward, creating a comprehensive framework for processing personal data, emphasizing accountability, informed consent, and mandatory breach notifications. ● **National Cyber Security Policy, 2013**: India's first comprehensive policy framework. It aims to create a secure cyber ecosystem, strengthen the regulatory framework, and train cybersecurity professionals. ● **National Cyber Security Strategy**: Envisages a 5-pillar approach: **secure** (large-scale digitization), **strengthen** (proactive defence), **synergise** (institutional coordination), **skill** (capacity building), and **safeguard** (citizen protection).
Capacity Building & Awareness	● **Cyber Surakshit Bharat (CSB) Initiative**: A public-private partnership program that has trained over **1,662** Chief Information Security Officers (CISOs) and IT officials. ● **CERT-In Training Programs**: CERT-In trained **12,014** officials in 2024 on securing IT infrastructure and mitigating cyberattacks. ● **Cyber Swachhta Kendra (CSK)**: A citizen-centric initiative that provides free botnet cleaning and malware removal tools, extending the vision of "Swachh Bharat" to cyberspace.

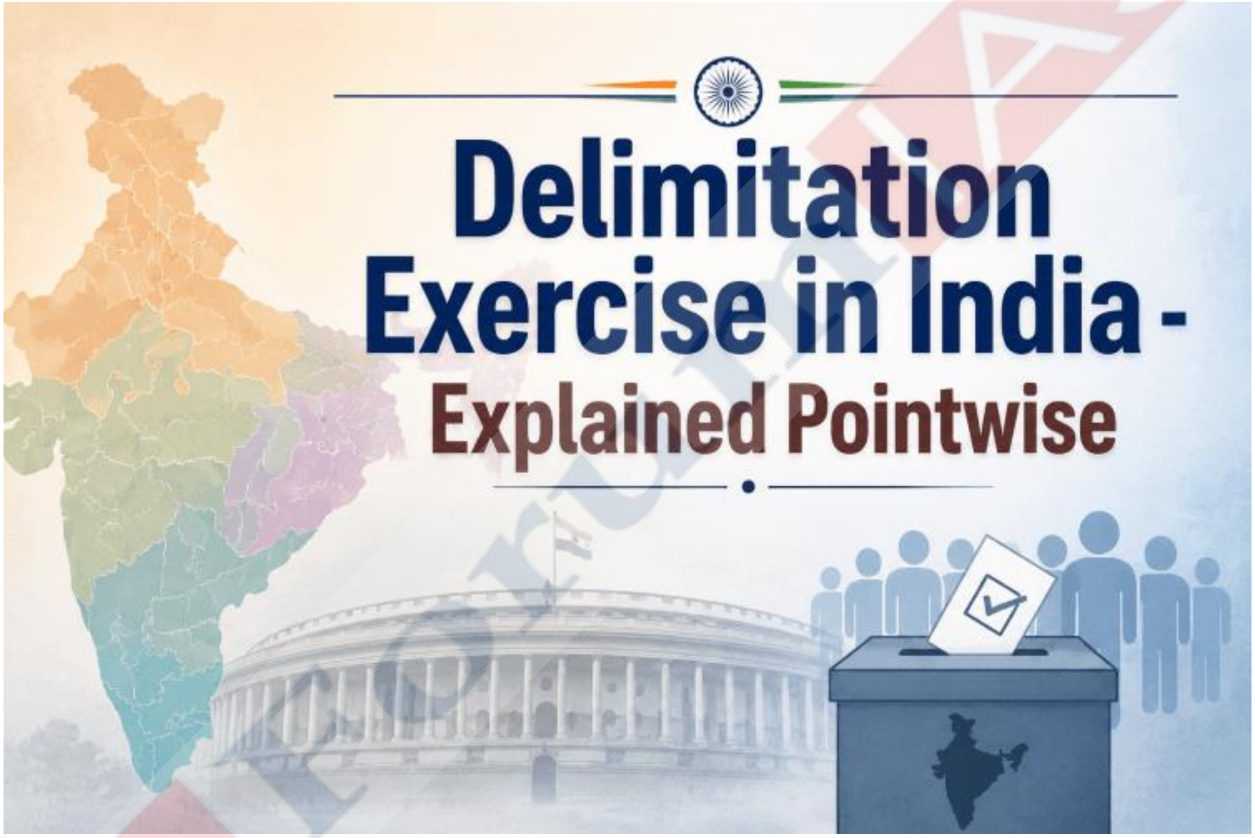
What should be the way forward?

1. **Building Domestic Cyber and AI Capacity**: India must build indigenous technology across models, data, and computing infrastructure, as there is "no other option" given the sensitive nature of national systems. This includes developing sovereign alternatives in cloud, email, and operating systems to reduce dependence on foreign supply chains and protect metadata.
2. **Unified and Updated Legal Framework**: Enact a comprehensive, dedicated **Cybersecurity Act** (moving beyond the IT Act, 2000) that addresses ransomware, AI-enabled threats, and critical infrastructure protection with clear penal and civil liability provisions. Finalize and adopt a revised **National Cyber Security Strategy** to replace the outdated 2013 policy, with clear timelines and measurable targets.
3. **Strengthening Institutional Coordination**: Establish a unified national cybersecurity authority to improve coordination among agencies such as CERT-In, NCIIPC, NSCS, and sectoral regulators. This would reduce fragmentation, ensure clear responsibilities, and provide a single point of accountability during cyber incidents.
4. **Building a Future-Ready Cyber Workforce**: India must invest in cybersecurity education, skill development, and continuous training to address the shortage of cyber professionals. Scale up dedicated cybersecurity education (undergraduate/postgraduate programs, CoEs) and public-private training partnerships to close the skilled workforce gap.
5. **Citizen Awareness and Cyber Hygiene**: Expand digital literacy and cyber awareness programmes such as Cyber Surakshit Bharat and ISEA, especially for first-time internet users, to promote safe online practices amid the rapid growth of smartphones and UPI-based transactions. Integrate basic cybersecurity education into school and college curricula.

6. **Technology and Infrastructure Modernization**: India must continuously upgrade its cybersecurity infrastructure by adopting advanced technologies such as Artificial Intelligence (AI), Machine Learning (ML), threat intelligence platforms, and secure cloud systems. Phase out legacy IT systems in critical infrastructure through time-bound modernization programs.

UPSC GS-3: Cybersecurity
Read More: The Hindu

Delimitation Exercise in India – Explained Pointwise



Every democracy must periodically redraw its electoral map to reflect population change. In India, this process is known as delimitation. The last delimitation happened in 1975, after which Indira Gandhi put a freeze until 2000. A year later, Parliament again froze the number of members of the Lok Sabha and State Assemblies till 2026. The delimitation of constituencies for the Lok Sabha and State Legislative Assemblies is to be carried out on the basis of the first Census after 2026. Due to this inordinate delay, several issues related to democracy, demography and federalism await the fifth delimitation exercise.

What is Delimitation? What is the constitutional status behind Delimitation in India?

- **Delimitation:**
    - Delimitation refers to the process of redrawing the boundaries of electoral constituencies to ensure fair representation based on population changes.

- It is conducted by the Delimitation Commission under Articles 82 and 170 of the Indian Constitution.
- The objective is to provide equitable representation to all regions by correcting the imbalances caused by changes in population (due to births, deaths, and migration), thereby upholding the democratic principle of "**one vote, one value.**"

- **Delimitation Commission:**
  - The Delimitation Commission is a statutory body responsible for determining the boundaries of various constituencies in the country for the purpose of elections.
  - It is appointed by the President & governed by the Delimitation Commission Act.
  - The last Delimitation Commission (2002-08) only redraw the internal constituency boundaries without reallocating seats among the States.
  - The next Commission would probably reallocate seats among States for the first time since 1976, redraw all constituencies, and create reserved constituencies for women 's 33% quota.

What is the significance of the Delimitation Exercise in India?

1. **Political Representation and Electoral Fairness:** Ensures democratic legitimacy through equitable distribution of seats in Lok Sabha and State Assemblies. **E.g.** The 2002 Delimitation Commission led to a better voter-per-MP ratio in urban and rural areas and prevented malapportionment, ensuring each MP represents roughly the same number of citizens.
2. **Upholding Democracy:** Reduces gerrymandering (political manipulation of electoral district boundaries to advantage a party, group, or socioeconomic class within the constituency) , ensuring fair electoral contests. **E.g.** Supreme Court in Kuldip Nayar v. Union of India (2006) upheld the importance of delimitation for fair democracy.
3. **Socio-Economic Equity:** The delimitation exercise enhances representation for marginalized communities and Scheduled Tribes. **E.g.** The J&K Delimitation Commission allocated more seats to Jammu to address past disparities.
4. **Strengthening of Federalism:** The delimitation process ensures equitable representation among States, balancing national unity with regional autonomy. **E.g.** The 42nd Amendment's population freeze prevented southern states with lower population growth from losing representation, thereby upholding the spirit of cooperative federalism, crucial for India's unity.
5. **Administrative Efficiency:** The delimitation exercise ensures a manageable voter-to-representative ratio, aiding governance. **E.g.** Mumbai and Bengaluru saw improved electoral administration post the 2002 exercise.
6. **Electoral Integrity and Governance:** The delimitation process aligns representation with new demographic realities, as seen in global examples like the UK Boundary Commission.

What are the concerns associated with the Delimitation Exercise?

1. **Population vs. Development:** Southern states argue that delimitation based solely on population would penalize them for successful family planning and economic development. **E.g.** Tamil Nadu's fertility rate is 1.6, while Bihar's is 3.0. According to delimitation projections, if seats were allocated purely by population in an expanded Lok Sabha of approx. 888 members, UP would rise from 80 to 151 seats & Bihar from 40 to 82, while for TN it would increase from 39 to 53 & Kerala from 20 to just 23.
2. **Federalism at Risk:** States with low population growth may feel politically marginalized, leading to North-South divide concerns. There are concerns that the Delimitation Exercise can create federal Imbalance as states with better governance may feel punished for controlling population. **E.g.** Sarkaria Commission (1983) warned against excessive centralization of power.

3. **Reduced Legislative Efficiency**: The new delimitation will increase the number of Lok Sabha seats to reflect population changes. A much larger House may reduce speaking time for each MP and make parliamentary proceedings less efficient.
4. **Disincentive to Population Control:** If states that successfully reduced population growth lose parliamentary representation after delimitation, it may discourage investments in family planning and public health, undermining the long-term objective of population stabilisation.
5. **Impact on Reservation**: Delimitation may alter the number and boundaries of constituencies reserved for Scheduled Castes (SCs) and Scheduled Tribes (STs), affecting political representation, electoral dynamics, and the interests of local communities.
6. **Manipulation:** There are concerns that political parties may influence constituency boundaries for electoral gains. **E.g.** Allegations of bias in the J&K delimitation process (2022).
7. **Delays and Political Resistance:** There are instances of increased political resistance as seen in the case of Justice Kuldip Singh-led Commission (2002) facing pushback from political parties unwilling to lose seats.
8. **Economic Disparities:** Southern states argue that higher revenue generation (GST collections, per capita income) should be factored into representation.

What Should be the Way Forward?

1. **Implement Expert Recommendations:** The following commissions have suggested the following reforms for ensuring federal balance and delimitation needs:
   - **Sarkaria Commission (1983)**: Suggested a balanced approach between federalism and national unity.
   - **Punchhi Commission (2010)**: Proposed equal weightage to population and governance needs.
2. **Ensure Transparency and Independent Oversight**: The Election Commission's autonomy should be strengthened to ensure fair delimitation process.
   - In **Kuldip Nayar v. Union of India (2006)**, SC emphasized the need for fair representation while balancing federal concerns.
   - In **TN Seshan v. Union of India (1995)**, SC highlighted the importance of an independent delimitation body.
3. **Constitutional and Legislative Reforms:** Amend Articles 81 and 82 to ensure balanced regional representation and introduce proportional representation models used in Germany and Canada.
4. **Weighted Representation Model:** Adopt a weighted formula – 80% weight for population, 20% for development indicators such as literacy, health, or sustained fertility control – similar to how Finance Commission uses composite indicators for tax devolution.
5. **Implement a Uniform Expansion**: Rather than altering the proportional share of each state based on raw population changes, the total Lok Sabha strength could expand (e.g. by 50%, from 543 to 816 seats) on a pro-rata basis. Under this model, states like Uttar Pradesh would scale up (from 80 to 120 seats), but Tamil Nadu would also scale up proportionately (from 39 to 59 seats). This ensures that the relative political weight of Southern states remains constant.

Conclusion: Delimitation is a delicate balance between democracy and federalism. While it ensures equal representation, challenges related to regional disparities, population dynamics, and governance issues must be addressed. The Supreme Court and Election Commission must play a proactive role in ensuring transparency and fairness. A balanced approach grounded in constitutional values, expert recommendations, and global best practices – is essential to uphold India's democratic and federal ethos.

Read more: Indian Express
UPSC Syllabus- GS 2– Issues and challenges pertaining to the federal structure

Space Sector in India – Significance & Challenges – Explained Pointwise

The successful launch of **Vikram-1**, India's first privately developed orbital rocket by Skyroot Aerospace, marks a watershed moment for the country's space sector. It reflects the success of recent space-sector reforms, growing private participation, and India's transition from an ISRO-centric model towards a vibrant, innovation-driven and globally competitive space ecosystem.

What have been the recent developments in Space Sector in India?

Skyroot's Vikram-1	• On July 18, 2026, India witnessed a defining moment when **Skyroot Aerospace successfully launched Vikram-1**, the country's first privately developed orbital rocket. • The mission, named "**Mission Aagaman**," lifted off from ISRO's Satish Dhawan Space Centre and successfully deployed its payloads into a 450 km orbit.

	• This achievement makes India only the **third country** after the US and China to have a private company achieve orbital launch capability.
Explosive Growth in Private Space Startups	• Space startups such as **Skyroot Aerospace**, **Agnikul Cosmos**, **Pixxel** and **Dhruva Space** are developing launch vehicles, satellites and downstream space applications. • IN-SPACe reports more than **300 registered space startups** as of 2026, up from 54 companies in 2020, before the 2020 reforms and creation of IN-SPACe as the single-window regulator. Other estimates put the figure **above 400**. • India's space economy is now valued at **$8.4 billion**, having rapidly expanded since the sector opened to private investment in 2020.
Institutional Restructuring	• The Indian Space Policy 2023 formalized distinct roles: ○ **ISRO** focuses on R&D ○ **NSIL** handles commercialization ○ **IN-SPACe** authorizes private-sector space activities
Critical Docking Demonstration	• The **SPADEX mission successfully demonstrated autonomous satellite docking and undocking in space** in 2025. • This made India the **fourth** nation to master this complex technology, which is vital for future space stations and in-orbit servicing.

Future Roadmap and Initiatives:

Gaganyaan Program	• ISRO is advancing its Gaganyaan program, which will send an Indian crew to space for the first time, showcasing India's human spaceflight capabilities • ISRO has completed over 8,000 ground tests and plans to conduct the **first uncrewed test flight by the end of 2026.** • By 2035, ISRO aims to establish India's own space station, the **'Bharatiya Antariksh Station' (BAS).** The revised Gaganyaan Programme includes the development of the first module of BAS and four missions to demonstrate and validate various technologies for BAS by December 2028.

Next-Generation Launch Vehicle	● ISRO is working on a Next Generation Launch Vehicle (NGLV). It will be a three-stage rocket using semi-cryogenic, liquid, and cryogenic engines ● The NGLV will replace some existing launch vehicles, such as the GSLV. The NGLV will triple the payload capacity of the LVM3 (Geosynchronous Satellite Launch Vehicle Mk III), India's most powerful rocket. Additionally, ISRO is upgrading the LVM3 with a new semi-cryogenic engine. ● In contrast to India's existing rockets, which are expendable and designed for single use, a significant portion of the NGLV will be reusable. Reusability requires that the rocket keep some of its fuel for controlled descent back to the earth's surface.
Venus Orbiter Mission (Shukrayaan)	● Formal approval was granted for India's first mission to Venus, targeted for launch in **2028**. ● The mission will study Venus's dense atmosphere using advanced aerobraking techniques.
Chandrayaan-4	● Cabinet approval was secured for Chandrayaan-4, a complex lunar sample-return mission designed to land on the Moon, collect samples, dock in lunar orbit, and safely return them to Earth using technologies validated via SPADEX.

What is the significance of Space sector in India?

Socio-Economic Impact & Grassroot Governance	1. **Agriculture & Water Security:** Satellites like **Resourcesat** map crop acreage, estimate yields, monitor soil health, and track drought conditions for insurance claims. Under the National Hydrology Project, space data helps manage groundwater and river basins. 2. **Disaster Management:** Real-time satellite imagery provides early warnings for cyclones, floods, and forest fires, dramatically reducing mortality rates during severe weather events. 3. **Digital Inclusion & Telemedicine:** GSAT satellites support tele-education (**PM e-VIDYA**) and power nearly 180 telemedicine nodes in remote and high-altitude regions like Ladakh and Siachen.

Economic importance	1. **Boost to 'Space Industrialisation':** India's space economy is valued at $8.4 billion (~2-3% of the global market) and growing rapidly since the 2020 liberalization. The development of space sector will promote **Space Industrialisation** in India, provide a boost to space-tech ecosystem and help India's space economy to reach $100 billion by 2040. 2. **Promotion of Entrepreneurship:** According to a global report published in June 2021, India has 368 private space firms, placing it 5th in the world in size after the US, the United Kingdom, Canada, and Germany. With these many firms, India is leading China (288), France (269), and Spain (206) in the private space industry. 3. **Job Creation**: Between 2014 and 2024, the sector generated an estimated $60 billion for GDP while directly and indirectly supporting millions of jobs. 4. **Source of Forex**: ISRO's commercial arm (NSIL) has launched over 430 foreign satellites from more than 30 countries, generating hundreds of millions of dollars in foreign exchange and cementing international trust. 5. **Technological Self-Reliance (Atmanirbharta)**: Space technology drives spin-off innovations in materials science (carbon composites), propulsion (3D-printed liquid engines), electronics, and telecommunication with civilian applications beyond space itself.
National Security and Strategic Autonomy	1. **Indigenous Navigation (NavIC):** India's regional satellite navigation system provides precise positioning for civilian logistics and missile guidance, ensuring military navigation is not vulnerable to foreign access restrictions during a conflict. 2. **Military Surveillance:** Specialized Earth Observation (EO) and military communication satellites provide round-the-clock border surveillance, maritime domain awareness in the Indian Ocean, and secure defense communications. 3. **Launch Infrastructure:** Native launch vehicles (LVM3, PSLV, SSLV) ensure India can independently place strategic assets into orbit without relying on foreign spaceports.
Diplomatic and Soft Power Leverage	1. **Collaboration & Voice of Global South**: International collaborations (e.g. ISRO-CNES on TRISHNA) and India's role in launching satellites for other nations position it as a reliable, cost-effective space partner for the Global South. 2. **Space Governance**: Space sector strengthens India's voice in shaping global space governance norms, especially as contested orbital resources and congestion (satellite constellations, space debris) become pressing multilateral concerns.

What is the significance of the recent successful launch of Vikram-1 for India's space sector?

1. **Milestone for Private Space Industry**: The launch of Vikram-1 marks the emergence of India's first privately developed orbital launch vehicle, showcasing the growing capabilities of domestic space startups. Thus, transforming the sector from an exclusive government domain into a thriving, collaborative ecosystem.
2. **Boost to Commercial Space Activities**: The successful launch of Vikram-1 enhances India's ability to offer cost-effective launch services in the rapidly expanding global small-satellite market. The success

makes India only the **third nation in the world** (after the US and China) to possess sovereign, private orbital launch capabilities.

3. **Strengthening of Startup Ecosystem**: It encourages investment, innovation, and entrepreneurship in the space sector, inspiring more startups to enter the industry. Skyroot itself became India's first space-tech unicorn with a **$1.1 billion valuation.** It is expected to catalyze over 400 other space startups in India, helping to grow the domestic space economy from $8 billion to a targeted $44 billion by 2033.
4. **Reduced Dependence on ISRO**: It enables ISRO to focus more on advanced research, deep-space exploration, and strategic missions while private players undertake commercial launches. This frees ISRO's budget, infrastructure, and scientific talent to focus entirely on flagship programs like **Gaganyaan**, **Bharatiya Antariksh Station**, and **Chandrayaan-4.**
5. **Attracting Domestic and Foreign Investment**: The successful launch of Vikram-1 improves investor confidence in India's space ecosystem and supports greater inflow of venture capital and FDI.
6. **Advancement of Indigenous Technology**: It demonstrates India's growing capability to design, develop, and manufacture sophisticated launch systems using indigenous expertise.
7. **Enhancing Global Competitiveness**: It positions India as a major player in the global commercial launch market, competing with established international space companies.

What are the challenges faced by the space sector in India?

1. **Budgetary Challenges:** Space sector in India faces budget constraints despite its successes in launching missions. There has been an 8% decline in budget allocations to ISRO in 2023-2024 with respect to 2022-2023. The funds allocated to the space sector are very less in comparison to other countries. The US spent 10 times and China 6 times more than India in the space sector in 2019-20.
2. **Manpower Challenges:**
    - **Vacancies**: Official Department of Space (DoS) data reveals that nearly 3 out of every 10 sanctioned posts lie vacant (5,632 positions).
    - **Brain Drain**: The booming private space sector is attracting top ISRO scientists with significantly higher salaries, stock options, and faster career progression. This includes leaders of critical projects like the LVM-3 rocket for Gaganyaan and the SpaDeX mission.
3. **Absence of a Clear Legislative Framework:** India lacks a comprehensive, codified statutory "Space Law". The **Draft Space Activities Bill**, which was introduced way back in 2017 but has not yet been passed. The sector currently operates through policy instruments (Indian Space Policy 2023) and IN-SPACe authorizations rather than a full statutory framework covering liability, insurance, licensing, and dispute resolution. This has hindered the further growth and development of the space sector in India.
4. **Underdeveloped Industrial Base**: India still relies heavily on **importing essential components** for its space program, as domestic industrial capabilities lag behind its ambitions. This reliance is compounded by high tariffs on imports, making Indian space products less competitive. For e.g. India imports over ₹2,000+ crore worth of space-grade hardware annually.
5. **Lack of robust Dispute Settlement Mechanism:** This discourages private investment in the space sector in India. The void was seen in Antrix-Devas cancelled satellite deal. The Government of India owes nearly $1.2 billion to Devas Multimedia as per an order of a tribunal of the International Chamber of Commerce.
6. **Technological Challenges:** ISRO faces challenges in upgrading its technology, such as developing more powerful launch vehicles with higher payload capacities. **For e.g.** Chandrayaan-3 took about six weeks to reach the Moon, while the failed Russian mission Luna-25 took only one week. Currently,

India uses two LVM3 rockets for uncrewed lunar missions and relies on foreign rockets like SpaceX's Falcon 9 for heavier payloads.

7. **Inadequate Space Infrastructure**: India has limited launch pads, testing facilities, tracking stations, and manufacturing infrastructure compared to major spacefaring nations. For e.g. Satish Dhawan Space Centre at Sriharikota remains the primary orbital gateway, creating scheduling friction between national flagship missions and private commercial launches.
8. **Government funding driven sector:** Some critics have argued that such massive spending by the government alone in the space sector curtails Indian government's spending capability in social sectors like poverty alleviation, education, and health which must be the priority for developing country like India.

What initiatives has the Government undertaken to strengthen the space sector?

Space Sector Reforms (2020)	Opened the space sector to **private participation** across satellite manufacturing, launch services, and space-based applications.
Indian Space Policy, 2023	Indian Space Policy 2023 is a landmark policy for the development for India's space sector. Formally defined the roles of **ISRO** (focused on advanced R&D and deep space), **NSIL** (commercializing operational technology), and **IN-SPACe** (enabling non-government entities). It provides legal clarity allowing private companies to own, build, and operate space assets, rockets, and ground stations.
IN-SPACe	It aims to provide a level-playing field for private companies to use the Indian space architecture. IN-SPACe acts as a channel between ISRO and any private players that want to participate in space activity, thereby culling lengthy bureaucratic procedures.
New Space India Limited (NSIL)	It is a Central Public Sector Enterprise under the Department of Space that was established in 2019. It has been mandated to transfer the technologies emanating out of the Indian space programme and enable Indian industry to scale up high-technology manufacturing base.
FDI Policy	The government has amended its foreign direct investment (FDI) policy to allow 100% FDI in most space sectors. However, there are some limits on satellite manufacturing (74%) and launch infrastructure (49%).
Technology Transfer from ISRO	ISRO has transferred numerous technologies to industries and startups. It helps domestic firms develop indigenous launch vehicles, satellites, and space applications.
Access to Space Infrastructure	Private companies are allowed to utilize ISRO's launch pads, testing facilities, laboratories, and tracking networks. This helps in reducing the infrastructure costs for startups and emerging firms.
Dedicated Small Rocket Spaceport	Construction commenced on India's second rocket launchpad at Kulasekarapattinam, Tamil Nadu. Dedicated primarily to **SSLVs**, this coastal

(Kulasekarapattinam)	launchpad enables direct south-bound polar launches without needing expensive dogleg maneuvers over Sri Lanka.
Dedicated Financing Instruments	A **₹1,000 crore Venture Capital Fund** (2025-26 to 2029-30) to support space startups, addressing the capital-intensive, long-gestation nature of hardware ventures. A **₹500 crore Technology Adoption Fund** to help commercialize indigenous technologies developed by non-government entities.
Talent Retention	The exodus of top ISRO scientists to the private sector is a pressing problem. The government's primary response has been to introduce stricter exit rules for scientists involved in critical missions like Gaganyaan, to slow the attrition.

What should be the Way forward?

1. **Infrastructure Status**: A key demand is to formally classify "**Space & Satellite Infrastructure**" as a distinct infrastructure sub-sector. This would unlock access to long-term, low-cost capital from banks and financial institutions, a critical need for capital-intensive space projects with long gestation periods.
2. **Push for greater privatization:** India should create space policies that boost private sector investment and focus on commercial growth. The Department of Space can award contracts to Indian companies to develop reusable, heavy-lift rockets. A milestone-based funding mechanism, where payments are made to private players after meeting specific objectives at each stage, would ensure accountability and reduce cost overruns.
3. **Strengthen the Regulatory Framework**: Establish a comprehensive legal framework covering licensing, liability, insurance, intellectual property rights, and space debris management. Also, ensure policy stability and ease of doing business for private players.
4. **Passage of Space Activities Bill:** The passage of the Space Activities Bill should also be done in order to give private players greater clarity and protection. This should involve proper consultation and discussions with the concerned stakeholders.
5. **Expand Space Infrastructure**: Develop additional launch pads, testing facilities, tracking stations, and space parks through public-private partnerships. Improve access to common infrastructure for startups and MSMEs.
6. **Develop a Skilled Workforce**: Establish joint degree and research programs between ISRO, IIST, and premier IITs focused on niche areas like space robotics, satellite propulsion, and space medicine. Streamline DoS recruitment processes to clear technical vacancies promptly, ensuring flagship missions like Gaganyaan, BAS, and Chandrayaan-4 have dedicated engineering teams.
7. **Setting up Space Dispute Tribunal:** The plan to set up an independent tribunal to adjudicate disputes among private space entities should be implemented promptly.
8. **Enhanced International Collaboration:** India must do more collaboration and research with pioneer countries like the US & Russia, who have already ramped up their space infrastructure.

Conclusion: Indian Space sector possesses huge untapped potential which can be realized with adequate policy measures by the government. This would boost the confidence of the private sector and deliver optimum results, thereby helping the country acquire the top spot in the global space industry.

Read more: The Hindu
UPSC Syllabus- GS 3- Space

India's Cotton Sector (White Gold) – Significance & Challenges – Explained Pointwise

Cotton is one of India's most important cash crops and contributes about 23% of global fibre production. It supports nearly **6 million farmers** and provides employment to around **40–50 million people** in cultivation, processing, textiles, and trade. Often called **"White Gold,"** cotton is a major source of export earnings. India's cotton sector is characterized by large-scale cultivation, rich cotton diversity, and a strong textile industry. Government initiatives such as MSP procurement, the Mission for Cotton Productivity, and Kasturi Cotton Bharat are helping improve productivity, quality, and global competitiveness.

What are the key dimensions of India's Cotton Sector?

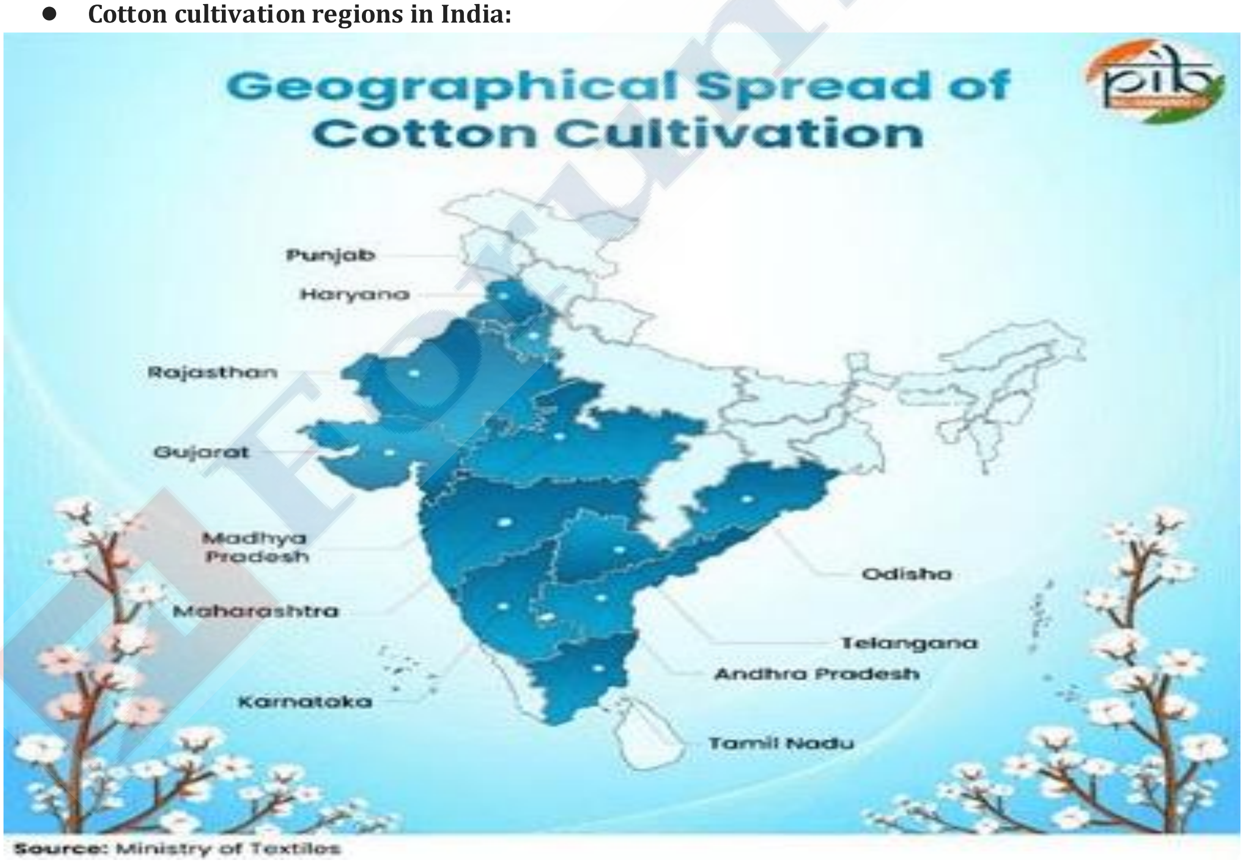
- Cotton is one of the most important commercial crops cultivated in India.
- It accounts for around **23%** of global fibre production. The crop supports the livelihoods of around **6 million** cotton farmers. It also sustains employment for another **40-50 million** people engaged in related activities such as cotton processing and trade.
- Beyond clothing, cotton plays a vital role in earning foreign exchange through exports of fibre, yarn, fabrics and garments.
- Due to its economic importance in India, it is also termed as **"White-Gold".**
- India is the only country that cultivates all four recognized cotton species. These include:
    1. **G. Arboreum**
    2. **G. Herbaceum** (commonly referred to as **Asian cotton**)
    3. **G. Barbadense** (known as **Egyptian cotton**)

4. **G. Hirsutum** (known as **American upland cotton**) – it accounts for nearly **90%** of hybrid cotton production in India. All **Bt cotton** hybrids currently cultivated in the country belong to this species.

- In addition to botanical diversity, cotton in India is also classified by staple length. This length determines fibre quality and end use. The country produces the full range of staple categories:

Staple Categories	Staple Length (in mm)
Short Staple	20 and below
Medium Staple	20.5 to 24.5
Medium Long Staple	25.0 to 27.0
Long Staple	27.5 to 32.0
Extra-Long Staple	32.5 and above

- **Cotton cultivation regions in India:**



Source: PIB

- Cotton production in India is largely concentrated in **9 major states**, grouped into **3 distinct agro-ecological zones:**
  1. **Northern Zone** comprising Punjab, Haryana, and Rajasthan

2. **Central Zone** comprising Gujarat, Maharashtra, and Madhya Pradesh
3. **Southern Zone** comprising Telangana, Andhra Pradesh, and Karnataka

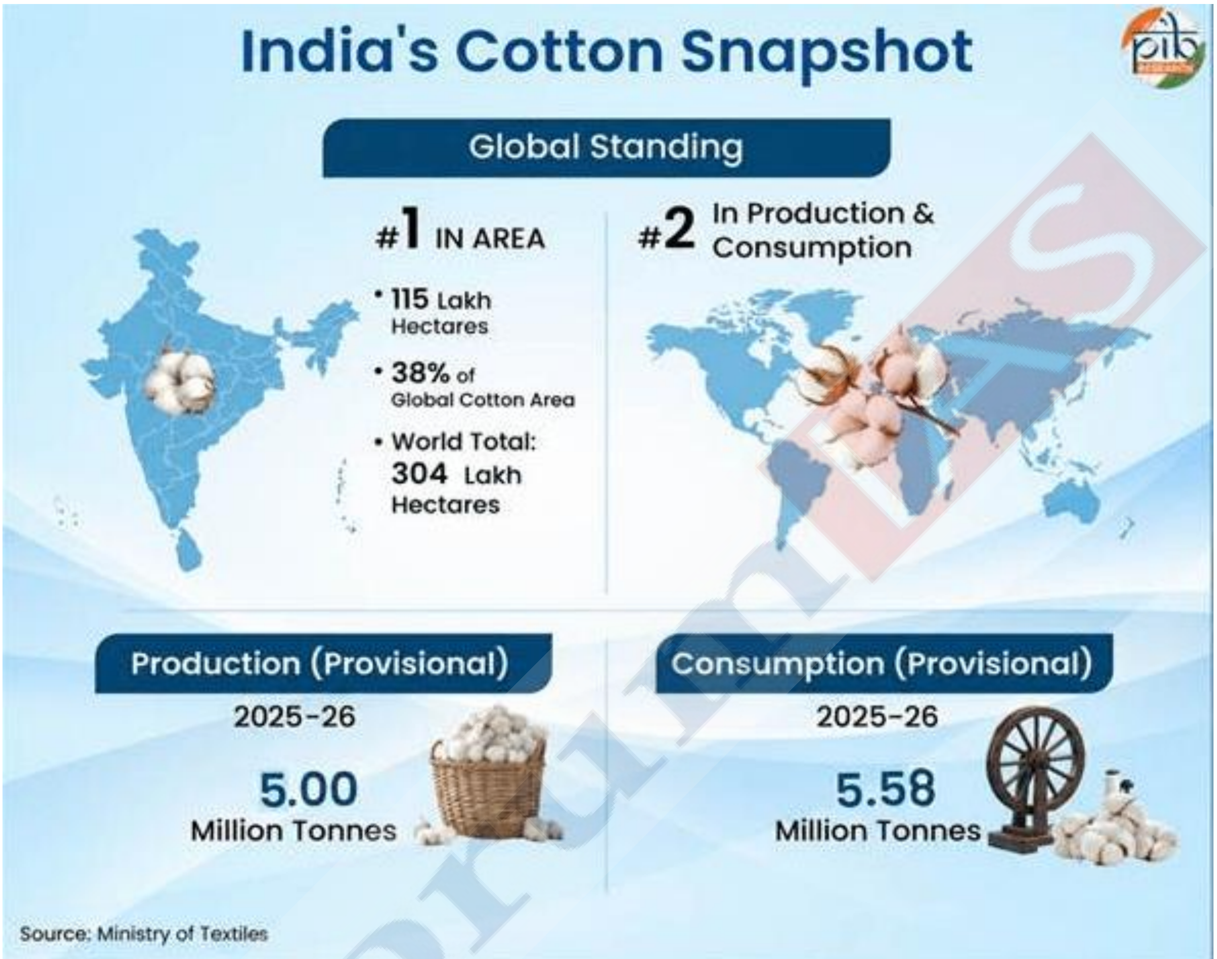
What is the significance of Cotton Sector for India?

1. **Contribution to the Economy**: Cotton is the primary raw material for India's textile sector, which is a major contributor to manufacturing GDP. The broader textile sector contributes around **2% to India's GDP** and roughly **11% to overall manufacturing Gross Value Added (GVA)**.
2. **Livelihood & Employment Generation**: Cotton sustains the livelihoods of nearly **60 lakh farmers** directly, and generates employment for an estimated **4-5 crore people** in allied activities like ginning, pressing, spinning, weaving, processing, and trade – making it one of the largest employment-generating crops in Indian agriculture.
3. **Backbone of the Textile Industry**: Cotton is the primary raw material for India's textile sector, which is a major contributor to manufacturing GDP and one of the largest sources of industrial employment in the country.
4. **Foreign Exchange Earnings**: Cotton is one of the largest contributors to India's net foreign exchange earnings through exports – which include – raw cotton, intermediate products like yarn and fabric, and finished products such as garments, made-ups, and knitwear. In FY26 alone, Cotton Textiles generated over **$9.3 billion in export value** (accounting for nearly 29% of total textile exports).

Source: PIB

5. **Rural Development**: As a major commercial crop, cotton provides much higher farmer income potential compared to many food grains, making it central to the rural cash economy in cotton-growing states like Gujarat, Maharashtra, Telangana, and Punjab. It supports diversification of the cropping pattern away from staple grains, contributing to agricultural income resilience in semi-arid and rain-fed regions.
6. **Enhances Global Trade Competitiveness**: India ranks **second** globally in both **cotton production and consumption.** It accounts for **~20% of global cotton production,** holds the **world's largest**

cotton acreage (38% of global cultivated land), and accounts for about 3.37% of total world exports. As one of the world's largest cotton producers, India occupies an important position in global textile and apparel value chains.



Source: PIB

What are the major challenges confronting India's Cotton Sector?

1. **Low Productivity**: Despite having the largest cotton acreage in the world, India's per-hectare yields (440 kg/ha) remain significantly lower than major competitors like China (~2,311 kg/ha), Brazil (~1,943 kg/ha), and the US (~976 kg/ha), reflecting a persistent productivity gap.
2. **High Cost of Cultivation**: Cotton picking is a labor-intensive process, accounting for **30-35% of total cultivation costs**. Acute labor shortages during the peak picking season make this dependence increasingly unsustainable, yet a lack of investment in research for mechanization-ready varieties and suitable equipment holds back progress.
3. **Pest and Disease Attacks**: Pests like the **Pink Bollworm** and **Whitefly** have developed widespread resistance, leading to major crop failures in Gujarat, Maharashtra, and Punjab. Widespread resistance of the pink bollworm to existing Bt cotton has emerged as a major threat to yields and quality, undermining the very technology that once boosted Indian cotton output.
4. **Climate Change and Weather Risks**: A large share of cotton cultivation remains rain-fed (62% cotton grown in rainfed regions), making it highly vulnerable to erratic monsoons, droughts, and untimely

heavy rains. Climate change is expected to increase the frequency of such disruptions, threatening long-term yield stability.

5. **Limited Adoption of Technology**: The sector has not seen a major technological breakthrough since the introduction of Bt cotton over two decades ago. Newer, next-generation genetically modified (GM) technologies, such as herbicide-tolerant (Ht) cotton, have been approved for cultivation in some countries but remain stuck in India's regulatory process.
6. **Sustainability and Environmental Concerns**: Conventional cotton cultivation's heavy water and chemical input requirements raise sustainability concerns, especially as global textile buyers push for organic, regenerative, and traceable cotton sourcing.

What initiatives has the government undertaken to boost the Cotton Sector?

MSP and Procurement Support	• Annual fixation of **Minimum Support Price (MSP)** for seed cotton (kapas) by CACP recommendation. • **Cotton Corporation of India (CCI)** conducts MSP procurement operations whenever market prices fall below MSP. • Cabinet approval of a **₹1,718 crore MSP fund** routed through CCI to support continued procurement operations and safeguard farmer incomes amid price pressures.
Mission for Cotton Productivity	• It is a five-year plan (2026-27 to 2030-31), which was approved in May 2026. • Aligned with the **'5F' vision** of farm, fibre, factory, fashion and foreign, the initiative seeks to enhance farmer incomes and ensure a steady supply of quality cotton. • The Mission aims to transform the sector by focusing on three key pillars: 1. **Boosting Productivity Through Technology** 2. **Empowering Farmers and Ensuring Quality** 3. **Expanding the Fibre Base**
Trade Policy Interventions	• Extension of the **11% import duty waiver on cotton** to ensure adequate raw material availability for the domestic textile and spinning industry, especially when domestic production hit a 15-year low.
Kapas Kisan Mobile App	• It enables farmers to access MSP information, locate nearby procurement centres, track payments, and access best farming practice advisories, improving transparency and reducing information asymmetry in cotton marketing.

Kasturi Cotton	• A joint initiative between the Ministry of Textiles, the Cotton Corporation of India (CCI), and TEXPROCIL. • Aims to brand high-quality Indian cotton for global markets, enhancing traceability, quality assurance, and India's positioning in premium international cotton and textile markets.
MITRA (Mega Integrated Textile Region and Apparel) Parks	• Introduced to support integrated textile infrastructure development to strengthen the downstream value chain from cotton to finished garments, boosting global competitiveness and investment attraction.
SAMARTH (Scheme for Capacity Building in the Textile Sector)	• It addresses skill shortages across the cotton-to-textile value chain, with a target of training 10 lakh people to support ginning, spinning, weaving, and garmenting industries.

What should be the way forward?

1. **Bridging the Productivity Gap**: Accelerate the rollout of Mission for Cotton Productivity with clear, state-wise yield targets, and scale up access to improved seed varieties, precision agriculture, and soil-health-based fertilizer use for smallholder farmers.
2. **Improve Water Use Efficiency**: Expand subsidized access to precision drip irrigation and micro-irrigation, particularly in rain-fed cotton belts, to reduce climate vulnerability and water intensity simultaneously.
3. **Strengthen Pest and Disease Management**: Fast-track a transparent, science-based regulatory review of next-generation Bt/GM cotton technologies to address pink bollworm resistance, balancing biosafety concerns with the urgent productivity need.
4. **Develop Climate-resilient Varieties**: Promote climate-resilient, drought-tolerant cotton varieties suited to erratic monsoon patterns, and strengthen weather-based crop insurance uptake among cotton farmers.
5. **Enhance Quality of Cotton Produce**: Introduce price premiums for farmers based on fibre quality parameters like staple length and strength – that would encourage the production of superior cotton.
6. **Develop Robust Supply Chains**: Deepen implementation of MITRA textile parks and SAMARTH skilling to help India move up the value chain from raw cotton and yarn exports toward higher-value finished garments and technical textiles.
7. **Boost Export Competitiveness**: Expand the Kasturi Cotton initiative with robust digital traceability (blockchain-based certification) to strengthen India's positioning in global markets increasingly demanding sustainable and traceable cotton.

UPSC GS-3: Agriculture
Read More: PIB

Foreign Contribution (Regulation) Act (FCRA) – Significance & Concerns – Explained Pointwise

The Foreign Contribution (Regulation) Act (FCRA), 2010 regulates the acceptance and utilisation of foreign funds by individuals, associations and NGOs to ensure transparency and safeguard national interests. The government's newly notified **FCRA Amendment Rules 2026** significantly tighten compliance. They mandate purpose-specific and geographical registration, hold "key functionaries" personally liable, expand social media disclosures, and require utilizing 75% of existing funds before receiving new installments.

What is the Foreign Contribution (Regulation) Act (FCRA)?

- The Foreign Contribution (Regulation) Act (FCRA) is a law that regulates the acceptance and utilization of foreign contributions or hospitality by individuals, associations, and companies to ensure they do not adversely affect national security, public order, or national interest.
- Enforced by the **Ministry of Home Affairs**, it prevents foreign entities from influencing India's internal politics, media, and public discourse.

What are some of the important provisions of the FCRA?

1. **Mandatory Registration or Prior Permission:** Organizations with cultural, educational, economic, or social programs must be officially registered with the Central Government to receive foreign contributions. Alternatively, they must obtain 'Prior Permission' for specific grants.
2. **Prohibited Entities:** Certain individuals and professions are entirely banned from accepting foreign contributions. These include election candidates, journalists, newspaper/media owners, judges, government servants, political parties, and members of legislative bodies.
3. **Registration and Renewal**: The Central Government grants registration, which is valid for **five years** and must be renewed within six months of expiry to remain valid. Newer organizations can seek 'prior permission' for a specific project from a specific donor.
4. **Banking and Utilization Rules**:
    - All foreign contributions must be received in a **single, exclusive FCRA bank account** at the State Bank of India's main branch in New Delhi.
    - Organizations can open additional accounts in scheduled banks solely for the **utilization** of these funds, but they must report this within 45 days.
    - The law caps the use of foreign funds for administrative expenses at **20%.**
    - The funds cannot be used for speculative business and must be utilized strictly within India for the approved purpose.
5. **Accounting and Reporting**: Recipients must maintain separate accounting records and file an annual online return in **Form FC-4** by December 31st each year. The return must be certified by a chartered accountant and include a balance sheet and income/expenditure statement. Records must be preserved for six years.
6. **Surrender and Cancellation of Registration:** The Central Government can suspend or cancel an organization's FCRA registration if there are violations of the Act. Organizations can also voluntarily surrender their registration, after which their foreign funds and related assets are transferred to a designated government authority.

What are the key objectives of the FCRA?

1. **Regulating the Acceptance of Foreign Funds**: The FCRA provides a structured mechanism to monitor who is bringing money into the country from abroad. It ensures that any individual, association, or company receiving foreign hospitality or cash is strictly registered, verified, and trackable.
2. **Preventing Activities Detrimental to National Interest**: A major objective is to block foreign entities from funding proxy agendas inside India. The law seeks to prevent foreign contributions from being used for activities that could pose a threat to:
    a. The sovereignty and integrity of India.
    b. Public interest or internal security.
    c. Strategic, scientific, or economic interests of the state.
    d. Harmony between religious, racial, social, linguistic, or regional groups.
3. **Insulating India's Democratic Institutions**: By placing a blanket ban on political parties, candidates, judges, legislators, and mainstream journalists, the objective is to ensure that domestic policy and public opinion are shaped exclusively by Indian citizens, not foreign donors.
4. **Enhancing Transparency & Accountability**: The Act forces NGOs and social organizations to be entirely transparent about how they use foreign aid. It requires registered entities to submit annual returns, audited accounts, and financial statements detailing the exact source and utilization of foreign funds.

What are the key changes introduced by the latest amendments to the FCRA Rules?

1. **Activity & Geographic Restrictions:** Registrations are now strictly activity-based and geography-based. Organizations must declare specific approved states/union territories of operation, utilize funds for designated purposes, and declare their social media accounts.
2. **No Proselytisation:** While faith-based activities like maintenance of worship places, religious education, and community kitchens are permitted, they strictly exclude proselytisation or religious conversion.
3. **Reasonable Activity Clause:** Organizations must utilize a minimum of ₹10 lakh in foreign funds over two financial years to demonstrate active operations.
4. **Vesting of Assets:** If an organization's FCRA registration is cancelled, surrendered, or expires without renewal, its foreign contributions and physical assets provisionally vest in a government-appointed Designated Authority.
5. **Permanent Takeover:** If registration is not restored, the assets permanently vest with the Authority, which may sell them or transfer them to government bodies, with proceeds credited to the Consolidated Fund of India.
6. **Expanded Definitions:** The definition of "key functionaries" now encompasses trustees, partners, governing body members, and anyone controlling the organization.
7. **Foreigner Restrictions:** Organizations with foreign nationals (other than OCI or Persons of Indian origin) as key functionaries are generally ineligible for registration unless specifically cleared by the central government.
8. **Usage Caps & Staged Receipts:** Subsequent installments of foreign funds can only be released after at least 75% of the prior installment has been spent and verified.
9. **Restrictions on "News" Activities**: Organizations must declare if they publish any books or articles, as they are prohibited from producing or broadcasting "news or current affairs" under the Act.

What is the significance of the FCRA?

1. **Sovereignty and National Security:** The primary purpose of FCRA is to protect the sovereignty & national security. It was enacted to ensure that the foreign money cannot be used to:
   - Fund **political destabilisation** or influence electoral outcomes.
   - Support **separatist or secessionist movements** (e.g., concerns about foreign funding to organisations in Kashmir, Northeast India).
   - Advance **religious conversion** activities that may cause communal friction.
   - Undermine **strategic national interests** through NGO-led campaigns against defence, nuclear, or infrastructure projects.
2. **Regulation of Civil Society and NGO Ecosystem**: India has one of the world's largest NGO sectors. FCRA is the **primary regulatory lever** governing the approximately 16,000–22,000 organisations registered to receive foreign funds.
3. **Ensuring Transparency and Accountability**: The Act creates a strict compliance regime. It requires NGOs to register, report their foreign receipts and expenditures in detail, and use funds only for their stated purposes, thereby making the flow and use of foreign money transparent.
4. **Enforcing Compliance**: In recent years, the government has used the FCRA to significantly increase scrutiny. This is evident in the cancellation of over 20,000 FCRA registrations of organizations for non-compliance.

What are the major criticisms of the FCRA framework in India?

1. **Vagueness of Key Provisions**: The Act prohibits activities "detrimental to national interest" or affecting "public order, security of State, harmony between religious, racial, linguistic or regional groups" — but these terms are **not defined** in the Act.

2. **Weaponisation Against Dissent**: The FCRA has often been criticised for being selectively enforced to silence organisations critical of government policies. Between 2014 and 2022, over **20,000 FCRA registrations** were cancelled — a scale critics argue cannot be explained by genuine security concerns alone.
3. **The Sub-Granting Ban**: India's civil society ecosystem historically functioned on a **hub-and-spoke model** — larger, registered organisations received foreign funds and channelled them to smaller, specialised grassroots groups. The ban effectively **severs this ecosystem**, leaving smaller organisations — often working with the most marginalised communities — without funding.
4. **The 20% Administrative Cost Cap**: The reduction of the administrative expense ceiling from **50% to 20%** of foreign contributions has drawn sharp criticism. The cap does not reflect **ground realities** of non-profit operations in India, where costs of compliance, rent, travel to remote areas, and staff training are substantial. For many organisations — particularly advocacy, legal aid, and research bodies where **human capital is the primary resource** — staff salaries alone exceed 20% of total expenditure.
5. **SBI New Delhi Main Branch Requirement**: The mandatory requirement that all FCRA-registered organisations maintain their **designated account only at SBI's New Delhi Main Branch** has been widely criticised. Organisations based in **Chennai, Kolkata, Ahmedabad, or rural areas** must operate a bank account 1,000+ kilometres away from their operations. It creates **severe practical difficulties** — physical banking, cheque clearing, cash management, and local vendor payments all become complicated.
6. **Due Process Deficits**: The procedural framework for **suspension and cancellation** of FCRA registration has been criticised for inadequate safeguards:
   - The MHA can **suspend registration for 180 days** on the basis of pending inquiry — effectively shutting down an organisation for six months without any finding of wrongdoing.
   - The **appellate mechanism** (appeal to the High Court) is expensive and slow — organisations may cease to exist financially before judicial relief is obtained.
   - There is **no independent adjudicatory body** — the MHA is simultaneously the regulator, prosecutor, and decision-maker, violating basic principles of **natural justice and institutional separation.**
7. **Chilling Effect on Legitimate Civil Society Activities**: Organisations avoid taking on **controversial causes** — environmental litigation against state projects, minority rights cases, anti-corruption campaigns — for fear of FCRA action. This progressively **depoliticises Indian civil society**, leaving only service-delivery organisations (which are less threatening to state power) while advocacy and rights organisations are weakened.
8. **Disproportionate Impact on Marginalised Communities**: The cumulative effect of FCRA restrictions falls most heavily on **India's most vulnerable populations.** Organisations working with **Adivasi communities** on land and forest rights — which frequently conflict with state and corporate interests — face disproportionate FCRA scrutiny.
9. **International Law and Human Rights Concerns**: The FCRA framework has been criticised as incompatible with India's **international human rights obligations:**
   - The **UN Declaration on Human Rights Defenders** (1998) recognises the right of civil society to seek and receive funding — including from foreign sources — for legitimate rights work.
   - The framework potentially violates **Article 22 of the ICCPR** (freedom of association), to which India is a party.

What reforms are needed to make the FCRA regime more effective and balanced?

1. **Expedite Processing Times:** Introduce strict, legally binding service-level agreements (SLAs) for processing FCRA registration, renewal, and prior permission requests to prevent administrative backlogs and project disruptions.
2. **Grievance Redressal Mechanisms:** Establish an independent ombudsman or a dedicated grievance redressal cell within the Ministry of Home Affairs (MHA) to allow non-governmental organizations (NGOs) to appeal licensing delays or arbitrary cancellations transparently.
3. **Rationalize Administrative Caps:** Revisit the restriction that caps administrative expenses at 20% of foreign funds. Many specialized development and advocacy organizations require higher operational and administrative budgets to function efficiently.
4. **Re-permit Sub-Granting**: Reintroduce sub-granting but attach strict **"chain-link responsibility"** to it. The primary recipient NGO would remain legally and financially accountable for verifying the end-use of the funds by the smaller partner. This maintains transparency without cutting off the financial lifeblood of micro-level community organizations.
5. **Standardize & Define Vague Terminology**: Terms like "national interest," "public order," and "harmonious relations" must be given **precise, narrow definitions**. Clear legal definitions eliminate ambiguity, giving NGOs a transparent blueprint of boundaries they cannot cross, rather than leaving them vulnerable to shifting political definitions of what is "acceptable" work.
6. **Rationalising the SBI New Delhi Main Branch Requirement**: The mandatory SBI New Delhi Main Branch account should be **replaced with a designated account at any scheduled commercial bank**, with real-time reporting to a central FCRA monitoring system.
7. **Adoption of the UN Framework on Civil Society Funding**: India should align FCRA with the **UN Declaration on Human Rights Defenders** and the recommendations of the **UN Special Rapporteur on Freedom of Association**, which recognise the right of civil society to **seek, receive, and utilise resources** — including from foreign sources — for legitimate rights work.

Conclusion: A reformed FCRA should rest on three foundational principles – **Proportionality, Institutional independence & Democratic legitimacy.** A framework built on these principles would better serve India's twin interests: protecting national sovereignty from genuine foreign interference while preserving the civil society ecosystem that is indispensable to a functioning democracy.

UPSC GS-2: Civil Society
Read More: The Hindu, The Hindu

Plurilateral Trade Agreements (PTAs) – Explained Pointwise

India has consistently opposed plurilateral trade agreements, arguing that they undermine the WTO's consensus-based, multilateral framework and marginalize developing countries. However, this stance is increasingly questioned by both developed and developing nations like Cambodia & Gambia, which view plurilateral agreements as pragmatic instruments for advancing trade liberalization amid prolonged deadlocks in multilateral negotiations – thus, alleging India for holding up the WTO reform process.

What are Plurilateral Trade Agreements (PTAs)?

- Plurilateral Trade Agreements (PTAs) are trade deals between a subset of World Trade Organization (WTO) members, making them distinct from agreements that bind all members. They represent a flexible approach to making trade rules when achieving a global consensus is difficult.
- They cover specific sectors or issues, as opposed to multilateral agreements which bind all WTO members.
- They exist under the **WTO framework but outside the "single undertaking" principle.**
- **Annex 4** of the **Marrakesh Agreement** (WTO's founding treaty) allows plurilateral agreements as an exception to the multilateral consensus model.
- **Examples of PTAs:**
    - **Within the WTO (Annex 4 Agreements):**
        - Agreement on Trade in Civil Aircraft
        - Agreement on Government Procurement (GPA)
        - Information Technology Agreement
    - **Outside the WTO** (but within WTO framework) (**Joint Statement Initiatives**): Agreements on **E-commerce**, **Investment Facilitation for Development**, **MSMEs**, and **Domestic Services Regulation.**
    - **Mega-Regional Agreements:**
        - Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)
        - Regional Comprehensive Economic Partnership (RCEP)

Why are PTAs Becoming Popular?

1. **Slow Progress in WTO Negotiations**: Under the World Trade Organization (WTO), major agreements require consensus among all 160+ member states (**Single Undertaking Principle**). Given the deep divergence in priorities between developed, developing, and emerging economies, reaching universal consensus has become nearly impossible for e.g. last major multilateral outcome was the Trade Facilitation Agreement (2013, Bali).
2. **Faster Decision-Making**: With fewer participating countries, negotiations are quicker and consensus is easier to achieve. For e.g. Negotiating among 15 to 40 like-minded nations takes significantly less time than coordinating among the entire global membership.
3. **Addressing Emerging Trade Issues**: Rather than attempting comprehensive economy-wide deals, PTAs allow countries to zero in on specific sectors (e.g. e-commerce, investment facilitation, or green tariffs) where shared standards are urgently needed.
4. **Dysfunction of the WTO Dispute Settlement System**: The Appellate Body has been non-functional since 2019 due to the US blocking judge appointments, weakening confidence in multilateral enforcement. This pushes countries toward alternative cooperative arrangements (plurilaterals, regional/bilateral FTAs) where they can shape rules directly rather than relying on a broken adjudication mechanism.
5. **Greater Flexibility**: Plurilaterals let reform-minded countries move ahead without being held hostage by the most reluctant member. Countries with shared interests (e.g. digital economies, similar development levels) can set higher, more ambitious standards among themselves.
6. **Response to Unilateralism:** As major powers resort to unilateral tariffs and protectionist industrial policies, like-minded middle powers and trading partners use PTAs to safeguard predictable, rules-based access within their regional or thematic coalitions.
7. **Supply Chain Resilience:** PTAs enable member states to construct secure, trusted supply networks among partners that share similar regulatory and data-governance frameworks.

What has been India's approach towards Plurilateral Trade Agreements?

- India's approach to Plurilateral Trade Agreements (PTAs) is defined by a strong, principled opposition rooted in its commitment to the traditional, consensus-based multilateral system of the World Trade Organization (WTO).
- While Western economies and major trading blocs view plurilateral agreements (called **Joint Statement Initiatives (JSIs))** as a pragmatic way to bypass WTO gridlock, India views them as a potential threat to the multilateral trading system and developing-nation interests.
- This stance has made India a central figure in the global debate on the future of trade rule-making, often putting it at odds with a large coalition of other countries.

What are the major concerns associated with Plurilateral Trade Agreements for India?

1. **Erosion of the Multilateral Trading System**: PTAs may weaken the WTO's consensus-based multilateral framework by creating exclusive trade arrangements. India fears that normalizing PTAs will transform the WTO into a two-tier, fragmented institution where major trading powers dictate the direction of global trade rules outside of consensus mechanisms.
2. **Limited Policy Space**: Stringent commitments may restrict India's flexibility in framing policies on agriculture, industry, digital economy, and public procurement. For e.g.:
    - **E-commerce**: Binding rules on data flows, source code disclosure, and customs duty moratoriums could restrict India's ability to pursue data localization, digital taxation (equalization levy), and infant digital industry protection.
    - **Investment facilitation**: Commitments on transparency and streamlined approval processes could constrain India's regulatory flexibility on FDI screening, especially from geopolitically sensitive sources (e.g. Restrictions on bordering countries).
3. **Unequal Bargaining Power**: Plurilateral tracks are often driven by developed economies and large trading blocs (EU, US, China) with greater technical and legal capacity. Developing countries like India risk being pressured into commitments without adequate preparation time or expertise.
4. **Dilution of Special and Differential Treatment (S&DT)**: S&DT provisions (longer implementation timelines, lower commitment levels for developing countries) were multilaterally negotiated, PTAs risk setting new baseline standards that implicitly pressure developing countries to conform without corresponding flexibilities.
5. **High-Standard Trade Rules**: PTAs often include strict provisions on intellectual property, digital trade, labour, and environmental standards, making compliance difficult.
6. **Lack of Legal Mandate**: India contends that certain plurilateral issues, such as investment facilitation, fall outside the WTO's traditional mandate, which is focused on trade in goods and services.

What are the potential benefits of Plurilateral Trade Agreements for India?

1. **Faster Access to Rule-Making on Emerging Issues**: Participating selectively in PTAs allows India to shape rules early on digital trade, e-commerce, and investment facilitation rather than being a passive rule-taker once standards are set by others and later converted into multilaterals.
2. **Boost to Services and Digital Exports**: India is a **major services exporter**. Plurilateral agreements on services domestic regulation (streamlining licensing, qualification, and authorization procedures) could reduce non-tariff barriers Indian service providers face abroad.
3. **Attracting Foreign Direct Investment (FDI)**: Pacts like the Investment Facilitation for Development (IFD) agreement aim to simplify administrative procedures, speed up investment clearances, and enhance transparency. Participating in such frameworks signals to global multinationals that India is an open, low-risk destination for foreign manufacturing and capital.

4. **Integration with Global Value Chains (GVCs)**: Plurilateral discussions on MSME-friendly trade facilitation (simplified customs procedures, information portals, reduced compliance burden) directly support India's push to integrate MSMEs into export value chains.
5. **Enhancing Competitiveness**: Greater competition can encourage Indian industries to improve productivity, quality, and efficiency – which will help in improving the competitiveness of Indian exports in global market.
6. **Strategic Alignment with Trusted Partners**: Selective plurilateral participation lets India align with like-minded economies (for e.g. Indo-Pacific partners) on supply chain resilience and digital economy norms, reinforcing India's broader geo-economic positioning (China+1) without the full complexity of comprehensive FTAs.

UPSC GS-3: Indian Economy
Read More: Indian Express

Fast Track Courts – Significance & Challenges – Explained Pointwise

Recently, Prime Minister Narendra Modi announced the government's decision to set up fast-track courts specifically to ensure swift and stringent punishment for those involved in **public examination paper leaks** . This initiative is aimed at safeguarding the interests of students and acts as a deterrent against examination fraud.

What are Fast Track Courts?

- **Fast Track Courts (FTCs)** are **special courts established to ensure the speedy disposal of specific categories of cases**, particularly those involving serious crimes, long-pending cases, and matters of public importance.

- They aim to reduce judicial delays, improve access to justice, and strengthen public confidence in the justice delivery system.
- Unlike regular courts that handle a wide variety of civil and criminal matters on a general roster, FTCs are designed to operate with relaxed procedural delays, holding **daily or short-interval hearings** to resolve designated cases within strict timelines.
- They are established under **State enactments/High Court notifications**, and are not a separate constitutional court. They function within the existing judicial hierarchy (usually at Sessions Court level), staffed by additional judges (often on contractual/ad-hoc basis).
- The establishment of FTCs is a joint responsibility between the Union and State governments. While the Centre provides policy and financial support, states must set up the courts in consultation with their High Courts.

How has the Fast Track Court system evolved in India?

11th Finance Commission (2000)	FTCs were first recommended by the **11th Finance Commission (2000)** to address long-pending cases clogging the lower judiciary, particularly cases involving undertrial prisoners who had been in jail for extended periods.
14th Finance Commission (2015)	The **14th Finance Commission** further recommended setting up 1,800 such courts to handle heinous crimes, cases involving women, children, and the elderly, and property disputes pending for over five years.
Fast Track Special Courts (FTSCs)	Following the Criminal Law (Amendment) Act 2018 and Supreme Court directives, the Centre launched a **Centrally Sponsored Scheme** in October 2019 funded via the **Nirbhaya Fund.** This established dedicated **Fast Track Special Courts (FTSCs)** exclusively handling rape cases under the Indian Penal Code and cases under the **POCSO (Protection of Children from Sexual Offences) Act**.

Thus, 2 types of FTCs have evolved over time in India:

1. **General Fast Track Courts (FTCs):** FTCs which were recommended by 11th & 14th Finance Commissions. As of January 2026, **862 such courts** were functional across 21 States and Union Territories.
2. **Fast Track Special Courts (FTSCs):** FTCs which were established under the Centrally Sponsored Scheme. These courts are centrally funded and exclusively dedicated to the time-bound trial of rape cases and offenses under the POCSO Act. As of mid-2026, **774 such courts** are functional across the 29 States and Union Territories.

What is the significance for Fast Track Courts in India?

1. **Ensures Speedy Justice**: FTCs process cases much faster than regular courts. In 2024, Fast Track Special Courts (FTSCs) disposed of about **9.5 cases per month** compared to around 3.3 by regular courts. In the same year, these courts achieved a remarkable disposal rate of **96.28%**, resolving 85,595 out of 88,902 new cases filed.

2. **Reduces Case Pendency**: FTCs have collectively disposed of millions of cases, with general FTCs resolving over **4 million cases** in the last three years alone. Thus, FTC allows regular courts to focus on general caseload while specialized courts handle time-sensitive categories. This directly addresses the massive backlog plaguing the regular judicial system.
3. **Victim-Centric Approach**: These courts are designed to be more sensitive to survivors. This includes establishing **Vulnerable Witness Deposition Centers (VWDCs)** to make the court environment less intimidating for children and victims, and recommending child psychologists to assist with trial procedures
4. **Strengthens Public Confidence**: Swift investigation-to-conviction timelines in cases of rape and child sexual abuse are seen as strengthening the **deterrent effect** of criminal law, addressing public perception that delayed justice emboldens offenders.
5. **Helps Fulfil Constitutional Mandate**: The Supreme Court of India recognizes the **Right to a Speedy Trial** as a fundamental component of the Right to Life and Personal Liberty under Article 21. By holding continuous hearings with limited adjournments, FTCs operationalize this constitutional guarantee by providing a dedicated mechanism to prevent prolonged undertrial detention and case delays.

What are the key challenges faced by Fast Track Courts in India?

1. **Shortage of Judges**: Vacancies in the subordinate judiciary reduce the effectiveness of Fast Track Courts. For e.g. in Maharashtra, of the 138 sanctioned fast-track courts, only **58** are functional, primarily due to a lack of judges.
2. **Inadequate Infrastructure**: Remote and rural FTCs face severe technological limitations, lacking modern digital case-management systems, video-conferencing facilities, and dedicated child-friendly spaces required for sensitive POCSO trials.
3. **Low Conviction Rate**: In 2024, conviction rates in these courts were alarmingly low in many states. For instance, West Bengal recorded just **2%**, Jammu & Kashmir **4.5%**, and Andhra Pradesh **5.2%**. Even Delhi, with its lengthy trials, had a conviction rate of only **8.6%.**
4. **Heavy Case Load**: While FTSCs have high clearance rates (~9.5 cases resolved per month per judge compared to ~3.3 in regular courts), the sheer volume of newly instituted cases keeps cumulative pendency high. As of recent filings, over **2.4 lakh cases remained pending** in FTSCs nationwide due to high institution rates.
5. **Poor Resource Allocation**: The funding and operational responsibility for these courts is shared between the central and state governments. Some states struggle to allocate the necessary resources, leading to a huge disparity in performance.
6. **Delays in Investigation:** Delays in police charge-sheets, slow execution of summons, and difficulty in ensuring witness attendance frequently force judges to grant adjournments, stalling the trial timeline.
7. **Lack of Uniform Implementation**: While funding and guidelines are established centrally, execution, court creation, and staff recruitment depend on State Governments and High Courts. Variations in state budgets lead to uneven implementation across regions.

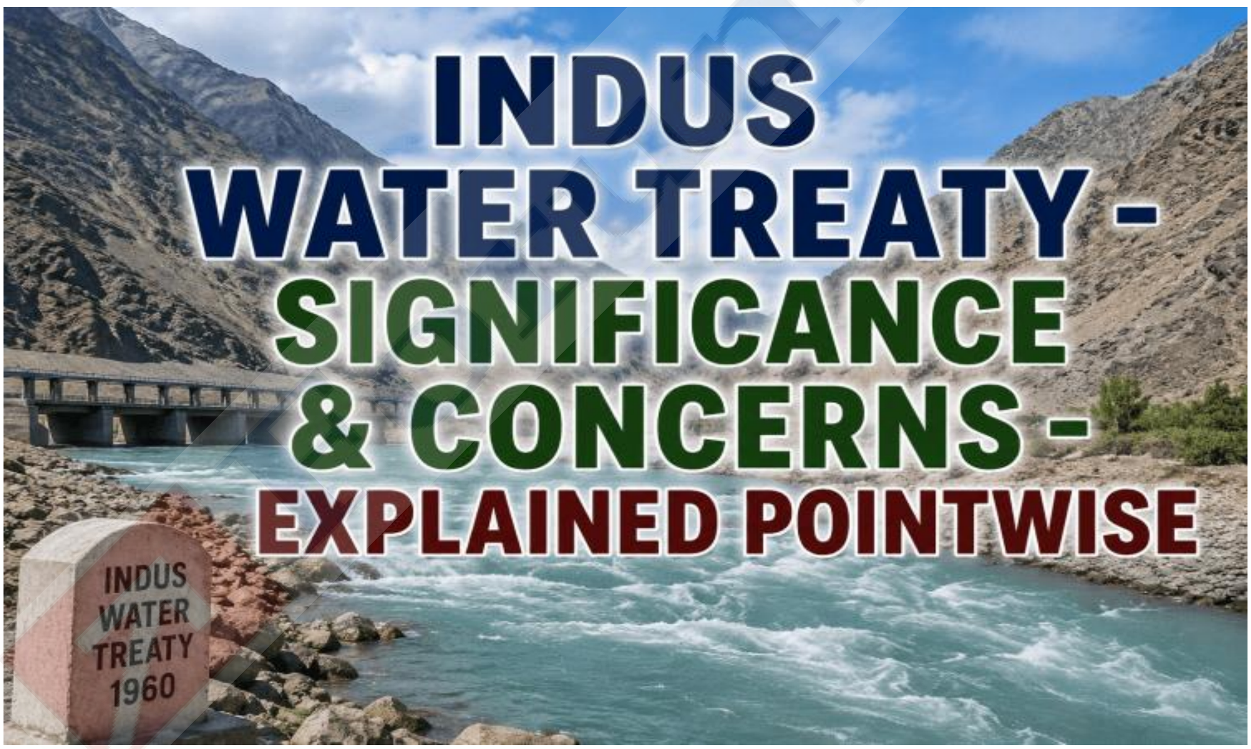
What measures can be adopted to improve the effectiveness of Fast Track Courts?

1. **Fill Judicial Vacancies**: Move away from ad-hoc/contractual appointments toward a **dedicated, permanent cadre of judges** for FTCs to ensure continuity, accumulated expertise (especially in POCSO/rape trials), and reduced disruption from judge turnover.
2. **Strengthen Court Infrastructure**: Ensure **dedicated courtrooms** for every sanctioned FTC/FTSC rather than shared time-slots with regular courts. Accelerate integration with the **e-Courts Mission** (Phase III) for digital case management, e-filing, and virtual hearings to cut procedural delays.

3. **Increase Financial Support**: Rather than relying on short-term extensions of centrally sponsored schemes (like those funded under the Nirbhaya Fund), the central and state governments must permanently absorb FTSCs into the regular judicial budget.
4. **Improve Inter-Agency Coordination**: Set up **coordination committees** at the district level linking police, prosecution, forensic labs, and the judiciary to synchronize timelines from FIR to trial. Fix **statutory time limits** at each stage (investigation, chargesheet filing, trial completion) with accountability mechanisms for delays.
5. **Expand the Scope Where Necessary**: Consider extending the FTC model to other backlog-heavy, socially urgent categories (cyber crimes, crimes against senior citizens) based on lessons learned from POCSO/rape FTSCs.
6. **Strengthen Alternative Dispute Resolution (ADR)**: Promote mediation, arbitration, and Lok Adalats for suitable civil disputes, allowing Fast Track Courts to focus on serious criminal cases.

UPSC GS-2: Indian Polity
Read more: Indian Express

Indus Water Treaty – Significance & Concerns – Explained Pointwise



Indus Water Treaty, negotiated in 1960 between India and Pakistan, is a landmark transboundary water-sharing mechanism. The Treaty has **12 Articles** & **8 Annexures** (from A to H). It has survived 4 wars, decades of cross-border terrorism against India by Pakistan, and a long history of antagonism between the two countries. However, disagreements have persisted among both India and Pakistan over the treaty. Following the 2025 Pahalgam terror attack, India has placed the treaty in abeyance and is seeking its review and modification. Before placing the Indus Waters Treaty in abeyance, India had sought amendments to the treaty in 2024, citing dissatisfaction with the dispute resolution process and alleging Pakistan's continued **intransigence** in implementing its provisions. Meanwhile, Pakistan has consistently objected to India's construction of the **Kishenganga** and **Ratle** hydroelectric projects, alleging violations of the treaty.

What is the History behind the introduction of the Indus Water Treaty? What are its main provisions?

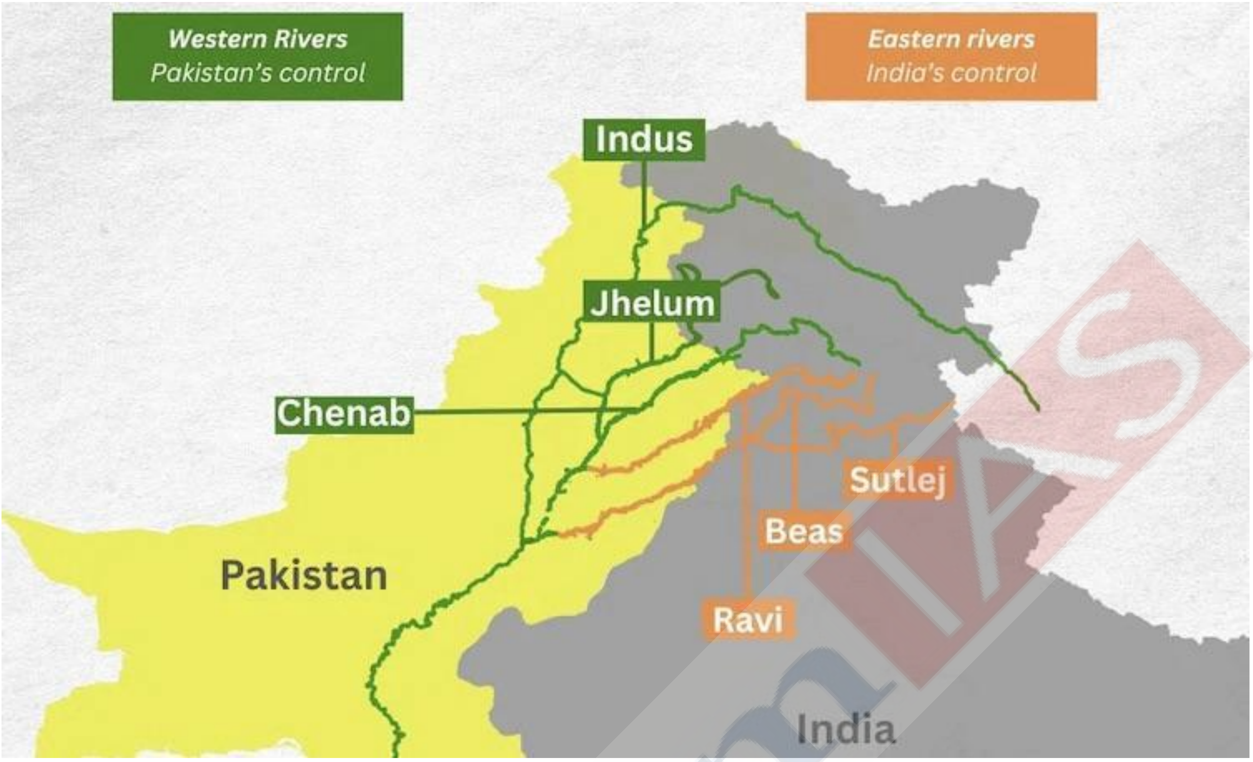
History Behind the Indus Water Treaty

Pre Independence	Preceding partition, the six rivers of the Indus basin, which originated in the Himalayas/Tibet (Indus, Sutlej, Beas, Ravi, Jhelum and Chenab) was a common network, for both India and Pakistan.
At the Time of Partition	The partition of India raised questions about the distribution of water between the two nations. Since the rivers flowed from India, Pakistan felt threatened by the prospect of control of river waters by India.
Inter-Dominion Accord (May 4, 1948)	The Inter-Dominion Accord of May 4, 1948 laid out that India would release enough water to Pakistan in return for annual payments (by Pakistan). However, the problems of this arrangement were soon realized and it was considered necessary to find an alternative solution.
Indus Water Treaty 1960	India and Pakistan signed the Indus Water Treaty with the intervention of the World Bank in 1960. Precise details were laid out regarding the way in which the waters would be distributed.

Main Provisions of the Indus Water Treaty:

Eastern Rivers with India	Under the Indus treaty, all the waters of **3 eastern rivers** namely **Ravi, Sutlej,** and **Beas** (with a mean annual flow of 33 Million Acre-feet (MAF)) were allocated to India for exclusive use.
Western Rivers with Pakistan	Pakistan gets control of **3 Western Rivers** (**Chenab**, **Indus** and **Jhelum**) with a mean annual flow of 80 Million Acre-feet (MAF).
Western River Water utilization permitted for India	The Indus River treaty allows India to utilize the waters of Western Rivers for: **a. Limited irrigation use** **b. Non-consumptive use:** For applications such as power generation, navigation etc. This, allows India to generate hydroelectricity through a run-of-the-river projects (without the storage of waters) on the western rivers, subject to specific criteria for design and operation.

	c. Storage level permitted: India can store up to 3.75 MAF of water of the Western Rivers for conservation and flood storage purposes.
Restrictions on India	India cannot significantly alter the flow of the Western Rivers in a manner that adversely affects Pakistan. Hydropower projects must comply with detailed design and operational criteria laid down in the Treaty.
Water Division Ratio	The Indus Water treaty gives India 20% of the water from the Indus River System and the rest 80% of the water to Pakistan.
Dispute Resolution Mechanism	The Indus Water Treaty provides a **3-step dispute resolution mechanism**. **a. Permanent Indus Commission:** The disputes of the parties can be resolved at the Permanent Commission, or can also be taken up at the inter-government level. **b. Neutral Expert (NE):** In case of unresolved questions or 'differences' between the countries on water-sharing, such as technical differences, either side can approach the World Bank to appoint a Neutral Expert (NE) to come to a decision. **c. Court of Arbitration:** If either party is not satisfied with the Neutral Expert's decision or in case of 'disputes' in the interpretation and extent of the treaty, matters can be referred to a Court of Arbitration.
Hydrological Data Sharing	Both nations must regularly exchange daily data on river flows, water withdrawals, and reservoir levels.
Flood Warnings	India is obligated to share advance flood warning data during the monsoon season.



Source: Insightful Geopolitics

What has been the significance of the Indus Water Treaty?

The Indus Waters Treaty has been largely successful in maintaining water cooperation between India and Pakistan for over 60 years, despite periods of political tensions and conflict between the two countries.

1. **Generous towards lower riparian state:** It is the only water pact that compels an upper riparian state to defer to the interests of a downstream state. Pakistan has been given 80% share in the river water system. This is 90 times greater volume of water than Mexico's share under a 1944 pact with the US.
2. **Surviving Major Conflicts:** The most striking feature of the IWT is its durability. Despite two major wars between India and Pakistan (1965 and 1971), the Kargil conflict (1999), and decades of cross-border terrorism, the treaty stayed functional for over six decades without being formally revoked.
3. **India's Generosity:** India's respect for the values of trans-boundary river treaty is also a major factor behind the successful functioning of the treaty. India chose not to invoke the Vienna Convention on the Law of Treaties, to withdraw from the Indus Water Treaty in the face of terror attacks like Indian Parliament in 2001, Mumbai in 2008, Uri in 2016 and Pulwama in 2019.
4. **India's Green Revolution:** Securing full, unrestricted rights over the Eastern rivers (Sutlej, Beas, Ravi) enabled India to construct massive storage and irrigation projects like the **Bhakra-Nangal Dam** and the **Indira Gandhi Canal**, driving the agricultural success of Punjab, Haryana, and Rajasthan.
5. **Structured Dispute Resolution:** The treaty established a clear, three-tier framework (**Commissioners → Neutral Expert → Court of Arbitration**) to prevent technical disagreements from

escalating into geopolitical deadlocks. This model has been studied globally as a masterclass in conflict resolution for transboundary basins.

6. **Framework for Institutionalized Bilateral Engagement**: The **Permanent Indus Commission**, meeting annually even during periods of active conflict, provided a rare, continuous channel of India-Pakistan bilateral engagement, illustrating the value of functional/technical diplomacy insulated from political relations.

What are the concerns with the Indus Water Treaty?

India's Concerns:

1. **Disproportionate water allocation:** The treaty has resulted in unequal sharing of the waters with 80% allotment to Pakistan & only **20% of the Indus system's total flow** allotted to India, despite India's larger share of the basin's catchment area within its territory. It is the only water-sharing pact in the world that compels upper riparian State to defer to the interests of the downstream State.
2. **Prevents India from building any storage systems on Western Rivers:** Despite the Indus water treaty providing for certain exceptional circumstances for building storage systems on Western Flowing Rivers, Pakistan has deliberately stopped such efforts. The extensively technical nature of the treaty allows Pakistan to stall legitimate Indian Projects.
3. **Pakistan's continued "intransigence" in India's Hydroelectric Projects:** The treaty permits India to build run-of-the-river (non-storage) hydroelectric projects on the Western rivers. However, Pakistan regularly objects to Indian project designs – such as the **Kishanganga (330 MW)** and **Ratle (850 MW)** projects. While Pakistan has built hydropower projects on its rivers, it objects to similar initiatives by India.
4. **Dispute Resolution Mechanism Breakdown**: Pakistan has directly approached arbitration at The Hague, bypassing the treaty-mandated dispute resolution process. Its proposal to invoke the Permanent Court of Arbitration (PCA) for these hydropower projects violates the graded dispute settlement mechanism prescribed under Article IX of the Indus Waters Treaty (IWT).
5. **Old and Outdated Treaty:** According to the Departmentally Related Standing Committees on Water Resources report of 2021, present day pressing issues such as climate change, global warming and environmental impact assessment have not been taken into account by the Treaty. Some of the factors which have become important but are not taken into account by IWT are:
    - **Accelerating Glacial Melt:** Himalayan glaciers feeding the Indus system are retreating rapidly.
    - **Erratic Monsoon & Flooding Patterns:** Extreme weather events cause unpredictable surges, siltation, and seasonal droughts.
    - **Water Stress**: The Indus basin, which has been ranked as the world's second most over-stressed aquifer by NASA in 2015, has been severely affected by climate change.
    - **Lack of Environmental Flow Mandates:** The treaty lacks provisions for maintaining minimum "ecological flows" needed to preserve river ecosystems, manage heavy silt accumulation, or protect coastal deltas in downstream regions.
6. **Loss to Indian States in the Indus Basin:** There have been substantial economic losses to the Indian States in the Indus River Basin. **For e.g.** According to J&K Govt's hired consultant report, J&K has been suffering economic losses due to the Indus Water Treaty which severely restrict the state's agricultural expansion, storage capacities, and vast run-of-the-river hydroelectric potential.
7. **New Engineering Practices**: Engineering practices have evolved significantly since 1960. Modern dam design emphasizes enhanced safety and sustainability through features such as low-level outlets, drawdown flushing, gated spillways, advanced sediment management, and flexible reservoir

operations. These technologies were either unavailable or not widely accepted when the Indus Waters Treaty was negotiated.

8. **Pakistan's Water Crisis Claim**: Pakistan's water crisis stems primarily from inefficient water management, outdated irrigation infrastructure, chronic canal seepage, and inadequate storage capacity rather than upstream water availability. These are domestic governance & infrastructure issues that cannot be reasonably attributed to India's hydropower projects.
9. **India's Call for Review and Modification of the Indus Waters Treaty**: India issued formal notices in 2023 and again in 2024 seeking a **review and modification** of the Indus Waters Treaty (IWT). The inclusion of the term **"review"** in the latest notice reflects New Delhi's intent to revisit and renegotiate the 64-year-old treaty. This is consistent with **Article XII(3)**, which permits amendments to the treaty through a new agreement duly ratified by both governments.

Pakistan's Concerns:

1. **Downstream vulnerability:** Pakistan's agriculture, particularly in Punjab and Sindh, remains critically dependent on Western River flows, making it structurally vulnerable to any upstream disruption by India regardless of the treaty's legal guarantees.
2. **Accusations of 'Water Terrorism':** Pakistan accused India of "water terrorism" for the Shahpurkandi barrage project, despite the project's compliance with the IWT.
3. **Environmental Flow Issues:** Pakistan insists on maintaining environmental flows, supported by the 2013 Permanent Court of Arbitration ruling on India's obligation to release flows downstream of the Kishanganga project.
4. **Unilateral Suspension is Illegal**: Pakistan and international legal experts argue that India's 2025 decision to place the treaty in abeyance is a violation of international law and the treaty itself, which does not allow for unilateral suspension.

Read More- Need to amend the Indus Waters Treaty

What Should be the Way Forward?

1. **Amending the Treaty Under Article XII**: Article XII(3) of the treaty permits modification through a mutually agreed-upon bilateral agreement. Both nations should use this provision to formally negotiate an updated, modernized framework rather than letting the treaty lapse into complete paralysis.
2. **Integration of Ecological Perspectives:** The ecological perspectives must incorporate Environmental Flows (EF) to protect river ecosystems, manage siltation, and prevent ecological degradation in coastal deltas, as suggested by the Brisbane Declaration and the 2013 Permanent Court of Arbitration ruling on Kishanganga.
3. **Recognisation of Climate Change Impacts:** Strategies must be developed to manage climate change effects. India should explore the possibility of using climate change as a 'change in circumstances' to initiate conversation on renegotiation of the IWT.
4. **Dynamic Hydrological Data:** The 1960 framework relies on static historical river flow averages. An updated treaty must incorporate **climate resilience measures**, accounting for accelerating Himalayan glacial melt, shifting monsoon cycles, and extreme weather events.
5. **Incorporation of International Legal Standards:** The treaty provisions must be aligned with the 1997 UN Watercourses Convention and the 2004 Berlin Rules on Water Resources for sustainable water use.

6. **Full Utilization of Eastern River Allocations:** India must rapidly complete its pending storage and diversion projects (e.g. Shahpurkandi Dam, Ujh Multipurpose Project, and Ravi-Beas links) to ensure zero unutilized water flows uncaptured into Pakistan.
7. **Accelerating Run-of-the-River Hydropower:** Expedite run-of-the-river power projects on the Western rivers (Jhelum, Chenab, and Indus) such as Sawalkot HEP, Pakal Dul HEP, Ratle HEP, within permitted parameters to tap the region's estimated **20,000+ MW** clean energy potential.
8. **Use of pressure tactic in case of escalation:** As suggested by some experts, in case of escalation of hostilities by Pakistan in future, India can suspend the meetings of Permanent Commission. If the first state of dispute redressal is not functional, the subsequent two steps of 3-tier dispute redressal don't kick in.
9. **Strengthen India's Position as an Upper Riparian While Preserving Legal High Ground**: India should ensure that any infrastructure development or water-related decisions rigorously comply with international water law principles to preserve its legal and diplomatic credibility in ongoing arbitration and future negotiations.

Conclusion:

The Indus Waters Treaty, despite being resilient, is under increasing strain due to geopolitical tensions because of Pakistan's continued support to cross-border terrorism, climate stress, and domestic water needs. While India has the right to re-evaluate its approach, outright suspension poses significant strategic and legal challenges. A calibrated approach of assertive diplomacy, technical readiness, and treaty modernization is the best path forward.

INDUS WATER TREATY

Key Provisions

River Water Distribution	Eastern Rivers- Ravi, Sutlej, and Beas with India. Western Rivers- Chenab, Indus and Jhelum with Pakistan India's Share- 20% and Pakistan's Share- 80%
Western River Water utilization permitted for India	Non Consumptive Use of Western River Water like construction of Run of River Hydroelectric Plants Permitted to India.
Dispute Resolution Mechanism	3 stage Dispute Resolution Mechanism Stage 1- Permanent Commission Stage 2- Neutral Expert (NE) Stage 3- Court of Arbitration

Significance of the Treaty

1. Successful Model- Only cross border water sharing treaty between two nations in Asia. Treaty between two rivals.
2. Generous towards lower riparian state- Pakistan's share is about 90% greater than Mexico's share in the 1944 treaty with US.
3. Passed the Crisis test- The Permanent Commission has met even during the 1965 and 1971 wars.

Concerns with the Treaty

India's Concerns

1. Dispute over India's Hydroelectric Projects- Pakistan has raised objections on Ratle and Kishanganga Projects.
2. Climate Change Impact- Indus River System is the most water stressed according to NASA.
3. Loss to Indian States in the Indus Basin- J&K and Punjab Complain of million dollar losses

Pakistan's Concerns

1. Lower Riparian Concerns- infrastructure developments will reduce downstream flows
2. Accusations of 'Water Terrorism'- Pakistan has raised objections regarding the Shahpurkandi barrage project.

Way Forward

1. Integration of Ecological Perspectives and Recognisation of Climate Change Impacts.
2. Enhanced Water Data-Sharing
3. Incorporation of International Legal Standards like 1997 UN Watercourses Convention and 2004 Berlin Rules on Water Resources for sustainable water use
4. Pro activeness on India's Part in utilization of allocated water share like desilting of canals and run-off river hydroelectric plants.

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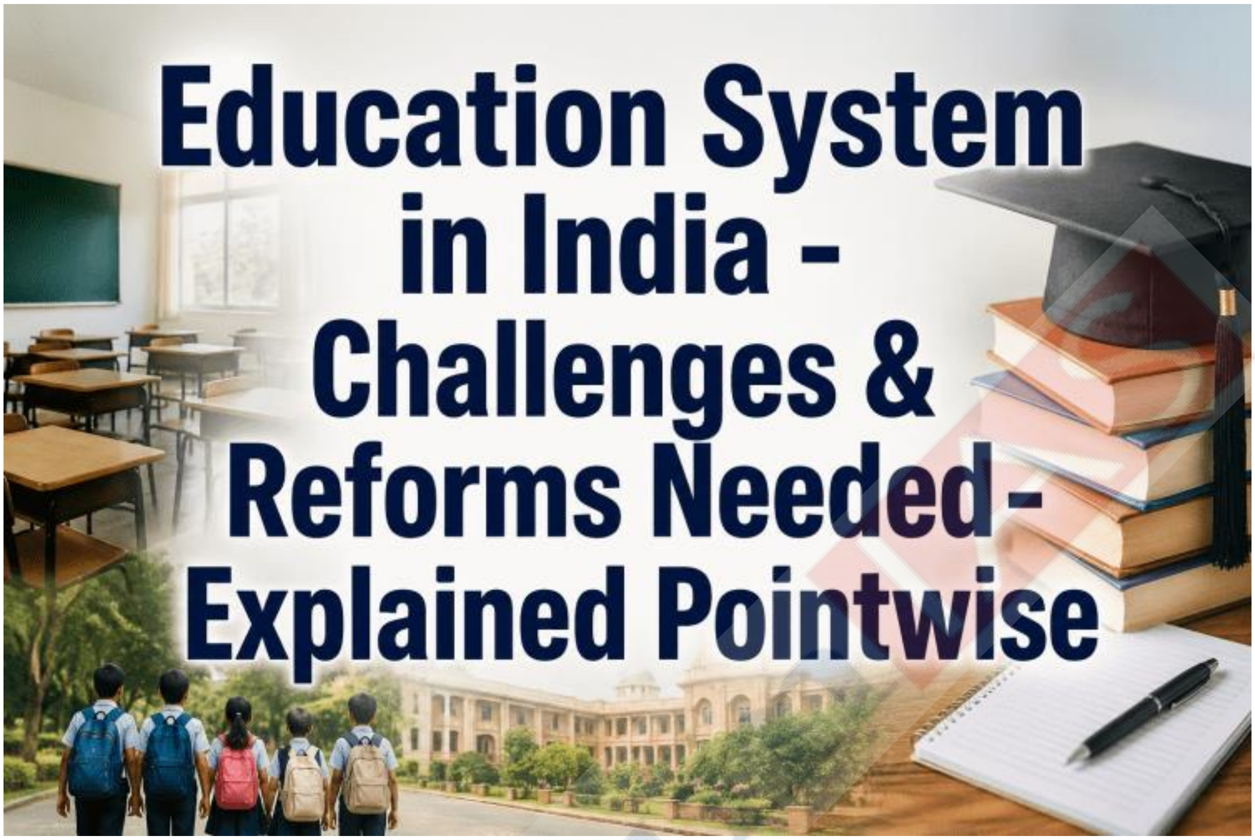
Education System in India – Challenges & Reforms Needed – Explained Pointwise



India's vast education system faces deep structural challenges, balancing massive scale with quality imperatives. The recent student protests in Delhi – triggered by examination paper leaks and administrative lapses – underscore the urgent need for systemic reforms. Modernizing the sector demands accountability, quality, and credibility in education while aligning the system with the aspirations of a young India.

What are the key features of the Education System in India?

- India's education system is one of the **largest in the world**, comprising over 1.5 million schools,1,000+ universities & serving over 250 million students across public and private sectors.
- It is governed under a **concurrent list subject** (education moved from State to Concurrent List via the **42nd Constitutional Amendment, 1976**) – enabling both the Union and State Governments to legislate and formulate policies.
- The education system can be broadly classified into two categories:

School Education	○ Managed by central/state school boards (CBSE, ICSE, State Boards) under the Department of School Education and Literacy (Ministry of Education). ○ The old 10+2 system has been restructured into a **5+3+3+4 model** – which include: 1. **Foundational Stage** (5 years): Pre-school to Grade 2 2. **Preparatory Stage** (3 years): Grades 3-5 3. **Middle Stage** (3 years): Grades 6-8 4. **Secondary Stage** (4 years): Grades 9-12

Higher Education	○ Encompasses post-secondary education, including undergraduate degrees, master's programs, diplomas, and research degrees (Ph.D.). ○ Regulated by central councils and bodies like the University Grants Commission (UGC) and All India Council for Technical Education (AICTE) under the Department of Higher Education.

- However, the education system also include:
  1. **Early Childhood Care & Education (ECCE)**: Historically treated as separate (under welfare programs like Anganwadis), preschool education (ages 3–6) is now formally integrated into the **Foundational Stage** of school education under the 5+3+3+4 structure.
  2. **Vocational & Technical Education (VET/TVET):** Skill development (e.g. ITI diplomas, vocational training, polytechnics) begins in secondary school and extends into higher education. It acts as a bridge connecting both tiers to direct workforce entry.

What is the significance of education for India's socio-economic development?

1. **Promotes Human Capital Development**: India possesses one of the world's youngest populations, with over **62% of its citizens in the working-age group (15–64 years).** Education converts a large population from a demographic burden into a productive economic asset.
2. **Generates Employment**: Education enhances employability by equipping individuals with knowledge, technical skills, and vocational training. It prepares a skilled workforce, promotes entrepreneurship, reduces unemployment, and supports economic growth by meeting the evolving demands of industry and the services sector.
3. **Drives Economic Growth**: Education enhances labor efficiency, helps workers transition from agriculture to more advanced manufacturing and service sectors, and makes the economy more competitive and attractive to foreign investment. For e.g. strategic integration of technology like AI into education could potentially boost India's GDP growth by up to 1% annually.
4. **Reduces Poverty**: Education acts as the most reliable engine for intergenerational upward mobility. A formal education enables children from agrarian or informal-sector families to secure formal, higher-paying jobs, directly lifting households out of multi-dimensional poverty.
5. **Gender Empowerment**: Female education has strong correlations with reduced fertility rates, improved maternal and child health outcomes, and higher female labour force participation.
6. **Fostering Innovation & Entrepreneurship**: Higher education institutions such as the IITs, NITs, and IISc-feed directly into India's thriving startup ecosystem, driving technological solutions tailored to local and global challenges (e.g. agritech, clean energy, and affordable healthcare).

What are the major challenges faced by the Education System in India?

1. **Poor Learning Outcomes**: ASER (Annual Status of Education Report) surveys have repeatedly shown a large proportion of Grade 5 students unable to read Grade 2-level text or perform basic arithmetic, indicating a serious learning crisis despite high enrollment rates.
2. **High Dropout Rates**: Dropout rates remain high at secondary level, with socio-economic factors (child labour, early marriage, migration) disproportionately affecting girls and disadvantaged communities.
3. **Urban-Rural Divide:** There is a stark gap in infrastructure and resources between urban and rural areas, with rural schools often lacking basic facilities and struggling to attract quality teachers.
4. **Teacher Shortage and Quality Issues**: India faces acute teacher shortages, with over 10 lakh vacancies and 1.1 lakh single-teacher schools nationwide. Compounding this, nearly 11% of foundational teachers remain underqualified, severely eroding classroom instruction quality.

5. **Inadequate Infrastructure**: Despite improvements, infrastructure gaps persist. Only **67.4%** of schools have internet access (UDISE+ 2025-26), limiting digital learning, while deficiencies in classrooms, laboratories, libraries, and sports facilities continue to affect quality education.
6. **Low Public Expenditure**: India's public expenditure on education (**~4.3%**) has consistently remained below the recommended **6% of GDP target** (set by the Kothari Commission, 1966, and reaffirmed by NEP 2020), constraining infrastructure upgrades, teacher recruitment, and quality initiatives.
7. **Weak Research and Innovation**: India's higher education system faces inadequate research funding, weak industry-academia collaboration, and limited innovation. India's **Gross Expenditure on Research and Development (GERD)** remains around **0.6-0.7% of GDP**, significantly lower than many leading economies, constraining research quality and global competitiveness.
8. **Low Vocational Training:** Less than 5% of India's formal workforce has received formal vocational training (compared to over 70% in nations like Germany or South Korea).
9. **Graduate Unemployability:** A large portion of engineering, management, and arts graduates emerging from tier-2 and tier-3 colleges lack industry-relevant technical, analytical, or communication skills, creating a mismatch between degree possession and job market demands.
10. **Examination System Credibility:** Paper leaks, technological glitches, and administrative controversies in high-stakes competitive and recruitment examinations continue to pose a threat to public confidence in meritocratic selection systems.
11. **Governance and Regulatory Fragmentation**: Multiplicity of regulatory bodies (UGC, AICTE, NCTE, state boards) creates overlapping jurisdictions and bureaucratic delays. NEP 2020's proposed unified Higher Education Commission of India (HECI) remains unimplemented years after the policy's release.

What initiatives has the Government undertaken to strengthen the Education System in India?

National Education Policy (NEP), 2020	• It aims to transform the education system by making it **holistic, multidisciplinary, flexible, inclusive, skill-oriented, and globally competitive**, while aligning it with the needs of the 21st century. • Replaces the **10+2** system with a **5+3+3+4** curricular and pedagogical structure corresponding to the age group of **3-18 years.** • Gives top priority to achieving universal foundational literacy and numeracy through the **NIPUN Bharat Mission**. • Recommends the use of the **mother tongue/regional language** as the medium of instruction, preferably up to **Class V.** • Promotes multidisciplinary institutions, multiple entry and exit options, and the **Academic Bank of Credits (ABC)**.
Right to Education (RTE) Act, 2009	• Enacted under **Article 21A** of the Constitution. • **Free and compulsory education** for all children between **6 and 14 years** in a neighbourhood school. • **25% reservation** for children belonging to **Economically Weaker Sections (EWS)** and **Disadvantaged Groups (DG)** in **private unaided schools** at the entry level. • Prescribes **minimum norms and standards** for school infrastructure, pupil-teacher ratio (PTR), teacher qualifications, and learning environment.

Teaching Quality	● **National Professional Standards for Teachers (NPST)**: India's first initiative to assess & classify teachers as – Proficient, Expert, or Advanced – against uniform national standards, with career progression tied to this ladder. ● **NISHTHA (National Initiative for School Heads' and Teachers' Holistic Advancement):** Capacity-building program providing continuous professional training for teachers, headmasters, and Anganwadi staff across elementary, secondary, and foundational levels.
Schemes/ Missions	● **Samagra Shiksha Abhiyan:** An overarching scheme for school education (pre-school to Grade 12) that subsumed earlier programs (SSA, RMSA, and Teacher Education) to improve school infrastructure, gender equity, and digital classrooms ● **NIPUN Bharat Mission**: Aims to ensure **Foundational Literacy and Numeracy (FLN)** for all children by the end of Grade 3. ● **PM SHRI (PM Schools for Rising India):** A Centrally Sponsored Scheme aimed at developing over **14,500 schools** as exemplar institutions showcasing the full implementation of NEP 2020. These schools feature green infrastructure, modern ICT labs, and 21st-century skill integration.
Digital Initiatives	● **National Digital Education Architecture (NDEAR)**: Creates a digital framework for improving governance, service delivery, and access to quality education. ● **DIKSHA Platform:** Provides digital learning resources, e-content, teacher training, and online learning materials for students and teachers. ● **PM eVIDYA**: Promotes digital education through television channels, online platforms, radio, and podcasts to ensure continuity of learning. ● **SWAYAM and SWAYAM Plus:** Free online course repositories offering high-quality college lectures and industry-developed skilling courses across diverse sectors.

What measures can be adopted to improve the quality of education in India?

1. **Increase Public Investment in Education**: Progressively increase central and state budgetary allocations to reach the long-targeted **6% of GDP** mark (up from ~4.3%), directing funds specifically toward lab infrastructure, sanitation facilities, and research facilities.
2. **Strengthen Foundational Literacy and Numeracy (FLN)**: Ensure effective implementation of the **NIPUN Bharat Mission** to enable every child to attain foundational literacy and numeracy by **Grade 3**, through improved teaching methods, teacher training, continuous assessment, and adequate learning resources.
3. **Improve Teacher Quality**:
    - Phase out short-term, low-quality commercial teacher training institutes in favor of rigorous, university-affiliated 4-year integrated programs (as envisioned in NEP 2020).
    - Institutionalize mandatory 50+ hours of annual continuous professional training for all teachers via platforms like NISHTHA.
    - Unburden public school teachers from routine administrative tasks, census work, and scheme management so their primary focus remains on instruction.

4. **Upgrade School Infrastructure**: Provide well-equipped classrooms, laboratories, libraries, clean toilets, safe drinking water, electricity, sports facilities, and digital infrastructure. Improved school infrastructure enhances learning outcomes, increases attendance, reduces dropout rates, and ensures a safe, inclusive, and conducive learning environment.
5. **Strengthen Vocational Education**: Expand vocational education through industry partnerships, internships, apprenticeships, and skill-based courses aligned with market needs. Integrating vocational training into school and higher education will enhance employability, entrepreneurship, and workforce readiness.
6. **Improve Research and Innovation**: Increase investment in research, strengthen industry-academia collaboration, operationalize the National Research Foundation (NRF), and promote multidisciplinary research, innovation, patents, and entrepreneurship to enhance India's global competitiveness and knowledge-based economy.
7. **Improve Early Childhood Care and Education (ECCE)**: Strengthen Anganwadis, expand quality pre-primary education, train ECCE workers, and ensure age-appropriate learning, nutrition, and healthcare to build strong cognitive, social, and emotional foundations for lifelong learning and development.
8. **Ensuring Fair and Transparent Exams:** Restoring public trust by reforming high-stakes exams like NEET with better technology and longer consultation periods for changes, and potentially exploring online formats to reduce leak risks.
9. **A Unified Regulatory Framework:** The proposed **Viksit Bharat Shiksha Adhishthan Bill, 2025**, aims to create a single, simplified, and transparent regulatory body for higher education, replacing multiple legacy regulators like UGC and AICTE.

UPSC GS-2: Social Justice (Education)
Read More: The Hindu

Urban Fire Disasters in India – Reasons & Solutions – Explained Pointwise

Rapid urbanisation, overcrowded buildings, and poor compliance with fire safety norms have led to a worrying rise in fire incidents across Indian cities. Last month, the devastating fire in Lucknow's Aliganj area, which claimed at least 15 lives, has once again exposed critical gaps in safety enforcement and emergency preparedness. In the same month, fire in a bed & breakfast facility occurred in Malviya Nagar, Delhi, caused by illegal construction with no emergency exit. These tragedies underscore the urgent need to strengthen fire safety regulations, conduct regular audits, and build resilient urban infrastructure to prevent the recurrence of such avoidable disasters.

What are fire disasters, and why are they considered a major urban hazard in India?

- A **fire disaster** is an uncontrolled, large-scale outbreak of fire that spreads rapidly, causing extensive property damage, severe economic losses, environmental harm, and most critically, injuries or loss of human life. Unlike slow-onset disasters, fires spread rapidly and can be catastrophic within minutes.
- According to the **National Crime Records Bureau (NCRB)**, India records over **1.5–2 lakh fire accidents annually**, resulting in approx. 13,000-15,000 deaths annually. Fire-related deaths consistently rank among the leading causes of accidental fatalities.
- They are considered a major urban hazard because the rapid and often unplanned growth of Indian cities has created a "perfect storm" of conditions that make fires both more likely and more deadly.

What are the different types of fire-related disasters in India?

Urban and Structural Fires	1. **Commercial & High-Rise Fires:** Occur in shopping malls, office complexes, and high-rise apartments. They are typically caused by electrical short-circuits, overloaded meters, or poorly maintained centralized air conditioning (HVAC) systems. 2. **Educational Institutions & Assembly Fires:** Fires in schools, private coaching institutes, and movie theaters. These frequently turn into disasters due to overcrowding, highly flammable false ceilings, and a lack of secondary emergency exits. 3. **Slum Fires:** Highly frequent in mega-cities. Because slums are built using combustible materials (tarpaulin, wood, plastic) and rely heavily on illegal electrical hookups or domestic LPG cylinders, a single spark can wipe out an entire neighborhood in hours. 4. **Hospital Fires:** Particularly tragic as victims have limited mobility. They are often triggered by the continuous, heavy electrical load required for life-support systems, ventilators, and oxygen-rich environments.
Industrial and Chemical Fires	1. **Chemical & Pharmaceutical Plant Fires:** These are incredibly dangerous because they involve toxic chemicals that release poisonous gas clouds when burned, requiring specialized chemical-foam firefighting rather than water. 2. **Textile and Paper Mill Fires:** These facilities stock massive inventories of highly flammable raw materials. Once a fire catches, the airborne fibers accelerate the spread rapidly across the shop floor. 3. **Illegal Firework Factory Explosions:** A recurring disaster type, particularly in hubs like Sivakasi (Tamil Nadu). They usually happen in unorganized, small-

	scale units operating without any safety clearance, where gunpowder is handled manually.
Wildfires (Forest Fires)	1. **Himalayan Pine Forest Fires:** Highly prevalent in Uttarakhand and Himachal Pradesh during the dry pre-monsoon months (March to June). The dry, fallen needles of *Pinus roxburghii* (Chir Pine) are highly resinous and catch fire instantly. 2. **Central and Southern Deciduous Fires:** Occur in states like Madhya Pradesh, Chhattisgarh, and Odisha. They are often triggered naturally by lightning, or by humans accidentally when burning dry leaves to collect forest produce like Mahua flowers or Tendu leaves.
Transport and Infrastructure Fires	1. **Railroad Fires:** Break out in passenger trains, often due to short-circuits in air-conditioned coaches, pantry car gas leaks, or passengers illegally carrying inflammable materials like firecrackers or kerosene. 2. **Electric Vehicle (EV) Battery Fires:** Thermal runaway in Lithium-ion batteries – often caused by poor thermal management or low-quality cell sorting – has led to sudden, explosive fires in electric two-wheelers and buses. 3. **Oil & Gas Pipeline/Refinery Fires:** Rare but catastrophic incidents involving crude oil pipelines or storage depots. They cause intense, high-temperature blazes that can burn for days.

Why Fires Are a Severe Major Hazard in Indian Cities?

1. **Extreme Population & Spatial Density:** Urban spaces in India, especially commercial hubs like Delhi's Chandni Chowk or Burrabazar in Kolkata, feature highly congested buildings packed tightly together. Once a fire starts, it easily leaps from one building to the next.
2. **Haphazard Overhead Wiring & Electrical Infrastructure:** Electrical short-circuits are the root cause of over **70-80%** of all urban fires in India. Walk down almost any older urban street, and you will see a chaotic web of tangled electrical wires. Overloaded transformers and poorly maintained commercial meters frequently spark explosions.
3. **Inadequate Emergency Access (The "Narrow Lane" Problem):** Many fire disasters turn tragic simply because massive fire tenders (engines) cannot physically navigate the extremely narrow, winding lanes of older city centers or informal settlements (slums).
4. **Widespread Violations of the National Building Code (NBC):** Many high-rises, coaching hubs, and commercial complexes skimp on safety. Common violations include missing fire exits, blocked staircases used as storage, absent or non-functional sprinkler systems, and the use of cheap, highly flammable building and interior materials.
5. **Mixed Land-Use Anomalies:** It is very common in India to find small-scale manufacturing units, chemical storage facilities, or illegal commercial kitchens operating inside purely residential buildings. This brings highly combustible materials right into people's homes.
6. **The "Flue" Effect in High-Rises:** When high-rise buildings are constructed without proper fire barriers between floors, open stairwells, elevator shafts, and internal utility ducts act like giant chimneys. If a fire starts on the ground floor, the heat and toxic smoke are sucked violently upward, trapping hundreds of people on upper floors.

7. **The "Chalta Hai" (Casual) Attitude toward Audits:** Fire NOCs (No Objection Certificates) are legally required for commercial buildings, but regular compliance audits are frequently bypassed. Building owners often install fire extinguishers to pass an initial inspection, but fail to maintain them, leaving them depressingly useless when a real crisis strikes.
8. **Illegal and Unauthorized Construction:** A pattern emerges in many fire tragedies: buildings operating with far more rooms, or for entirely different purposes, than they were approved for. The recent deadly fire at a bed-and-breakfast in Delhi's Malviya Nagar is a prime example, where a building licensed for six rooms was allegedly operating with 25, with a single blocked exit and a basement kitchen where the fire likely started. These "clandestine modifications" often bypass safety rules for wider roads, setbacks, and fire escapes, creating death traps.
9. **Modern Security as a Trap:** Ironically, features meant to enhance security can become lethal in a fire. Electronic smart locks, biometric systems, and security grills can fail in extreme heat or lock occupants in, while locked terrace access and sealed balconies block potential escape routes.

What are the major initiatives undertaken by the government to improve fire safety and fire disaster management in urban areas?

1. **Modernization of Fire Services:** Backed by the 15th Finance Commission recommendations, the central government is providing Rs 5,000 crore to states to procure modern firefighting equipment (e.g., hydraulic platforms and turntable ladders), expand infrastructure to local levels, and implement legal reforms.
2. **Disaster Management Framework:** The Disaster Management Act, 2005 established the National Disaster Management Authority (NDMA) and the National Disaster Response Force (NDRF) to provide rapid, specialized responses to both natural and human-induced disasters, including fires.
3. **The National Building Code (NBC):** Issued by the Bureau of Indian Standards (BIS), Part 4 of the NBC deals exclusively with 'Fire and Life Safety'. It mandates structural requirements like compulsory fire exits, automated sprinkler systems, fire-resistant construction materials, and clear setback spaces.
4. **Mandatory Fire Risk Assessments and Audits:** Across states, authorities have vastly intensified the frequency of surprise checks. Properties like high-rises, factories, hotels, and schools are legally required to perform regular electrical and fire audits to maintain their **Fire NOC (No Objection Certificate).**
5. **NDRF and SDRF Specialized Battalions:** The **National Disaster Response Force (NDRF)** consists of highly trained battalions strategically stationed across India. They are uniquely equipped to handle industrial and **CBRN (Chemical, Biological, Radiological, and Nuclear)** fire emergencies that are beyond the capacity of local municipal firefighters.
6. **Dial 112 Emergency Response Support System (ERSS):** This pan-India unified emergency number integrates police, fire, and medical services to reduce emergency response times drastically.
7. **Aapda Mitra Scheme:** A community-oriented program dedicated to training 100,000 local volunteers in highly vulnerable multi-hazard districts to act as first responders during fire and other emergencies.
8. **National Fire Service Week:** Observed annually across the country, this initiative is used by public and private sectors to run massive mock evacuation drills, test internal hydrant networks, and train normal citizens on how to operate basic fire extinguishers.

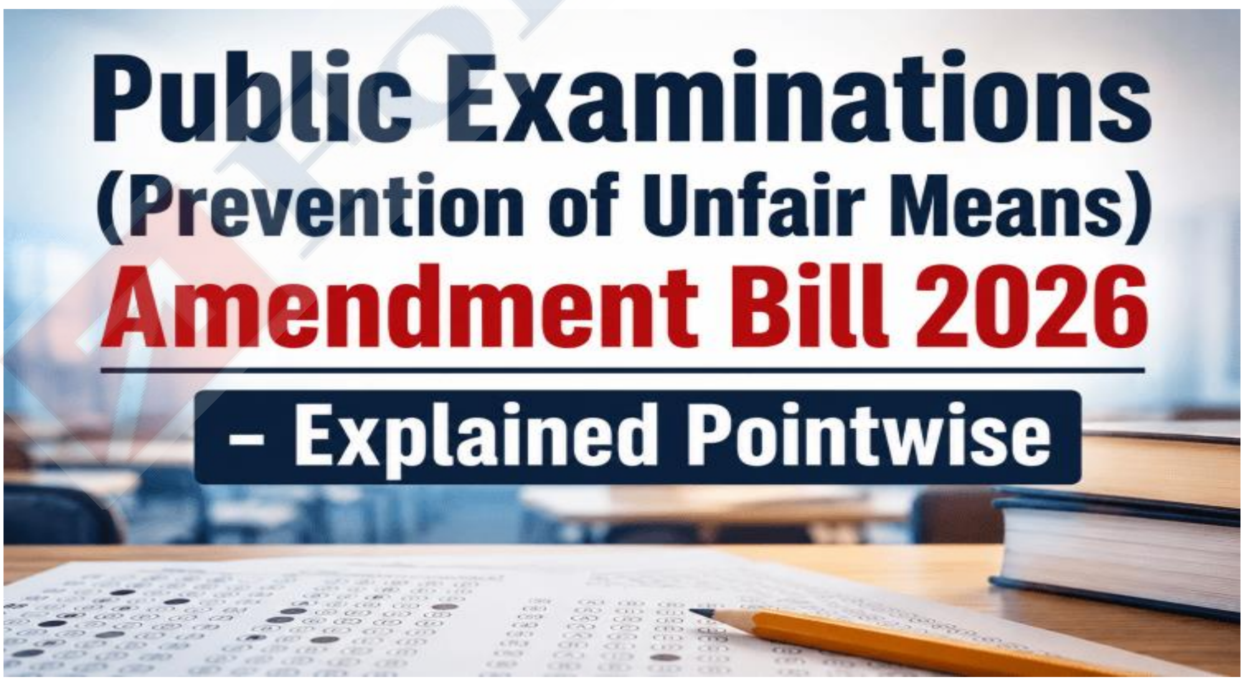
What measures are needed to improve fire preparedness and emergency response systems in urban areas?

1. **Enacting a Uniform National Fire Safety Code:** Fire services are currently treated as a state or municipal subject, resulting in highly fragmented regulations. India needs a uniform, legally binding National Fire Safety Code implemented stringently across all states.

2. **Third-Party Digital Fire Audits:** Rather than relying on sporadic manual checks by understaffed departments, cities should mandate annual, independent third-party fire safety audits. These audit reports should be linked to an online public database, meaning a building's commercial license or insurance automatically expires if they fail compliance.
3. **Mandatory Building Compartmentalisation:** Large floors must be structurally divided into independent fire zones using fire-rated doors and fire-resistant walls. This traps the flame and smoke in one specific zone for at least 60–120 minutes, giving occupants time to escape.
4. **Anti-Smog and Smoke Management Systems:** Since smoke inhalation causes the vast majority of fatalities, urban high-rises must feature automated mechanical ventilation systems that actively extract toxic gases from corridors during a fire.
5. **Tactical "Mini-Tenders" for Congested Areas:** For dense, historic markets and informal settlements, traditional heavy fire trucks are useless. Municipalities must invest in fleets of agile, customized mini-tenders and motorcycle-mounted water mist systems capable of threading through narrow alleyways.
6. **Mandatory Neighborhood Fire Drills:** Much like earthquake drills in prone areas, schools, high-rises, and major commercial hubs should legally be required to conduct seasonal evacuation drills so occupants intuitively know exit routes.
7. **Curriculum-Level Education:** Fire safety literacy – understanding electrical overloading, how to properly handle LPG cylinders, and how to operate an extinguisher – needs to be embedded directly into school curricula across the country.

UPSC GS-3: Disaster Management
Read More: [The Hindu]

Public Examinations (Prevention of Unfair Means) Amendment Bill 2026 – Explained Pointwise



Recently, the Lok Sabha passes the **Public Examinations (Prevention of Unfair Means) Amendment Bill, 2026.** The Bill brought in response to recurring paper leak controversies, including the NEET 2026 paper leak controversy, which exposed continuing gaps in the original Act's deterrence framework, the Amendment Bill enforces stringent penalties.

What are the important provisions of the Public Examinations (Prevention of Unfair Means) Act 2024?

Definition of 'Unfair Means' under the Act	Section 3 of the Act explicitly lists **15 actions** that amount to using unfair means in public examinations "for monetary or wrongful gain": 1. **Leakage of question paper** or answer key and colluding in such leakage. 2. Participating in **collusion** with others **to effect leakage** of question paper or answer key. 3. Accessing or taking **possession of question paper** or an OMR sheet without authority. 4. **Providing solutions** to questions by any unauthorized person during a public exam. 5. Directly or indirectly **assisting the candidate** in any unauthorized manner. 6. **Tampering with answer sheets,** including OMR sheets. 7. **Altering the assessment** except to correct a bona fide error without any authority. 8. **Willful violation of norms or standards** set up by the Central Government for conduct of a public examination on its own or through its agency. 9. **Tampering with any document** necessary for shortlisting of candidates or finalizing the merit or rank of a candidate in a public examination. 10. **Deliberate violation of security measures** to facilitate unfair means in conduct of a public examination. 11. **Tampering with the computer network** or a computer resource or a computer system. 12. **Manipulation in seating arrangements**, allocation of dates and shifts for the candidates to facilitate adopting unfair means in examinations. 13. **Threatening the life, liberty or wrongfully restraining persons** associated with the public examination authority or the service provider or any authorised agency of the Government; or obstructing the conduct of a public examination. 14. **Creation of fake website** to cheat or for monetary gain. 15. **Conduct of fake examination**, issuance of fake admit cards or offer letters to cheat or for monetary gain.
Definition of 'Public Examinations' under the Act	Section 2(k) of the Act defines a "**public examination**" as any examination conducted by a "public examination authority" listed in the Schedule of the Bill. **Public Examination Authorities under the Act:** 1. Union Public Service Commission (UPSC) 2. Staff Selection Commission (SSC) 3. Railway Recruitment Boards (RRBs)

	4. Institute of Banking Personnel Selection (IBPS) 5. National Testing Agency (NTA) 6. Ministries or Departments of the Central Government and their attached and subordinate offices for recruitment of staff. 7. Such other authority as may be notified by the Central Government.
Punishments Under The Act	● Section 9 of the Act deals with the nature of offences. ● **Nature of Offences:** The offences under the new Bill have been made Cognizable, Non-bailable and Non-compoundable. 1. **Cognizable:** An arrest can be made without a warrant. 2. **Non-bailable:** Bail will not be a matter of right. A magistrate will determine whether the accused is fit to be released on bail. 3. **Non-compoundable:** A non-compoundable offence is one in which the case cannot be withdrawn by the complainant even when the complainant and the accused have reached a compromise. A trial will necessarily follow for the accused. ● **Punishments under the Act:** 1. **Punishment for any person or group of persons resorting to unfair means:** 3–5 years in prison and fine up to Rs. 10 Lakh. In case of failure to pay the fine, additional punishment as per the provisions of Bharatiya Nyaya Sanhita 2023 will be imposed. 2. **Punishment in case of Organised Paper Leak:** 5-10 years in prison and fine of more than Rs 1 crore rupees. In case of failure to pay the fine, additional punishment as per the provisions of Bharatiya Nyaya Sanhita 2023 will be imposed. 3. **Punishment for Service Provider:** Fine of Rs 1 cr and are further barred from conducting future examination for period of 4 years.
Liability of Service Providers	Service providers involved in conducting examinations (such as agencies handling logistics, printing, transport, IT systems, or security) are liable if they facilitate or participate in unfair practices.
Investigation	Investigations can be conducted only by officers **not below the rank of Deputy Superintendent of Police (DSP)/Assistant Commissioner of Police (ACP)** or equivalent.
Protection of Genuine Candidates	The Act primarily targets **organized cheating networks, officials, and service providers**, rather than candidates who are victims of systemic failures. The students/candidates appearing in exams are kept outside the Act's purview and continue to be governed by the conducting agency's existing rules.

What are the major amendments proposed under the Public Examinations (Prevention of Unfair Means) Amendment Bill, 2026?

1. **Stricter Punishment for Individuals**:
    - Enhances punishment for offences under the Act from **3–5 years** to **5–10 years** imprisonment.
    - Increases the maximum fine from **₹10 lakh to ₹50 lakh**.
2. **Higher Penalties for Service Providers**:
    - Raises the maximum fine on service providers involved in unfair practices from **₹1 crore to ₹5 crore**.
    - Extends their debarment from conducting public examinations from **4 years to 8 years**.
3. **Tougher Action against Officials of Service Providers**:
    - Increases the minimum imprisonment for directors or senior management found complicit from **3 years to 5 years**.
    - Raises the fine from **₹1 crore to ₹5 crore**.
4. **Stronger Punishment for Organised Crime**:
    - Increases the minimum imprisonment for organised examination fraud from **5 years to 7 years**.
    - Enhances the minimum fine from **₹1 crore to ₹10 crore.**
5. **Constitution of Special Task Forces (STFs)**: Empowers the Central Government to constitute **Special Task Forces** to investigate paper leaks and other examination-related offences.
6. **Time-Bound Investigation**: Mandates completion of investigations within **2 months** by the investigating agency, Central Investigating Agency, or Special Task Force.
7. **Establishment of Special Fast Track Courts**: Requires every State and Union Territory to designate **Special Fast Track Courts** for offences under the Act, in consultation with the concerned High Court.
8. **Time-Bound Trial**: Provides for **day-to-day trial** and mandates completion of the trial **within 3 months** from the filing of the charge sheet.
9. **Appointment of Special Public Prosecutors**: Empowers States and Union Territories to appoint **Special Public Prosecutors** to conduct cases before the Special Fast Track Courts.
10. **Appeal Mechanism**: Provides that appeals from Special Fast Track Courts shall lie before a **Division Bench (two judges) of the High Court**. Appeals should, as far as possible, be disposed of **within 3 months** of admission.

What are the advantages of the Public Examinations (Prevention of Unfair Means) Amendment Bill, 2026?

1. **Stronger Deterrence**: The amendment introduces significantly harsher penalties to strongly discourage organized crime syndicates and individuals from engaging in malpractices like paper leaks. Higher imprisonment terms and enhanced monetary penalties act as a stronger deterrent against paper leaks and examination fraud.
2. **Protects the Integrity of Public Examinations**: The strict legal safeguards help rebuild student, parent, and institutional trust in recruitment and entrance examinations (like NEET, JEE, CUET, UPSC, and SSC) after high-profile leak controversies.
3. **Ensures Speedy Justice**:
    - By mandating designated Fast-Track Sessions Courts in every state/UT, cases will be tried on a day-to-day basis rather than lingering in standard court backlogs.
    - Setting a **2-month investigation limit** and a **3-month trial limit** (plus a 3-month appellate window) guarantees swift justice, preventing evidence from cooling off or witnesses being influenced.

4. **Enhances Accountability of Service Providers**: Imposes stricter penalties and longer debarment on agencies responsible for conducting public examinations, ensuring greater accountability.
5. **Strengthens Investigation Mechanisms**: The **Special Task Force** provision allows the central government to mobilize dedicated, specialized investigative resources for complex, often interstate paper-leak networks, rather than relying solely on local police who may lack the reach or resources to trace organized rackets operating across state lines.
6. **Improves Transparency**: Creates a more transparent and secure examination process by discouraging unfair means and strengthening oversight.
7. **Protects Meritorious Candidates**: By imposing systemic penalties strictly on perpetrators, cartels, and complicit officials, the law protects genuine test-takers from having their hard work invalidated by blanket re-examinations.
8. **Restores Public Confidence**: Helps rebuild trust in public recruitment and entrance examinations following recent paper leak controversies and student protests.

Read More- The Public Examinations Bill 2024

What are the major concerns associated with the Public Examinations (Prevention of Unfair Means) Amendment Bill, 2026?

1. **Focus on Punishment Rather than Prevention**: The Bill primarily enhances penalties but does not sufficiently address the root causes of paper leaks, such as weak examination governance, poor security protocols, and administrative lapses.
2. **Mandatory Timelines May Be Difficult to Achieve**: The requirement to complete investigations within **2 months** and trials within **3 months** may be impractical given the shortage of investigators, prosecutors, and judges. Also, while the Bill prescribes a 2-month investigation period, it does not specify the consequences or procedure if this timeline is not met.
3. **Implementation Challenges**: Establishing **Special Fast Track Courts**, appointing **Special Public Prosecutors**, and creating **Special Task Forces** will require substantial financial and administrative resources.
4. **Limited Coverage**: The legislation primarily applies to specified Central Government public examinations. Unless States enact similar laws or adopt corresponding measures, many State-level examinations may remain outside its ambit.
5. **Ignoring Vulnerabilities:** Severe penalties do not inherently fix systemic vulnerabilities in the examination pipeline, such as decentralized question paper printing, unverified private test center hosts, or weak cybersecurity protocols during digital transmission.
6. **Unemployment and Pressure:** The Bill treats paper leaks primarily as a law-and-order issue, leaving the underlying structural drivers: extreme job scarcity, delayed recruitment cycles, and the immense socio-economic pressure on millions of candidates competing for a limited pool of government jobs.

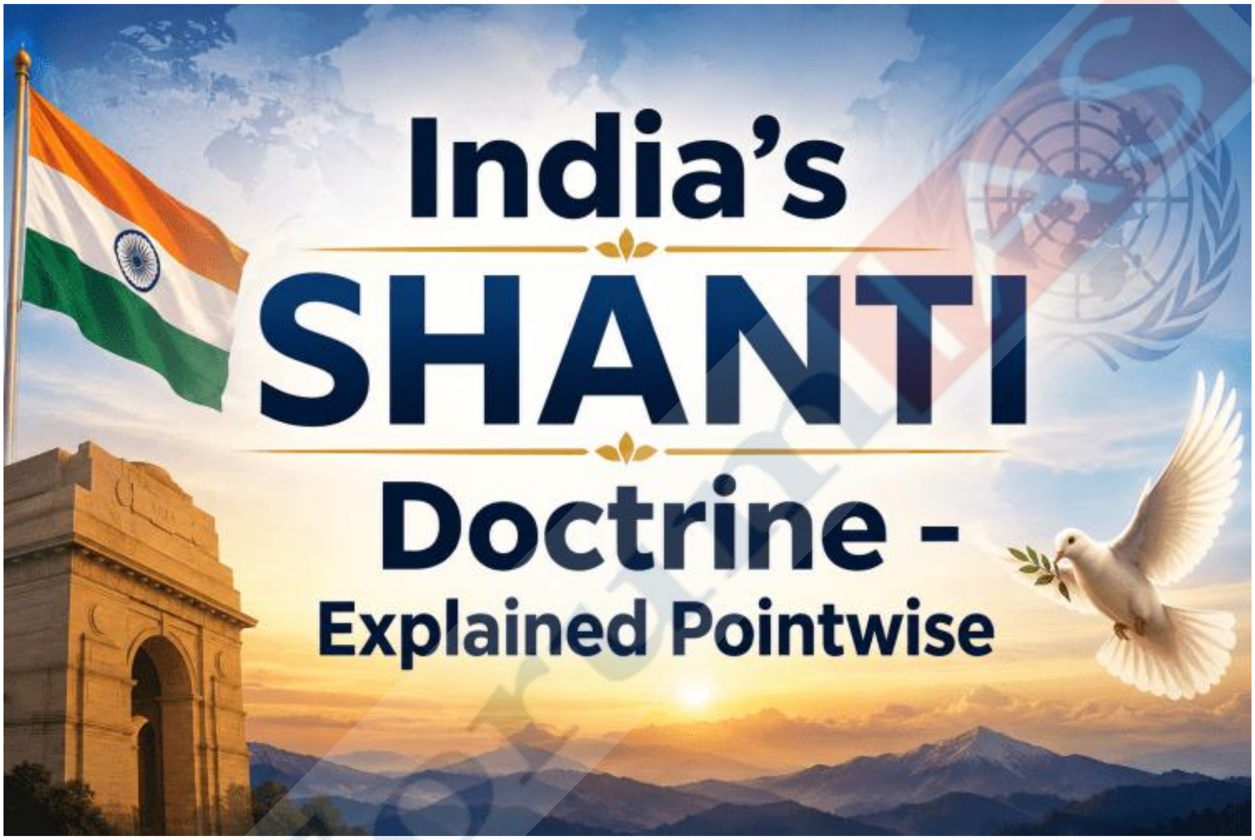
Conclusion

The Public Examinations Amendment Bill is a remarkable step by the Central Government to protect the interests of student community who give their life and soul for the preparation of public examinations. However, stricter punishment must be complemented by stronger administrative systems, secure technology, transparent examination processes, and institutional accountability to effectively curb examination fraud.

Read More- The Indian Express

UPSC Syllabus– GS 2- Government policies and interventions for the development of various sectors (Bills and Acts)

India's SHANTI Doctrine – Explained Pointwise



Recently, the External Affairs Minister S. Jaishankar introduced SHANTI (**S**ecuring **H**olistic **A**dvancement through **N**orms, **T**rust and **I**ntegrity) during the launch of India's campaign for a non-permanent seat on the UN Security Council (UNSC) for the 2028-29 term. SHANTI provides a normative framework for shared maritime spaces & Bay of Bengal can serve as the ideal region to operationalize it before expanding it across the much wider Indo-Pacific region.

What is India's SHANTI Doctrine?

- **SHANTI Doctrine** is a **foreign policy and global governance vision** unveiled by the External Affairs Minister Subrahmanyam Jaishankar during the launch of India's campaign for a **non-permanent seat on the UN Security Council (UNSC) for the 2028–29 term.**
- It presents India's approach towards building a **secure, peaceful, and equitable world** based on **rules, cooperation, and inclusive development.**
- SHANTI stands for: **S**ecuring **H**olistic **A**dvancement through **N**orms, **T**rust and **I**ntegrity.
- SHANTI is India's latest strategic framework, building upon the earlier **SAGAR** (Security and Growth for All in the Region) and **MAHASAGAR** frameworks.

How has India's maritime/foreign policy doctrine evolved in last 10 years?
The **SAGAR**, **MAHASAGAR**, and **SHANTI** doctrines represent three distinct, sequential stages in the evolution of India's maritime strategy and foreign policy.

SAGAR (2015)	● **S**ecurity **A**nd **G**rowth for **A**ll in the **R**egion ● Focused on immediate littorals and island states i.e. the Indian Ocean Region (e.g. Maldives, Mauritius, Seychelles, Sri Lanka). ● Position India as the primary **"Net Security Provider"** and emergency first responder in the IOR. ● **Core objective:** Inclusive regional development and freedom of navigation.
MAHASAGAR (2025)	● **M**utual and **A**ligned **H**olistic **A**dvancement for **S**ecurity and **G**rowth **A**cross **R**egions ● Extends to Southeast Asia, Pacific Island nations, Africa, and Latin America. ● Consolidate influence across the Global South to counter assertive rise of China (e.g. China's Belt and Road Initiative). ● **Core objective:** Strategic partnership and economic diversification for developing nations.
SHANTI (2026)	● **S**ecuring **H**olistic **A**dvancement through **N**orms, **T**rust and **I**ntegrity ● Anchor area begins in the **Bay of Bengal** (via BIMSTEC), extending to global platforms (UNSC). ● Establish a **rules-based, trust-driven operational framework** focused on non-military, demand-driven cooperation. ● **Core objective:** Rules-based governance, multilateral institutional reform, and peaceful dispute resolution.

What is the significance of India's SHANTI Doctrine?

1. **Strengthens India's Bid for UNSC Term**: SHANTI provides a values-based campaign platform for India's candidature for the **2028–29 non-permanent seat**, competing against Tajikistan for the sole Asia-Pacific Group slot.
2. **Supports India's UNSC Aspirations**: By explicitly mentioning that reform limited only to the non-permanent category would be a "failure," SHANTI boosts India's **permanent seat ambition** even while pursuing a non-permanent term.
3. **Promotes Rules-Based Global Order**: The SHANTI Doctrine reaffirms India's commitment to international law, the UN Charter, peaceful dispute resolution, and multilateralism. Thus, it will help in fostering a stable, predictable, and equitable global order based on shared norms and mutual trust.
4. **Advances the Interests of the Global South**: The SHANTI Doctrine reinforces India's role as the voice of the Global South by advocating equitable global governance, greater representation in international institutions, development cooperation, climate justice, and inclusive, sustainable growth.

5. **Strengthens Maritime Security**: The SHANTI Doctrine complements **SAGAR** and **MAHASAGAR** by promoting a **free, open, secure, and rules-based maritime order**, strengthening maritime cooperation, ensuring freedom of navigation, and enhancing security across the Indo-Pacific region.
6. **Promotes Peace and Stability**: The SHANTI Doctrine emphasizes peaceful dispute resolution, and dialogue-based conflict management, contributing to regional and global peace, stability, and a rules-based international order.
7. **Encourages Responsible Use of Technology**: The SHANTI Doctrine advocates the ethical, secure, and inclusive use of emerging technologies such as Artificial Intelligence, cyber technologies, and digital platforms through international cooperation, robust governance, and global standards.
8. **Strengthens India's Indo-Pacific Strategy**: The SHANTI Doctrine complements the **Act East Policy**, and the **Indo-Pacific Oceans Initiative (IPOI)** by promoting a free, open, inclusive, and rules-based Indo-Pacific through enhanced maritime cooperation, connectivity, and regional partnerships.

How can the Bay of Bengal play an important role in implementing India's SHANTI Doctrine?

1. **Strengthening Maritime Security**: The SHANTI doctrine enables India to enhance maritime security in Bay of Bengal through coordinated naval exercises, Maritime Domain Awareness (MDA), intelligence sharing, and joint efforts against piracy, terrorism, trafficking, and illegal fishing.
2. **Promoting a Rules-Based Maritime Order**: SHANTI enables India to uphold **UNCLOS**, freedom of navigation, peaceful dispute resolution, and respect for international maritime law, fostering stability, trust, and secure maritime commerce in the Bay of Bengal region first & then in the Indo-Pacific region.
3. **Enhancing Regional Connectivity**: SHANTI Doctrine will enhance the regional connectivity in the Bay of Bengal littoral countries by improving multimodal connectivity through the **Kaladan Project**, **India-Myanmar-Thailand Trilateral Highway**, ports, and coastal shipping, fostering trade, economic integration, and regional trust.
4. **Advancing the Blue Economy**: The SHANTI Doctrine promotes sustainable fisheries, marine resource management, offshore renewable energy, maritime tourism, and resilient port infrastructure in the Bay of Bengal, fostering inclusive growth, regional cooperation, and environmental sustainability.
5. **Climate Resilience & Disaster Management:** The Bay of Bengal is one of the world's most cyclone-prone marine basins, directly threatening millions of coastal residents. Under the SHANTI doctrine's widened security scope, India leads joint HADR exercises & early-warning data sharingacross the littoral states.
6. **Strengthening BIMSTEC**: SHANTI will eventually help in strengthening & operationalizing the **BIMSTEC** by enhancing regional cooperation in maritime security, trade, connectivity, disaster management, and capacity building, while fostering trust, inclusive development, and a rules-based order in the Bay of Bengal.

What are the major challenges in implementing India's SHANTI Doctrine?

1. **Veto Power and Structural Stalemate:** The core pillar of SHANTI calls for reforming the UNSC. However, the five permanent members (P5) remain reluctant to dilute their veto powers or agree on text-based negotiations, making it difficult for India to achieve concrete reforms and expand the Security Council.
2. **Regional Security Threats**: Persistent terrorism, piracy, illegal fishing, trafficking, maritime disputes, and transnational crime in the Indo-Pacific and Bay of Bengal can undermine regional stability, making effective implementation of the **SHANTI Doctrine** more challenging.
3. **China's Expanding Maritime Presence**: China's expanding naval deployments, port infrastructure under the Belt and Road Initiative (BRI), and growing influence in the Indian Ocean challenge India's efforts to promote a secure, rules-based, and cooperative maritime order under the SHANTI Doctrine.

4. **Weak Regional Cooperation**: Divergent strategic interests, political differences, and uneven institutional capacities among regional countries can hinder consensus-building, limiting effective cooperation on maritime security, connectivity, climate action, and implementation of the SHANTI Doctrine.
5. **Climate Change and Natural Disasters**: Frequent cyclones, sea-level rise, and coastal erosion in the Bay of Bengal threaten maritime infrastructure, connectivity, and livelihoods, making climate resilience, disaster preparedness, and regional cooperation essential for the effective implementation of the SHANTI Doctrine.
6. **Resource Constraints**: Implementing the SHANTI Doctrine requires sustained investment in maritime infrastructure, naval modernization, connectivity projects, technology, capacity building, and development partnerships. Limited financial and institutional resources may constrain its effective implementation and long-term sustainability.
7. **Erosion of Strategic Autonomy:** India's broader maritime challenges involve balancing its desire to counter China's influence without engaging in the arms race or becoming entangled in formal alliances – which is a tightrope walk that impacts all its maritime doctrines.

Conclusion: The success of the **SHANTI Doctrine** will depend on India's ability to strengthen the regional institutions, build maritime and technological capacities, and translate its vision of **Norms, Trust, and Integrity** into practical outcomes through sustained diplomacy and partnerships.

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