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October, 2026

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INDEX

India-EFTA Trade & Economic Partnership Agreement (TEPA) – Explained Pointwise 2
Cybersecurity – Significance & Challenges – Explained Pointwise 7
India's Higher Education: Regulation and Reform – Explained Pointwise 12
India's Rising Supercomputing Ecosystem – Explained Pointwise 15
India-Switzerland Relationship – Significance & Challenges – Explained Pointwise 20
Circular Economy – Significance & Challenges – Explained Pointwise 24
Stubble Burning – Causes & Consequences – Explained Pointwise 28
Critical Minerals – Importance & Challenges – Explained Pointwise 32
Unlawful Activities (Prevention) Act (UAPA) – Significance & Challenges – Explained Pointwise 38
GM Crops in India – Arguments in Favour & Against – Explained Pointwise 42
Preventive Detention – Significance & Concerns – Explained Pointwise 47
Women Livelihood – Significance & Challenges – Explained Pointwise 51
Integrated Theatre Command – Significance & Challenges – Explained Pointwise 55
Stampede Disaster & its Management in India – Explained Pointwise 59
Internet Access as Fundamental Right – Significance & Challenges – Explained Pointwise 68
UN Reforms – Need & Challenges – Explained Pointwise 72
Climate Reparation: Loss and Damage – Explained Pointwise 76
Obesity in India – Reasons & Impacts – Explained Pointwise 83
India-Poland Relations – Significance & Challenges – Explained Pointwise 87
El Nino: Concept & Impacts – Explained Pointwise 91
Tropical Cyclone – Definition, Characteristics & Disaster Management in India – Explained Pointwise 97
Inter-State Council – Significance & Limitations – Explained Pointwise 101
Digital Arrest Fraud – Meaning, Causes & Initiatives – Explained Pointwise 106
Elderly Care in India – Need & Challenges – Explained Pointwise 112

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India-EFTA Trade & Economic Partnership Agreement (TEPA) – Explained Pointwise



The **India-EFTA Trade and Economic Partnership Agreement (TEPA)** is a comprehensive trade agreement between India and **Switzerland, Norway, Iceland and Liechtenstein**. It was signed on 10 March 2024 and entered into force **exactly one year ago, on 1 October 2025**. PM Narendra Modi had termed the signing of the trade pact as a '**watershed moment**' in India-EFTA relations.



INDIA- EFTA TEPA

PM Narendra Modi has termed the signing of India-EFTA TEPA as a 'watershed moment' in India-EFTA relations

ABOUT EFTA

The EFTA is an intergovernmental body comprising Switzerland, Norway, Iceland, and Liechtenstein. These countries that are all in Europe but not a part of the EU.

ECONOMIC SIGNIFICANCE OF EFTA- EFTA countries have a combined GDP of over $1 trillion. EFTA nations are the world's ninth-largest merchandise trader and its fifth largest in commercial services. India is the EFTA's fifth-largest trading partner after the European Union, the United States, Britain and China.

FEATURES OF INDIA-EFTA TEPA

INVESTMENT AND EMPLOYMENT- EFTA nations have committed to invest $100 billion in India in 15 years. ($50 bn in the first 10 years and $10 bn in the next 5 years). It also aims to create 1 million direct jobs within 15 years.

TARIFF REDUCTION- India has offered 83% of its tariff lines, which covers 95.3% of the EFTA grouping's exports. This eliminates duties on most of industrial goods like Swiss watches, pharmaceutical products, chocolates etc.

VITALITY OF SERVICE SECTOR- Different provisions in the agreement provide improved market access to different services like financial, telecommunication, maritime personnel

TECHNOLOGY TRANSFERS- Investments and key technology transfers in the agricultural sector, renewable sectors, pharmaceuticals, garments, and medical instruments

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What is India-EFTA TEPA?

- It is a trade deal signed between-India & four European countries (Members of EFTA)- **Iceland, Liechtenstein, Norway and Switzerland**.

<u>European Free Trade Association (EFTA):</u>

- **EFTA** is an **intergovernmental organisation of 4 European countries** that promotes **free trade and economic integration** among its members and with other countries.
- Members**: Switzerland, Norway, Iceland and Liechtenstein**
- Members are not part of the European Union (EU).
- EFTA negotiates **free trade agreements (FTAs)** with countries and regional blocs around the world.

Economic Significance of EFTA Bloc:

1. EFTA countries have a combined GDP of over $1 trillion.
2. EFTA nations are the world's ninth-largest merchandise trader and its fifth largest in commercial services.
3. India is the EFTA's fifth-largest trading partner after the European Union, the United States, Britain and China.
4. EFTA is among the most important trading partners in goods and services for the EU.

Read More about EFTA- EFTA-India Relations- Explained Pointwise

Objectives of the Deal:

1. EFTA nations have committed to invest $100 billion in India in 15 years. ($50 bn in the first 10 years and $10 bn in the next 5 years).
2. It aims to create 1 million direct jobs within 15 years.
3. It aims to eliminate/reduce tariffs and non-tariff barriers on a wide range of products and create opportunities for trade and investment between India and EFTA.
4. It aims to ensure fair and transparent market access conditions for service providers and investors. It will also enhance cooperation on intellectual property rights protection and enforcement.
5. TEPA aims to establish effective mechanisms for dispute resolution.

What was the Status of India-EFTA Trade Relations before TEPA?

1. **Trade Deficit of India with EFTA countries:** India has a huge trade deficit with the countries in EFTA. In 2023, India-EFTA bilateral trade was around $25 billion. India's exports to the EFTA touched $2.8 billion and imports were about $22 billion during that period.
2. **India-EFTA trade Merchandise Trade:** In 2022-23, the combined EFTA-India merchandise trade stood around $6.1 billion. The main imports into EFTA States from India consisted of organic chemicals (27.5%). The main imports into India from EFTA consisted of Machinery (17.5%) and pharmaceutical products (11.4%).
3. **Investment and Trading Partners:**
    a. EFTA investment stood at $10.7 billion in 2022.
    b. Switzerland is India's largest trading partner in EFTA, followed by Norway. Switzerland accounts for 91% of trade between India and EFTA.
4. **High tariffs on EFTA goods:** Goods arriving from the EFTA group face high tariffs. **For e.g.** India levies an import duty of 20% on Swiss watches and 30% on chocolates from European countries.

What are the features of India-EFTA TEPA?

1. **Tariff Reduction:** India has offered 83% of its tariff lines, which covers 95.3% of the EFTA grouping's exports. This eliminates duties on most of industrial goods like Swiss watches, pharmaceutical products, fertilizers, chocolates, minerals, textiles, smartphones, iron and steel products.
2. **Enhanced Market Access:** EFTA has offered concessions on 92.2% of tariff lines, covering about 99.6% of India's exports to EFTA. It provides **100% coverage of non-agricultural products** along with concessions for processed agricultural products.
3. **Greater Access to Services:** India has commitments across **105 services sub-sectors**, while EFTA countries have made commitments covering more than 100 sub-sectors each. Opportunities are enhanced in **IT, business services, education, audio-visual services and professional services.**
4. **Investments and Technology Transfers:** IThe agreement seeks to promote cooperation in precision engineering, health sciences, renewable energy, innovation and R&D. It can facilitate technology partnerships, joint ventures and integration into global value chains..
5. **Collaboration in Infrastructure Sector:** Swiss transport companies to collaborate in the development and advancement of the Railways. Collaboration with Flughafen Zürich AG, the operator of the Zürich airport for improved air-transport connectivity.
6. **Investment and employment commitment**: EFTA countries aim to increase FDI into India by **$100 billion over 15 years** ($50 billion in the first 10 years and another $50 billion in the next five). The agreement also aims to facilitate **1 million direct jobs** in India. This is a distinctive feature because investment and job creation are directly linked to the trade agreement.
7. **Protection of sensitive Indian sectors**: India has maintained protection for sensitive sectors such as **dairy, soya, coal and certain agricultural products.** Tariff reductions for some strategically important products are phased over **5, 7 or 10 years.**
8. **Professional Mobility**: TEPA facilitates greater certainty regarding the temporary entry and stay of key personnel involved in services. It also provides for **Mutual Recognition Agreements (MRAs)** in professions such as nursing, architecture and chartered accountancy.

What is the Significance of India-EFTA TEPA?

1. **Boosts India's exports**: The India-EFTA TEPA provides Indian exporters with preferential access to high-income EFTA markets by reducing or eliminating tariffs on a wide range of products. This can improve the price competitiveness of Indian products, diversify export destinations and strengthen India's integration into global value chains.
2. **Comprehensive Trade Pact:** India-EFTA TEPA is a wide-ranging agreement which delves into a multitude of issues that would be crucial to economic ties in the coming decade. It covers labour issues, human rights, apart from the trade in goods and services, strong rules of origin clause and strong intellectual property rights (IPR). It is India's second most comprehensive trade pact after its pact with the UAE.
3. **Template for other Trade Agreements:** 'Behind-the-border' requirement included in the India-EFTA TEPA is a condition that lowering of tariffs must be complemented with mobilization of large-scale investment by the EFTA countries. This could serve as a template when India negotiates trade agreements with other developed countries.
4. **Better Prices for Indian Middle Class Customers:** The reduced tariff rates would lower the prices on seafood such as tuna and salmon, Swiss chocolate, biscuits, watches, medical equipment, and energy drinks. Indian incomes are set to rise by 70% by 2030 to breach a per-capita level of $4,000 (Standard Chartered Report).

5. **Enhanced cooperation in service sector:** The agreement would help to stimulate services exports in areas such as information technology, audio-visual capabilities and facilitate the movement of key skilled personnel.
6. **Facilitate Technology Transfer:** The technology transfer as part of the India-EFTA deal will increase India's productivity and export competitiveness in agricultural sector, renewable sector, pharmaceutical, garments, and medical instruments.
7. **Employment Generation:** The increased trade and investment opportunities due to TEPA will help to generate ~1 million jobs in direct employment, particularly in the manufacturing and services sectors.
8. **Increased Investment opportunities:** The trade deal aims to spur financial investment in India through Switzerland's banking sector, Norway's sovereign wealth fund and Liechtenstein's ESG (environment, social, governance) investing sector.
9. **Diversification of India's trade:** Stronger economic engagement with EFTA provides India with additional European economic partners beyond its existing major trading relationships. It also contributes to India's strategy of building multiple and resilient supply-chain partnerships.

What are the challenges associated with TEPA?

1. **Trade imbalance**: A major challenge is the possibility of a persistent trade imbalance in favour of EFTA countries, particularly given their strength in high-value sectors such as pharmaceuticals, precision engineering, machinery, chemicals and financial services. Greater Indian market access could increase imports from these technologically advanced economies faster than India's exports grow.
2. **Limited export capacity**: Indian MSMEs may struggle to fully utilise preferential market access because of limitations in scale, technology, quality standards and certification.
3. **No reduction on Gold Tariffs:** Gold Trade is the biggest component of trade between India-EFTA (Out of the $19 billion India-EFTA trade, $13 billion was just gold imports from Switzerland). Since no real tariff benefits are being offered on gold, the impact of the deal is limited to the remaining $6-7 billion bilateral trade.
4. **Switzerland's policy of tariff-free entry:** Switzerland's policy of tariff-free entry for all industrial goods from any country would affect benefits to Indian companies.
5. **Non-tariff Barriers:** The presence of non-tariff barriers in Switzerland, like quality standards and approval requirements, would affect India's agricultural exports to Switzerland.
6. **Exclusion of Agricultural Products:** Sensitive agricultural items like dairy, soya have been kept in the exclusion list.
7. **Uncertainty over investment commitment:** The $100-billion investment objective is substantial, but converting the commitment into actual investment will depend on the investment climate, project viability and business conditions in India.

What Should be the Way Forward?

1. **Maximise utilisation of tariff preferences**: India should ensure that exporters, particularly **MSMEs**, are fully aware of the tariff concessions available under TEPA and the procedures for claiming them. Export promotion bodies should also identify products with high demand in EFTA markets and help firms meet their quality, packaging, traceability and regulatory requirements.
2. **Address non-tariff barriers**: India should strengthen its testing, certification and quality-control infrastructure to help exporters comply with EFTA's stringent technical, sanitary, environmental and sustainability standards.

3. **Facilitate EFTA investment**: India should create a predictable and investor-friendly business environment by simplifying regulatory procedures, ensuring faster clearances, improving infrastructure and reducing compliance costs.
4. **Ensure investment translates into employment**: India should establish transparent monitoring and accountability mechanisms to ensure that the investment envisaged under TEPA translates into tangible employment outcomes. Investments can be directed towards labour-intensive manufacturing, MSMEs, skill development and emerging sectors such as clean technology and advanced manufacturing.
5. **Proactive Measures:** Proactive measures such as Establishment of Dispute Resolution Mechanisms, establishment of EFTA offices to fully reap the benefits of India-EFTA TEPA.
6. **Strong Political Involvement and Guidance:** Strong political involvement and guidance must be provided for fructification of the TEPA agreement between the two parties.

Conclusion: The success of TEPA will depend not merely on tariff concessions but on India's ability to improve domestic competitiveness, reduce compliance costs, strengthen MSMEs and convert the investment and employment objectives into actual economic outcomes,

Read More: The Hindu
UPSC Syllabus- GS 2- India's relations with Developed nations, International organisations, GS-3 Indian Economy;

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

India's Higher Education: Regulation and Reform – Explained Pointwise

India's higher education system has expanded rapidly, but access to affordable, quality seats remains limited. The Viksit Bharat Shiksha Adhishthan (VBSA) Bill, 2025 proposes to replace the UGC, AICTE and NCTE with a single regulator. It is under review by a Joint Parliamentary Committee (JPC). The debate is whether another overarching regulator will improve quality or reduce it to compliance paperwork.

What is the VBSA Bill and India's regulatory architecture?

- **Proposal:** The Bill was introduced in the Lok Sabha on 15 December 2025 and referred to a 31-member JPC. It replaces the UGC, AICTE and NCTE with a single apex body, the Viksit Bharat Shiksha Adhishthan. It was earlier discussed as the Higher Education Commission of India (HECI) Bill.
- **Three councils:** The Standards Council sets minimum standards. The Regulatory Council handles regulation, coordination and global engagement. The Accreditation Council oversees accreditation.
- **Scope:** Legal and medical education stay outside the Bill and continue under separate laws.
- **Constitutional basis:** The Bill draws on Entry 66 of the Union List (coordination and standards in higher education). Education itself is on the Concurrent List.

- **Current regulators:** UGC, AICTE, NAAC and NCTE together make up the existing architecture.
- **Stated aim:** The government says it will simplify governance, reduce compliance burden and align the sector with National Education Policy 2020.
- **Status:** Reports in July 2026 said the JPC was set to back the Bill with safeguards on autonomy and federalism. The meeting to adopt its draft report was cancelled, so the final outcome is pending.

What recent developments are shaping India's higher education system?

Expansion of capacity	Universities rose from 760 (2014-15) to 1,289 (2023-24), a 69.6% increase. Colleges rose from 38,498 to 48,246. Gross Enrolment Ratio (GER) reached 30.0 in 2023-24, up from 23.7 in 2014-15.
Inclusion	Female enrolment rose from 1.57 crore (2014-15) to 2.24 crore (2023-24). Female GER stands at 31.2.
Role of private institutions	Private unaided colleges make up roughly 70% of all colleges. Private providers are now central to capacity, though quality varies
Student-centric financing	PM-Vidyalaxmi covers 860 quality HEIs and over 22 lakh students. It offers a 75% credit guarantee on loans up to ₹7.5 lakh. Families earning up to ₹8 lakh also get 3% interest subvention on loans up to ₹10 lakh.
Digital and blended learning	SWAYAM has crossed 6 crore enrolments. Under the 2021 UGC credit framework, institutions can offer up to 40% of courses through SWAYAM, and over 450 universities have adopted it.
Research push	Gross Expenditure on Research and Development from ₹60,197 crore (2010-11) to ₹1,27,381 crore (2020-21). The Anusandhan National Research Foundation (ANRF), created by the 2023 Act, targets ₹50,000 crore over 2023-28.
NEP reforms	Four-year undergraduate programmes with multiple entry and exit options are being rolled out. The Academic Bank of Credits stores and transfers credits across institutions.
Internationalisation	Foreign universities such as Deakin and Wollongong have set up campuses at GIFT City. IIT Delhi has opened an Abu Dhabi campus.

What are the key issues with India's higher education system?

- **Shortage of quality seats:** Talent exceeds the number of affordable quality seats. NEET alone draws over 20 lakh candidates for far fewer MBBS seats, so competition reflects scarcity of capacity rather than of talent.
- **Faculty vacancies:** Large vacancies at premier institutions raise teaching loads and weaken mentoring and research supervision. Expanding enrolment without faculty expands access but not quality.
- **Low research intensity:** GERD is only about 0.64% of GDP. Funding is concentrated in elite institutions, and most state universities and colleges have little research support.
- **Employability gap:** Rote-learning curricula leave graduates mismatched with market needs. One industry assessment (Mercer Mettl) found only 42.6% of graduates assessed were employable.
- **Unequal financial burden:** IIT students enjoy large implicit subsidies, but comparable students elsewhere do not. Loans alone create repayment pressure.
- **Brain drain:** Many high-performing students go abroad for study, taking academic talent and peer competition away from domestic institutions.

How does regulation stifle HEIs?

- **Compliance over integrity:** When external supervision substitutes for internal integrity, HEIs ask what minimum paperwork is needed rather than what is intrinsically right. Classrooms can meet every norm on paper while intellectual engagement stays dormant.
- **Optimising for the regulator:** Teachers document evidence for annual self-assessment reports instead of asking what makes a class worthwhile. Institutions focus on maximising ranking and accreditation scores, producing a "paper blizzard" of digital documents.
- **Overlapping and inconsistent rules:** Regulations from UGC, AICTE, NAAC and NCTE often conflict, and clarifications then create fresh irregularities. For example, UGC's 2018 regulations require a 40-hour working week but only five hours daily availability on campus.
- **Overlapping oversight and delays:** Multiple bodies create red tape that delays curriculum updates, discourages multidisciplinary experimentation and slows responses to fields such as AI and green energy.
- **Trust deficit and risk aversion:** Assembly-line norms and surveillance-style monitoring push teachers towards "safe" conventional teaching, and innovation is stifled.
- **The IIT/IISc comparison:** The IISc, IITs, IIMs, NITs and IISERs largely operate outside the UGC-AICTE regime. They set their own curricula, recruitment processes and resource use, yet they are the best-performing institutions. This suggests intensive regulation is not what drives quality. Critics fear that bringing them under the VBSA could harm them too.
- **Federalism concerns:** Several states and universities say the Bill centralises power and limits state autonomy over their own universities, which educate most Indian students.

What measures can strengthen India's higher education system?

- **Light-touch, outcome-based regulation:** Regulation should move from inputs and paperwork to learning outcomes, with a single window for compliance and no duplicate reporting. Autonomy should be tied to credible quality, not blanket inspection.
- **Safeguards in the VBSA framework:** The JPC should secure academic representation, stakeholder consultation and a meaningful state role. It should keep institutional autonomy intact for high-performing institutions.

- **Faculty capacity:** Fast-track recruitment, offer market-aligned pay and research start-up grants, and build campus infrastructure so top talent stays in India.
- **Decentralised research funding:** Extend ANRF grants, incubation labs and seed funding to state universities and affiliated colleges.
- **Skill integration:** Make internships and real-world projects mandatory, and co-create curricula with industry.
- **Student-centric financing:** Scale up PM-Vidyalaxmi and scholarships for weaker sections, and regulate fees in self-financing institutions to cap hidden costs.
- **Diversify university financing:** Encourage alumni philanthropy, endowments, industry-sponsored research, consultancy and technology transfer through tax and regulatory incentives.
- **Leverage technology:** Let leading institutions jointly offer digital courses in AI, semiconductors, biotechnology and clean energy. Combine them with local labs and mentoring so students need not relocate.

Conclusion: India's challenge is scale, quality and affordability. The new regulator will succeed only if it frees HEIs to be bolder rather than reducing quality to updating inspection portals, and if it is backed by faculty, research funding and student financing.

Read more- TH
UPSC Syllabus- GS 2– Issues related to Education

India's Rising Supercomputing Ecosystem – Explained Pointwise

India started building its own supercomputers with PARAM 8000 in the early 1990s. Since 2015, the National Supercomputing Mission (NSM) has turned this into a national network. As of September 2026, India has 40 supercomputers with a combined speed of 68 petaflops (PF).

The topic is in the news because the Council of Scientific & Industrial Research (CSIR) is holding the Emerging Science, Technology and Innovation Conclave (ESTIC-2026) in New Delhi from 27 to 29 October 2026. Supercomputing is one of its themes.

What are supercomputers?

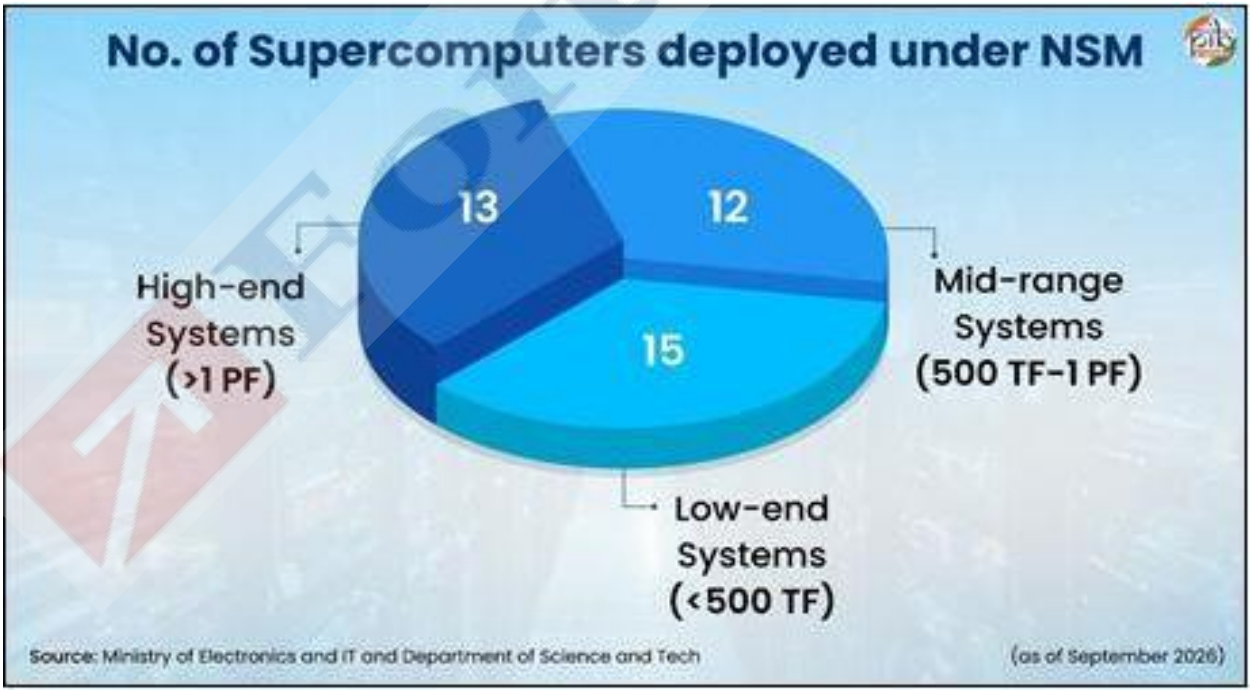
- **Definition:** Supercomputers are high-performance computing (HPC) systems designed to process complex calculations at exceptional speeds.
- **How they work:**
  - **Parallel processing:** They combine many processors or computing nodes that work on a single problem at the same time, so they are also called parallel computers.
  - **High-speed interconnects:** Fast connections between nodes let them exchange data during large-scale computations.
- **How their power is measured:** Performance is measured in FLOPS (Floating Point Operations Per Second), which counts the calculations done in one second.
  - **TeraFLOPS (TF):** One trillion calculations per second.
  - **PetaFLOPS (PF):** One quadrillion calculations per second.
  - **ExaFLOPS:** One quintillion calculations per second.

- **Global benchmark:** The world's fastest supercomputer reaches about 2.19 exaflops in 2026, or about 2.19 quintillion calculations per second.
- **Why India needs them:** India generates nearly 20% of the world's data. Artificial Intelligence (AI), weather forecasting and space research all need heavy computing capacity.

What is the National Supercomputing Mission (NSM)?

- **Launch:** NSM was launched in April 2015 with an outlay of about ₹4,500 crore.
- **Nodal bodies:** It is jointly steered by the Department of Science and Technology (DST) and the Ministry of Electronics and Information Technology (MeitY).
- **Implementing agencies:** The Centre for Development of Advanced Computing (C-DAC), Pune, and the Indian Institute of Science (IISc), Bengaluru, implement it.
- **Objectives:** It aims to build self-reliance in supercomputing and promote HPC for research and societal problem-solving. It also seeks a globally competitive supercomputing ecosystem in India, in line with Aatmanirbhar Bharat.
- **"Build approach":** It has three concurrent phases to create indigenous infrastructure:
  - **Assembly:** Putting together supercomputers in India.
  - **Manufacturing:** Producing the systems domestically.
  - **Design and manufacturing support:** Developing indigenous designs and the capability to build them.
- **Backbone network:** The National Knowledge Network (NKN) connects supercomputing facilities across academic and research institutions through a high-speed national network.

What is the current status of the Mission?



Source- PIB

- **Capacity:** India has deployed 40 supercomputers with a combined capacity of 68 PF as of September 2026.
- **Target:** NSM plans 50 supercomputers with cumulative capacity above 123 PF across academic and research institutions.
- **Evolution of the PARAM series:** PARAM 8000, developed by C-DAC and unveiled in 1991, ran at 1 gigaflop and marked India's entry into indigenous supercomputing. Later systems such as PARAM Yuva reached 54 teraflops.
- **Indigenous components:** The Mission has developed these components:
    - **Rudra servers:** Designed by C-DAC, with technology transferred to Indian Electronics Manufacturing Services (EMS) partners for manufacturing.
    - **PARAM Rudra supercomputers:** About 6,000 Rudra servers are deployed, with another 1,500 under manufacturing.
    - **High-speed interconnect:** Tested at 100 Gbps and 200 Gbps.
    - **Cooling technology:** Developed and demonstrated, and now in the deployment stage.
    - **HPC system software stack:** Developed and integrated with the systems.
    - **PARAM Shavak:** A "supercomputing-in-a-box" for students and researchers in engineering colleges and universities.
- **User base:** NSM infrastructure has supported over 16,000 researchers, including more than 2,900 PhD scholars, across over 400 institutions. It has run more than 1.5 crore compute jobs and contributed to over 1,990 research publications.
- **Link to the SDGs:** NSM contributes to 11 United Nations Sustainable Development Goals (SDGs).

What are the national applications of supercomputing under NSM?

- **Genomics and drug discovery platform:** Screens large sets of molecules to find drugs. It was used during COVID-19 to screen existing drugs and predict side effects such as heart risk.
- **Urban Environment Decision Support System:** Models weather and air pollution so cities can prepare for heavy rain and pollution.
- **Seismic imaging suite:** Maps subsurface structures for oil and gas exploration, with performance matching commercial tools.
- **Flood early warning system:** Forecasts floods up to two days in advance and is being used for the Mahanadi river basin.
- **Forest fire spread model:** Combines satellite remote sensing with computational models. It has been tested in the Sikkim Himalayas.
- **Materials science and computational chemistry:** Simulates atoms, molecules and alloys to study their behaviour.
- **Institutional users:** HPC applications support the India Meteorological Department (IMD), Central Water Commission (CWC), Central Pollution Control Board (CPCB) and the Ministry of AYUSH.

What is the significance of India's supercomputing ecosystem?

- **Scientific advancement:** HPC speeds up research in climate, space, healthcare and engineering by processing massive datasets and running complex simulations.
- **Technological self-reliance:** Indigenous servers, software, networking and cooling reduce dependence on imported technologies.

- **Strategic autonomy:** Supercomputers support strategic applications and give India sovereign capability in a critical technology.
- **Evidence-based governance:** Forecasting and simulation tools help agencies such as IMD, CWC and CPCB plan better and protect lives and infrastructure.
- **Manufacturing base and jobs:** Transferring server technology to Indian Electronics Manufacturing Services (EMS) partners builds domestic manufacturing capability.
- **Wider access to computing:** Training and portals (faculty programmes with AICTE, the SWAYAM HPC course, the HPC Shiksha portal) extend HPC skills beyond computer science departments.
- **Foundation for AI:** Growing demand for AI makes computing infrastructure a base for India's digital economy.

How is NSM linked to India's other technology missions?

IndiaAI Mission (AI compute)	• **Outlay:** ₹10,372 crore over five years, implemented by the IndiaAI Independent Business Division under the Digital India Corporation. More than ₹4,500 crore is for compute. • **GPUs:** Over 38,000 GPUs are available to startups and academia at affordable rates. • **Difference from NSM:** NSM compute mainly meets public sector and research needs, while IndiaAI serves startups, MSMEs and academia building AI models. • **Shared dependence:** GPUs are primarily made in one country, so both missions rely on imported accelerators.
India Semiconductor Mission (ISM)	• **ISM 1.0**: Launched in December 2021 with ₹76,000 crore. Twelve manufacturing units are approved, and three (Micron, Kaynes and CG Semi) have started commercial production. • **ISM 2.0**: Approved by the Cabinet in July 2026 with ₹1,27,500 crore, covering equipment, materials, chemicals, gases, chip design and packaging. • **Link to NSM:** NSM builds the systems and servers, while ISM aims to supply the chips they run on.
National Quantum Mission (NQM)	• **Outlay**: ₹6,003 crore for 2023-24 to 2030-31, run by the Department of Science and Technology. • **Domains**: Quantum computing (50 to 1,000 qubits within eight years), quantum communication, sensing and metrology, and quantum materials and devices. • **Link to NSM**: Quantum computing and supercomputing both serve advanced simulation and research, so the two

	missions can share skills and infrastructure. This link is my analysis, not an official statement

What are the challenges?

- **Gap with global leaders:** India's 68 PF across all 40 systems is only about 3% of the roughly 2,190 PF (2.19 exaflops) of the world's fastest machine.
- **Pace of the target:** The Mission aims for 50 systems and over 123 PF, but the current capacity is about 55% of that target.
- **Skewed capacity:** Only 13 of the 40 systems exceed 1 PF, and 15 are below 500 TF. Many institutions therefore still depend on modest systems.
- **Dependence on imported core components:** The release highlights servers, interconnects and cooling, but does not mention processors or accelerators (GPUs). These remain a likely area of dependence, which links the challenge to ISM and IndiaAI.
- **Energy needs:** Supercomputers consume a lot of power, so cooling and energy efficiency are major operational concerns.
- **Skills gap:** 16,000 researchers is a small user base for a country of India's size. Wider HPC literacy, especially outside elite institutions, is still needed.
- **Access and utilisation:** Systems sit in a limited set of institutions, so equitable access for smaller colleges, startups and industry needs managing.
- **Coordination across missions:** Parallel missions under different ministries risk duplicating compute capacity unless their roadmaps are aligned.

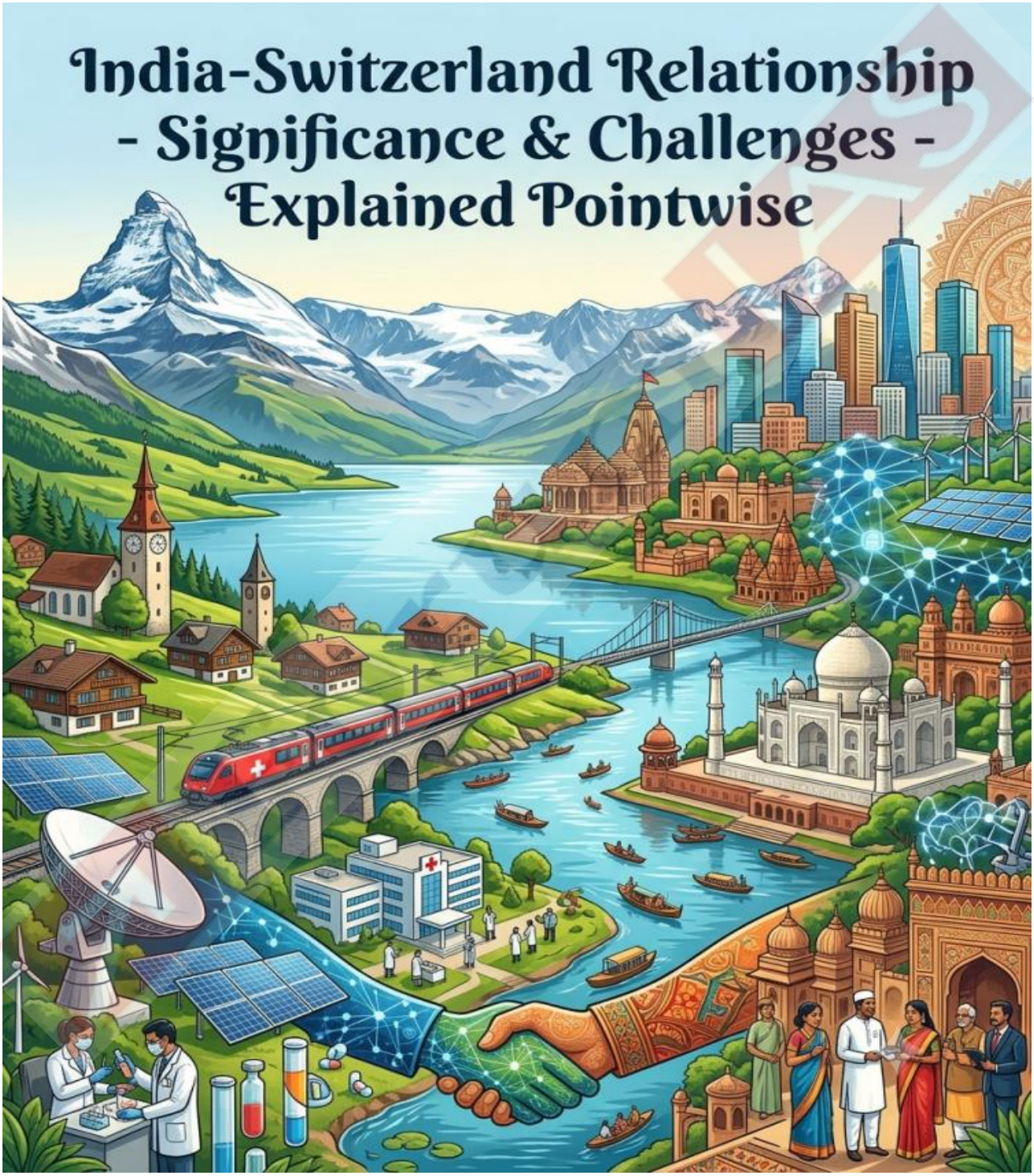
What should be the way forward?

- **Expand capacity:** Complete the 50-system target and build faster, more energy-efficient systems.
- **Deepen indigenous capability:** Strengthen Indian hardware and software, including the design of core components, rather than only assembling.
- **Align the missions:** Coordinate NSM, IndiaAI, ISM and NQM through shared roadmaps, so that chips, systems and software are built as one stack.
- **Integrate AI and HPC:** Combine the two to address weather and climate, healthcare, agriculture, energy, drug discovery and engineering problems.
- **Widen access:** Open HPC resources to researchers, academia, industry and startups through the National Knowledge Network (NKN) and the HPC Shiksha portal.
- **Build skills:** Scale up workshops, hackathons, bootcamps and faculty training so the skilled user base grows.
- **Promote collaboration:** Bring together government, academia, industry, startups and research institutions to turn computing into practical solutions.
- **Prioritise efficiency and reliability:** Focus on energy-efficient, reliable systems and indigenous cooling.

Conclusion: India has moved from a single indigenous machine in 1991 to a Mission-led network of 40 systems built largely with homegrown technology. The next phase depends on faster systems, deeper self-reliance in core components and tighter alignment with the semiconductor, AI and quantum missions, so that high-performance computing becomes a practical tool for growth.

Read more- PIB
UPSC Syllabus- GS 3- Science & Technology

India-Switzerland Relationship – Significance & Challenges – Explained Pointwise



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India and Switzerland have recently signed agreements on mobility aimed at facilitating longer-duration visas and promoting the exchange of young professionals. The two countries have also agreed to strengthen cooperation in the defence and nuclear energy sectors.

What is the significance of Switzerland for India & India for Switzerland?

For India:

1. **Trade & investment**: Switzerland is an important economic partner and a major source of foreign investment, technology and financial services. Greater Swiss investment can also promote technology transfer, manufacturing, employment generation and integration of Indian firms into global value chains.
2. **Technology & innovation**: Switzerland is a global leader in precision engineering, pharmaceuticals, biotechnology, advanced manufacturing and research, making technological cooperation important for India's industrial development.
3. **Financial hub**: Switzerland is a global financial centre with expertise in banking, wealth management, insurance and financial services. Its financial institutions and investment ecosystem can support capital flows, financial innovation and investment in India.
4. **Education & research**: Swiss universities and research institutions offer expertise in areas such as engineering, pharmaceuticals, biotechnology, climate science and advanced technologies. Academic exchanges, joint research programmes and partnerships can help India access advanced knowledge and strengthen its innovation ecosystem.
5. **EFTA partnership**: Switzerland is a key member of EFTA, making it important for India's implementation of the India-EFTA TEPA and attracting greater investment.

For Switzerland:

1. **Large and growing market**: India offers Switzerland access to a vast and rapidly expanding consumer market, supported by a growing middle class, rising incomes and increasing demand for high-quality goods and services. This creates significant opportunities for Swiss companies in sectors such as pharmaceuticals, machinery, financial services, luxury goods and precision engineering.
2. **Investment opportunities**: India's large consumer market, improving business environment and infrastructure expansion offer significant opportunities for Swiss companies, while the India-EFTA TEPA can further facilitate investment flows.
3. **Diversification**: Deeper engagement with India enables Switzerland to diversify its trade and investment partnerships beyond traditional European markets.
4. **Skilled workforce & talent**: India's large pool of skilled professionals, scientists, engineers and IT specialists provides Switzerland with access to high-quality human capital. Greater cooperation in education, research, innovation and professional mobility can help Swiss industries address skill shortages while fostering knowledge exchange and technological collaboration.
5. **Strategic European-Asian link**: India serves as an important bridge between Europe and the Indo-Pacific, offering Switzerland greater access to one of the world's fastest-growing major economies. Deeper engagement with India can help Switzerland diversify its economic partnerships & expand its presence in Asian markets.

What are the major challenges in India-Swiss relations?

1. **Trade imbalance**: India-Switzerland trade has historically been marked by an imbalance, with Switzerland enjoying a significant trade surplus, partly due to India's imports of Swiss gold, precious metals, machinery, pharmaceuticals and other high-value goods.
2. **Investment concerns**: Although Switzerland is an important source of foreign investment for India, Swiss investors may face concerns related to regulatory complexity, taxation, bureaucratic procedures and policy uncertainty. Differences in regulatory standards and compliance requirements can also increase the cost of doing business.
3. **Tax and financial transparency**: Differences and concerns related to taxation, cross-border financial flows and the disclosure of financial information have historically been sensitive areas in India-Switzerland relations. India has sought greater transparency regarding Indian assets held in Swiss financial institutions and stronger cooperation against tax evasion and illicit financial flows.
4. **Intellectual property rights (IPR)**: Swiss companies, particularly in pharmaceuticals, chemicals and high-technology sectors, seek strong protection of patents and other intellectual property. India, while strengthening its IPR framework, also seeks to balance patent protection with affordable access to medicines, technology transfer and public interest.
5. **Limited diversification of economic ties**: India-Switzerland relations have traditionally been concentrated around trade, investment, banking and financial services. Cooperation in emerging areas such as digital technologies, artificial intelligence, green technology, advanced manufacturing and strategic technologies remains relatively underdeveloped.
6. **Implementation of TEPA commitments:** Effective implementation of the India-EFTA Trade and Economic Partnership Agreement (TEPA), particularly its investment and employment-related commitments, requires sustained coordination.

What are the key areas of cooperation between India & Switzerland?

1. **India-EFTA TEPA:** Switzerland, as an EFTA member, is central to the implementation of the India-EFTA Trade and Economic Partnership Agreement, which seeks to expand trade and investment ties.
2. **Corporate Integration:** Over 300 Swiss firms operate in India across precision engineering, pharmaceuticals, chemicals, and banking, while Indian IT giants and global capability centers (GCCs) support Swiss enterprises.
3. **Science, technology and innovation**: The **Indo-Swiss Joint Research Programme (ISJRP)** supports collaborative research in areas such as life sciences, engineering, social sciences and materials science. Indian institutions such as **IITs and IISc** collaborate with Swiss universities and research institutions on research projects. India's role as an Associate Member State at CERN in Geneva fosters high-energy particle physics research and technology co-development.
4. **Education and skill development**: Indo-Swiss Joint Research Programme (ISJRP) supports collaborative research between institutions of the two countries, while Swiss expertise in dual vocational education and training (VET) provides opportunities for strengthening India's skill-development ecosystem.
5. **Pharmaceuticals and healthcare**: India has a strong generic-drug and pharmaceutical manufacturing base, while Switzerland has globally competitive pharmaceutical research and innovation. Novartis and Roche, two major Swiss pharmaceutical companies, have a significant presence and operations in India, while Indian pharmaceutical companies such as Sun Pharma and Dr. Reddy's Laboratories have expanded their international presence, including in Switzerland.
6. **Tourism and people-to-people ties**: Switzerland attracts a large number of Indian tourists, while Indian culture, cuisine and cinema have created familiarity with India among Swiss citizens. Bollywood's association with Swiss locations, particularly through films, has further strengthened Switzerland's popularity among Indian tourists.

7. **Multilateral cooperation**: Both countries work together within the United Nations on sustainable development and international peace, while Switzerland's engagement with institutions such as the WTO provides avenues for coordination on rules-based international trade. They also cooperate on global initiatives relating to climate action and environmental sustainability.

What should be the way forward?

1. **Deepen TEPA implementation**: India and Switzerland should ensure effective implementation of the India-EFTA Trade and Economic Partnership Agreement (TEPA) by reducing regulatory and non-tariff barriers, improving market access and facilitating customs procedures.
2. **Diversify economic cooperation:** Expand cooperation beyond traditional sectors such as finance and pharmaceuticals into AI, semiconductors, green technology, advanced manufacturing and digital technologies.
3. **Promote Swiss investment in India**: India should create a more predictable and investor-friendly environment for Swiss companies by simplifying regulatory procedures, ensuring policy stability, improving ease of doing business and strengthening investment facilitation mechanisms.
4. **Strengthen research partnerships**: India and Switzerland should expand joint research and innovation programmes by connecting Indian institutions such as IITs, IISc and CSIR laboratories with Swiss universities and research institutions. Greater collaboration in artificial intelligence, biotechnology, pharmaceuticals, clean energy, climate science, precision engineering and advanced materials can promote knowledge exchange and technological innovation.
5. **Strengthen financial cooperation**: India and Switzerland should deepen cooperation in fintech, digital payments, sustainable finance, wealth management and financial regulation. Switzerland's expertise in global financial services can complement India's rapidly expanding digital financial ecosystem.
6. **Strengthen multilateral coordination**: India and Switzerland should enhance coordination in multilateral forums such as the UN, WTO and other international institutions on issues of common interest. Cooperation can focus on sustainable development, climate change, international trade, global health and reform of multilateral institutions.
7. **Enhance people-to-people ties**: India and Switzerland should strengthen tourism, educational exchanges, academic mobility, cultural cooperation and professional exchanges. Facilitating student and researcher mobility, promoting direct tourism links and encouraging cultural exchanges can deepen mutual understanding and provide a stronger people-centric foundation for bilateral relations.

Conclusion: India and Switzerland should build on their economic complementarities by moving towards a broader, technology-driven and sustainability-oriented partnership, with TEPA serving as an important platform for deeper bilateral engagement.

Read More: Indian Express
UPSC GS-2: International Relations

Circular Economy – Significance & Challenges – Explained Pointwise



India's resource challenge has become increasingly acute in recent years. This raises an important question: whether the country's future resource needs will be met predominantly through greater extraction and import of virgin resources, or increasingly through recovering and reusing materials already embedded in the domestic economy by adopting a circular economy model.

What is a circular economy? How does it differ from the traditional linear economic model?

- A circular economy is an economic model that aims to minimise waste and maximise the reuse, repair, refurbishment and recycling of products and materials. It seeks to keep resources in use for as long as possible while reducing pressure on natural resources and the environment.

	Linear Economy	Circular Economy
Basic model	**Take → Make → Dispose**	**Reduce → Reuse → Repair → Recycle**
Resource Use	Relies heavily on continuous extraction of finite raw materials.	Minimizes raw extraction by prioritizing recycled and renewable inputs.
Value Retention	Product value drops to zero once used or discarded.	Value is preserved or recovered through repair, resale, and remanufacturing.

Waste Management	Waste is an unavoidable byproduct sent to landfills or incinerators.	Waste is eliminated by design; one process's output becomes another's input.
Environmental Impact	High carbon footprint, rapid resource depletion, severe ecosystem damage.	Lower emissions, reduced biodiversity loss, and active ecosystem regeneration.

What are the key principles of a circular economy?

1. **Design out waste and pollution:** Products should be designed to minimise waste, pollution and the use of hazardous materials throughout their lifecycle.
2. **Keep products and materials in use:** Products should remain useful for as long as possible through reuse, repair, refurbishment, remanufacturing and recycling.
3. **Regenerate natural systems:** Economic activities should restore rather than continuously degrade natural resources and ecosystems.
4. **Resource efficiency:** Maximum economic value should be obtained from minimum quantities of raw materials, energy and water.
5. **Extended product life:** Products should be durable, repairable and upgradeable to reduce premature disposal.
6. **Waste as a resource:** Waste from one process should become an input for another wherever technically and economically feasible.
7. **Renewable and sustainable inputs:** Greater reliance should be placed on renewable energy and sustainably sourced materials to reduce dependence on finite resources.

What is the significance of the circular economy for sustainable development in India?

1. **Conserves natural resources**: The circular economy promotes the reuse, repair, refurbishment and recycling of products and materials, thereby reducing the need for continuous extraction of virgin resources. By extending product lifecycles and recovering valuable materials from waste, it helps conserve minerals, water, forests and other natural resources.
2. **Reduces waste and pollution**: Circular economy minimises pollution by reducing the need for continuous extraction of raw materials and energy-intensive production. Thus, it contributes to cleaner production, better waste management and environmental sustainability.
3. **Supports climate goals**: A circular economy helps achieve climate goals by reducing resource extraction, energy consumption and waste generation, thereby lowering greenhouse-gas emissions. By promoting resource efficiency and sustainable consumption, the circular economy complements India's efforts towards low-carbon and climate-resilient development.
4. **Promotes sustainable industrialisation**: The circular economy promotes sustainable industrialisation by encouraging industries to adopt resource-efficient production, eco-friendly product design and cleaner technologies. It also encourages industries to design products with longer lifespans and recyclable components, thereby improving resource productivity and reducing environmental costs.
5. **Reduces import dependence**: A circular economy can reduce India's dependence on imported raw materials by promoting the recovery, reuse and recycling of valuable resources from discarded products and industrial waste. For e.g. recovering metals from electronic waste, batteries and end-of-life vehicles can reduce the need for fresh mineral extraction and imports.

6. **Promotes sustainable consumption**: A circular economy promotes responsible and sustainable consumption by encouraging people to reduce unnecessary consumption and adopt practices such as reuse, repair, sharing, refurbishment and recycling. This helps conserve resources, reduce environmental pressure and promote sustainable lifestyles.
7. **Supports inclusive growth**: The circular economy can promote inclusive growth by creating employment and livelihood opportunities across recycling, repair, refurbishment, remanufacturing and waste management. It can also help integrate informal waste workers into formal value chains, improving their incomes, working conditions and access to social security.
8. **Helps achieve SDGs**: The circular economy directly supports **SDG 12 (Responsible Consumption and Production)** by promoting efficient resource use, waste reduction, recycling and sustainable production. It also contributes to **SDG 13 (Climate Action)** by reducing emissions, **SDG 11 (Sustainable Cities and Communities)** through better waste management, and **SDG 8 (Decent Work and Economic Growth)** by creating green employment opportunities.

What are the major challenges in transitioning from a linear economy to a circular economy in India?

1. **Low awareness and behavioural change**: A major challenge is the persistence of the **"use-and-dispose" mindset** among consumers and businesses. Limited awareness about the benefits of repair, reuse, recycling and responsible consumption reduces demand for circular products and services.
2. **Inadequate waste-management infrastructure**: India faces gaps in waste segregation, collection, transportation, recycling and scientific disposal infrastructure. Poor segregation at source often contaminates recyclable materials, reducing their recovery value. Limited material recovery facilities, recycling capacity and organised waste-processing systems further hinder the efficient reuse of resources, making the transition to a circular economy difficult.
3. **High informal-sector dependence**: India's waste-management and recycling systems depend significantly on informal workers such as waste pickers, scrap collectors and small-scale recyclers. However, their activities are often fragmented, unregulated and poorly integrated with formal waste-management systems.
4. **Limited recycling and recovery technologies**: India faces gaps in advanced technologies for recycling, material recovery, remanufacturing and waste processing. Many waste streams, particularly e-waste, plastics and construction waste, require specialised technologies and skilled manpower for efficient recovery.
5. **High initial costs**: Transitioning to a circular economy often requires significant upfront investment in eco-friendly technologies, recycling infrastructure, resource-efficient machinery and redesigning products for reuse and repair. These costs can be particularly challenging for MSMEs, which may have limited access to finance and technology.
6. **Weak implementation and enforcement**: Although India has introduced measures such as Extended Producer Responsibility (EPR) and waste-management rules, gaps in monitoring, compliance and enforcement remain a challenge.
7. **Fragmented supply chains**: India's circular economy is constrained by fragmented supply chains, where manufacturers, consumers, recyclers, waste collectors and processors often operate in isolation. This makes the collection, segregation, tracking and recovery of materials difficult and reduces the efficiency of recycling and reuse.

What steps has the Government of India taken to promote a circular economy?

1. **Resource Efficiency and Circular Economy (RECE)**: NITI Aayog has promoted a Resource Efficiency and Circular Economy approach through policy frameworks and sector-specific initiatives. It focuses on reducing virgin resource use and promoting reuse, repair, refurbishment and recycling.

2. **Extended Producer Responsibility (EPR)**: EPR makes producers responsible for managing products and packaging after their useful life. EPR frameworks have been introduced for plastic packaging, e-waste, batteries and used tyres.
3. **Plastic Waste Management Rules**: The government has strengthened plastic waste management through measures such as source segregation, recycling and EPR for plastic packaging. Single-use plastic items identified as having low utility and high littering potential have also been prohibited.
4. **E-Waste Management Rules, 2022**: The rules promote formal recycling, EPR and environmentally sound management of electronic waste. Producers are assigned recycling targets and must meet specified EPR obligations.
5. **Battery Waste Management Rules, 2022**: These establish EPR for waste batteries and promote their collection, recycling and recovery of valuable materials.
6. **Vehicle Scrappage Policy**: Incentivizes the phasing out of unfit and polluting vehicles. It standardizes the creation of Registered Vehicle Scrapping Facilities (RVSFs) and Automated Testing Stations to recover high-purity steel, aluminum, and copper.
7. **Mission LiFE**: Introduced as a global initiative, Mission LiFE shifts the focus to demand-side circularity by nudging individuals and communities toward mindful consumption rather than mindless utilization. It promotes circular habits such as repair, reuse, reducing plastic reliance, and extending product lifespans at the household level.
8. **Swachh Bharat Mission – Urban 2.0:** Focuses on 100% source segregation of waste, setup of automated Material Recovery Facilities (MRFs), bio-remediation of legacy dumpsites, and processing of municipal solid waste.

What should be the way forward for India to achieve a more efficient and sustainable circular economy?

1. **Strengthen Extended Producer Responsibility (EPR):** Improve monitoring and enforcement of EPR to ensure producers take responsibility for the entire lifecycle of their products.
2. **Promote eco-design:** Encourage manufacturers to design products that are durable, repairable, reusable, upgradeable and recyclable, reducing waste at the source.
3. **Develop recycling infrastructure:** Invest in modern facilities for waste segregation, material recovery, recycling and resource extraction, particularly in smaller cities and rural areas.
4. **Formalize and Protect Informal Workers:** Integrate informal waste pickers and *kabadiwalas* into municipal material recovery systems through formal licensing, safety equipment, fair wage guarantees, and health benefits.
5. **Improve supply-chain integration:** Create stronger linkages between producers, consumers, recyclers and waste processors, supported by digital platforms for material tracking and traceability.
6. **Strengthen consumer awareness:** Promote sustainable consumption through "reduce, reuse, repair and recycle" campaigns and encourage responsible purchasing behaviour.
7. **Empower Recycling MSMEs:** Simplify compliance and expand targeted financial support (such as capital subsidies and technology transfer) for Micro, Small, and Medium Enterprises handling localized sorting, repair, and primary reprocessing.
8. **Institutionalize Right to Repair:** Expand "Right to Repair" regulations to mandate that manufacturers provide affordable spare parts, repair manuals, and software support to consumers, extending product lifespans and reinforcing a culture of maintenance.

Conclusion: India needs to move from a "**take-make-dispose**" model towards a "**reduce-reuse-repair-recycle-regenerate**" framework. A combination of policy enforcement, technological innovation, private-

sector participation and behavioural change can make circularity an integral part of India's sustainable growth strategy.

UPSC GS-2: Indian Economy
Read More: The Statesman

Stubble Burning – Causes & Consequences – Explained Pointwise



Stubble burning has emerged as a major environmental and public health concern in North India, particularly during the post-harvest season. Driven by time constraints, technological limitations and economic compulsions, the practice contributes to seasonal air pollution, highlighting the need for sustainable crop residue management.

What is stubble burning?

- Stubble burning refers to the practice of setting fire to the leftover crop residues, such as paddy stubble, after harvesting to clear fields quickly for the next cropping cycle.
- It is widely practised in Punjab, Haryana and Uttar Pradesh, particularly after paddy harvesting, and contributes to air pollution in northern India.

What are the major causes of stubble burning in India?

1. **Short window between crops**: Farmers in Punjab and Haryana have limited time between paddy harvesting and wheat sowing. To prepare fields quickly for the next crop, they often resort to stubble burning as a cheap and time-saving method.

2. **High cost of alternatives**: Machinery for crop-residue management, such as Happy Seeders and Super SMS systems, involves high purchase and operational costs, making it difficult for small and marginal farmers to adopt these alternatives.
3. **Labour shortage**: The migration of agricultural labourers to urban areas and rising labour costs make manual removal of crop residue difficult and expensive. Consequently, farmers often resort to stubble burning as a quick and low-cost method of clearing fields.
4. **Mechanised harvesting**: Combine harvesters cut and thresh crops quickly but leave large quantities of stubble and loose crop residue in the fields. Its removal requires additional machinery, time and expenditure, encouraging farmers to burn the residue as a quick and inexpensive method of field clearance.
5. **Monocropping pattern**: The widespread cultivation of paddy in Punjab, Haryana and western Uttar Pradesh generates large quantities of crop residue after harvesting, making its timely disposal a major challenge for farmers.
6. **Lack of economic incentives**: Crop residue management involves additional costs for machinery, labour, transportation and storage, while farmers often receive little immediate financial return from alternative uses of stubble. Consequently, burning remains a cheaper and quicker option for many farmers.
7. **Groundwater and policy factors**: Policies such as the Punjab Preservation of Subsoil Water Act, 2009, delayed paddy transplantation to conserve groundwater. However, this also delays harvesting, leaving farmers with a shorter window to prepare fields for wheat sowing. **For e.g.** farmers in Punjab and Haryana may resort to stubble burning to clear fields quickly before the next cropping season.

What are the environmental and health impacts of stubble burning?

Environmental Impacts:

1. **Air pollution**: Stubble burning releases large quantities of particulate matter (PM2.5 and PM10), carbon monoxide and other pollutants, deteriorating air quality. For e.g. smoke from paddy-residue burning in Punjab and Haryana contributes to seasonal air pollution in Delhi-NCR, particularly during October-November.
2. **Greenhouse gas emissions**: Stubble burning releases greenhouse gases such as carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O), which contribute to global warming and climate change. **For e.g.** burning paddy residue in Punjab and Haryana releases these gases into the atmosphere, adding to India's agricultural emissions and worsening the climate impact of farming.
3. **Soil degradation**: Stubble burning destroys beneficial soil microorganisms, reduces organic matter and adversely affects soil structure and fertility. Repeated burning can weaken long-term soil health and increase dependence on chemical fertilisers.
4. **Loss of soil nutrients**: Stubble burning destroys organic matter and causes the loss of essential nutrients, particularly nitrogen and sulphur, reducing long-term soil fertility. **For e.g.** repeated burning of paddy residue in Punjab and Haryana can degrade soil health, increasing farmers' dependence on chemical fertilisers to maintain crop productivity.
5. **Biodiversity loss**: Stubble burning destroys the habitats of insects, earthworms and other small organisms, disrupting local food chains and reducing ecological balance.

Health Impacts:

1. **Respiratory diseases**: Stubble burning releases fine particulate matter (PM2.5) that penetrates deep into the lungs, aggravating asthma, bronchitis and chronic obstructive pulmonary disease (COPD). During the paddy-harvesting season, deteriorating air quality in Delhi-NCR can worsen breathing difficulties, particularly among children, older people and those with pre-existing respiratory conditions.
2. **Cardiovascular problems**: Exposure to fine particulate matter (PM2.5) released during stubble burning can enter the bloodstream and trigger inflammation, oxidative stress and increased blood pressure, raising the risk of heart attacks, strokes and other cardiovascular diseases.
3. **Eye and throat irritation**: Smoke from stubble burning contains particulate matter and irritant gases that cause burning eyes, watery eyes, sore throat and persistent coughing.
4. **Reduced quality of life**: Prolonged exposure to smoke from stubble burning causes discomfort, disrupts outdoor activities, reduces productivity and may lead to school closures during severe pollution episodes. It also increases healthcare expenses and disproportionately affects vulnerable communities.

What are the major challenges in controlling stubble burning?

1. **Difficulty in Penalizing Farmers:** While local authorities impose fines and log satellite-detected farm fires in revenue records, enforcing penalties on a large scale is politically sensitive and socially difficult, as small farmers often view burning as an economic compulsion rather than a choice.
2. **Inter-State Coordination**: Controlling air pollution across the Indo-Gangetic Plains requires effective coordination among Punjab, Haryana, Uttar Pradesh, Rajasthan, Delhi and the Central Government, which is often hindered by political and administrative challenges.
3. **High Cost of Machinery**: Crop residue management machines, such as Happy Seeders and Super Seeders, are expensive. Despite government subsidies (which is ranging from 50% to 80%), their cost remains a financial burden for small and marginal farmers.
4. **Pest and Germination Issues**: Farmers fear that paddy straw left on fields may increase pest attacks, such as pink stem borer, and affect uniform seed germination if sowing machinery is not used properly.

What steps has the Government taken to address stubble burning?

1. **Crop Residue Management (CRM) Scheme**: Provides financial assistance for purchasing crop-residue management machinery and establishing Custom Hiring Centres (CHCs), making equipment accessible to farmers.
2. **Subsidies on agricultural machinery**: Provides a 50% subsidy to individual farmers and up to 80% assistance to eligible farmer groups and organisations for establishing CHCs. Machines include Happy Seeders, Super Seeders and Smart Seeders.
3. **In-situ crop residue management**: Promotes incorporating or retaining stubble in the soil using suitable machinery, improving soil health and reducing the need for burning.
4. **Ex-situ crop residue utilisation**: Encourages the collection and use of paddy straw in biomass power plants, industrial boilers, biofuel production and other applications, creating economic value from agricultural waste.
5. **Satellite-based monitoring**: Uses satellite remote sensing to detect and monitor farm fires, helping authorities identify burning incidents and take timely action.
6. **Commission for Air Quality Management (CAQM)**: Issues directions and coordinates action plans among Punjab, Haryana, Uttar Pradesh, Rajasthan and Delhi to prevent crop-residue burning and reduce regional air pollution.
7. **Bio-decomposer technology**: The government promotes microbial bio-decomposers that accelerate the decomposition of paddy straw in fields, converting crop residue into organic manure. **For e.g.** the

Pusa Bio-Decomposer developed by ICAR helps farmers manage stubble without burning, improving soil health and reducing air pollution.

8. **Awareness campaigns**: The government conducts awareness campaigns through agricultural departments, Krishi Vigyan Kendras (KVKs) and local authorities to educate farmers about the harmful effects of stubble burning and promote sustainable alternatives, such as mulching and crop-residue management machinery.
9. **Enforcement and penalties**: State governments impose environmental compensation on farmers who engage in stubble burning. Satellite-based monitoring helps identify farm fires, while local authorities monitor violations and enforce penalties to discourage the practice.

What should way forward to effectively address the problem of stubble burning?

1. **Promote affordable machinery**: Provide subsidised crop-residue management machines, such as Happy Seeders and Super Seeders, to small and marginal farmers.
2. **Strengthen Custom Hiring Centres**: Expand access to affordable machinery through cooperatives, Farmer Producer Organisations (FPOs) and village-level hiring centres.
3. **Provide financial incentives**: Offer direct incentives to farmers for adopting sustainable residue management practices instead of relying solely on penalties.
4. **Promote ex-situ utilisation**: Encourage the use of paddy straw in biomass power plants, compressed biogas (CBG) production, biofuels and industrial boilers.
5. **Diversify cropping patterns**: Encourage farmers to shift from water-intensive paddy cultivation towards less water-intensive crops through assured procurement, price support and suitable market linkages.
6. **Improve interstate coordination**: Ensure coordinated action among Punjab, Haryana, Uttar Pradesh, Rajasthan, Delhi and the Central Government to address regional air pollution.

Conclusion: Stubble burning is not merely an agricultural challenge but a serious environmental and public health concern. A shift from burning crop residue to utilising it as a resource is essential for achieving sustainable agriculture and cleaner air in India.

UPSC GS-3: Environment
Read More: The Hindu

Critical Minerals – Importance & Challenges – Explained Pointwise



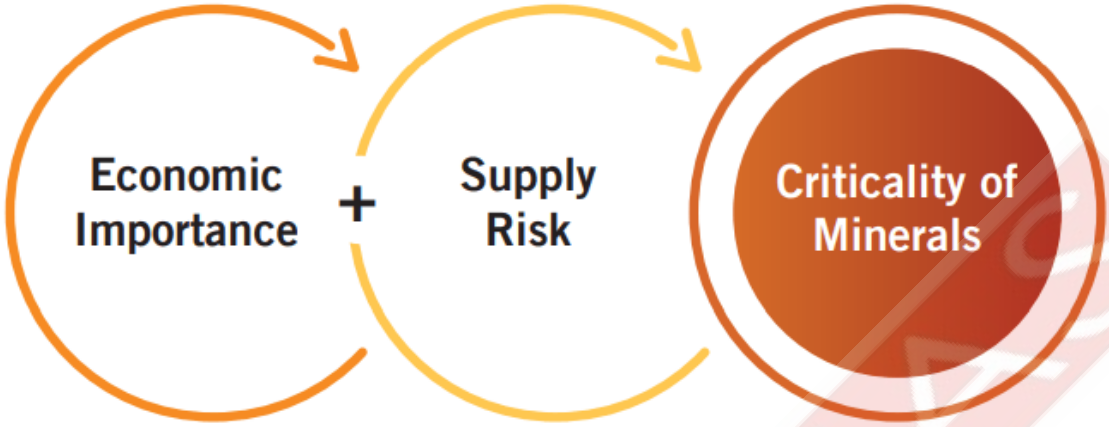
The Central government is planning to come up with a new policy on stockpiling of critical minerals amid increasing concerns around supply chain disruptions, and to cut import dependency. Metals have played a very important role in the evolution of the human civilisation that lead to the naming of important eras on the name of era defining metals like Bronze Age & Iron Age. Similarly, the minerals have also been central to the development of our economy & society for e.g. coal powered the 1st Industrial Revolution in 19th & 20th century, oil fueled the 2nd Industrial Revolution in second half of 20th century & now the critical minerals are believed to be driver of 21st century as their availability & accessibility will determine the pace & quality of growth for all major economies.

What are Critical Minerals?
What is the classification criterion & identified list of Critical Minerals in India?

Critical Minerals: Critical minerals are a category of non-fuel minerals and elements which satisfy 2 conditions:

1. **Economic development & National Security:** Essential for economic development and national security as they are vital for development of materials for defense, aerospace, nuclear, and space applications.
2. **Supply chain vulnerability:** There are associated risk of supply chain vulnerability and disruption with these minerals, due to their lack of availability, and concentration of existence, extraction or processing of these minerals in few geographical locations.

Factors Affecting Criticality:



Source: Ministry of Mines

Economic Importance (EI)	Supply Risk (SR)
1. Disruption Potential	1. Governance-weighted Material Concentration
2. Substitutability Index (SI)	2. End-of-life Recycling Rates (EOL-RR)
3. GVA Multiplier Score	3. Import Reliance (IR) and Self-Sufficiency (SS)
4. Cross-Cutting Index (CCI)	4. Substitutability Index (SR)

Critical Minerals identified in India: Government of India identified 30 minerals as Critical in July 2023 based on their strategic importance to clean energy & future technologies, high import dependence, domestic resource constraints & relevance for agricultural & industrial needs.

Antimony	Lithium	Strontium
Beryllium	Molybdenum	Tantalum
Bismuth	Niobium	Tellurium
Cobalt	Nickel	Tin
Copper	PGE	Titanium
Gallium	Phosphorous	Tungsten
Germanium	Potash	Vanadium

Graphite	REE	Zirconium
Hafnium	Rhenium	Selenium
Indium	Silicon	Cadmium

Critical minerals have strategic importance in sectors like defence, agriculture, energy, pharmaceutical, telecom. However, these minerals face supply chain vulnerabilities, due to their lack of availability and concentration in a few geographical locations. Hence, India has been focusing on securing the supplies of critical minerals.

What is the SIGNIFICANCE of Critical Minerals for India?

1. **Push to India's Economic Development:** These Minerals give a push to India's economic development as industries such as high-tech electronics, telecommunications, transport, and defense rely heavily on these minerals. Their growth can lead to job creation, income generation, and innovation in these sectors. **For ex-** India's push to become semiconductor manufacturing hub rests on the availability of these minerals.
2. **Energy transition towards Net-Zero Emissions:** These minerals are the foundation of modern technologies like solar panels, wind turbines and advanced batteries, which will help in energy transition and would give a push to India's goal of net-zero emission by 2070.
3. **Competitive value chain establishment in India:** The discovery of critical mineral wealth and identification of areas of their potential use in advanced technologies will help in establishing competitive value chain in India. This would help in attracting foreign direct investments from countries like UK, USA as part of their China+1 strategy.
4. **National Security:** These minerals are vital for defense, aerospace, nuclear, and space applications due to their usage in development of high-quality and reliable materials capable of withstanding extreme conditions and performing complex functions. These would in turn help in bolstering India's national security.
5. **Reducing India's import Bill:** Currently most of the critical minerals are imported in India. The exploration and increased production of these minerals would help in reducing India's import burden and Current Account Deficit.

Sl. No.	Critical Mineral	Percentage (2020)	Major Import Sources (2020)
1.	Lithium	100%	Chile, Russia, China, Ireland, Belgium
2.	Cobalt	100%	China, Belgium, Netherlands, US, Japan
3.	Nickel	100%	Sweden, China, Indonesia, Japan, Philippines
4.	Vanadium	100%	Kuwait, Germany, South Africa, Brazil, Thailand
5.	Niobium	100%	Brazil, Australia, Canada, South Africa, Indonesia
6.	Germanium	100%	China, South Africa, Australia, France, US
7.	Rhenium	100%	Russia, UK, Netherlands, South Africa, China
8.	Beryllium	100%	Russia, UK, Netherlands, South Africa, China
9.	Tantalum	100%	Australia, Indonesia, South Africa, Malaysia, US
10.	Strontium	100%	China, US, Russia, Estonia, Slovenia
11.	Zirconium(zircon)	80%	Australia, Indonesia, South Africa, Malaysia, US
12.	Graphite(natural)	60%	China, Madagascar, Mozambique, Vietnam, Tanzania
13.	Manganese	50%	South Africa, Gabon, Australia, Brazil, China
14.	Chromium	2.5%	South Africa, Mozambique, Oman, Switzerland, Turkey
15.	Silicon	<1%	China, Malaysia, Norway, Bhutan, Netherlands

Table.1 The net import reliance for critical minerals of India (2020) (Source: A report on 'Unlocking Australia-India Critical Minerals Partnership Potential' by Australian Trade and Investment Commission, July 2021)

Source- Ministry of Mines

What are the CHALLENGES with Critical Minerals?

1. **Geopolitical and oligopolistic monopoly:** The concentration of critical minerals in few countries, has led to geopolitical monopoly with only a few countries dominating these mineral resources. This leads to oligopolistic (domination by a few large firms) markets. **For ex-** Australia controls 55% of lithium reserves, and China has 60% of rare earths.
2. **China's dominance in the processing and refining sector:** China is a central player in the global critical mineral supply chains, particularly in processing and refining. It accounts for:
    - 60% of worldwide production
    - 85% of critical mineral processing, 70% of cobalt processing
    - 90% of rare earth refining
    - 60% of lithium conversion capacity
    - China's dominance critical mineral sector leads to its political leverage over other countries. It alone can bring the global EV industry to a halt by restricting the supply of rare earths.
3. **Geopolitical Risks:** The geographical concentration of the these minerals makes them vulnerable to geopolitical risks. Geopolitical tensions, conflicts, trade disputes, or sudden policy changes in those regions can impact their supply. **For ex-** The civil war in Democratic Republic of the Congo, has affected the global supply chain of cobalt, as 70% of the world's reserves of cobalt are located in DRC.

4. **Resource Nationalism:** The geographical concentration of these minerals has led to resource conflicts. This has increased resource nationalism, and trade fragmentation. **For ex-** Rising resource nationalism in Africa.
5. **Price Volatility:** Unlike oil, most critical materials are not widely traded on exchanges, and this limits opportunities to hedge against price volatility. Further, insufficient data on consumption, production, and trade of minerals causes uncertainty, price volatility and delays in investments.
6. **Rising Import Bill:** Between FY22 and FY23, there has been a 34% rise in imports of critical minerals, totaling nearly Rs. 91,000 crore. India's heavy reliance on imports for these minerals, poses a risk to its industrial and energy security.
7. **Environmental Concerns:** Mining activities of these can lead to biodiversity loss, land use change, water depletion and pollution, waste contamination, and air pollution. **For ex-** Lithium mining in the fragile landscapes of the Chilean Atacama desert is water-intensive.
8. **Long Gestation Period for Alternatives:** Development of alternative sources and processing capabilities of critical minerals, like India's plans with Australia, can take more15 years for fruition, delaying self-reliance.

Read More- Critical Minerals Summit

What INITIATIVES have been taken by the Government for Critical minerals in India?

Amendment to Mines & Minerals (Development & Regulation) Act, 1957	Through the MMDR Amendment Act, 2023, the Central Government is empowered to auction blocks of 30 critical minerals. The amendment permits private sector entry through auctions.
FDI liberalization	In 2019, India has allowed 100% foreign direct investment. Certain minerals which were previously classified as atomic have been reclassified, facilitating private-sector mining.
International Collaboration	India joined the **Mineral Security Partnership**, which is a US led initiative involving 13 countries and the EU. **Khanij Bidesh India Ltd (KABIL)** is assisting **Argentina** in lithium exploration and discussing lithium and cobalt blocks in **Australia.**
Institutional Initiatives	The **Geological Survey of India** has initiated over 250 projects to explore deep-seated critical minerals. India has launched startup challenges to develop advanced processing technologies.

Budgetary Support	**Customs Duty Removal:** Customs duties on 25 critical minerals, such as lithium, nickel, copper, and cobalt, have been removed to enhance domestic manufacturing of advanced technologies like electric vehicles (EVs) and energy storage systems. **Concessional Customs Duty Extension:** The concessional customs duty of 5% on lithium-ion cells has been extended until March 2026.
National Critical Mineral Mission (NCMM)	In the Budget 2024, Critical Mineral Mission has been announced to give a boost to India's critical minerals sector. Through this mission, India aims to boost the domestic output and recycling of critical minerals like copper and lithium.

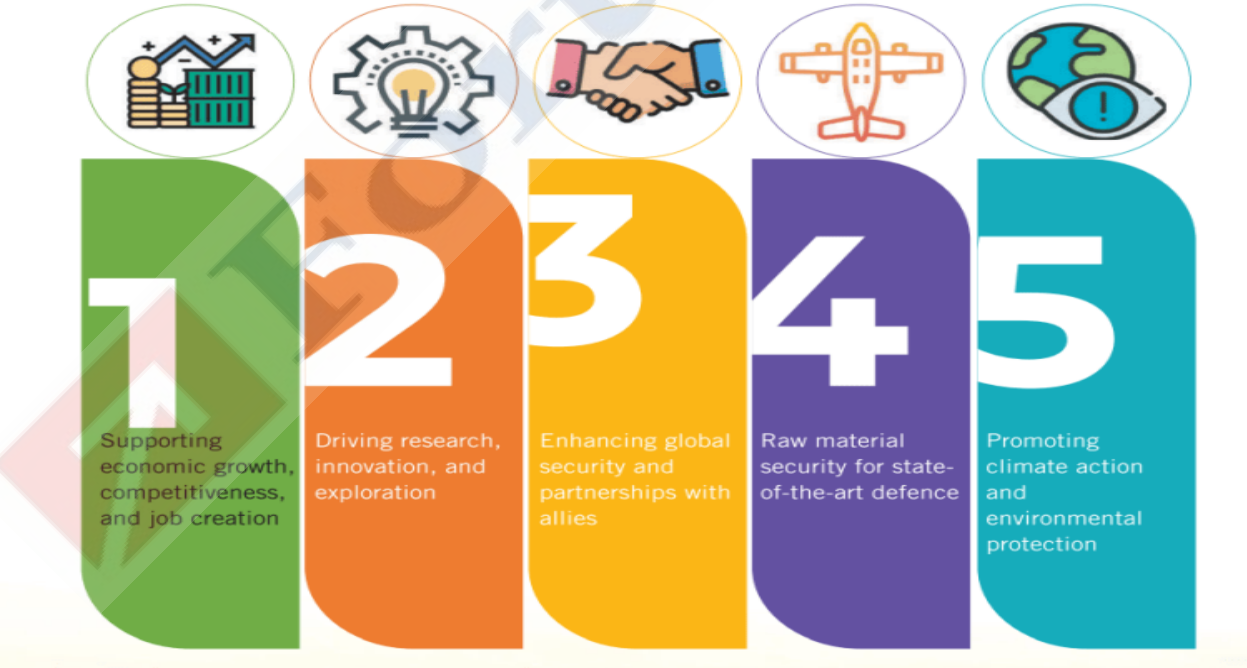
Significance of Critical Mineral Mission:

1. Promotion of domestic production and recycling of critical minerals by increasing the capacities of India in terms of refining and processing.

2. Identification of minerals which are critical, which will help the country to plan for the acquisition and preservation of such mineral assets taking into account the long term need of the country.

3. Reduction of India's import dependency as India is 100% import dependent for certain elements.

4. Expedited exploration, overseas mineral acquisition, resource efficiency, recycling of minerals, and finding substitutes through suitable R&D.



Source- Ministry of Mines

What Should be the WAY FORWARD?

1. **Implementation of the recommendations of expert committee on critical minerals:** Setting up of the **Centre of Excellence for Critical Minerals** (CECM) as a dedicated wing in the Ministry of Mines. This can be on the lines of CSIRO which is an Australian government corporate entity. The centre of excellence can collaborate with international agencies or Khanij Bidesh India Ltd (KABIL) for the strategic acquisition of foreign assets of these minerals.
2. **Push for expansion of Mineral Security Partnership (MSP):** Along with India, more countries in the Global South can be part of the alliance, especially critical mineral-rich African countries. The MSP can become an international platform that reports on the status and future of critical mineral markets.
3. **Encourage FDI in domestic mining:** Rising Foreign Direct Investment (FDI) will not just support businesses like battery and EV manufacturing. It will also bring the expertise of international mining firms to aid in exploring critical minerals for the country's benefit.
4. **Investment in beneficiation and processing facilities:** India should invest in beneficiation and processing facilities in Africa to promote local economies and sustainable relationships.
5. **Path to global leadership:** India can emulate Indonesia's success in nickel to become a global leader in these minerals, utilizing access to both domestic and international raw materials.
6. **Alignment of mineral incentives:** The Production-Linked Incentive (PLI) scheme for minerals should align with global aspirations, creating employment opportunities.

Conclusion: Critical minerals are the bedrock of the modern technological and sustainable future. Securing their supply is no longer just an economic concern but a fundamental matter of national security. If India is to become a serious player in manufacturing, then it can no longer depend upon mineral supply chains from overseas. As a country which is geologically rich, India has to develop its domestic capabilities to extract minerals – especially the critical minerals.

Read More: Indian Express, The Indian Express
UPSC Syllabus- GS Paper-3– Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

Unlawful Activities (Prevention) Act (UAPA) – Significance & Challenges – Explained Pointwise

The Unlawful Activities (Prevention) Act (UAPA), 1967 is India's primary anti-terror and national security law. While it plays a crucial role in safeguarding national security and territorial integrity, its stringent provisions have raised concerns regarding civil liberties, personal freedom and the potential for misuse.

What is the Unlawful Activities (Prevention) Act (UAPA)? What are its key provisions?

- The Unlawful Activities (Prevention) Act (UAPA), 1967 is an anti-terrorism law enacted to prevent unlawful activities and protect the sovereignty, unity and integrity of India.
- It empowers the government to declare associations unlawful, designate individuals as terrorists, and take strict action against terrorist activities.

Evolution of UAPA:

- **1967 Origin:** Enacted to ban "**unlawful associations**" and prevent secessionist movements threatening India's integrity.

- **2004 Amendment:** Incorporated core anti-terror provisions into the UAPA following the repeal of the Prevention of Terrorism Act (POTA).
- **2008 & 2012 Amendments:** Expanded the definition of "**terrorist acts**" (including threats to economic security/counterfeiting) and strengthened investigative powers following the 2008 Mumbai attacks.
- **2019 Amendment:** Granted the government the power to designate **individuals** as terrorists (previously restricted to organizations) and empowered the National Investigation Agency (NIA) to seize property linked to terrorism without state police permission.

Key Provisions:

1. **Unlawful Activity (Section 13):** Refers to actions that support or incite the cession or secession of any part of India, or disclaim/question India's sovereignty and territorial integrity.
2. **Terrorist Act (Section 15):** Includes acts intended to threaten the unity, integrity, security, economic security (e.g. smuggling high-quality counterfeit currency), or sovereignty of India, or to strike terror in people.
3. **Declaration of Unlawful Associations**: Empowers the Central Government to declare an association unlawful if it engages in activities prejudicial to India's sovereignty, unity and integrity.
4. **Designation of Terrorists**: Under Section 35, the Central Government can designate organisations and individuals as terrorists.
5. **Punishment for Terrorist Activities**: Provides strict penalties for terrorist acts, including imprisonment and the death penalty in certain cases.
6. **Prohibition of Terrorist Organisations**: Provides for the listing of terrorist organisations and restrictions on their activities and support.
7. **Investigating Authority:** Cases can be investigated by state police (officers of DSP rank or above) or the **National Investigation Agency (NIA)**. Inspectors of the NIA are also authorized to investigate.
8. **Extended Investigation Period**: Allows the investigation period before filing a chargesheet to be extended up to 180 days, subject to statutory conditions and judicial approval.
9. **Strict Bail Conditions**: Section 43D(5) imposes stringent bail restrictions in specified cases where the court finds the accusation to be prima facie true.
10. **Seizure of Property (Sections 24A & 25):** Investigating officers can attach or seize properties believed to be "proceeds of terrorism". Prior approval from the Director General of Police (DGP) or DG-NIA is required.
11. **Extraterritorial Jurisdiction**: The Act applies to all Indian citizens, whether inside or outside India, as well as foreign nationals committing offences targeting India or its assets.

What are the main objectives of the UAPA?

1. **Protect National Integrity**: Safeguard the sovereignty, unity and territorial integrity of India.
2. **Prevent Unlawful Activities**: Prevent activities that threaten India's sovereignty, security and constitutional order.
3. **Combat Terrorism**: Prevent and punish terrorist acts and related activities.
4. **Disrupt Terrorist Organisations**: Identify, prohibit and restrict terrorist organisations and their operations.
5. **Prevent Terror Financing**: Curb the funding and financial support of terrorist activities.

6. **Strengthen National Security**: Empower law enforcement agencies to investigate and prosecute offences related to terrorism and unlawful activities.
7. **Deter Anti-National Activities**: Establish legal deterrents against activities that threaten national security and public order.

What is the significance of the UAPA in ensuring national security?

1. **Combating terrorism**: UAPA enables the investigation and prosecution of terrorist activities. It provides the legal framework for prosecuting offences linked to terrorist attacks and organised terror networks.
2. **Disrupting terrorist organisations**: It allows the government to designate terrorist organisations and prohibit their activities. For e.g. Lashkar-e-Taiba (LeT) and Jaish-e-Mohammed (JeM) are among the organisations listed under the Act.
3. **Targeting individual terrorists**: The 2019 amendment empowered the government to designate individuals as terrorists under Section 35, helping address threats posed by individuals operating independently of formal organisations.
4. **Curbing terror financing**: It enables action against funds, proceeds and property linked to terrorist activities, thereby weakening the financial networks that sustain terrorism.
5. **Addressing cross-border terrorism**: It provides a legal basis to prosecute offences involving terrorist networks operating across national borders, subject to the applicable jurisdiction and evidence.
6. **Strengthening investigative capacity**: Section 43D(5) permits the investigation period for certain offences to be extended to 180 days, subject to statutory conditions and judicial approval, allowing additional time for complex terror investigations.
7. **Addressing regional security threats**: UAPA helps law enforcement agencies tackle insurgency and extremist networks. For e.g. In 2022, Jammu and Kashmir recorded 371 UAPA cases, while Manipur recorded 167, reflecting the law's use in regions facing significant security challenges.
8. **Countering Economic Warfare:** The Act explicitly covers acts that threaten the economic security of India, such as large-scale smuggling of High-Quality Counterfeit Indian Currency Notes (FICN) aimed at destabilizing the monetary system.
9. **Pan-India Operations:** Paired with the National Investigation Agency (NIA) Act, the UAPA empowers central agencies to investigate cross-state and international terror cases without needing state-by-state police permissions. For e.g. **2008 Ahmedabad Blasts & Indian Mujahideen Modules –** UAPA provisions enabled investigative agencies to map inter-state cells operating across Gujarat, Maharashtra, and Uttar Pradesh.

What are the major challenges and criticisms associated with the UAPA?

1. **Stringent bail provisions**: Section 43D(5) of the UAPA imposes strict conditions on granting bail, as courts must be satisfied that the accusations are prima facie untrue to grant bail. This makes bail difficult and may lead to prolonged pre-trial detention, raising concerns about personal liberty under Article 21.
2. **Low conviction rates**: The low conviction rate under UAPA raises concerns about the effectiveness of investigations and prosecution. According to NCRB-based figures cited by the Supreme Court in 2026, conviction rates remained around 1.5%-4% nationally between 2019 and 2023. This raises concerns about prolonged trials and the possibility of accused persons remaining incarcerated for years without a final verdict.
3. **Broad and ambiguous definitions**: Certain provisions of the UAPA use broad terms such as "unlawful activity" and "terrorist act," which may create uncertainty about the boundary between legitimate

dissent and activities that threaten national security. This can give investigating agencies considerable discretion and raise concerns about arbitrary application.

4. **Potential misuse**: The broad provisions and stringent nature of the UAPA have raised concerns that the law may be used against individuals engaged in peaceful protests, dissent or activism, even when the alleged conduct may not clearly amount to terrorism. For e.g. **Bhima Koregaon-Elgar Parishad case –**The prolonged incarceration of accused persons before the conclusion of trial has raised concerns about due process and the right to a speedy trial.
5. **Violation of personal liberty**: The stringent provisions of UAPA, particularly prolonged pre-trial detention and restrictive bail conditions, can undermine the right to personal liberty guaranteed under Article 21 of the Constitution. Accused persons may remain imprisoned for years without conviction, raising concerns about due process and the principle that bail should not be denied indefinitely when trials are unduly delayed.
6. **Impact on freedom of expression**: The broad provisions of the UAPA may create a chilling effect on freedom of speech and expression guaranteed under Article 19(1)(a) of the Constitution. The possibility of arrest and prolonged pre-trial detention may discourage journalists, activists and citizens from expressing dissent or criticising government policies, even when their activities do not involve violence or terrorism.

What are the major Supreme Court judgments related to the UAPA?

National Investigation Agency v. Zahoor Ahmad (2019)	The Supreme Court held that, while considering bail under Section 43D(5), courts should assess whether the prosecution's accusations are prima facie true, without conducting a detailed trial-like examination of the evidence. This made bail more difficult in UAPA cases.
Union of India v. K.A. Najeeb (2021)	The Court held that stringent statutory restrictions on bail do not prevent constitutional courts from granting bail where prolonged incarceration and an unduly delayed trial violate fundamental rights under Article 21.
Vernon Gonsalves v. State of Maharashtra (2023)	The Court granted bail to Vernon Gonsalves and Arun Ferreira in the Bhima Koregaon case. It observed that mere possession of literature, even if it promotes extremist ideology, does not by itself constitute a terrorist offence.
Bikramjit Singh v. State of Punjab (2020)	The Court held that the right to default bail (if a chargesheet is not filed within the stipulated period, such as 90 or 180 days) is a **fundamental right**. If the prosecution fails to complete the investigation within the designated timeframe or fails to seek a valid extension from a competent court, default bail cannot be denied.

What measures should be taken to prevent the misuse of the UAPA?

1. **Ensure Judicial Oversight**: Strengthen independent judicial scrutiny of arrests, bail restrictions and prolonged detention under the UAPA to prevent arbitrary action. Courts should ensure that the evidence satisfies the statutory requirements and that accused persons' fundamental rights under Article 21 are protected.

2. **Define Offences Clearly**: The government should clarify broadly worded provisions of the UAPA to distinguish genuine terrorist activities from peaceful protests, political dissent and legitimate criticism of government policies. Clearer definitions can reduce arbitrary interpretation, prevent misuse and ensure that the law targets activities that pose a genuine threat to national security while protecting fundamental rights.
3. **Ensure Time-Bound Trials**: Strict adherence to time limits for completing investigations and conducting day-to-day trials must be mandated to safeguard the Right to Life and Personal Liberty under Article 21. The government should strengthen special courts, fill judicial vacancies, improve prosecution capacity and ensure regular monitoring of pending cases to expedite trials.
4. **Promote Accountability**: Establish clear accountability mechanisms for investigating agencies and officials to prevent arbitrary arrests and the misuse of UAPA. Independent review of cases, transparent investigation procedures and action against deliberate violations can help ensure that the law is implemented fairly.
5. **Protect Freedom of Expression**: Ensure that peaceful dissent, criticism of government policies, journalism and academic debate are not criminalised under the UAPA without sufficient evidence of a legally recognised offence. This would safeguard Article 19(1)(a) of the Constitution while enabling authorities to take firm action against genuine threats to national security.
6. **Strengthen Evidence-Based Investigations**: Investigating agencies should rely on credible, verifiable and corroborated evidence before invoking UAPA provisions. Mere association with an accused person, possession of literature or expression of dissent should not automatically be treated as evidence of terrorist involvement.
7. **Provide Remedies for Wrongful Prosecution**: Establish effective legal remedies for individuals who are wrongfully prosecuted under the UAPA, including access to legal aid, compensation where legally justified, and accountability for proven abuse of authority. This would help protect personal liberty, uphold the principle of natural justice and strengthen public confidence in the criminal justice system.

UPSC GS-3: Internal Security; GS-2: Indian Polity
Read More: The Hindu

GM Crops in India – Arguments in Favour & Against – Explained Pointwise

According to an industry-commissioned study, a quarter or more of India's cotton cultivation area comprises genetically modified (GM) hybrids incorporating "unapproved" herbicide-tolerant (HT) and Bt traits. On the one hand, the findings indicate farmers' acceptance of HT technology; on the other, they raise concerns about the bypassing of the government's biosafety assessment and regulatory approval mechanisms. This makes it important to discuss about the GM crops – the arguments in favour as well against their introduction especially in India and what should be the way forward.

What are GM crops?

- GM crops are plants that have had their DNA altered using genetic engineering techniques to introduce specific, desirable traits that do not occur naturally in the species. This process involves inserting one or more genes from a different species into the plant's genome to confer certain advantageous traits that aren't naturally present in the species. For e.g.
    - **Bt cotton**: Genetically modified to resist certain insect pests, particularly bollworms.
    - **Bt brinjal**: Developed for resistance against the brinjal fruit and shoot borer.

- **Golden Rice**: Developed to produce beta-carotene, a precursor of Vitamin A.

- Unlike what plant breeders did traditionally in cross breeding by combining genes from same or closely related plant species, GM technology does not restrict trait selection. Genes from any living organism, be it plants, or animals, is used to arrive at the desired traits.
- GM crops are developed to improve crop yield, enhance nutritional value, reduce the use of chemical pesticides, and increase resistance to environmental stressors like drought or frost. However, the use of GMOs also raises concerns related to potential health risks, environmental impact, and ethical considerations.

About the GM crops permitted in India and in other countries:

GM crops in India:

- **Bt Cotton:** In India, the major transgenic crop that has been commercialized is Bt cotton. Bt cotton is genetically modified cotton that expresses a toxin derived from the bacterium Bacillus thuringiensis, which provides resistance against destructive pests such as the bollworm. Bt cotton remains the only GM crop approved for cultivation in India till date. The area under Bt. Cotton cultivation has increased from **less than 1%** in 2002-03 to almost **94%** in 2019-20.
- **GM mustard:** In addition, India is also considering the commercial release of genetically modified mustard known as Dhara Mustard Hybrid (DMH -11). This GM mustard has genes from a soil bacterium that enhance hybridization, potentially leading to a yield increase of 25-30%. As of now, this crop has received approval from the GEAC but is yet to receive final clearance from the Ministry of Environment.

Other transgenic crops which are under developmental phases in India:

- **GE Banana:** The National Agri-Food Biotechnology Institute (NABI) in Mohali is developing fungus-resistant varieties and exploring the fortification of bananas with iron. They are also working on increasing the amount of provitamin A in the fruit.
- **GE Potato:** The Central Potato Research Institute (CPRI) in Shimla has received permission to conduct research on the GE potato hybrid KJ66, derived from the wild Mexican potato, aimed at combating the late blight pathogen **Phytophthora infestans**.
- **GE Maize:** Rallis India Limited has received conditional approval from GEAC to conduct trials on GE maize, aimed at improving its resistance to the moth **Spodoptera frugiperda** and tolerance to the herbicide glyphosate.
- **GE Rubber:** The Rubber Research Institute in Kottayam has been granted permission for trials of two GE rubber lines expressing an 'osmotin' gene, which is expected to confer resilience to the plants under a range of adverse conditions.

Transgenic crops in other countries:

- **Soybean:** In the United States, one of the first and most widespread transgenic crops is the Roundup Ready soybean. These soybeans are engineered to be resistant to glyphosate, the active ingredient in the herbicide Roundup.

- **Bt Maize:** Another common transgenic crop is Bt maize (or corn), which like Bt cotton, contains a gene from the **Bacillus thuringiensis** bacterium. This allows the maize to produce a protein that is toxic to certain types of pests, notably the European corn borer.
- **Golden rice:** In some parts of Asia, a genetically modified version of rice known as Golden Rice has been developed. This rice is modified to produce **beta-carotene**, a precursor of vitamin A, in the edible parts of the rice plant. This is intended to combat vitamin A deficiency, a significant public health problem in many developing countries.
- **Sugarcane**: A GM sugarcane variety developed by Brazil which is resistant to the sugarcane borer. It incorporates a gene from the bacterium Bacillus thuringiensis (Bt), which enables the plant to produce a protein toxic to specific insect pests.

How India is regulating transgenic crops?

India has a well-established regulatory framework in place to control and supervise the introduction and cultivation of GM crops. This is governed by various rules, regulations, and guidelines set by different ministries and departments.

1. **Genetic Engineering Appraisal Committee (GEAC):** The committee reviews proposals related to the release of GM organisms and products into the environment, including experimental field trials.
2. **Environment Protection Act:** The GEAC or people authorized by it have the power to take punitive actions under the Environment Protection Act.
3. **Role of the Indian Council of Agriculture Research (ICAR):** The ICAR plays a crucial role in supervising the development of new GM varieties and hybrids. For e.g. the approval for GM mustard allows for the environmental release of two genetically engineered mustard varieties are under the supervision of the ICAR.
4. **Assessment of Risks:** The regulatory framework also requires the evaluation of potential risks to human health, animal health, and biodiversity. This involves rigorous testing under laboratory and field conditions to ensure the safety and efficacy of GM crops.
5. **Public Consultation:** In some cases, public consultation is also part of the process before a final decision is made about the commercialization of a GM crop. This allows stakeholders, including the public, to voice their concerns and opinions.

Read more: Genetic Engineering Appraisal Committee approves commercial cultivation of genetically modified mustard yet again

What are the arguments supporting the introduction of GM crops in India?

1. **Higher agricultural productivity**: GM crops can increase agricultural productivity by reducing crop losses caused by pests and diseases. For e.g. **Bt cotton** provides resistance against bollworms, helping protect yields and improve production efficiency. This can contribute to greater agricultural output and food security.
2. **Addressing food security:** One of the main arguments supporting the introduction of GM crops in India is the potential to enhance food security. With India's population continually growing, transgenic crops offer a promising solution to increase agricultural yield and meet the escalating food demand. Moreover, crops can even be engineered to be **more nutritious**, providing critical vitamins to populations that struggle to get specific nutrients needed for healthy living. Thus, GM crops can be used to address the problem of **Hidden Hunger** (Nutritional deficiency).

3. **Improved crop characteristics:** GM crops can be engineered to have desired traits such as drought resistance, pest resistance, and improved nutritional content. These modifications can lead to healthier, more resilient crops that are better suited to varying climatic conditions and can contribute to higher yields.
4. **Higher farmers' income:** Transgenic crops can provide economic advantages to farmers. The use of crops genetically engineered to resist pests, for instance, can reduce the need for expensive pesticides. The GEAC's recent approval of GM mustard is a prime example of this, with the potential to boost yield and subsequently increase farmers' income. For e.g. Brinjal growers in Haryana have rooted for **Bt brinjal** as it reduces the cost of production by cutting down on the use of pesticides.
5. **Curbing Edible Oil Imports & Agricultural Trade Deficit**: India imports nearly 60% of its edible oil requirements (spending over $15-20 billion annually), primarily palm, soybean, and sunflower oil. Proponents point to indigenous varieties like **DMH-11 (GM Mustard)**, which uses a barnase/barstar gene system to create hybrids that yield 25-30% more seed than traditional mustard. Higher yields would significantly boost domestic oilseed production and reduce reliance on imports.
6. **Potential environmental benefits:** By reducing the need for chemical pesticides and herbicides, transgenic crops may also help decrease environmental pollution. Furthermore, certain GM crops may require less water, contributing to more sustainable water use.
7. **Climate change adaptation**: Indian agriculture is vulnerable to climate volatility, monsoon delays, and rising temperatures. GM technology allows scientists to engineer crops resistant to abiotic stresses such as severe drought, salinity, flooding, and extreme heat such as **climate-resilient GM rubber** trials or **drought-tolerant maize**.
8. **Enhanced crop diversity:** Transgenic technology can facilitate the development of new crop varieties, enhancing agricultural biodiversity. This could offer farmers a greater choice of crops to cultivate, potentially leading to more diverse farming systems.
9. **Global competitiveness**: GM crops can improve productivity, reduce pest-related losses and enhance crop quality, helping Indian agricultural products remain competitive in international markets. They can also strengthen India's position in the global agricultural biotechnology sector.

What are the arguments against the introduction of GM crops in India?

1. **Health concerns:** Some groups argue that the consumption of genetically modified crops could potentially lead to health issues. There are concerns about allergenicity, antibiotic resistance, and the overall safety of consuming foods derived from GMOs.
2. **Impact on biodiversity:** Critics also argue that the introduction of transgenic crops could negatively impact biodiversity. There are concerns that the proliferation of GM crops could lead to the genetic contamination of wild relatives of the modified crops. The increased use of herbicide-resistant crops could harm non-target organisms and beneficial insects. GM technology could also allow the transfer of genes from one crop to another, creating "**super weeds**", which might be immune to common control methods.
3. **High cultivation costs**: GM seeds may be expensive due to technology fees and limited availability from approved suppliers. Additional costs associated with seed replacement and crop management may increase farmers' financial burden.
4. **Potential socio-economic implications:** There are also socio-economic considerations. For instance, small farmers might face difficulties if they cannot afford the often higher-priced GM seeds, potentially exacerbating economic inequalities in rural communities.
5. **Dependence on multinational companies (MNCs):** Many GM seeds are patented by multinational corporations. Farmers using these seeds would be dependent on these companies for their supply, potentially leading to monopolistic practices and loss of control over their own agricultural practices.

From an economic standpoint, this poses a risk to the long-term food security by creating dependence on a single or limited number of suppliers. If the supplier company failed, then the crop it provides would not be available to the people who depend on that crop.

6. **Secondary Pest Vulnerability:** Opponents highlight the long-term track record of **Bt Cotton** in India. Over time, pests like the **Pink Bollworm** evolved resistance to the Bt toxin, forcing farmers to buy more expensive insecticides and higher-dose seed traits, contributing to rising agricultural debt.
7. **Questionable outcomes:** Various claims around stress tolerance, nutrition and yields have turned out to be false, including in India with its Bt cotton experience. Cotton yield has stagnated around 460 kgs per hectare in the recent past, despite most cotton being GM. The most impressive yield growth was achieved between 2000 and 2006 (from 278 kg to 521 kg/ ha) when GM cotton adoption was marginal. There has been no such yield increase thereafter.
8. **Increased use of chemicals:** On the other hand, increased illegal use of **glyphosate** is bringing its own problems. Though GM Cotton was supposed to be more resistant to pests, chemical usage (including pesticides) in India's cotton cultivation has actually increased. For e.g. cotton farmers in North India often face the challenge of **pink bollworm infestation** & **white fly attack**. It is noteworthy that 24 countries that are ahead of India in terms of cotton yields do not grow GM cotton.
9. **Impact on exports**: Countries with strict regulations on GM foods may impose import restrictions or labelling requirements on genetically modified agricultural products. This could reduce market access for Indian farmers and exporters, particularly in markets where non-GM products command a premium.
10. **Weaknesses in regulatory capacity**: India's limited capacity for independent biosafety testing, post-release monitoring and effective enforcement raises concerns about the safe management of GM crops. Delays in regulatory decisions and concerns over transparency may also undermine public trust in the approval process.
11. **Ethical and cultural concerns:** The genetic modification of crops raises ethical questions like human intervention in nature, potential damage to environment, negative impact on traditional farming practices, excessive corporate dominance, potential harm to human health etc. These can be especially potent in countries like India with rich cultural and religious traditions tied to natural processes.

What should be the Way Forward?

1. **Enhanced research and development:** To address concerns related to transgenic crops, further research and development should be undertaken. This should focus on comprehensive risk assessment, long-term impact studies, and the development of techniques to prevent cross-contamination.
2. **Rigorous regulatory framework:** The regulatory framework for the approval and monitoring of transgenic crops in India needs to be rigorous. This can help ensure that only those GM crops that are safe for human health and the environment are permitted. Govt should again take up the proposed **Biotechnology Regulatory Authority of India Bill** to ensure a sturdy regulatory architecture in India. This encourages entry of competitors that could check monopolistic conditions in the GMO market.
3. **Capacity building in biotechnology:** India needs to enhance its capacity in the field of biotechnology. This involves training scientists in advanced techniques, and creating world-class laboratories that can undertake cutting-edge research in this field.
4. **Public awareness and engagement:** Transparent, evidence-based information on GM crops should be shared with the public to address concerns and misconceptions. This could involve engaging with communities through public consultations before the introduction of GM crops.

5. **Protecting farmers' interests:** Policies should be in place to protect farmers from potential exploitation by multinational companies selling GM seeds. This includes ensuring farmers have access to a variety of seeds, including non-GM options.
6. **Monitoring environmental impact:** After the introduction, transgenic crops should be continuously monitored to assess their impact on biodiversity and ecosystems. In particular, the potential for gene flow to non-target species should be rigorously evaluated.
7. **Promote alternative approaches**: India should strengthen conventional breeding, marker-assisted selection, integrated pest management (IPM) and agroecological practices to improve crop productivity and resilience. These approaches can complement biotechnology while reducing chemical pesticide use and conserving agricultural biodiversity.
8. **International collaboration:** India can benefit from international collaboration in this field, learning from the experiences of other countries that have successfully adopted transgenic crops, and working together to address shared challenges.

CONCLUSION: By resisting genetic engineering technologies, India risks falling behind the rest of the world where scientists are deploying gene editing tools to improve yields, disease resistance and shelf life of crops. However, any decision on introduction of GM technologies must be taken on the basis of scientific evidence. A participatory approach should be adopted in order to bring together all stakeholders to develop regulatory protocols. This would ensure trust in the entire process.

Sources: Indian Express, Wikipedia
Syllabus: GS Paper 3: Science and Technology: Awareness in the field of biotechnology, Agriculture

Preventive Detention – Significance & Concerns – Explained Pointwise

In recent instances, police detentions of protesters to prevent or disperse demonstrations have raised concerns about the balance between maintaining public order and protecting democratic freedoms. While the State has a duty to ensure peace and security, such actions must respect the fundamental rights to freedom of speech, peaceful assembly and personal liberty.
This highlights the need to examine the legal safeguards governing detention and prevent their arbitrary use against peaceful protesters.

What is preventive detention? How does it differ from punitive detention?

- Preventive detention refers to the detention of a person by the authorities without a criminal trial, with the objective of preventing them from committing a potential offence or engaging in activities considered prejudicial to public order, national security or other legally specified interests.
- Unlike standard arrests, it is not a punishment for a crime already committed, but a precautionary measure taken by executive authorities to prevent potential harm.

Preventive Detention	Punitive Detention

To prevent a potential offence.	To punish an offence already committed.
Preventive in nature.	Punitive in nature.
No criminal trial is required before detention.	Generally follows a criminal trial and conviction.
Objective: To protect public order, national security or other legally specified interests.	**Objective**: To penalise the offender and deter crime.
Constitutional Provisions: Article 22(3)-(7).	**Constitutional Provisions**: Article 20, Article 21 and applicable criminal procedure safeguards.

What are the constitutional provisions governing preventive detention in India?

- **Article 22 – Protection against arrest and detention:** Article 22 deals with safeguards against arrest and detention, including special provisions relating to preventive detention.
    - **Article 22(1)**: An arrested person must be informed of the grounds of arrest and has the right to consult and be defended by a legal practitioner of their choice. **Article 22(2)**: An arrested person must be produced before the nearest magistrate within 24 hours of arrest, excluding travel time, and cannot be detained beyond that period without the magistrate's authority.
    - **Article 22(3)**: The safeguards under clauses (1) and (2) do not apply to enemy aliens or persons detained under preventive detention laws.
    - **Article 22(4)**: Preventive detention beyond 3 months generally requires the recommendation of an **Advisory Board** constituted in accordance with the Constitution, subject to the clause's exceptions and parliamentary law.
    - **Article 22(5)**: The detaining authority must communicate the grounds of detention as soon as may be and provide the earliest opportunity to make a representation against the detention.
    - **Article 22(6)**: Facts that the authority considers against the public interest to disclose need not be revealed.
    - **Article 22(7)**: Parliament may prescribe circumstances and classes of cases for detention beyond three months without an Advisory Board opinion, as well as the maximum detention period and Advisory Board procedure, within constitutional limits.
- **Seventh Schedule – Legislative Powers**: The Constitution distributes legislative powers relating to preventive detention between Parliament and the States:
    - **Union List, Entry 9**: Parliament can legislate on preventive detention for reasons connected with **defence, foreign affairs or the security of India**.
    - **Concurrent List, Entry 3**: Both Parliament and State Legislatures can legislate on preventive detention for reasons connected with the **security of a State, maintenance of public order, or maintenance of essential supplies and services**.

What have the courts said about preventive detention?

A.K. Gopalan v. State of Madras (1950)	● The Court upheld most of the Preventive Detention Act, 1950, taking a narrow view of personal liberty. ● This approach was later displaced by the broader interpretation in Maneka Gandhi.
Dr. Ram Manohar Lohia v. State of Bihar (1966)	● Distinguished law and order from public order. ● Every breach of law and order does not justify preventive detention – the disturbance must reach the level specified by the relevant law.
Khudiram Das v. State of West Bengal (1975)	● Held that the authority's subjective satisfaction is subject to judicial review, particularly where there is non-application of mind, mala fide action or reliance on irrelevant material.
Maneka Gandhi v. Union of India (1978)	● Strengthened personal liberty jurisprudence by holding that a procedure depriving a person of liberty must be fair, just and reasonable, and must satisfy applicable fundamental-rights requirements.
A.K. Roy v. Union of India (1982)	● Examined the constitutional validity of the National Security Act, 1980, and clarified important procedural protections relating to preventive detention.
Rekha v. State of Tamil Nadu (2011)	● Emphasised that preventive detention must be used within narrow limits. ● If ordinary criminal law is sufficient to deal with the situation, preventive detention should not be used as a substitute.

What is the significance of preventive detention in maintaining public order and national security?

1. **Prevents potential threats**: Preventive detention enables authorities to intervene before anticipated activities threaten national security or public order, provided statutory requirements are met. It helps prevent potential harm rather than merely punishing offences after they occur.
2. **Combats terrorism**: Preventive detention enables authorities to detain individuals, subject to legal safeguards, when there are sufficient grounds to believe that their activities may threaten national security. It can help prevent terrorist attacks and disrupt activities such as recruitment, financing and logistical support for terrorism.

3. **Securing Critical infrastructure & Defense:** Enactments like the **National Security Act (NSA)** and the **Unlawful Activities (Prevention) Act (UAPA)** grant authorities powers to detain actors attempting to disrupt defense installations, foreign relations, or territorial integrity.
4. **Controls communal violence**: Preventive detention can help authorities prevent anticipated acts of communal violence by detaining individuals when there are legally sufficient grounds to believe their activities may threaten public order.
5. **Economic Security:** Statutes such as **COFEPOSA** (Conservation of Foreign Exchange and Prevention of Smuggling Activities Act) utilize preventive detention to deter organized economic offenses, money laundering, and illegal racketeering that weaken the national economy.
6. **Protects essential supplies**: Preventive detention can help prevent activities such as hoarding and smuggling that threaten the availability of essential commodities.
7. **Addresses emerging threats**: Preventive detention enables authorities to act against anticipated threats before they materialise into serious harm, provided the legal grounds are satisfied. For e.g. the **National Security Act, 1980** may be invoked to prevent activities prejudicial to national security or public order when its statutory requirements are met.
8. **Supports public safety**: Preventive detention can help authorities prevent anticipated acts of violence that pose a serious threat to public safety and public order. Authorities may detain an individual under a valid preventive detention law when statutory conditions are met and credible material indicates a threat of imminent communal violence.

What are the major concerns associated with the misuse of preventive detention laws in India?

1. **Violation of Fundamental Rights**: Arbitrary use of preventive detention can violate Article 21 (right to life and personal liberty) and undermine the safeguards under Article 22 of the Constitution, as individuals may be detained without a regular criminal trial.
2. **Circumvention of Criminal Justice**: Authorities may misuse preventive detention as a shortcut to avoid ordinary criminal proceedings, including the need to prove allegations in a fair trial. This undermines the presumption of innocence and the right to due process.
3. **Excessive Executive Discretion**: Preventive detention laws grant executive authorities significant powers to detain individuals based on their assessment of potential threats. This may lead to arbitrary decisions or detention based on inadequate evidence, undermining personal liberty.
4. **Prolonged Detention Without Trial**: Preventive detention allows individuals to be detained without a criminal trial, sometimes for extended periods. This can undermine the right to personal liberty under Article 21 and cause serious hardship to detainees and their families. For e.g. under the National Security Act (NSA), 1980, detention can extend up to 12 months, subject to statutory conditions and safeguards, without a criminal trial.
5. **Weak Procedural Safeguards**: Delays in communicating the grounds of detention, failure to consider a detainee's representation promptly, or inadequate disclosure of relevant information can undermine the constitutional safeguards provided under Article 22.
6. **Political Misuse**: Preventive detention laws may be misused to target political opponents, activists or dissenters, thereby discouraging legitimate criticism of the government and weakening democratic freedoms. For e.g. during the Emergency (1975–1977), the **Maintenance of Internal Security Act (MISA), 1971** was used to detain opposition leaders and political activists without trial, raising serious concerns about the misuse of executive powers.
7. **Impact on Vulnerable Sections**: Poor and marginalised individuals often lack access to quality legal assistance and resources to challenge preventive detention orders, making them more vulnerable to prolonged or arbitrary detention.

8. **Erosion of Public Trust**: Arbitrary use of preventive detention can weaken public confidence in law-enforcement agencies and the justice system, as citizens may perceive the authorities as acting beyond their legal powers.

What measures should be taken to prevent the misuse of preventive detention laws in India?

1. **Ensure Strict Judicial Review**: Courts should scrutinise preventive detention orders to ensure they comply with constitutional safeguards, are based on relevant material and are free from mala fide intentions.
2. **Strengthen Procedural Safeguards**: Authorities must strictly comply with Article 22(5) of the Constitution by promptly communicating the grounds of detention and providing detainees an effective opportunity to make a representation against the detention. This will help prevent arbitrary detention and protect individual liberty.
3. **Limit Executive Discretion**: The government should establish clear and objective criteria for ordering preventive detention to prevent arbitrary decisions. Detention orders must be based on relevant evidence, recorded reasons and strict compliance with constitutional safeguards.
4. **Avoid Substitution for Criminal Law**: Preventive detention should be used only in exceptional circumstances to prevent anticipated threats, and not as a substitute for ordinary criminal proceedings. Authorities should rely on investigation, arrest and trial under criminal law whenever these are sufficient to address the alleged offence.
5. **Ensure Accountability & Transparency**: Authorities should record clear, specific reasons for detention and maintain proper documentation to enable effective judicial scrutiny. Officials responsible for mala fide or unlawful detention should face appropriate legal or disciplinary action, thereby reducing arbitrary use of power and strengthening public trust.
6. **Strengthen Advisory Boards**: Advisory Boards should function independently and impartially to review the grounds of preventive detention and assess whether sufficient legal justification exists for continued detention. Timely reviews and reasoned assessments can help prevent arbitrary detention and protect individual liberty.

Conclusion: Preventive detention must remain an exceptional measure. Strong judicial oversight, accountable executive action and strict adherence to constitutional safeguards are essential to balance national security with individual liberty and the rule of law.

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Women Livelihood – Significance & Challenges – Explained Pointwise

Women's livelihood is a key driver of economic empowerment, gender equality and inclusive growth. The reported lapse of the Centre's flagship urban livelihood scheme, DAY-NULM, without a successor raises concerns about the continuity of institutional support for women's economic and social empowerment, highlighting the need for a comprehensive approach to women's livelihoods in India.

What is the significance of women's livelihood opportunities in promoting economic empowerment and inclusive growth in India?

1. **Economic Empowerment**: Women's livelihood opportunities provide financial independence, reduce dependence on family members and enhance their control over income and assets. For e.g. women

associated with Self-Help Groups (SHGs) can access credit and establish small businesses, strengthening their economic autonomy.

2. **Poverty Reduction**: Women's livelihood opportunities increase household income, improve access to basic necessities and help families escape the cycle of poverty. For e.g. women engaged in Self-Help Groups (SHGs) can generate income through small businesses and allied activities.
3. **Unlocking Demographic Dividend:** Women constitute nearly half of India's population. Increasing Female Labour Force Participation (FLFP) unlocks a massive reserve of labor, skills, and entrepreneurial talent.
4. **Gender Equality**: Women's livelihood opportunities reduce economic disparities between men and women by promoting equal access to employment, income and productive resources. This strengthens women's financial independence and promotes gender equality in society.
5. **Improved Social Status**: Livelihood opportunities enhance women's decision-making power within households and increase their participation in social and community affairs. For e.g. women associated with Self-Help Groups (SHGs) often gain greater confidence, financial independence and recognition in society.
6. **Inclusive Economic Growth**: Women's livelihood opportunities expand the productive workforce, increase household incomes and ensure that the benefits of economic growth reach a wider section of society. For e.g. women-led Self-Help Groups (SHGs) under DAY-NRLM promote rural entrepreneurship and generate employment.
7. **Human Capital Development**: Female income directly correlates with improved child nutrition, health outcomes, higher school enrolment rates, and lower drop-out rates, interrupting the intergenerational cycle of poverty. Studies consistently show that women invest up to 90% of their earnings back into their families and communities, compared to 30-40% for men.
8. **Sustainable Development**: Women's livelihood opportunities promote sustainable development by advancing gender equality, reducing poverty and ensuring inclusive economic growth. They contribute to achieving **SDG 5 (Gender Equality)** and **SDG 8 (Decent Work and Economic Growth)**.

What are the major challenges faced by women in securing sustainable livelihoods in India?

1. **Patriarchal Mindset of Society**: Traditional gender norms often consider men as primary breadwinners and women as caregivers, restricting women's employment choices, mobility and economic independence. This mindset discourages women from pursuing livelihood opportunities and limits their participation in decision-making.
2. **Low Labour Force Participation**: Social norms, household responsibilities and limited employment opportunities restrict women's participation in India's labour market. This limits their financial independence and prevents the economy from fully utilising its human resource potential.
3. **Unpaid Care Work**: Women bear a disproportionate burden of household chores, childcare and elderly care, limiting their time and ability to pursue paid employment and sustainable livelihood opportunities. This reinforces economic dependence and gender inequality.
4. **Gender Wage Gap**: Women often receive lower wages than men due to occupational segregation, discrimination and unequal access to better-paying jobs. This reduces their financial independence and discourages their participation in the workforce.
5. **Limited Access to Resources**: Women often face difficulties in accessing land ownership, institutional credit, modern technology and productive assets. This limits their ability to establish enterprises, improve agricultural productivity and secure sustainable livelihoods.

6. **Lack of Skill Development**: Limited access to vocational training, digital literacy and market-oriented skills reduces women's employability and restricts their access to better-paying jobs and sustainable livelihood opportunities.
7. **Safety and Mobility Constraints**: Concerns about sexual harassment, unsafe public transport and workplace security, along with social restrictions on women's mobility, limit their access to employment opportunities, particularly in urban and industrial areas.
8. **Regional and Social Inequalities**: Women from disadvantaged castes, tribal communities and economically weaker households face multiple barriers, including limited access to education, skill development, credit and employment opportunities. Regional disparities in infrastructure and job availability further restrict their livelihood prospects.

What initiatives have been taken by the government and civil society to promote livelihood opportunities for women in India?

Government initiatives:

Deendayal Antyodaya Yojana National Rural Livelihoods Mission (DAY-NRLM)	Organises rural women into Self-Help Groups (SHGs) and promotes access to credit, skill development and self-employment.
National Urban Livelihoods Mission (DAY-NULM)	Supports urban poor women through SHGs, skill development, access to credit and self-employment opportunities.
Pradhan Mantri MUDRA Yojana (PMMY	Facilitates collateral-free institutional loans to eligible micro-enterprises, including women-led businesses.
Stand-Up India Scheme	Facilitates bank loans for greenfield enterprises promoted by women and SC/ST entrepreneurs, subject to scheme eligibility conditions.
Lakhpati Didi Initiative	Aims to enable women in SHGs to earn sustainable annual household livelihoods of at least ₹1 lakh through diversified economic activities.
Namo Drone Didi Scheme	Trains women SHG members in drone piloting and maintenance for agricultural applications (crop monitoring, fertilizer spraying).
Swavalambini Scheme	Facilitates young women through ideation, financial access, and 21 weeks of dedicated business mentorship.

Civil society initiatives:

Self-Employed Women's Association (SEWA)	Organises women in the informal economy and supports skill development, microfinance, social security and direct market linkages.
Kudumbashree Mission, Kerala	Promotes women's neighbourhood groups, micro-enterprises, collective farming and producer companies to improve income and economic independence.
PRADAN (Professional Assistance for Development Action)	Strengthens rural women's livelihoods via sustainable agriculture, livestock rearing, and natural resource management.
Mann Deshi Foundation	Operates India's first microfinance bank managed by and for rural women, accompanied by Business Schools for female entrepreneurs.
Sheroes & Digital Platforms	Enables urban and semi-urban women to access remote work opportunities, peer support networks, and career coaching.
Barefoot College (Tilonia)	Trains rural, non-literate women (**"Solar Mamas"**) to become solar engineers, building clean energy livelihoods in off-grid areas.

What measures should be taken to ensure sustainable and dignified livelihood opportunities for women in India?

1. **Skill Development**: Provide women with market-oriented vocational training, digital literacy and technical skills aligned with industry requirements. This will enhance their employability, promote entrepreneurship and enable them to access better-paying and sustainable livelihood opportunities.
2. **Improve Access to Credit**: Expand access to affordable institutional credit, microfinance and financial literacy programmes for women entrepreneurs and Self-Help Groups (SHGs). Simplifying loan procedures and strengthening schemes such as MUDRA can help women establish businesses, generate employment and achieve financial independence.
3. **Ensure Equal Wages**: Strictly enforce equal pay for equal work and strengthen mechanisms to address gender-based wage discrimination. Effective implementation of the Code on Wages, 2019, along with regular wage audits and grievance-redressal mechanisms, can promote fair remuneration and economic justice for women.
4. **Promote Women Entrepreneurship**: Women entrepreneurs should be provided with affordable credit, skill development, modern technology and better market access. Strengthening initiatives such

as the MUDRA Yojana can encourage women-led enterprises, generate employment and promote economic independence.

5. **Strengthen SHGs**: Strengthening SHGs through easier access to credit, skill development, digital literacy and market linkages can promote women's entrepreneurship and generate sustainable livelihoods. Initiatives such as DAY-NRLM and the Lakhpati Didi initiative can further enhance women's income and economic independence.
6. **Improve Access to Productive Resources**: Ensure women's ownership of land, property and other productive assets, along with access to institutional credit, modern technology, irrigation and agricultural training. This will enhance their productivity, economic independence and livelihood security, particularly in rural areas.
7. **Address Patriarchal Mindsets**: Promote gender-sensitive education, community awareness campaigns and equal sharing of domestic responsibilities to challenge traditional gender stereotypes. This can encourage families to support women's employment, entrepreneurship and economic independence.

Conclusion: Ensuring sustainable and dignified livelihoods requires moving beyond employment generation towards decent work, equal opportunities, social security and economic independence. Empowering women economically is essential for inclusive growth and the realisation of **Viksit Bharat**.

UPSC GS-2: Governance
Read More: The Indian Express

Integrated Theatre Command – Significance & Challenges – Explained Pointwise



Indian military is actively developing an integrated logistics structure to support its planned theatre commands as part of its effort to transform the service-specific logistics architecture into an integrated defence framework. The creation of Theatre Commands (Theaterization) has been hailed as a major military reform for better responses during conflict. The plan is to have five unified or theatre commands, which will help in better planning and military response, and aim to have a unified approach to fighting any future war. But, the entire process has been riddled with a visible lack of consensus amongst the three arms of the military forces.

What is Integrated Theatre Command (TC)? What is the existing command structure in India?

- **Integrated Theatre Command:** It is a military structure which seeks to integrate the capabilities of the three services– army, air force and navy– in order to optimally utilize their resources for wars and operations.
- **Organisation of Theatre Command:** These 'unified combat commands' are organized either on a geographical basis (with a defined mission in a specific 'area of responsibility' somewhere on the globe) or on a functional basis.
- **International operation of Theatre command:** Almost all major countries like China, Russia, the US, the UK and France work on a theatre command concept. **For e.g.** China's Western Theatre Command looks after the entire borders with India.
- **Existing Command Structure in India:**
    - India has 17 single service commands and only two tri-service commands.
    - **Single Service Command:** The 17 single service commands are divided as:
        - Army – 7 commands;
        - Airforce – 7 commands;
        - Navy – 3 commands.
    - **Tri-Service Command:** The two tri-service commands are- **Andaman and Nicobar Command** (ANC), and **The Strategic Force Command** (SFC). The Andaman and Nicobar command is a full-fledged command raised as a tri-service command in 2001. The Strategic Force Command (SFC) handles the nuclear weapons.

What has been the committee recommendations on Integrated Theatre commands in India?



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Committee Recommendations	**Kargil Review Committee**, **Naresh Chandra Committee** (2012), and **Shekatkar Committee** (2016), recommended creating a tri-service commander role, which will help in the creation of integrated theatre commands.
Appointment of CDS	The appointment of **CDS** in 2019 and the decision to create the **Department of Military Affairs** (DMA) within the Ministry of Defence have all been steps in the direction of achieving jointness between the three branches of the armed forces.

What are the recent steps taken by the Government on Integrated Theatre Command?

Proposal to create a national defence committee	There is a proposal for theatre commanders under a national defence committee likely to be headed by the Defence Minister.
Inter-Services Organisation (Command, Control and Discipline) Act 2023	The Act empowers the **Commander-in-Chief** and the **Officer-in-command** of inter-services organisations with disciplinary and administrative powers over personnel from the other services serving in them.

Proposed Organizational structure for Integrated Theatre Command:

Appointment of a Vice Chief of Defence Staff (CDS)	The Vice CDS is likely to be an officer of the rank of General or equivalent. He is expected to look after strategic planning, capability development and procurement-related matters.
Appointment of a Deputy CDS	The Deputy CDS is likely to be an officer of the rank of **Lieutenant General** or equivalent. He will be responsible for operations, intelligence and will coordinate the allocation of assets between theatres.
Proposed commands	The overall plan is to establish three adversary-based theatre commands– one facing Pakistan, another opposite China, and a maritime theatre command to tackle maritime threats outside the coastal borders of the country.
Role of three service chiefs	The three service chiefs will be responsible for raising, training and sustaining the individual services. No additional manpower is likely to be enrolled. Only readjustments within organisations will be carried out to meet the requirements of the theatre commands.

What are the benefits of Integrated Theatre Commands (ITC)?

1. **Increased efficiency:** It will lead to rationalization of war fighting resources, and efficiency of executions resulting in an integrated action to counter threats.
2. **Rationalization of the command structure:** The present command structure in the Indian military is pretty uneven. The Indian Army has seven commands, while a much smaller Indian Air Force has a similar number of commands and the Indian Navy has three commands. This structure will be rationalized under the theatre command concept.
3. **Effective neutralization of Chinese threat:** China's Western Theater Command looks after the entire borders with India, unlike India where it has multiple Commands and structures to respond with different officers at the top.
4. **Cost-effective in the long run:** Theaterization will help in better planning and military response and also bring down costs. While the cost may go up in the immediate future since all theaters would have to be armed with sufficient systems, it will prove to be cost-effective in the long term as all acquisitions will be a unified one.
5. **Operational Freedom:** The integrated theatre commander will not be answerable to individual Services, and will be free to train, equip and exercise his command to make it a cohesive fighting force capable of achieving designated goals.

What are the Challenges in the establishment of Integrated Theatre Command in India?

1. **Inter-Service Competition:** The intense focus of each service on its own assets and influence can hinder the creation of synergy among the services.
2. **Massive funding:** Creation of infrastructure for the Theatre commands will require huge amounts of funding.
3. **Different service cultures:** The service culture and way of functioning of the three services is very different. The Indian Army has regimental affiliations and is bound by its legacy. Finding the right mix of service culture remains a challenge.
4. **Perception of Army Dominance:** There are concerns that the integration of the commands that may perpetuate the perceived dominance of the army and provide it with greater operational control.
5. **Infrastructure and Logistical coordination issues:** Coordinating and synchronizing the infrastructure and logistics requirements across different services could be complex and resource-intensive.
6. **Lack of National Security Strategy (NSS):** Many retired military professionals have criticised implementing theatre commands without having a coherent National Security Strategy (NSS).

What Should be the Way Forward?

1. **A supportive ecosystem:** In order for Theatre Commands to be effective, there needs to be a supporting ecosystem. India still remains the 2nd largest arms importer in the world. Hence, indigenous technology and hardware by self-reliance should be a priority.
2. **Managing internal & external security:** There needs to be an assessment of how the internal and external security will be managed under the theatre commands. It is because there are lakhs of paramilitary personnel and the Indian Coast Guard.
3. **Parliament's role:** The legislature needs to play a far more proactive role. A Dedicated Standing Committee of Parliament should be created. It needs to be staffed with military advisers and other professionals to independently monitor the transition very minutely.
4. **Geography-based theatres:** Keeping in mind the changing nature of threats, India can also aim for four geography-based theatres – **Northern, Southern, Eastern, and Western –** each equipped to use land, sea, air, space, and cyber power to handle all threats in their areas.

5. **Talent-based appointments:** No theatre should 'belong' to any service, and command appointments should be decided based on talent and experience in joint operations.
6. **Clear working out of Budgetary allocations:** Budgetary allocations and the distribution of funds need to be clearly worked out to enable the setting up of a seamless theatre command system
7. **Modular structure:** In the theaterization debate, India must not forget to modularize its armed forces. The present big hierarchical formations need to be divided into many small networked brigades. Multiple studies have shown that these are superior to the division-based structure in terms of deployability, employability, and sustainability.

Conclusion: India operates the 4th largest military in the World, and with each service acting independent of each other, the formation of theatre commands is indeed a need of the hour. But, the successful launch of the Theatre Commands should not be rushed. Issues and concerns of all the stakeholders must be resolved first.

Read More: Indian Express
UPSC Syllabus- GS 3- Security

Stampede Disaster & its Management in India – Explained Pointwise

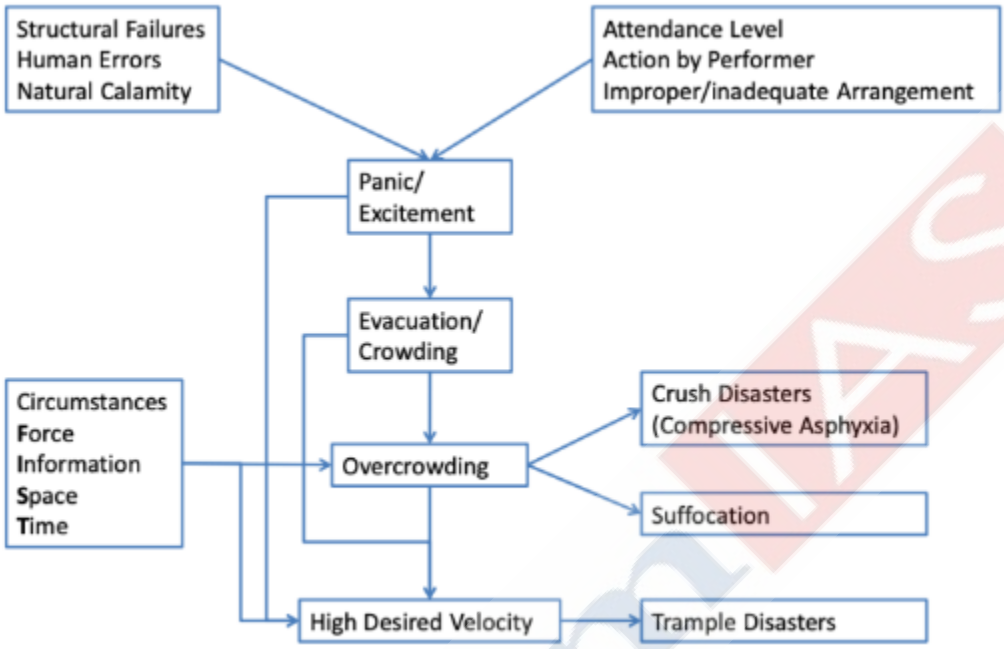


At least 19 people were killed & more were injured after a crowd surge at a Durga Pandal in Kolkata recently. This calls for a detailed look into the issue of Stampede Disaster and the measures needed to be taken to manage it.

What is stampede? What are the infamous stampede cases in India?

- **Stampede:** Stampede is the disruption of the orderly movement of crowds which leads to injuries and fatalities. This impulsive mass movement of crowd often takes place in response to a perceived danger, loss of physical space or a will to attain something as gratifying.

Process of a Stampede



Source- NDMA Disaster Guidelines

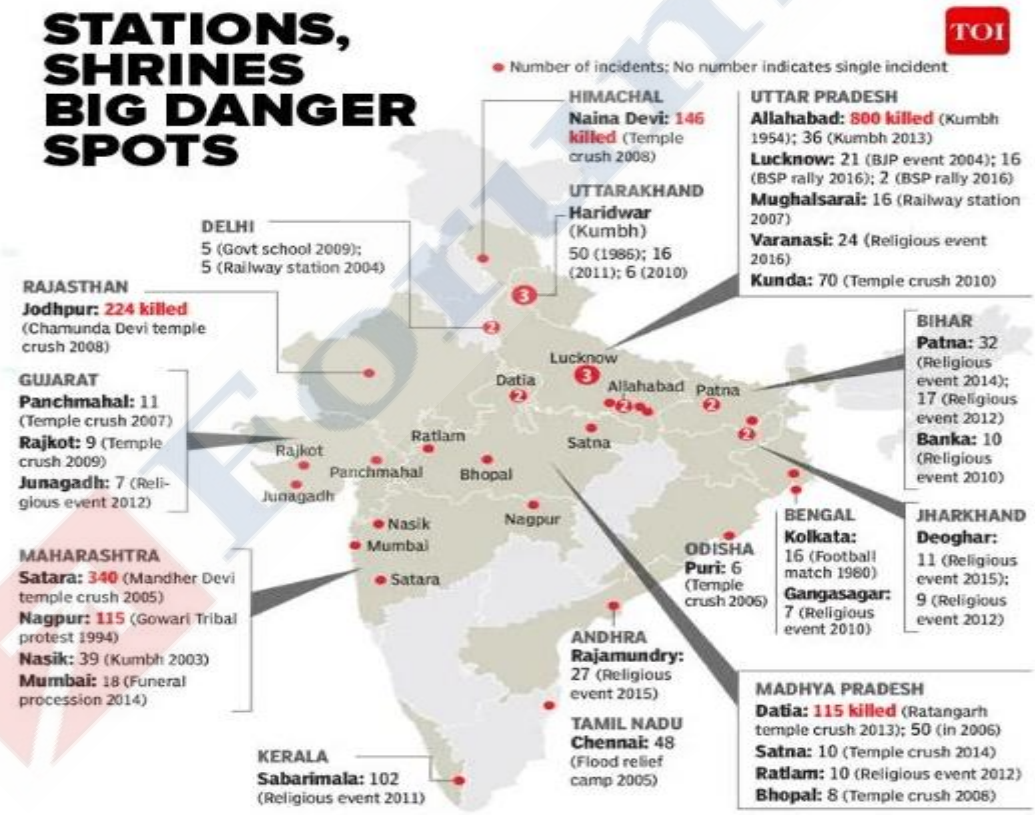
Some Notable Deadly Stampede Disasters in India:

Allahabad Kumbh Mela Stampede (1954)	It is the most fatal Kumbh Mela stampede in history. It resulted in the loss of around 800 lives.
Wai Stampede (2005)	The stampede at the Mandhardevi temple in Maharashtra's Satara district resulted in the death of 340 people.
Naina Devi Temple Stampede (2008)	Rumors of landslide started the stampede at the Naina Devi Temple in 2008. It resulted in the death of at least 145 people which included dozens of women and children.
Jodhpur Temple Stampede (2008)	The stampede at the Chamunda Devi Temple resulted in the death of at least 168 people.
Allahabad Railway Stampede (2013)	Last-minute change in the platform for the pilgrims who had gathered for the Khumbh Mela, created panic and resulted in a stampede. It led to the loss of around 36 lives.

Mumbai pedestrian bridge Stampede (2017)	The stampede at the crowded Pedestrian Bridge connecting the two Mumbai railway stations resulted in the death of 22 people and injured 32.
Mata Vaishnav Devi shrine (2022)	The Stampede at the Mata Vaishno Devi Shrine resulted in the death 22 people and injured 32.
Hathras Stampede (2024)	During a religious gathering in Uttar Pradesh's Hathras district on July 2, 2024, at least 121 people (almost all women) lost their lives.

Stampede Statistics In India:

- According to the National Crime Records Bureau figures, from 2000 to 2013, almost 2,000 people died in stampedes in India.
- A 2013 study published by International Journal of Disaster Risk Reduction (IJDRR) points out that religious gathering and pilgrimages have been venues for 79% of the stampedes in India.



Source-TOI

What are the major causes of Stampedes in India?

Structural Causes	The stampedes occur due to structural and design failures in the buildings, bridges etc. This includes the following causes: (a) Structural collapse of makeshift bridges, railings, temporary structures. (b) Improper and unauthorised built structures. (c) Railings of the bridge collapsing due to panic triggered by rumours. (d) Difficult terrain (famous religious sites built on top of hills that are difficult to access). (e) Narrow streets with very few entry/exits. (f) Absence of emergency exits.
Fire/ Electricity causes	This includes the following causes: (a) Fire in a makeshift facility or a shop, and illegal and unauthorised structure. (b) Non-availability of fire extinguishers in working condition. (c) Building and fire code violations, unauthorized fireworks in enclosed places. (d) Electricity supply failure creating panic and triggering a sudden exodus. (e) Illegal electric connections and faulty electric equipment.
Crowd Behaviour	The stampedes are either triggered or made worse by panic. Crowd behaviour plays an important role in it. Following are some crowd behaviour causes: (a) Craze: In large group settings, this "craze" percolates to every member and can make them act in detriment to their own individual interests. **For e.g.** One of the major causes behind the recent Hathras Stampede has been the rush to touch the preacher's feet and trying to collect soil from where he walked. (b) Crowds forcing to entrance/exits a venue after the start/closing time (c) Rush during distribution of disaster relief supplies (d) A large (much more than expected) anxious and competitive crowd gathering at promotional events (f) Unruly and irresponsible crowd behaviour (g) Last minute change in platform for train arrival/departure resulting in lots of movements within short period of time.

Security Issues	This includes: **(a) Security Personnel:** (i) Under deployment of security staff and deployment of untrained staff (ii) Lack of adequate rehearsals and briefing of security personnel on crowd control (iii) Lack of adequate scientific planning in making police arrangement to deal with crowd with proper sectoral deployment, and lack of proper wireless deployment (iv) Ineptitude of the police in effectively managing the crowd and enforcing prohibitory orders **(b) Surveillance:** (i) Lack of adequate observation towers with proper wireless communication to monitor and regulate crowd (ii) Lack of adequate CCTV surveillance of the crowd (iii) Absence of public announcement systems or effective wireless system with the police; **(c) Infrastructure:** (i) Lack of adequate road opening parties to secure the routes (ii) Lack of adequate metal detectors and frisking of pilgrims entering the pilgrimage area or persons entering the gathering area.
Lack of Coordination between Stakeholders	This includes the following issues: (a) Coordination gap between agencies (e.g. Police and District Magistrate; PWD, Fire Service, Forest officials, Revenue officials, Medical officers etc.) (b) Poor infrastructure (Plans on paper but no implementation due to lack of funds, resources, or will). (c) Inadequate water, medical assistance, public transport/parking facilities. (d) Communication delays (e) Vacant/late/delayed posting of key personnel.

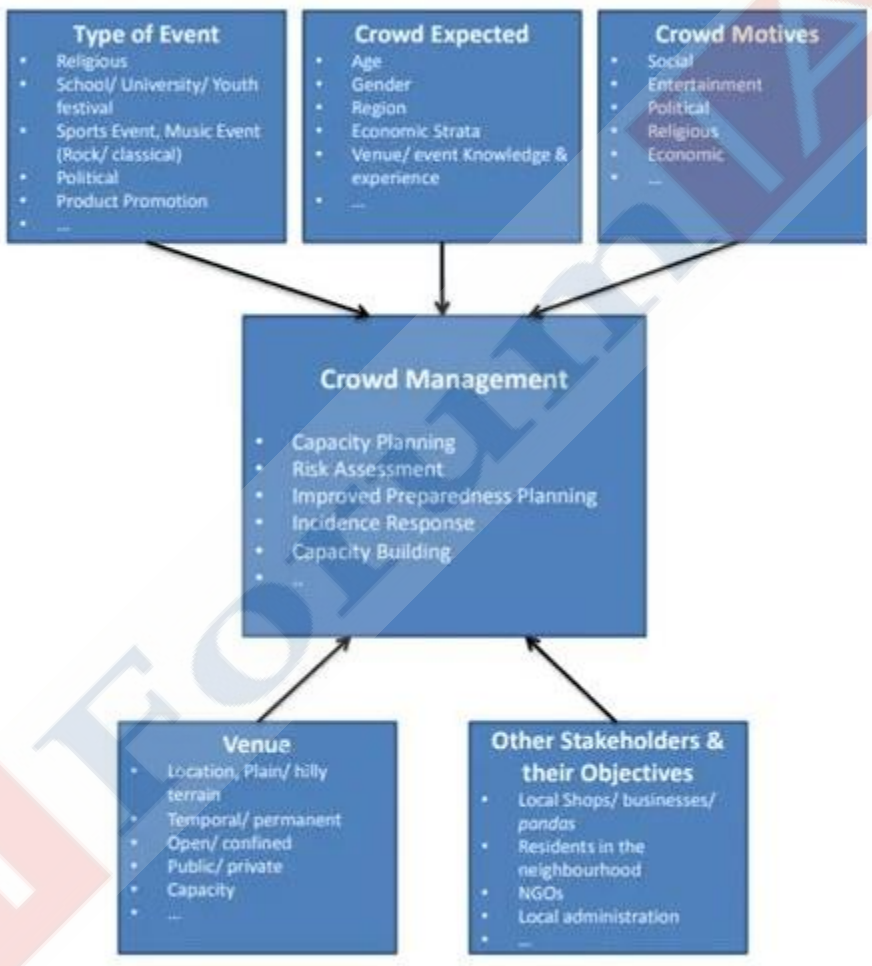
What are the Impact of these Stampedes?

1. **Trauma and Loss:** Witnessing a stampede tragedy and the resultant deaths and injuries causes immense trauma, especially for those who lost loved ones. **For e.g.** Deadly stampede killing 121 people in Hathras.
2. **Economic Hardship:** The majority of victims in such stampedes come from lower castes and poor backgrounds. Their deaths leave families without primary breadwinners, causing economic hardship in the community. Also the cost of funerals and medical expenses further strain already limited resources.

3. **Erosion of Trust:** Repeated stampedes at Indian religious festivals due to similar failures further undermine faith in the ability of organizers to keep devotees safe. **For e.g.** Gross negligence like poor planning, with insufficient exits, inadequate crowd control, and lack of emergency preparedness, by organizers and authorities erodes trust in religious institutions.
4. **Loss of Social and Human Capital:** Many young children and women are the victims of these stampede tragedies. This leads to loss of the productive social and human capital of the country.

What are the NDMA Guidelines for the prevention of Stampedes in India?

In view of the recurring stampedes at places of mass gathering, including religious places, and typically ad-hoc responses to those, the National Disaster Management Authority (NDMA) has prepared '**Suggestive Framework for Preparation of Crowd Management Plan for Events/Venues of Mass Gathering**'.



Source- NDMA

Understanding venue, visitors and stakeholders	It requires understanding of: 1. Type of event (such as religious, schools/ university, sports event, music event, political event). 2. Expected Crowd (age, gender, economic strata) 3. Crowd Motives (such as social, academic, religious, entertainment, economic etc.) 4. Venue (location, topography of area, temporal or permanent, open or closed) 5. Role of other stakeholders (such as NGOs, neighbours of event venue, local administrators etc.)
Crowd Handling	1. Proper regulation of Traffic around the mass gathering venues. 2. A route map for venues along with emergency exits route maps. 3. Barricade facility to control the movement of crowd queues. 4. Snake line approach should be followed in case large crowd queues 5. The organizers of crowded events/venue managers should discourage general admissions and have plans to handle VIP visitors.
Safety and Security	1. The venue Organisers should ensure authorised use of electricity, use of fire safety extinguishers as per the safety guidelines. 2. Use of CCTV cameras to monitor crowds and use of mini UAV in case of big crowd spread.
Communication	A public address system, with loudspeakers installed at all crowded points, to communicate with the crowds.
Medical and Emergency care	Medical first-aid rooms and emergency operations centres to handle post-disaster emergencies should be set up
Role of Event Managers	The event organizers and venue managers should develop, implement, review and revise the disaster management plan in coordination with others including local administration and police.
Role of Civil society	Event/venue managers should involve NGOs and civil defence in traffic control, people flow control, medical assistance, sanitation and mobilization of local resources in case of disaster.
Role of police	The police should actively participate in venue assessment and preparedness checks and guide crowd and traffic movements.

Role of Media	1. **Educational**: Media can educate public about the possible disaster threats, ways to prevent them and how to be better prepared in the face of a disaster. 2. **Critical:** Media can critically evaluate the disaster management plans to highlight the gaps for correction.
Capacity Building	Capacity building, conduction of drills, periodic assessment of training of security personnel, police is essential to prevent crowd disasters

Use of ICT in Stampede Management:

ICT for Disaster mitigation and Prevention	**ICT in Disaster response and relief**
Technology • GIS, Remote Sensing • Radio, Television, telephone • SMS, UMS, Cell Broadcasting, Internet/Social Media • RFID • Space based sensors and balloons	Technology • PA system, SMS, UMS, Cell Broadcasting, Inter-operability of mobile service providers • Emergency lighting, alarms • RFID Tags • Registration database software • Space based sensors and balloons
Typical Usage • Early warning system, Potential Risks, Vulnerabilities • Registration of visitors, Virtual Queues, RFID • Information dissemination • To regulate flow of visitors • Prepositioning of resources	Typical Usage • To ensure rumours do not spread • Registering missing persons • Search and rescue • Keeping track of relief organizations, Camps of displaced persons • Insurance processing • Resource inventory management

Source- NDMA Guidelines for ICT use in Disaster Management

What are the Challenges in the implementation of these Guidelines?

1. **Lack of adoption and implementation:** The state governments and local authorities have not yet properly implemented the NDMA guidelines on crowd management.
2. **Rapidly rising population:** With rising population and rapid urbanization, urban areas have become more susceptible along with places of frequent mass gatherings like temples.
3. **Greater tolerance to crowd:** According to several psychologists, there is very high tolerance for crowded places in India, because Indians don't feel uncomfortable until it's very packed. Hence, large-scale events in India become more susceptible to stampedes because of a greater tolerance for high-density crowds.

4. **Governance and accountability:** Agencies responsible for issuing permissions/ licences for mass gatherings, events often fail to follow the guidelines and the requirements. Further, there is lack of accountability on part of the authorities.

What Should be the Way Forward?

1. **Legislation, Rules and Regulations for Stampedes:** Supreme Court in Uphaar Cinema Tragedy observed that there is a need for a comprehensive legislation dealing with tortuous liability of the State.
2. **Specialisation and Professionalism:** India needs to emphasize effective communication, sensitive on-ground interventions, specialized personnel training, safety insurance, online customer feedback system, transparency, statutory compliances and professionalism, to maintain the decorum of the crowd in huge events.
3. **Use of technology:** Latest technology such as CCTV surveillance with HD IP cameras with VMS (Video Management Software), mobile control room, drones for roof level surveillance and public address system, face recognition among crowds and robotic support should be deployed extensively in crowded places.
4. **Capacity Evaluation:** There should be proper evaluation of the capacity of a location or structure before holding mass gatherings. Existing infrastructural problem should be addressed to avoid mishaps.
5. **Crowd Behaviour Management:** Every mass event must have a public address system for the officials to stop rumours from getting out of hand, calm panicking crowds, and help people exit in a systematic manner.
6. **Penalties:** Stricter penalties, revocation of licenses for construction/fire safety violations, random checks and inspections, must be adopted ensure effective compliance.
7. **Engaging Civil Society:** The Local Civilian Organisations like NGOs must be actively engaged in the event for capacity building of event managers etc, for easy mobilization of local resources, better preparedness and traffic control.
8. **Learning from Global Best Practices:** The learnings from Global Best Practices in Crowd Management must be adopted for effective management of Stampedes in India. **For e.g.** Crowd management during Haj Pilgrimage in Makkah.

Read More: The Indian Express
UPSC Syllabus- GS 3 Disaster Management

Internet Access as Fundamental Right – Significance & Challenges – Explained Pointwise



The Supreme Court's recent judgment recognising the right to access and use the internet as a fundamental right marks a significant step in the evolution of digital rights in India. It highlights the growing importance of internet access in ensuring freedom of expression, access to education and the effective exercise of other fundamental rights.

What did the Supreme Court observe in its recent judgment recognising internet access as a fundamental right in India?

In its October 15, 2026 judgment in **Just Rights for Children Alliance v. S. Harish**, the Supreme Court made the following key observations:

1. **Fundamental Right**: The right to access and use the internet is a fundamental right under **Article 21** (Right to Life and Personal Liberty), read with **Article 19(1)(a)** (Freedom of Speech and Expression).
2. **Children's Rights**: Children enjoy this right irrespective of their age. Their online safety cannot be ensured by completely denying them internet access.
3. **Access to Information and Education**: The internet is an important medium for accessing information, expressing ideas and pursuing education, particularly for children in remote areas and those with special needs
4. **Rejection of Blanket Restrictions**: The Court cautioned against blanket bans on children's internet use, observing that such restrictions may push them towards less regulated platforms and discourage them from reporting online abuse.
5. **Protection of Privacy**: The Court expressed concerns that age-based restrictions could require continuous collection of sensitive personal data, creating risks of surveillance and misuse.

6. **Need for Proportionate Safeguards**: The Court emphasised that measures should target harmful content and those responsible for creating or circulating it, rather than depriving children of internet access altogether.

What are some other important Supreme Court judgments related to internet access and digital rights in India?

Anuradha Bhasin v. Union of India (2020)	The Court held that freedom of speech and expression and the freedom to carry on trade or business through the internet are constitutionally protected under Articles 19(1)(a) and 19(1)(g). It also ruled that indefinite internet shutdowns are impermissible and restrictions must satisfy proportionality requirements.
Shreya Singhal v. Union of India (2015)	The Court struck down Section 66A of the Information Technology Act, 2000, for being unconstitutional and violating freedom of speech and expression under Article 19(1)(a).
K.S. Puttaswamy v. Union of India (2017)	The Court recognised the **right to privacy** as a fundamental right under Article 21 and Part III of the Constitution. This has important implications for data protection, online privacy and surveillance.

What is the significance of recognising internet access as a fundamental right?

1. **Strengthens Fundamental Rights**: Recognising internet access as a fundamental right reinforces the connection between Article 21 (Right to Life and Personal Liberty) and Article 19(1)(a) (Freedom of Speech and Expression), enabling citizens to access information, express opinions and participate in democratic processes.
2. **Promotes Digital Inclusion**: Recognising internet access as a fundamental right can help bridge the digital divide by improving access to information, education and essential online services for rural populations, marginalised communities and persons with disabilities.
3. **Ensures Access to Education**: Recognising internet access as a fundamental right promotes equal educational opportunities by enabling students to access online classes, digital libraries and educational resources, particularly in rural and remote areas. For e.g. initiatives like **DIKSHA** provide digital learning materials to students across India.
4. **Enhances Freedom of Expression**: Internet access enables citizens to express their opinions, share ideas and participate in public debates, thereby strengthening Article 19(1)(a) of the Constitution. For e.g. social media platforms allow citizens to raise awareness about social issues and government policies.
5. **Improves Access to Public Services**: Internet access enables citizens to avail themselves of government services such as Aadhaar, online certificates, welfare benefits and digital payments. It promotes transparency, reduces bureaucratic delays and improves last-mile delivery of public services, particularly in rural and remote areas.
6. **Promotes Economic Opportunities**: Access to the internet enables individuals to explore online employment, entrepreneurship, digital markets and skill-development opportunities, thereby promoting livelihood generation and economic empowerment. For e.g. platforms such as the Government e-Marketplace (GeM) help small businesses access wider markets.
7. **Protects the Rights of Children**: Recognising internet access as a fundamental right ensures that children can access online education, information and learning opportunities while promoting their

overall development. It also highlights the need to protect children from online harms without imposing blanket restrictions on internet use.

8. **Balances Freedom with Online Safety**: The judgment emphasises that online risks should be addressed through proportionate safeguards rather than blanket restrictions on internet access, thereby protecting both individual freedom and online safety. For e.g. age-appropriate content filters and measures against cyberbullying can help protect children without denying them access to online education and information.

What are the major challenges in ensuring universal internet access in India?

1. **Digital Divide:** Unequal access to the internet between urban and rural areas, as well as across income groups, limits digital inclusion. For e.g. people in remote villages often face weaker connectivity and fewer internet facilities than those living in cities, restricting their access to online education, healthcare and government services.
2. **Poor Digital Infrastructure**: Inadequate broadband connectivity, limited mobile towers and unreliable electricity supply hinder internet access in rural, remote and hilly regions. For e.g. several remote villages face network connectivity issues, limiting access to online education, telemedicine and e-governance services.
3. **High Cost of Devices**: The high cost of smartphones, computers and other internet-enabled devices prevents economically weaker sections from accessing digital services. For e.g. low-income students may be unable to afford smartphones or laptops required for online classes, limiting their access to digital education and learning resources.
4. **Low Digital Literacy**: Lack of digital skills prevents people from effectively using internet-based services, even where connectivity is available. For e.g. some rural citizens may struggle to use the UMANG app to access government services or may fall victim to UPI fraud due to limited awareness of online safety practices.
5. **Language Barriers**: Limited availability of digital content, government websites and online services in regional languages restricts internet access for non-English-speaking populations. For e.g. a rural farmer who cannot understand English-language agricultural advisories may struggle to access information on weather forecasts, crop insurance and government schemes, thereby limiting the benefits of digital inclusion.
6. **Cybersecurity and Privacy Risks**: Online fraud, identity theft, cyberbullying and misuse of personal data discourage people from using the internet. For e.g. digital arrest scams in India, in which fraudsters impersonate law-enforcement officials and threaten victims through video calls to extort money, undermine public trust in digital platforms.
7. **Affordability of Continued Access**: Although internet data rates in India are relatively low, recurring expenses on data recharges, smartphones and electricity can burden low-income households, forcing them to limit their internet usage. For e.g. a rural student from an economically weaker family may struggle to afford regular mobile data recharges needed to attend online classes and access digital study materials.

What measures should be taken to ensure affordable and equitable internet access in India?

1. **Expand Digital Infrastructure**: The government should strengthen broadband networks and mobile connectivity in rural, remote and underserved areas through initiatives such as BharatNet, which aims to provide broadband connectivity to Gram Panchayats. This would reduce the urban–rural digital divide and ensure equitable internet access for all citizens.
2. **Provide Affordable Internet Plans**: The government should encourage telecom operators to offer low-cost data plans and special packages for students and economically weaker sections to reduce the financial burden of regular internet usage.

3. **Subsidise Digital Devices**: The government should provide subsidised smartphones, tablets and computers to students and economically weaker sections to reduce the digital divide. For e.g. state-level initiatives such as Tamil Nadu's free laptop scheme for students demonstrate how device support can improve access to digital education and online learning resources.
4. **Promote Public Wi-Fi**: Expanding public Wi-Fi hotspots in villages, schools, libraries and community centres can provide low-cost internet access to people who cannot afford regular data recharges. For e.g. **PM-WANI** (Prime Minister Wi-Fi Access Network Interface) scheme promotes public Wi-Fi hotspots, enabling affordable internet connectivity and supporting digital inclusion.
5. **Improve Digital Literacy**: The government should strengthen digital literacy programmes to enable citizens, particularly rural populations and disadvantaged groups, to use the internet safely and effectively. For e.g. **Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA)** aimed to impart digital literacy to rural households, helping people access online education, digital payments and government services.
6. **Promote Regional-Language Content**: Developing websites, educational materials and e-governance services in regional languages can overcome language barriers and make internet access more inclusive. For e.g. the Government's **BHASHINI** initiative uses AI-based language technologies to facilitate access to digital services in Indian languages, particularly for non-English-speaking citizens.
7. **Strengthen Cybersecurity and Privacy**: Strengthening data protection laws, cybersecurity infrastructure and grievance-redressal mechanisms can build public trust in digital services and encourage wider internet adoption. The effective implementation of the Digital Personal Data Protection Act, 2023, along with awareness campaigns against online fraud, can help protect users' personal information and promote safer internet access.

Conclusion: India must move beyond mere internet connectivity towards meaningful universal access by ensuring that every citizen can afford, access and safely use the internet, irrespective of income, gender or geographical location.

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

UN Reforms – Need & Challenges – Explained Pointwise



Reforming the United Nations (UN) is one of the most critical and complex challenges in global governance today. While the UN remains indispensable, its structure, particularly its most powerful bodies, often fails to reflect the realities of the 21st century.

Introduction:

- **UN reforms** refer to proposed and ongoing changes meant to make the United Nations more effective, representative, transparent, and responsive to current global realities.
- The calls for reform span core UN organs, especially the Security Council, as well as the organization's operational and financial structures.

What are the key issues necessitating reforms in the United Nations?

1. **Lack of equitable representation**: The UN Security Council does not adequately reflect the current geopolitical and economic realities, particularly the growing role of developing countries. Countries like India, Brazil, Germany, and Japan, and regions such as Africa and Latin America, have long called for permanent representation to reflect modern realities and give a greater voice to developing nations. For e.g. India, despite being the world's most populous country, does not have permanent membership in the Security Council.
2. **Outdated Power Structure:** The UN Security Council (UNSC) is dominated by five permanent members (P5: US, UK, France, Russia, China) with veto powers – a structure set in 1945 that now fails to reflect shifts in global power, the rise of developing nations, and the interests of the Global South.
3. **Veto power of permanent members**: The veto power of the five permanent members (P5) can obstruct collective action, even when a majority of countries support a resolution. For e.g. repeated

vetoes by the US on Gaza-related resolutions have highlighted how veto power can hinder collective action on international peace and security.

4. **Ineffectiveness in preventing conflicts**: The UN has often struggled to prevent or resolve prolonged conflicts due to geopolitical rivalries and a lack of consensus among major powers. For e.g. the ongoing Russia-Ukraine conflict has exposed the limitations of the Security Council when a permanent member is directly involved in a conflict.
5. **Inability to address emerging global challenges**: The UN's existing institutional mechanisms often struggle to respond effectively to emerging challenges such as climate change, cyber threats, pandemics and artificial intelligence, highlighting the need for stronger international cooperation and institutional reforms. For e.g. the COVID-19 pandemic exposed gaps in global health coordination and preparedness.
6. **General Assembly Marginalization**: Although the UN General Assembly (UNGA) represents all 193 member states equally, its resolutions are non-binding, unlike UNSC decisions. Rebalancing authority between the General Assembly and the Security Council is a persistent demand from developing nations.
7. **Bureaucratic Inefficiency:** The UN's complicated bureaucratic structure often slows emergency response and suffers from corruption, misuse of funds, or poor accountability. Redundant agencies, overlapping mandates, and heavy administrative processes hinder rapid response to emerging global crises.
8. **Financial Constraints:** The UN faces funding shortages and delays in member-state contributions, which affects its ability to implement peacekeeping, humanitarian and development programmes effectively. Its reliance on a few donors, especially the US, leads to budgetary crises, and concerns about undue influence in UN affairs.
9. **Erosion of Legitimacy and Emergence of Competitors:** The UN's inability to prevent or resolve prolonged conflicts weakens public confidence in its effectiveness. Its failures to act on major crises push the member states toward regional or ad hoc coalitions (G20, BRICS, African Union), bypassing the UN and weakening its global leadership.

What are the major reform proposals & ongoing initiatives?

UNSC Expansion and Veto Reform	1. **New Permanent Members (P6-P11):** The current permanent five (P5: China, France, Russia, UK, US) do not include major modern economic, demographic, or political powers. Leading candidates for new permanent seats include: ○ **India:** The world's most populous country and a major global economy. ○ **Brazil:** The leading voice in Latin America. ○ **Germany** and **Japan:** Major financial contributors to the UN and global powers. ○ **An African Seat:** A consensus candidate or rotation among key African nations (e.g. Nigeria, South Africa) to represent the entire continent. 2. **Ezulwini Consensus:** African nations demand **2 permanent seats** (with full veto rights) and **3 additional non-permanent seats** for African nations. This framework stresses correcting the historical exclusion of the continent. 3. **Uniting for Consensus (UfC Coalition):** Led by countries like Italy, Mexico, Pakistan, South Korea, and Türkiye, this group opposes new permanent seats. Instead, it advocates for expanding only non-permanent seats with longer, renewable terms to allow wider representation.

	4. **Limit or Reform Veto:** Restrict veto use (especially in cases of genocide, war crimes, crimes against humanity) with proposals for supermajority or General Assembly referral for overrides. 5. **Increase Non-Permanent Seats:** More seats for under-represented regions to distribute influence and reflect global demographics.
Streamlining Bureaucracy & Decision Making	1. **UN80 Initiative:** Launched by UN Secretary-General in 2025, the initiative aims to reduce duplication, streamline administrative processes and improve coordination across the UN system. 2. **Increase Transparency and Accountability:** Stricter auditing, performance reviews, and publication of program assessments; better mechanisms to address fraud, misconduct, and resource misuse.
Financial Reform	1. **Equitable Assessment & Burden Sharing:** Update member contribution formulas based on GDP, population, and development indicators; build in accountability for arrears and fiscal discipline. 2. **Link Membership to Contributions:** Greater privileges or representation for consistent contributors to peacekeeping, aid, or development.
Inclusive Voice and Representation	1. **Institutionalize Global South Forums:** Permanent coalitions (e.g. G4, African Union blocks) within UN organs to negotiate as regional blocs and ensure developing country priorities are addressed. 2. **Text-Based Negotiations:** Adopt clear deadlines and rounds for reform discussions, preventing procedural delays. 3. **Pact for the Future (2024)**: Adopted at the Summit of the Future in September 2024, it seeks to strengthen multilateral cooperation, reform global governance and make international institutions more inclusive and effective.

What are the major challenges associated with reforming the United Nations?

1. **Resistance from Permanent Members**: The five permanent members (P5) of the UN Security Council may oppose reforms that could dilute their existing power, privileges and influence over global decision-making. For e.g. Under Article 108 of the UN Charter, any amendment requires ratification by all five permanent members, this gives each P5 member an effective veto over Charter amendments, making reforms such as expanding the Security Council difficult despite growing demands for greater representation.
2. **Lack of Consensus Among Member States**: UN member states have divergent national interests, geopolitical priorities and visions of global governance, making it difficult to reach a consensus on reforms. For e.g. disagreements over expanding the UN Security Council, including resistance from some countries to granting permanent seats to emerging powers such as India, have stalled progress on reforming the Council.
3. **Internal Disagreements Within Blocs:** Regional groups struggle to unite behind single candidates. For instance, while the African Union demands two permanent seats under the Ezulwini Consensus, member states have not agreed on which specific African nations (e.g. Nigeria, South Africa, or Egypt) would hold those seats.

4. **Geopolitical & Regional Rivalries**:
    - Major powers often prioritise their strategic interests over collective global goals, making consensus on UN reforms difficult. For e.g. Rivalries between the US, Russia and China hinder cooperation on several international issues.
    - Historical tensions between neighbouring countries obstruct agreement on regional representation in the Security Council. For e.g. Rivalries between India and Pakistan complicate discussions on South Asian representation.
5. **Disagreement over Veto Power**: The five permanent members (P5) of the UN Security Council enjoy veto power, which often becomes a major obstacle to UN reforms. While developing countries demand its abolition or restriction, the P5 are reluctant to dilute their privileges.
6. **Complexity of the UN Charter Amendment Process**: Article 108 of the UN Charter requires amendments to be adopted by a two-thirds majority of the UN General Assembly and ratified by two-thirds of UN member states, including all five permanent members of the Security Council. Achieving a supermajority among 193 sovereign states with widely divergent political systems, economic priorities, and alliance networks makes reaching consensus nearly impossible.

What measures should be taken to make UN reforms more effective and achievable?

1. **Build Consensus Among Member States**: Strengthen diplomatic dialogue between developed and developing countries to bridge differences over the nature and scope of UN reforms. For e.g. the G4 countries and the African Union must work towards reconciling their proposals for UN Security Council expansion to build wider support.
2. **Reform the UN Security Council**: Expand the Council's permanent and non-permanent membership to reflect contemporary geopolitical realities and ensure equitable geographical representation. For e.g. India's demand for permanent membership seeks to make the Council more representative of the Global South.
3. **Address Concerns of Permanent Members**: Engage the P5 countries through sustained diplomatic negotiations to address their concerns over power-sharing, veto privileges and the proposed expansion of the UN Security Council. Gradual, mutually acceptable reforms can help build consensus while preserving the effectiveness of the UN.
4. **Improve Decision-Making Efficiency**: Simplify bureaucratic procedures, establish time-bound decision-making mechanisms and promote consensus-based negotiations to enable the UN to respond swiftly to global crises.
5. **Enhance Transparency and Accountability**: Introduce regular performance reviews, transparent decision-making procedures and independent audits of UN bodies to ensure accountability in their functioning. This would strengthen public trust, reduce bureaucratic inefficiencies and improve the effectiveness of the organisation.
6. **Strengthen the General Assembly**: Enhance the role of the UN General Assembly in global governance by improving the implementation of its resolutions, strengthening oversight of UN bodies and promoting inclusive discussions on international issues. This would make UN decision-making more transparent, participatory and accountable.
7. **Integrate Regional Organizations:** Formalize operational partnerships with regional entities (e.g. African Union, ASEAN, European Union) under Chapter VIII of the UN Charter, delegating peace-keeping and dispute mediation to actors with direct local context and legitimacy.

Conclusion: UN reform faces formidable roadblocks from entrenched power structures, competing national interests, high legal thresholds, organizational inertia, and lack of unified political will. Overcoming these challenges requires sustained global diplomacy, balancing realism and idealism to adapt the UN for contemporary global governance.

UPSC GS-2: International relations
Read More: The Indian Express

Climate Reparation: Loss and Damage – Explained Pointwise



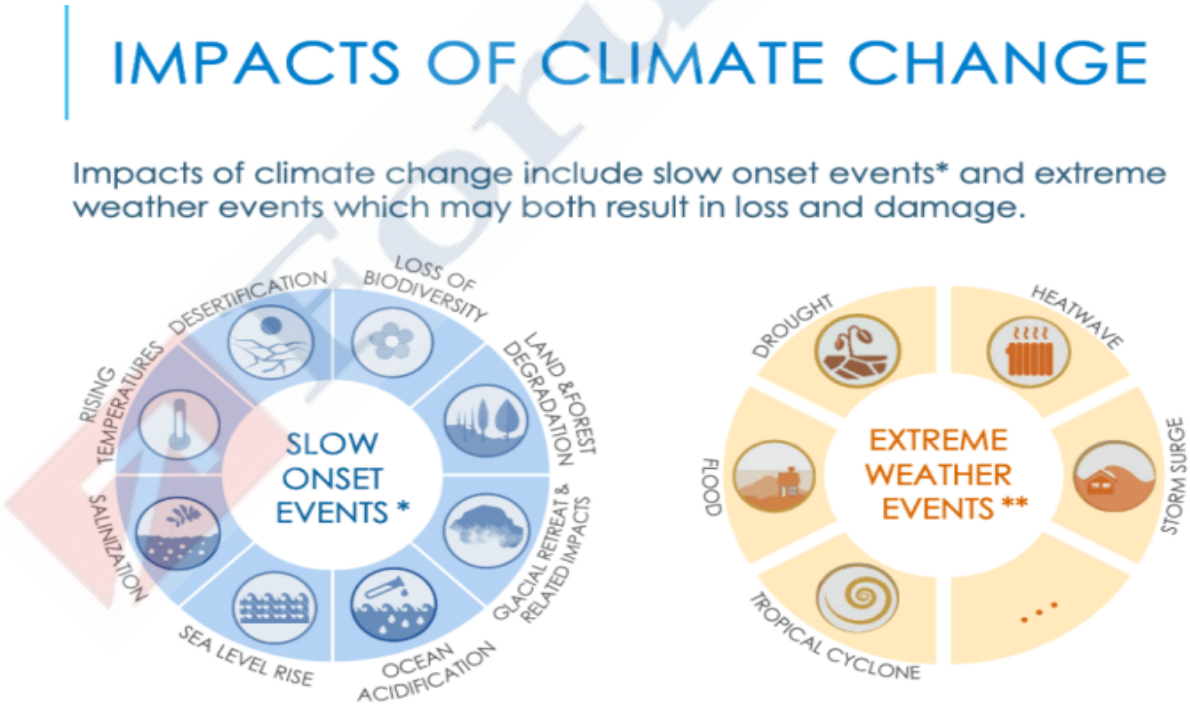
A newly established international climate fund, aimed at providing financial assistance to countries affected by climate-related disasters, recently decided to allocate US$20 million to Nepal to support its recovery from the devastating flash floods in August, making it the first country to receive international funding for Loss and Damage.

Extreme weather events are becoming more frequent and severe, as climate change is becoming evident. Climate Reparations (or Loss and Damage) has been demanded by many developing countries, most notably, by small island States. Developing countries have very little historic contribution to Green House Gas (GHG) emissions that are responsible for global warming and climate change. However, they are most vulnerable to extreme events due to climate change.
Since the formation of the UN Framework Convention on Climate Change (UNFCCC), vulnerable nations have been calling on developed countries to provide financial assistance that can help them address loss and damage due to climate change.

What is 'Loss and Damage'?

Events occurring due to climate change are having a deep impact on human lives and economic activities. It has increased the frequency of **extreme weather events** like floods, cyclones etc. It is also contributing to **slow onset events** like desertification, loss of biodiversity, sea level rise and ocean acidification etc.





Source: UNFCCC, Guide to Loss and Damage

These events due to climate change are responsible for both **economic** and **non-economic losses**. Economic losses can be measured in monetary terms e.g. damage to infrastructure/property or agriculture production (in INR or US$). Non-economic losses are intangible and can't be accurately measured in monetary terms e.g. loss of human life, bio-diversity, cultural heritage or indigenous knowledge. For instance, Communities in Kosrae, Micronesia, have lost burial grounds due to coastal erosion caused by sea level rise. Loss of sea ice in the Arctic has affected the cultural identity and hunting practices among Inuit communities.



Source: UNFCCC, Guide to Loss and Damage

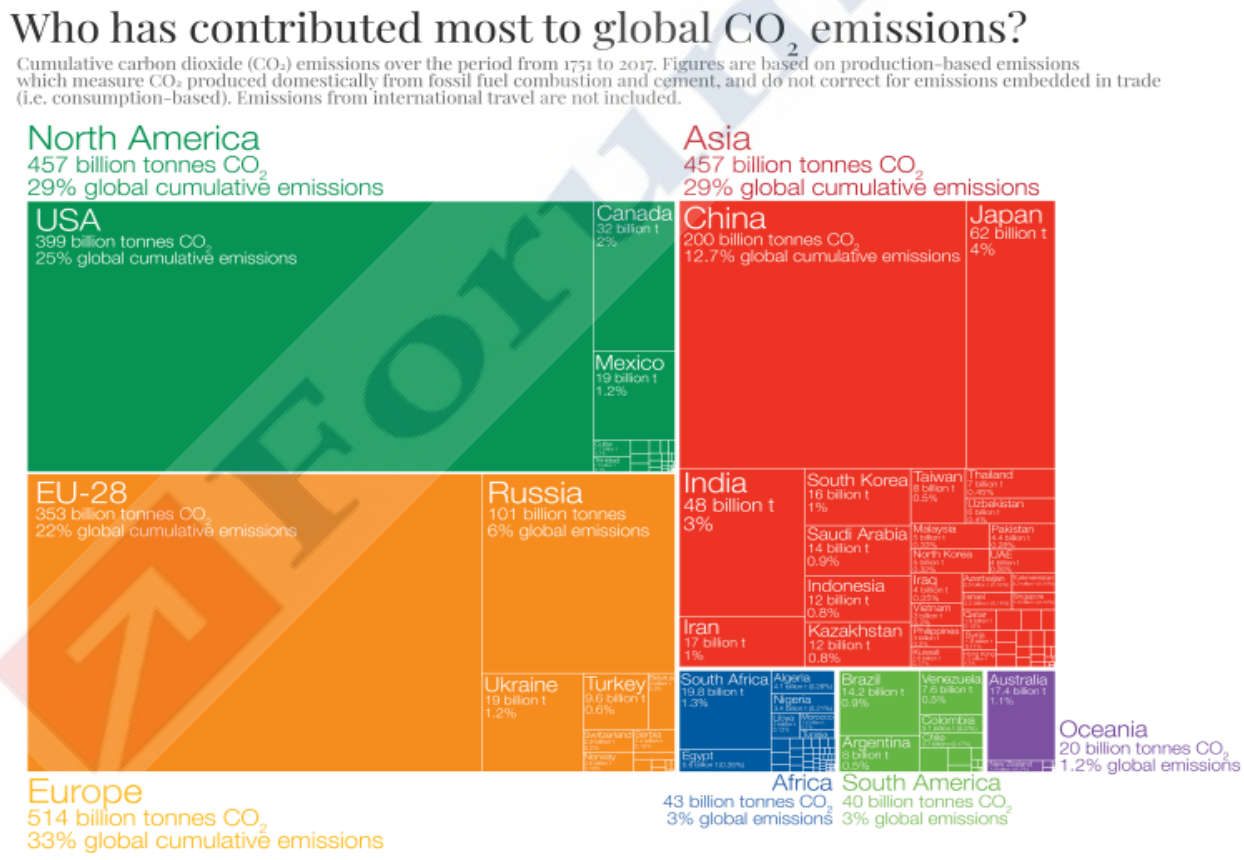
- People, communities and nations can adapt to some of these events. For other events, adaptation is not possible, or there is a lack of resources to adapt.
- There is no official definition of '**Loss and damage**'. It is a general term used in UN climate negotiations to refer to the consequences of climate change that go beyond what people can adapt to; or when adaptation is possible but a community doesn't have the resources to access or utilise them. A close definition is found in the literature review commissioned by the UNFCCC.

UNFCCC (2012)	**Loss**	**Damage**
	The negative impacts in relation to which **reparation or restoration is impossible**, such as loss of freshwater resources.	The negative impacts in relation to **which reparation or restoration is possible**, such as windstorm damage to the roof of a building, or damage to a coastal mangrove forest as a result of coastal surges.

- The **developing countries are more vulnerable to climate change events**, both due to **frequency of events** as well as **lack of resources to adapt**. According to a study, 6 of the world's 10 most affected countries (between 1996-2015) by extreme weather events were in Asia. Under the Loss and Damage framework, **developing countries demand compensation from developed countries for losses/damages suffered due to climate change events**.
- Two vital arguments in the context of Loss and Damage are "**Historic Emissions Argument**" and "**Polluter Pays Principle**".

'Historical Emissions' and 'Polluter Pays':

- At its core, the demand for compensation for loss and damage from climate disasters is an extension of the universally acknowledged "Polluter Pays" principle that **makes the polluter liable** for paying not just for the **cost of remedial action**, but also for **compensating the victims** of environmental damage caused by their actions.
- In the climate change framework, the burden of responsibility falls on developed countries that have contributed most of the greenhouse gas emissions since 1750 (considered to be the beginning of the industrial age). The United States and the European Union, including the UK, account for ~47% of all emissions since 1750. Inclusion of Russia, Canada, Japan and Australia takes this contribution to ~60%.



Source: *Our World in Data*

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- Historical responsibility is important because carbon dioxide remains in the atmosphere for hundreds of years (300-1000 years according to NASA). It is the cumulative accumulation of carbon dioxide that causes global warming. India, currently the 3rd largest emitter, accounts for only 3% of historical emissions.
- Developing Countries that have had negligible contributions to historical emissions and have severe limitations of resources are the ones that face the most devastating impacts of climate change. Hence they demand climate reparations from developed countries.

What is the difference between mitigation, adaptation and addressing Loss and Damage?

- Under the Paris Climate Agreement, countries recognized the importance of '**averting**, **minimising** and **addressing**' loss and damage.
- Loss and damage can be 'averted' by **curbing greenhouse gas emissions** (**mitigation**). It can be 'minimised' by **taking preemptive action to protect communities** from the consequences of climate change (**adaptation**).
- 'Addressing' loss and damage is the third pillar of climate action: helping people **after they have experienced climate-related impacts**.
- Climate adaptation measures include:
    - Protecting communities from sea level rise by helping them move to higher ground.
    - Preparing for extreme weather disasters by investing in early warning systems.
    - Protecting food supplies.
    - Switching to drought-resistant crops among others.
- Loss and damage happens when efforts to reduce emissions are not ambitious enough and when adaptation efforts are unsuccessful or impossible to implement, sometimes due to limited resources.
- The IPCC's 6th Assessment Report (WGII) observes that as the magnitude of climate change increases, the ability to adaptation decreases. It has defined soft and hard adaptation limits.
    - '**Soft Adaptation Limits**' are when adaptation options exist but communities don't have the financial resources needed to adopt them.
    - '**Hard Adaptation Limits**' are those when climate change becomes so extreme that no amount of resources can avert or minimize loss and damage.
- Coral reefs offer a good example of where adaptation is likely to reach its limits. The IPCC found that 70-90% of tropical coral reefs will die by mid-century even if temperature rise is limited to 1.5°C (and nearly total loss under the 2°C scenario). This will lead to irreversible losses of biodiversity and have a major impact on coastal communities that eat and sell fish that live along the reefs.

Read More: The IPCC Sixth Assessment Report (Part 2) – Explained, pointwise

How has the concept of Loss and Damage evolved over the years?

- At the drafting stage of the UNFCCC in 1991, it was proposed by the Alliance of Small Island States to create an insurance scheme to provide financial resources to countries impacted by rising sea levels. Each country would contribute resources according their relative contribution to global emissions. The proposal was rejected, and Loss and Damage was not mentioned in the Framework Convention adopted in 1992.
- Loss and damage first appeared in the negotiated outcome of the UN climate talks in 2007 as part of the **Bali Action Plan**. In 2013, **Warsaw International Mechanism** (WIM) was formed to avert, minimise and address loss and damage. The WIM has been mandated to **share knowledge**, **strengthen dialogues** among stakeholders and **mobilise expertise** to enhance action and support to

address loss and damage. But **neither the WIM nor any other established mechanism delivers funding** to help countries manage loss and damage.

- Loss and Damage is mentioned in Article 8 of the Paris Agreement. However, there is no reference to provision of finance for climate reparation/compemsation in this Article.
- At COP26 in Glasgow, a large coalition of climate-vulnerable countries advocated for creating a new finance facility or fund dedicated to loss and damage. The proposal for loss and damage financing was once again rejected by developed countries. A 2-year **Glasgow Dialogue** was established at the COP26. It will discuss possible arrangements for loss and damage funding. It was also agreed to **operationalise and fund the Santiago Network on Loss and Damage** (SNLD).

Santiago Network on Loss and Damage (SNLD):
The Santiago Network is a network to enable Loss and Damage fund flow from developed to developing countries. It will work towards the implementation of relevant approaches at the local, national and regional level, in developing countries that are particularly vulnerable to the adverse effects of climate change.

- The first session of the Glasgow Dialogue took place at the Bonn UN climate negotiations in June 2022. In Bonn, the developed nations acknowledged the need to deal with loss and damage, but didn't commit on any steps they would be willing to take to address the problem. The negotiations also saw limited progress on how to design the SNLD.

What actions has the international community taken to address Loss and Damage?

1. **Warsaw International Mechanism (WIM), COP19 (2013)**: The Warsaw International Mechanism (WIM) was established at the 19th Conference of the Parties (COP19) to the UNFCCC in Warsaw, Poland, in 2013 to address loss and damage associated with the impacts of climate change, particularly in vulnerable developing countries. The WIM marked an important step in recognising Loss and Damage as a distinct pillar of international climate action alongside mitigation and adaptation.
2. **Santiago Network, COP25 (2019)**: Established at COP25 under the UNFCCC to catalyse technical assistance for developing countries that are particularly vulnerable to climate change. It helps these countries avert, minimise and address Loss and Damage by connecting them with relevant organisations, experts and technical assistance providers to assess climate risks, develop strategies and strengthen their capacity to respond to climate-related disasters and slow-onset events.
3. **Glasgow Climate Pact, COP26 (2021)**: It called for enhanced global climate action and established the **Glasgow Dialogue** to discuss arrangements for funding activities to avert, minimise and address Loss and Damage in developing countries. It also urged developed countries to at least double their collective provision of climate finance for adaptation to developing countries from 2019 levels by 2025.
4. **Establishment of the Loss and Damage Fund, COP27 (2022)**: At the COP27, held in Sharm el-Sheikh, Egypt, in 2022, countries agreed to establish a dedicated **Loss and Damage Fund** to assist vulnerable developing countries in addressing the adverse impacts of climate change. The fund aims to provide financial support for economic and non-economic losses caused by climate-related disasters, such as floods, cyclones, droughts and sea-level rise.
5. **Operationalisation of the fund, COP28 (2023)**: At COP28 (2023) in Dubai, the Loss and Damage Fund was operationalised to provide financial assistance to vulnerable developing countries facing the adverse impacts of climate change.

6. **COP29, Baku (2024)**: The COP29, held in Baku, Azerbaijan, in 2024, made progress towards addressing climate-related Loss and Damage by advancing the operationalisation of the Fund for Responding to Loss and Damage. COP29 also adopted a new climate finance goal of at least US $300 billion annually by 2035 for developing countries, with a broader ambition to scale up finance from all sources to US$ 1.3 trillion annually.

What are the key challenges associated with Loss and Damage due to climate change?

1. **Major financial gap**: The funding available through the Loss and Damage Fund is far below the estimated needs of developing countries. The cost of climate-related losses in these countries could reach US$290–580 billion annually by 2030.
2. **Disagreement over climate responsibility**: Developed and developing countries differ over who should bear the financial burden. Developing countries emphasise historical emissions and the principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC).
3. **Lack of a universally accepted definition**: There is no universally agreed operational definition that clearly distinguishes Loss and Damage from adaptation, disaster relief and humanitarian assistance. This complicates funding eligibility and allocation.
4. **Difficulty in measuring losses**: Economic losses, such as damage to infrastructure and crops, can be estimated relatively easily. However, quantifying the loss of human lives, biodiversity, cultural heritage and traditional knowledge is much more difficult.
5. **Attribution of climate change**: It can be difficult to determine how much damage from a particular flood, cyclone or drought is attributable to human-induced climate change rather than natural variability or other factors.
6. **Delayed and complicated access to finance**: Vulnerable countries often face complex application procedures, accreditation requirements, limited technical capacity and administrative barriers when seeking international climate finance.

What should be done going ahead?

1. **Enhance climate finance**: Developed countries and other contributors should mobilise adequate, predictable and additional financial resources to address climate-related Loss and Damage in vulnerable developing countries. Greater emphasis should be placed on grants rather than loans to prevent further debt burdens. Moreover, simplifying access to the Loss and Damage Fund, ensuring transparent disbursement and encouraging innovative financing mechanisms are essential to bridge the funding gap and promote climate justice.
2. **Strengthen the Loss and Damage Fund**: The international community should ensure adequate, predictable and additional financial contributions to the Fund for Responding to Loss and Damage. Simplifying access procedures, prioritising vulnerable developing countries and providing timely, grant-based assistance can help affected communities recover from climate-related disasters without increasing their debt burden.
3. **Promote climate justice**: The international community should uphold the principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC), recognising that developed countries have contributed a larger share of historical greenhouse gas emissions. They should provide adequate, predictable and additional financial and technical support to vulnerable developing countries to address climate-related Loss and Damage, ensuring equitable burden-sharing and protecting the interests of climate-vulnerable communities.
4. **Address non-economic losses**: Develop comprehensive frameworks to identify and address non-economic losses, such as loss of human lives, biodiversity, cultural heritage, indigenous knowledge and traditional livelihoods. Strengthen community participation, document vulnerable cultural practices

and protect ecosystems to preserve cultural identity and ecological integrity, recognising that some irreversible losses cannot be adequately compensated through monetary assistance alone.

5. **Improve risk assessment**: Strengthen scientific research, climate modelling and early-warning systems to identify climate-vulnerable regions and estimate potential economic and non-economic losses. Developing comprehensive climate-risk databases and improving data-sharing among countries can help policymakers allocate resources effectively, prepare for extreme weather events and ensure timely assistance to affected communities.

Conclusion: Addressing Loss and Damage requires a shift from reactive disaster relief towards a comprehensive framework of climate justice, predictable finance, risk reduction and international solidarity.

Syllabus: GS III, Conservation, Environment Pollution and Degradation
Source: Indian Express, World Resources Institute

Obesity in India – Reasons & Impacts – Explained Pointwise



Childhood obesity is on the rise globally as a result of a shift towards the intake of foods that are high in fat & sugars and less energy-intensive recreational activities & transportation. According to the World Obesity Atlas, more than 40mn children in India are either overweight or obese. Hence, India now ranks second globally in the number of overweight & obese children. This trend is driven by sedentary lifestyles, urbanisation, and greater access to processed foods. Also, unlike the developed countries

where the dietary transition unfolded gradually over several decades, in India much of this shift has occurred in last 15 years.



Created By Forum IAS

What is obesity?

- According to the World Health Organisation (WHO), obesity is defined as an abnormal or excessive accumulation of fat that poses health risks.
- It is a medical condition that increases the risk of other health problems, such as heart disease, diabetes, high blood pressure, and certain cancers.
- The most common screening tool for obesity is the **Body Mass Index (BMI)**.

How is obesity measured?

Adults over the age of 20 years	• **Obese:** Body Mass Index (BMI) of 30 kg/m2 or more. • **Underweight:** Body Mass Index (BMI) is less than 18 kg/m2.
School-aged children and adolescents between 5 and 19 years	• **Obese-** BMI is two standard deviations more than the mean. • **Underweight-** BMI is two standard deviations below the mean.

NOTE: BMI is a person's weight in kilograms divided by the square of height in meters

Data regarding obesity in India:

1. **More obese women as compared to men:** Obesity in women has increased from 1.2% in 1990 to 9.8% in 2022. There are 44 million women living with obesity in 2022.
2. **Increase in Men Obesity:** Obesity in men has increased by 4.9% from 1990 to 2022. There are 26 million men living with obesity in 2022.
3. **Significant Increase In Childhood Obesity:** The number of obese boys has increased from 0.2 million in 1990 to 7.3 million in 2022. The number of obese girls has increased from 0.2 million in 1990 to 5.2 million in 2022.

Data regarding underweight in India:

1. **Underweight Men and Women:** 13.7% of women and 12.5% of men were underweight.
2. **Underweight Children:** India has the highest number of underweight girls in the world. 20.3% of Indian girls are underweight. 21.7% of Indian boys are underweight, which is the second highest in the world.

Read More- Lancet study on Global Obesity rates

What are the reasons behind the increasing obesity in India?

1. **Unhealthy Lifestyle:** Lack of healthy lifestyle is a major reason for increasing obesity rates in India. **For e.g.** Lack of physical activities such as walks or gyms, lack of proper sleep.
2. **Lack of proper diet:** Cheaper and easily available junk food has replaced the nutritious food in the dietary intakes of Indian population. **For e.g.** According to recent Household Consumption Survey, Indians are spending less on cereals and pulses and more on beverages, refreshments and processed food.
3. **Increased income and urbanization:** Increased income levels have led to a rise in the consumption of foods high in fats, sugar and low physical activity.
4. **Lack of awareness:** There has been a general lack of awareness about healthy eating habits and the guidelines issued by FSSAI. Since Health is a state subject, there have been implementation challenges in ensuring proper implementation of FSSAI guidelines.
5. **Growth of Ultra-processed food industry:** Ultra processed food industry has boomed in India, leading to increased intake of transfat in India. According to a joint study conducted by WHO and ICRIER, India's ultra-processed food industry has grown at a CAGR of 13.37% in terms of retail sales value between 2011 and 2021.

6. **Obesity no longer dependent on economic capacity:** Obesity is no longer the disease of the rich in India. Eating junk food is cheaper and easier. **For e.g.** The cost of samosas and pakoras available at roadside shacks is less than fruit and vegetables.
7. **Generational burden**: According to a UNICEF Survey, the nutritional deficits among children are often a carryover of the poor dietary habits of their mothers.

What are the negative impacts of Obesity in India?

1. **Individual Health Implications:** Overweight adults and children are at greater risk for non-communicable diseases. According to WHO, excess bodyweight during childhood significantly increases the risk of conditions such as type 2 diabetes & cardiovascular diseases later in life.
2. **Improper development of Children in formative years:** Obesity in children results in stunted physical and cognitive development.
3. **Psychosocial Impact:** Obese Individuals face psychosocial challenges like, body image issues and mental health concerns due to societal stigmas associated with weight.
4. **Economic Burden:** Obesity increases the economic burden due to productivity losses on account of decreased work efficiency and absenteeism.
5. **Public Health Challenges:** Obesity is a major reason behind the growth of Non-Communicable Diseases (NCDs), like diabetes, cancer, hypertension, cardiovascular diseases etc. This has increased strain on the fragile public healthcare system in India.
6. **Social Inequality and Disparities:** Obesity perpetuates a cycle of health challenges and economic disadvantages among the vulnerable sections, exacerbates existing socio-economic disparities. Women are disproportionately affected by obesity, facing challenges related to reproductive health, maternal health, and overall well-being.

What are the government initiatives to reduce the obesity burden?

The government has launched multiple initiatives which focusses on reducing obesity, and associated NCDs.

1. **National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS):** It is being implemented under the National Health Mission. It aims to screen and ensure early interventions to check the obesity-related risk factors from becoming complicated.
2. **Ayushman Bharat Health Wellness Centre scheme:** Preventive aspect of hypertension and NCDs is being strengthened under Comprehensive Primary Health Care by promotion of wellness activities and targeted communication at the community level.
3. **Eat Right Movement:** The Eat Right India movement is an initiative of the Government of India and the Food Safety and Standards Authority of India (FSSAI) to transform the country's food system in order to ensure safe, healthy and sustainable food for all Indians.
4. **FSSAI limits for transfats:** FSSAI has issued guidelines limiting trans fatty acids in oils and fats to be not more than 2% by weight.
5. **FSS (Labelling and Display) Regulations, 2020:** It mandates that labels should mention food allergens, nutritional information including fat, trans fat, salt, sugar, added sugar etc.

What should be the way forward?

1. **Awareness about the grave dangers of obesity:** The medical community must create awareness about the NPCDCS guidelines, which recommend annual screening for excess weight in children as young as two to six years old.
2. **Improving the access to nutrient rich food:** The access of vulnerable sections to healthy nutrition must be enhanced by measures such as targeted cash transfers, vouchers for healthy foods, free healthy school meals, and primary care-based nutritional interventions.

3. **Initiatives to reduce obesity among adults:** Yoga days can be fixed in a week in offices, welfare societies. Also, under Swachh Bharat Abhiyan, cleaning of parks and other spaces can be promoted, so that adults can come for exercise.
4. **Initiatives to reduce obesity among Children:** Strict implementation of RTE act norms, by implementing mandatory minimum grounds size and other sports infrastructure in schools. Construction of parks and open spaces in colonies, so that children can play outside rather than remaining busy with indoor activity like video games, computer games.
5. **Disincentivising the ultra-processed food industry:** Higher taxes on unhealthy processed and junk food, and front-of-pack nutrition labelling to guide consumers must be implemented.

Read More: Indian Express
UPSC Syllabus- GS 2- Government interventions for Health

India-Poland Relations – Significance & Challenges – Explained Pointwise



Polish Prime Minister Donald Tusk's recent visit to India has provided fresh momentum to India-Poland relations. The visit reflects the growing importance of India-Poland ties in strengthening India's engagement with Europe.

How has India-Poland relations evolved over the years?

Diplomatic Establishment	• India and Poland established diplomatic relations in **1954**, building on shared anti-colonial sympathies and support for peaceful coexistence.

Cold War Era	• Relations strengthened through economic cooperation, cultural exchanges and India's engagement with Poland under its socialist government. • Poland assisted India in developing heavy industries, mining infrastructure, and power production equipment.
Post-1991 Period	• Poland's transition to a market economy and India's economic liberalisation opened new opportunities for trade and investment. • Major Indian IT companies established regional hubs in Poland, positioning the country as a nearshoring gateway for Indian technology services into Europe.
Strategic Partnership	• Prime Minister Narendra Modi's visit to Poland in August 2024, the two countries elevated their relationship to a Strategic Partnership, marking a significant milestone.

What is the significance of India-Poland Relations?

1. **Economic Cooperation**: Poland is India's largest trading and investment partner in Central and Eastern Europe. Bilateral trade reached approximately US$6.36 billion in 2025, creating opportunities for cooperation in pharmaceuticals, IT, engineering, machinery and clean energy.
2. **Gateway to Europe**: Poland's strategic location in Central Europe provides Indian businesses with access to European markets, supply chains and logistics networks, facilitating trade, investment and economic integration with the European Union.
3. **Defence Cooperation**: Poland's history with Soviet-era military hardware makes it a crucial partner for maintaining and upgrading India's legacy equipment. India and Poland are exploring opportunities for technology transfer, joint development and co-production of defence equipment. Poland can contribute its expertise in maintaining, upgrading and modernising military equipment, helping India diversify its defence partnerships.
4. **Technology and Innovation**: India and Poland can leverage their complementary strengths in India's IT sector and Poland's technology ecosystem to promote cooperation in artificial intelligence (AI), cybersecurity, telecommunications, space technology and digital payments.
5. **Energy Security**: India-Poland cooperation can help diversify energy partnerships and strengthen energy security through collaboration in renewable energy, green hydrogen, energy-efficient technologies and clean-energy innovation. It can also support India's transition towards a more sustainable and resilient energy system.
6. **Geopolitical Cooperation**: India and Poland cooperate on global security, counterterrorism and multilateral reforms. Both countries support strengthening the United Nations and promoting a rules-based international order. Poland's support for India's greater role in global institutions, along with dialogue on the Russia-Ukraine conflict and West Asian security, provides opportunities to deepen their strategic partnership.
7. **People-to-People Ties**: The India-Poland bond is bolstered by historical memory, such as the Jam Saheb of Nawanagar sheltering 1,000 Polish children during World War II. Today, over 30,000 Indians

reside in Poland, alongside thousands of Indian university students, strengthening education, research, and cultural links.

What are the Challenges in the relation?

1. **Geopolitical Differences**: Poland strongly supports Ukraine in the Russia–Ukraine war, whereas India has maintained a balanced approach, emphasising dialogue, diplomacy and strategic autonomy while continuing its defence and energy ties with Russia. These differing positions may create diplomatic differences and affect mutual perceptions.
2. **Untapped Trade Potential**: Despite growing bilateral trade, significant opportunities remain unexplored. In 2025, India-Poland bilateral trade reached approximately $6.36 billion, but scope exists to expand cooperation in pharmaceuticals, textiles, chemicals, engineering goods, IT and renewable energy.
3. **Limited Defence Cooperation**: Despite a history of defence equipment purchases, India and Poland have not developed sustained defence-industrial collaboration. Differences in strategic priorities, India's historical dependence on Russian military equipment, and limited technology-sharing arrangements have constrained deeper engagement.
4. **Trade and Regulatory Barriers**: Differences in tariffs, product standards and regulatory requirements increase the cost of bilateral trade. For e.g. Indian textile exporters face EU customs duties of around 9.5–12%, while chemical exporters must comply with the EU's REACH regulations, increasing compliance costs and limiting market access
5. **Connectivity Constraints**: Limited direct air connections and long-distance transport routes increase travel time and logistics costs between India and Poland, affecting tourism, business exchanges and trade.
6. **Limited High-Level Engagement**: Despite traditionally friendly relations, India and Poland have experienced long gaps between top-level visits, limiting political momentum and strategic coordination. For e.g. Prime Minister Narendra Modi's visit to Poland in 2024 was the first by an Indian Prime Minister in 45 years,

What are the areas of Cooperation between India and Poland?

1. **Political Cooperation**: India and Poland strengthen bilateral ties through regular high-level visits, diplomatic consultations and parliamentary exchanges. In 2024, both the countries elevated the relations to a **Strategic Partnership** after 45 years. The two countries adopted a **2024-2028 Action Plan** to promote regular political dialogue, security cooperation and coordination in multilateral forums.
2. **Trade and Investment**: Poland is India's largest trading partner in Central and Eastern Europe. Bilateral trade reached approximately $6.36 billion in 2025, covering sectors such as textiles, pharmaceuticals, machinery, chemicals and engineering goods. The two countries aim to deepen economic ties through the **India-Poland Strategic Partnership Action Plan (2024-2028)**, with opportunities in infrastructure, mining, green technology and food processing.
3. **Defence Cooperation**: India and Poland aim to strengthen defence ties through regular institutional dialogue, modernisation of military equipment and collaboration between their defence industries. The **2003 Memorandum of Understanding on Defence Cooperation** provides an existing framework for engagement, while the **2024-2028 Strategic Partnership Action Plan** seeks to expand industrial cooperation and address outstanding issues.
4. **Energy Cooperation**: India and Poland are exploring cooperation in renewable energy, green hydrogen, energy efficiency and clean coal technologies to promote energy security and sustainable development. Both countries also see opportunities for collaboration in green hydrogen production, renewable energy technologies and industrial decarbonisation under their **Strategic Partnership Action Plan (2024-2028)**.

5. **Connectivity**: Under the **2024-2028 Strategic Partnership Action Plan**, both countries agreed to explore expanding direct flight connections and cooperation in transport infrastructure. Both the countries also highlighted cooperation in shipping, maritime security, port connectivity and the **India-Middle East-Europe Economic Corridor (IMEC)** to improve supply-chain resilience and reduce transit times.
6. **Mining and Critical Minerals**: India and Poland are exploring cooperation in advanced mining technologies, high-tech machinery, mine safety and sustainable mineral extraction. Poland's expertise in intelligent mining and clean coal technologies can support India's mining modernisation. For e.g the 2024-2028 Strategic Partnership Action Plan prioritises collaboration in mining-related industries.
7. **People-to-People and Cultural Ties**: The **Jamsaheb Memorial Youth Exchange Programme**, launched in 2024, brings Polish youth to India to explore its history and culture. Cooperation in higher education, Sanskrit and Indology studies, language learning and cultural festivals further strengthens bilateral ties.

What were the key outcomes of the Polish Prime Minister's recent visit to India?

1. **Trade and Investment**: Both countries set a target to double bilateral trade by 2030, encouraging greater investment and business partnerships.
2. **Defence Cooperation**: Agreed to establish a **Defence Industry Dialogue** to explore technology transfer, joint development and co-production of defence equipment.
3. **Disaster Resilience**: Poland announced its decision to join India's **Coalition for Disaster Resilient Infrastructure (CDRI)**.
4. **Critical Minerals and Mining**: Agreed to explore cooperation in mining, rare earth minerals, battery recycling and related industrial technologies.
5. **Connectivity:** Agreed to explore improved direct air connectivity and cooperation in shipping, maritime security and the **India-Middle East–Europe Economic Corridor (IMEC)**.
6. **Support for India's Global Role**: Poland reiterated support for India's permanent membership of a reformed UN Security Council and its candidature for a non-permanent seat for 2028-29.

What should be the way forward?

1. **Strengthen High-Level Engagement**: India and Poland should institutionalise regular high-level visits, foreign ministerial consultations and strategic dialogues. Regular engagement can help resolve bilateral concerns, accelerate implementation of the 2024-2028 Action Plan and strengthen cooperation in trade, defence and technology.
2. **Expand Trade and Investment**: India and Poland should diversify bilateral trade and encourage greater investment in manufacturing, pharmaceuticals, engineering, agriculture and emerging technologies. Both countries can strengthen business-to-business partnerships, support MSMEs and startups, and simplify regulatory procedures to reduce trade barriers.
3. **Leverage India-EU Relations**: India should utilise Poland's position as a member of the European Union to strengthen India-EU trade and investment negotiations, expand technology cooperation through the **India-EU Trade and Technology Council**, and improve connectivity under the **India-EU Connectivity Partnership**.
4. **Promote Technology Partnerships**: India and Poland should expand collaboration in artificial intelligence (AI), semiconductors, cybersecurity, telecommunications and space technology. Joint research, startup partnerships, technology transfer and industry–university linkages can foster innovation and strengthen digital resilience.
5. **Improve Connectivity**: India and Poland should strengthen direct air links, maritime cooperation and logistics networks to facilitate trade, tourism and business exchanges.
6. **Address Geopolitical Differences**: India and Poland should maintain open diplomatic dialogue on the Russia-Ukraine conflict and European security, recognising their differing strategic priorities. India

can emphasise dialogue, diplomacy and peaceful resolution while acknowledging Poland's security concerns.

Conclusion: India and Poland should transform their Strategic Partnership into a results-oriented relationship through sustained political engagement, deeper economic ties and cooperation in emerging technologies.

UPSC GS-2: International Relations
Read More: Indian Express

El Nino: Concept & Impacts – Explained Pointwise



According to the World Meteorological Organization (WMO), the 2026 El Niño could be unprecedented in intensity, potentially making it one of the strongest events since records began in 1950. As El Niño conditions are expected to peak towards the end of the year, the WMO has warned that their effects could persist into 2027.

El Niño is a climate pattern that emerges sporadically along the equatorial Pacific and is known for triggering global weather changes. The impacts of El Niño extend far beyond weather, influencing marine ecosystems, agriculture, economy, and human health. As this powerful force returns, understanding the concept of El Niño and its widespread impacts becomes crucial for everyone.

What Is El Nino?

- **El Niño** (Spanish for "The Boy Child," referring to the Christ Child because the phenomenon often peaks around December) is a climate pattern characterized by the **unusual warming of surface waters** in the central and eastern tropical Pacific Ocean.
- El Niño is the "warm phase" of a larger phenomenon called the El Niño-Southern Oscillation (ENSO).

- La Niña, the "cool phase" of ENSO, is a pattern that describes the unusual cooling of the region's surface waters.
- El Niño and La Niña are considered the ocean part of ENSO, while the Southern Oscillation is its atmospheric changes. El Niño events occur irregularly at 2- to 7-year intervals.
- Scientists calculate the **Relative Oceanic Niño Index (RONI)** using sea surface temperature data from the equatorial Pacific Ocean (Niño 3.4 region):
    - If the three-month average RONI exceeds +0.5°C, an **El Niño** event is declared.
    - If the three-month average RONI falls below −0.5°C, a **La Niña** event is declared.

How will the formation of El Nino occur?

The formation of El Niño involves a series of interactions between the ocean and the atmosphere in the tropical Pacific. Here are the key steps in this complex process:

- **Normal conditions:** Under normal conditions, the trade winds (which are part of the Earth's general circulation) blow across the tropical Pacific from east to west. These winds push warm surface water towards the western Pacific (near Asia and Australasia), piling it up there. This leaves room for cold, nutrient-rich water to well up from the depths in the eastern Pacific (near South America).
- **Air circulation:** The accumulation of warm water in the west heats the overlying air, making it moist and buoyant. This warm, moist air rises, leading to the formation of rain clouds. The rising air creates a low-pressure system in the west, and a high-pressure system forms in the east where cooler, drier air descends. This pressure difference reinforces the trade winds, completing what is known as the Walker circulation.
- **Weakening trade winds:** The onset of El Niño involves a weakening or reversal of the trade winds. This can happen for various reasons, such as changes in the sea surface temperature distribution or atmospheric pressure patterns. The weakening of the trade winds is often initiated by an atmospheric phenomenon known as a westerly wind burst.

- **Spread of warm water:** When the trade winds weaken, they can no longer push the warm water to the west as effectively. As a result, the warm water spreads from the western Pacific to the east. This process is known as a **Kelvin wave**. The spread of warm water to the east suppresses the upwelling of cold water near South America.
- **Feedback loop:** The eastward spread of warm water further weakens the trade winds, creating a feedback loop that intensifies El Niño. This is because the warmer water warms the overlying air, which lowers the atmospheric pressure and weakens the trade winds.
- **Establishment of El Niño:** As this feedback loop continues, the warm water in the eastern Pacific gets warmer, and the weakened trade winds get weaker. Eventually, a full-blown El Niño event is established, characterized by significantly warmer than average sea surface temperatures in the central and eastern Pacific.

What is different about 2026 El Niño?

1. **Exceptional intensity**: Sea surface temperatures in the Niño 3.4 region are forecast to reach around +3.8°C above average during October-December 2026, potentially exceeding the previous record of +2.3°C during 2014-15.
2. **Rapid strengthening:** The event has intensified rapidly across the central and eastern equatorial Pacific, with unusually high ocean temperatures and significant changes in atmospheric circulation.

3. **Potentially historic event**: NOAA's October outlook indicates a substantial possibility of an event stronger than previous El Niño episodes dating back to 1950, based on RONI.
4. **Longer persistence**: The event is expected to remain strong through the end of 2026 and may persist into early 2027.
5. **Greater risk of climate extremes**: It may increase the likelihood of heatwaves, droughts and floods in different parts of the world by disrupting normal rainfall and temperature patterns.

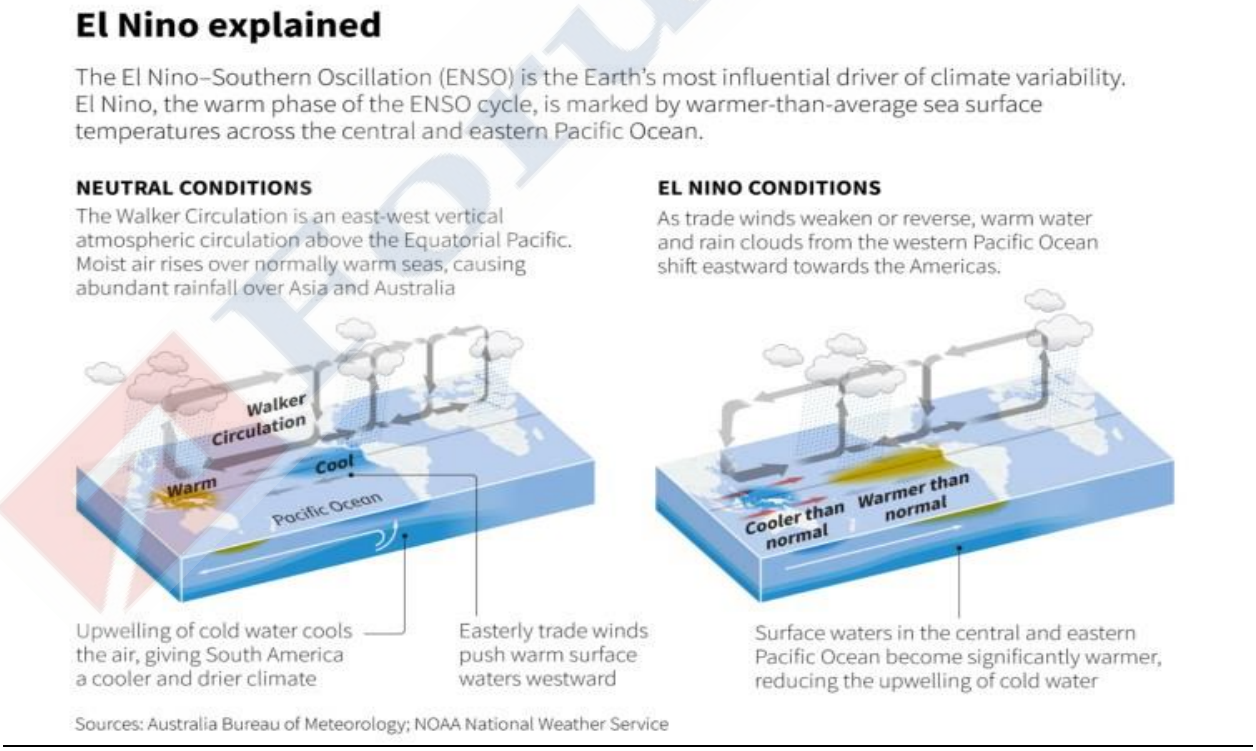
Due to its exceptional intensity and potential to cause widespread climate disruptions, the 2026 El Niño has been termed a **"Godzilla El Niño."**

What are the impacts of El Niño on India?

Impact on Monsoon & Rainfall	• **Suppressing the Monsoon**: El Niño can significantly impact the Indian monsoon, leading to fluctuations in rainfall patterns. During an El Niño year, India often experiences below-average monsoon rains, potentially causing drought conditions. El Niño leads to: ○ **Delayed Onset:** The monsoon often arrives late along the Kerala coast. ○ **Prolonged Dry Spells:** Extended periods of little to no rain ("monsoon breaks") during July and August, which are critical months for crop sowing. ○ **Deficient Overall Rainfall:** Historically, about half of all El Niño years have resulted in distinct monsoon droughts in India.
Agriculture & Food Security	Because a vast portion of Indian agriculture relies entirely on rainfed farming, the weakening of the monsoon triggers a chain reaction through the economy: • **Reduced Crop Yields**: El Niño-induced rainfall deficits directly hurt *kharif* (summer) crops such as rice, pulses, soybeans, and cotton. Lower production leads to reduced income for farmers. • **Rabi Crop Dependence**: Poor reservoir levels from a weak monsoon can also affect *rabi* (winter) crops like wheat and mustard, which depend on irrigation from stored water. • **Livestock and Dairy**: Drought conditions reduce fodder availability, impacting livestock health and dairy productivity, a key rural income source.
Ecological & Wildlife Impact	• **Forest Fires:** Extended droughts and soaring temperatures dry out forest floors, drastically increasing the frequency, intensity, and spread of forest fires—particularly in the deciduous forests of Central India and parts of the Western Ghats. • **Fodder and Water Crises in Protected Areas:** Searing heat and dried-up natural waterholes (water bodies) inside national parks and wildlife sanctuaries force megafauna like Asian elephants and Indian rhinoceroses to migrate out of protected boundaries, leading to a sharp rise in **human-wildlife conflict.**

Economic Impact	• **Rural Economic Slowdown:** Reduced agricultural output directly lowers incomes for millions of farmers, suppressing rural consumer demand for goods and services across the country. A hotter India is not merely a warmer India; it is an India where earning a livelihood becomes increasingly difficult. • **Rising Food Prices**: Lower production of vegetables, cereals, and pulses drives up market prices. This forces households to spend a larger share of income on food, reducing discretionary spending. For policymakers, this creates a difficult balancing act – the same climate shock can simultaneously weaken growth & intensify inflationary pressures. • **Subsidy Burden**: The government often raises minimum support prices (MSPs) for crops to cushion farmer losses. Subsidized food distribution (e.g., PDS) also expands to cover drought-hit populations. • **Relief and Bailouts**: State and central governments spend heavily on drought relief measures, including loan waivers for farmers, free grain, and employment under rural job guarantee schemes (e.g., MGNREGA). • **Lower Tax Revenue**: Reduced agricultural output slows the rural economy, curbing demand for consumer goods, tractors, and fertilizers — lowering GST collections. • **Weakened Rural Consumption**: Farmers with lower incomes postpone buying vehicles, electronics, building materials, and fast-moving consumer goods (FMCG), affecting manufacturing and retail sectors.

What are the El Nino impacts in regions outside India?



Source: NOAA

El Niño affects various regions across the globe in different ways. Here are some impacts observed in regions outside India:

- **North America:** El Niño tends to suppress Atlantic hurricane activity, although there are exceptions depending on other climate factors.
- **South America:** Coastal countries in South America like Peru and Ecuador can experience heavy rains and flooding. El Niño weakens the upwelling of cold, nutrient-rich waters along the coasts of South America, which can negatively impact marine ecosystems and fisheries.
- **Australia and Southeast Asia:** These regions generally experience decreased rainfall during El Niño events, which can lead to droughts and significantly impact agriculture, water supply, and ecosystems. This decrease in precipitation can also heighten the risk of wildfires.
- **Africa:** East Africa may receive more rain than usual, which could lead to flooding. Southern Africa may face drier conditions, which can lead to water shortages and impacts on agriculture.
- **Europe:** The impacts on Europe are more uncertain and depend on how El Niño interacts with other climate patterns. However, it can potentially influence the strength and path of the jet stream, which could result in various weather anomalies in the region.

How are countries around the world planning to mitigate and combat the impacts of El Niño?

- **Creation of disaster risk reduction funds:** Countries like Peru have created dedicated funds to tackle El Niño. Peru's Disaster Risk Reduction Fund is specifically designated to prepare for and mitigate the potential impacts of El Niño. These funds are often allocated to various activities, including improving infrastructure to withstand extreme weather events, supporting early warning systems, and assisting recovery efforts after disasters.
- **Improved monitoring and early warning systems:** The US-based National Oceanic and Atmospheric Administration (NOAA) continually invests in technology to monitor oceanic and atmospheric conditions better, helping predict an impending El Niño event. Early warnings from organizations like NOAA can help governments worldwide to prepare well in advance and implement strategies to minimize potential impacts.
- **International cooperation and policy frameworks:** Many countries collaborate through international agreements and conventions to manage El Niño's impacts. The Paris Climate Agreement, signed by 196 nations, underscores the importance of global action to address climate change, including phenomena like El Niño. These agreements may involve the sharing of information and resources, the development of common strategies, and cooperation on research and development efforts related to El Niño.
- **Climate change mitigation efforts:** As the effects of climate change can potentially exacerbate the frequency and intensity of El Niño, efforts to mitigate climate change are an integral part of addressing El Niño. The UN's Intergovernmental Panel on Climate Change (IPCC) plays a crucial role in guiding global policies related to climate change, including strategies to cope with El Niño events.
- **Adapting agriculture and infrastructure:** In countries like India, which are heavily impacted by El Niño, there are ongoing efforts to adapt agricultural practices to be more resilient to changes in rainfall and temperature. This includes implementing irrigation facilities, diversifying crop types, and promoting weather-based crop insurance.
- **Impact-Based Analysis**: Organizations like the UN's Food and Agriculture Organization (FAO) combine seasonal climate forecasts with data on crop yields, food security, and market prices. This allows them to predict exactly where and when crop failures or water shortages will occur.
- **Regional Collaboration**: Central American countries are coordinating through the Central American Agricultural Council to share strategies for the Dry Corridor, a region highly susceptible to drought.

What should be done?

1. **Promoting climate resilient infrastructure:** Infrastructure development needs to factor in climate resilience, meaning that buildings, roads, and other infrastructure should be constructed to withstand extreme weather events like those brought on by El Niño.
2. **Strengthening international collaboration**: Countries should strengthen international cooperation to share knowledge, technology, and resources to mitigate the impacts of El Niño. Climate change has no borders, and global collaboration is crucial.
3. **Climate change mitigation:** Efforts should be heightened to reduce greenhouse gas emissions, as global warming can exacerbate the effects of El Niño. This includes promoting clean energy, reducing deforestation, and implementing sustainable practices in industries.
4. **Adapting agricultural practices:** In agriculture-based economies, there should be widespread education on the effects of El Niño on weather patterns to help farmers adapt their practices. This can include crop diversification, implementing irrigation facilities, and promoting weather-based crop insurance.
5. **Mandatory Rainwater Harvesting:** Accelerating desiltation (clearing out mud and silt) of traditional village tanks, stepwells, and farm ponds *before* the monsoon starts so they can catch and store every drop of rain that does fall.
6. **Strategic Food Grain Reservoirs:** Maintaining robust buffer stocks of staples (wheat, rice, pulses) via the Food Corporation of India (FCI) to stabilize market supply and clamp down on hoarding or food inflation during a deficit year.
7. **Broadening Crop Insurance:** Ensuring swift, hassle-free payouts through the Pradhan Mantri Fasal Bima Yojana (PMFBY) by leveraging satellite imaging and drones to assess crop damage quickly, keeping farmers out of debt traps.
8. **Building disaster management capacity:** Countries should work on building their capacity to manage and respond to disasters caused by El Niño. This includes establishing effective disaster response strategies, conducting regular drills, and ensuring adequate resources are allocated to disaster management.
9. **Conserving marine ecosystems:** Since El Niño severely impacts marine ecosystems, it is crucial to conserve and protect these ecosystems as much as possible. This includes preventing overfishing, reducing pollution, and protecting marine habitats like coral reefs.

Conclusion: El Niño is not merely a weather event but a development challenge. India needs stronger climate adaptation measures through heat-resilient cities, worker protection & better water management. Climate risk is now economic risk, and its burden falls most heavily on the poor.

Syllabus: GS 1: Geophysical Phenomena: Important Geophysical phenomena
Sources: Business Standard, Bloomberg, Time, The Weather Channel, Climate.gov, Live Mint, NPR, TOI, Reuters, India Today, DTE, Financial Express and BBC, Indian Express

Tropical Cyclone – Definition, Characteristics & Disaster Management in India – Explained Pointwise

Cyclone Arnab has rapidly advanced towards the Andhra Pradesh coast in recent hours and is expected to make landfall on Wednesday. Named by Bangladesh under the regional cyclone-naming system, it has been classified as a 'Very Severe Cyclonic Storm'.

Tropical cyclones are a major geographical hazard for India, with nearly 8% of the country's geographical area across 13 coastal States and Union Territories being vulnerable to severe cyclones. This underscores the importance of effective disaster preparedness, mitigation and risk-reduction measures.

What is a Tropical Cyclone? What are its Key Characteristics?

- A tropical cyclone is a rapidly rotating storm system that forms over warm ocean waters, featuring a low-pressure center, strong winds, and heavy thunderstorm bands.
- They are termed tropical cyclones because they develop predominantly over warm tropical oceans.

Key Characteristics:

1. **Low-pressure centre:** Air moves towards the low-pressure centre and rises, creating clouds and rainfall.
2. **Anatomy of Tropical Cyclone**: Tropical cyclone consists of:
    a. **The Eye:** The calm, roughly circular area at the center of the storm (typically 20 to 65 km in diameter). It features light winds, clear skies, and extremely low surface atmospheric pressure.
    b. **The Eyewall:** A ring of towering cumulonimbus clouds surrounding the eye. This is where the storm's most severe weather, strongest winds, and heaviest precipitation occur.
    c. **Rainbands:** Curved bands of clouds and thunderstorms that spiral outward from the eyewall, producing heavy bursts of rain and wind.
3. **Storm Surge**: Strong winds and low atmospheric pressure raise sea levels near the coast, potentially causing severe coastal flooding.
4. **No Fronts**: Unlike temperate cyclones, tropical cyclones generally do not have warm and cold fronts.
5. **Energy Source:** They derive energy mainly from warm ocean water and the release of latent heat during condensation.

Prerequisites for Formation of Tropical Cyclone:

1. **Warm Ocean Water:** Surface sea temperatures of at least **26.5°C (80°F)** extending down to a depth of around 50 meters.
2. **Atmospheric Instability:** Warm, moist air rising rapidly from the sea surface.
3. **Coriolis Effect:** Sufficient Earth rotation forces (typically occurring at least 5° of latitude away from the equator) to induce the storm's spin.
4. **Low Vertical Wind Shear:** Minimal change in wind speed or direction with altitude, allowing the vertical storm structure to remain intact.
5. **High Humidity**: Abundant moisture in the lower and middle troposphere promotes cloud formation and releases latent heat through condensation.
6. **Pre-existing Low-Pressure Disturbance:** An initial low-pressure system or atmospheric disturbance provides the starting point for the development of a cyclone.

Tropical Cyclone-Affected Regions:

Regional Terminology:

Tropical cyclones are known by different names in different ocean basins:

- **Hurricanes**: Used for tropical cyclones in North Atlantic Ocean & Northeastern Pacific Ocean.
- **Typhoons**: Used for tropical cyclones in Northwestern Pacific Ocean.
- **Cyclones**: Used for tropical cyclones in Indian Ocean.
- **Willy-willies**: A traditional term associated with tropical cyclones in Australia.
- **Bagyo**: The local term for tropical cyclones in the Philippines.
- **Taino**: A historical Caribbean term associated with hurricanes.

Tropical Cyclones in India:

India's North Indian Ocean (NIO) region, which encompasses the Bay of Bengal and the Arabian Sea, witnesses high frequency of cyclones. This poses significant threat to the Indian 7,500 km coastline, along with Lakshadweep and the Andaman and Nicobar Islands.

- **Cyclones from the Bay of Bengal:** The Bay of Bengal has experienced an 8% decrease in cyclonic storms in the recent period (2001-2019), compared to the previous period (1982-2000). However, it still dominates in terms of cyclone frequency and intensity compared to the Arabian Sea. These cyclones often originate on the eastern side of the North Indian Ocean (NIO) Basin and initially move in a west-northwesterly direction.
- **Cyclones from the Arabian Sea:** Cyclones in the Arabian Sea are less frequent but no less dangerous. However, there has been a 52% increase in the number of cyclonic storms over the Arabian Sea (2001-2019), compared to the previous period (1982-2000).

What are the cyclone-prone regions of India?
What are the socio-economic impacts of cyclones in India?

Cyclones in India wreak significant havoc, leading to catastrophic socio-economic impacts. These impacts are not only direct, such as property damage and loss of life, but also indirect, affecting long-term economic development and societal well-being.

1. **Loss of life and displacement:** Historically, cyclones in India have resulted in substantial loss of life. Cyclones also often lead to mass displacement, as people are forced to evacuate their homes due to the imminent danger, leading to social disruption. **For e.g.** the 1999 Odisha cyclone claimed over 10,000 lives. The cyclone also resulted in mass displacement of people.
2. **Damage to infrastructure:** Cyclones cause significant infrastructure damage. This impacts transportation, communication, electricity, and water supply. **For e.g.** Cyclone Tauktae in 2021 caused widespread damage to roads, bridges and buildings in Gujarat and Maharashtra.
3. **High economic losses:** The economic impact extends to sectors like agriculture, fisheries, and tourism, affecting the country's GDP. **For e.g.** Cyclone Fani, which hit Odisha in 2019, resulted in losses estimated at $1.81 billion.
4. **Impacts on livelihoods:** Cyclones also negatively impact livelihoods, particularly for fishermen and farmers. **For e.g.** Cyclone Amphan (2020) in West Bengal disrupted the livelihoods of millions, causing an estimated $13 billion in damage.
5. **Effects on public health:** Post-cyclone conditions can lead to the spread of waterborne diseases, creating a public health crisis. **For e.g.** Outbreak of Cholera after Amphan.

6. **Impact on education:** Cyclones often result in the closure of schools, causing educational disruption. The schools are often used as shelter homes during the cyclones.
7. **Long-term economic development:** The high cost of post-disaster recovery diverts resources from other areas of economic development. This slows down the overall economic progress of the region.

What are the Cyclone disaster management mitigation and preparedness measures in India?

1. **Early warning systems:** India Meteorological Department (IMD) early warning system help in the early detection of cyclones. This helps in issuing timely warnings that help evacuate people and limit damage.
2. **National Cyclone Risk Mitigation Project (NCRMP):** NCRMP, supported by the World Bank, aims to enhance the preparedness and resilience of coastal communities. This is achieved through the construction of cyclone shelters, infrastructure development, and improved access routes for effective evacuation.
3. **Cyclone Shelters**: Construction of multipurpose cyclone shelters in vulnerable coastal areas to protect people during severe cyclones.
4. **Coastal Protection Initiatives:** Natural barriers have been created like mangrove plantations and artificial barriers like sea walls and embankments to reduce the impact of cyclones.
5. **Infrastructure Retrofitting:** Indian government has initiated a retrofitting program to strengthen cyclone shelters in vulnerable areas.
6. **Integrated Coastal Zone Management (ICZM) Project:** This initiative is designed to enhance the resilience of coastal areas through sustainable environmental practices. The project includes mapping vulnerable zones, promoting conservation, and implementing sustainable livelihood strategies for local communities.
7. **Colour-coding of cyclones By IMD:** The well-known colour-coding of natural disasters seeks to alert people to the risks' potential severity in advance. Green, yellow, orange, and red are the colours that IMD uses.
8. **Community-based disaster management:** These programs are implemented to raise awareness and train communities for cyclone preparedness. **For e.g.** In Odisha, locals have been trained to effectively respond during cyclones.
9. **Use of technology:** Technology, such as Geographic Information System (GIS) mapping, have been used to help identify vulnerable zones and plan evacuation routes. This technology was notably used during Cyclone Fani in 2019.
10. **Coordinated efforts:** Effective disaster management requires coordinated efforts among various agencies, such as the National Disaster Management Authority (NDMA), State Disaster Management Authorities (SDMAs), IMD and local administrations.
11. **Evacuation planning:** Comprehensive evacuation plans are developed for vulnerable regions. **For e.g.** During Cyclone Amphan in 2020, these plans facilitated the evacuation of over two million people in West Bengal and Bangladesh.

Read More- El Nino: Concept and impacts

What are the issues with Cyclone disaster management In India?

India has made considerable progress in managing cyclone disasters, especially in terms of evacuation and early warning systems. However, several challenges persist that need to be addressed for a more effective cyclone disaster management system.

1. **Gaps in Early-Warning Dissemination**: Warnings may not reach remote fishing communities and vulnerable populations in time.
2. **Ignorance of cyclone warnings:** One-third of the population of India which lives in the coastal area is poor and marginalized, rendering it ill-prepared and unable to cope with a disaster. On a few occasions, the warnings were not taken seriously by the local communities, thereby making it more disastrous. **For e.g.** During Ockhi cyclone disaster warnings were ignored by local bodies.
3. **Incapacity of State disaster management forces:** State disaster response forces lack the capacity and preparedness to effectively respond to disasters. As they are ill-prepared to respond, the onus of response always falls on the NDRF rendering golden hour response unavailable.
4. **Inadequate infrastructure:** Many coastal areas lack sufficient cyclone shelters, evacuation routes and cyclone-resistant housing. Critical infrastructure, including power lines, roads and communication networks, remains vulnerable to high winds and storm surges.
5. **Communication barriers:** Language barriers, illiteracy, and the lack of access to communication tools in rural and marginalized communities hinders the effective dissemination of early warnings and instructions.
6. **Limited Protection of Livelihoods**: Fishing communities, farmers and informal workers face significant income losses. Preparedness plans may not adequately address crop damage, livestock protection, fishing restrictions and livelihood restoration.
7. **Insufficient post-disaster response:** There is a noticeable lack of attention given to post-disaster response in India. **For e.g.** During Cyclone Jawad, many farmers resorted to distress selling and premature harvesting.

What should be done to ensure proper cyclone disaster management in India?

To ensure effective cyclone disaster management in India, several measures and actions can be taken. Here are some key steps that can be implemented:

1. **Strengthen early warning systems:** Strengthen early warning systems by investing in advanced technologies, such as weather radar systems and satellite imagery, to improve cyclone tracking and prediction.
2. **Improve communication and dissemination:** Multiple mediums, including mobile networks, radio, television, and social media, should be used to ensure widespread dissemination. **For e.g.** Odisha Disaster Management.
3. **Enhance preparedness and response planning:** Regular drills and exercises must be conducted to test the effectiveness of response mechanisms. Coordination among various stakeholders, including government agencies, civil society organizations, and the public must be improved.
4. **Strengthen infrastructure and resilience:** Investment in the construction and retrofitting of cyclone-resistant infrastructure, including cyclone shelters, coastal embankments, and resilient housing must be increased.
5. **Community engagement and capacity building:** Regular training programs and workshops to build the capacity of communities, local leaders, and volunteers in disaster management techniques must be conducted.
6. **Integration of technology:** Technological advancements, such as remote sensing, geospatial mapping, and early warning systems must be leveraged, to enhance cyclone monitoring, forecasting, and response.
7. **Improve Post-Disaster Monitoring**: Conduct damage assessments, audit relief distribution and evaluate disaster-response performance to identify gaps and improve preparedness.

Conclusion: India should move towards a proactive, technology-driven and community-centred approach that integrates early warning, resilient infrastructure, and effective local governance to minimise cyclone-related losses.

Read More: Indian Express
UPSC Syllabus:
GS-1: Geography
GS-3: Disaster Management: Disaster and disaster management.

Inter-State Council – Significance & Limitations – Explained Pointwise

The Inter-State Council (ISC), conceived as a vital institutional mechanism to promote cooperative federalism in India, has largely remained dormant. The lack of regular meetings, operational autonomy and independent authority has limited its effectiveness, creating a significant institutional gap in India's federal framework.

What is the Inter-State Council? Explain its Composition & Functions?

- The **Inter-State Council** is a constitutional, non-permanent advisory body established under **Article 263** of the Constitution of India. It serves as a institutional platform for promoting **cooperative federalism**, enabling coordination and dialogue between the Union Government and the States.
- ISC is a vital forum in India's political structure, established to facilitate discussions and cooperation between the Central government and the State governments.
- It serves as a key mechanism to promote and support the principle of cooperative federalism in the country.
- The Council may meet **at least thrice in a year**.

Background:

- The provision for an ISC is enshrined in **Article 263** of the Constitution, which empowers the **President** to establish such a council if it is in the public interest.
- Despite this provision existing since 1950, the Council was not formed for four decades. It was finally established in **1990** by the **Janata Dal government** led by V. P. Singh through a presidential order, following the key recommendations of the **Sarkaria Commission (1988)**.

Composition:

- **Chairman:** The Prime Minister
- **Members:**
  - **Chief Ministers** of all States and Union Territories that have a legislative assembly.
  - **Administrators** of Union Territories without a legislative assembly
  - **6 Ministers** of Cabinet rank in the Union Council of Ministers to be nominated by the Prime Minister.
- **Permanent Invitees:** 13 Union Ministers are permanent invitees to the Council.

Functions & Duties of ISC:

1. **Coordination:** The ISC aims to foster coordination between the States and the Central government in matters of policy making and implementation.
2. **Investigation & Discussion:** Investigating and discussing subjects in which two or more States, or the Union and one or more States, have a shared or common interest (such as internal security, trade, disaster management, or socio-economic policies).
3. **Inquire and Advise:** Inquiring into and advising upon non-legal disputes or grievances that arise between different States.
4. **Resolve Disputes:** The council also assists in resolving disputes between states or between states and the central government.
5. **Make Policy Recommendations:** Making recommendations on any such subjects to bring about better coordination of policy, administrative actions, and legislative strategies across state borders.

Standing Committee of ISC:

- To ensure continuous dialogue, the Council also has a Standing Committee. It was established in **1996**.
- The Standing Committee has been reconstituted from time to time with the approval of the Chairman of the Council. It was last reconstituted in November 2024.
- **Composition of Standing Committee:**
    - **Union Home Minister** as the Chairman
    - **5 Union Cabinet Ministers**
    - **9 Chief Ministers**
- Its role is to facilitate continuous consultation and process issues related to centre-state relations before they are taken up by the full council.
- The standing committee also monitors the implementation of the decisions taken on the recommendations of the Council and considers any other matter referred to it by the Chairman or the Council.
- The Council is assisted by a secretariat called the **Inter-State Council Secretariat**. This secretariat was set-up in 1991 and is headed by a secretary to the Government of India. Since 2011, it is also functioning as the secretariat of the Zonal Councils.

What are the other bodies that promote inter-State relations in India?

Zonal Councils	• Zonal Councils are **Statutory Bodies**. They were established under Part III of the **States Reorganisation Act, 1956**. • Zonal Councils are the regional counterparts to the national-level ISC. They were created to address issues specific to different regions of the country. • There are **5 Zonal Councils**, each covering a specific geographical region of India – North, South, East, West & Central Zonal Councils. • **Composition:** 1. **Common Chairman**: The **Union Home Minister** chairs all five Zonal Councils. 2. **Vice-Chairman**: The **Chief Ministers** of the States in the zone act as Vice-Chairman by rotation, usually for one year. 3. **Members**: Chief Minister and two other ministers from each State in the zone, plus administrators of UTs. 4. **Advisors**: One person nominated by the NITI Aayog and the Chief Secretaries of each State (they participate but cannot vote). • **Main objectives**

	1. **Emotional Integration**: To stop the growth of acute "state-consciousness," regionalism, and linguism. 2. **Boundary & Border Disputes**: Solving local issues like small border adjustments or forest land disputes between neighbors. 3. **Infrastructure Coordination**: Planning regional transport, power grids, and water sharing. 4. **Security**: Coordinating anti-Naxal operations or coastal security (depending on the zone).
North East Zonal Council	● The North Eastern Council was created later, under the **North Eastern Council Act** of **1972**, to address the unique challenges and development needs of the northeastern region. ● **Composition:** ○ **Chairman**: The Union Home Minister serves as the ex-officio Chairman. ○ **Vice-Chairman**: The Minister of Development of North Eastern Region (DoNER) is the ex-officio Vice-Chairman. ○ **Members**: The Council comprises the Governors and Chief Ministers of all the eight Northeastern States. ● Unlike the advisory role of the Zonal Councils, the NEC is a statutory body for regional planning and development. ● It focuses on: ○ Formulating unified and coordinated regional plans for the Northeast. ○ Addressing the specific economic and social development needs of the region.
GST Council	● A constitutional body under **Article 279A** that brings together the Centre and States to make recommendations on GST rates, exemptions and other GST-related matters.
NITI Aayog Governing Council	● Comprising the Prime Minister, Chief Ministers and relevant Union Territory representatives, it provides a platform to discuss national development priorities and promote cooperative federalism.

What is the significance of the Inter-State Council (ISC) in promoting cooperative federalism in India?

1. **Promoting Cooperative Federalism**: The ISC is the ultimate platform for Cooperative Federalism. It moves away from a "top-down" approach (where the Center dictates) to a "horizontal" approach (where the Center and States negotiate). It allows Chief Ministers to voice regional concerns directly to the Prime Minister and Cabinet.

2. **Structured Dialogue**: It provides a permanent, institutionalized platform for the Centre and States to sit together, exchange views, and understand each other's perspectives on various issues, moving beyond informal or ad-hoc discussions.
3. **Building Consensus**: It helps build a national consensus on policies that affect both the Union and the States. By facilitating open dialogue, it aims to resolve differences through discussion rather than confrontation.
4. **Investigating Disputes**: Under Article 263, one of its core functions is to investigate and advise on disputes between States. This provides a platform for inter-State dispute resolution before they escalate into legal or political battles.
5. **Political Disputes**: While the judiciary handles legal disputes, the ISC addresses the political dimensions of Centre-State and Inter-State conflicts, offering recommendations to resolve them amicably.
6. **Platform for Regional Issues**: Chief Ministers can use this forum to raise issues specific to their regions, bringing them to the attention of the entire national leadership.
7. **Implementation of Recommendations**: It has been instrumental in examining and implementing the recommendations of key commissions on Centre-State relations, such as the Sarkaria Commission and the Punchhi Commission.
8. **Expert Consultation via the Standing Committee**: The Standing Committee of the ISC provides a continuous mechanism for consultation. It processes complex matters (like the Punchhi Commission reports on Center-State relations) before they reach the full Council. This ensures that when the full Council finally meets, the discussions are backed by rigorous data and prior departmental scrutiny.

What are the major limitations of the Inter-State Council (ISC)?

1. **Infrequent and Irregular Meetings**: The Sarkaria Commission, which recommended the Council's formation, suggested it should meet at least three times a year . However, since its establishment in 1990, the Council has met only 11 times, with the last meeting taking place in 2016. This long gap undermines the Council's purpose as a continuous forum for dialogue.
2. **Advisory and Non-Binding Nature**: The ISC's recommendations are purely advisory and not binding on the Central government. This lack of enforceability means that even if the Council deliberates and makes suggestions, the Centre is under no constitutional or legal obligation to implement them.
3. **Centre's Dominance in Agenda Setting**: The functioning of the ISC is heavily skewed in favor of the Central government. The Council meets only when the Prime Minister (the Chairperson) decides to convene it, not when the States demand a meeting. The agenda is also set by the Centre, which limits the scope of discussion and prevents states from bringing up issues that the Central government might find uncomfortable.
4. **Ineffectiveness in Resolving Core Disputes**: Despite being established to inquire into and advise upon disputes, the ISC has largely failed to resolve major inter-State conflicts. Long-standing issues like border disputes (e.g. between Karnataka-Maharashtra, Assam-Meghalaya) and river water disputes remain unresolved, often escalating into violence or ending up in the judiciary.
5. **Impact of Political Dynamics**: The effectiveness of the ISC is often paralyzed by the prevailing political atmosphere. When the party in power at the Centre is different from the parties ruling the States, discussions can become adversarial, with Chief ministers airing grievances rather than engaging in collaborative problem-solving.

What should be the way forward?

1. **Institutionalize Regular and Mandatory Meetings**: The Sarkaria Commission recommended the Council meet at least three times a year. Making this mandatory would transform the ISC from an occasional forum into a permanent platform for continuous dialogue and dispute resolution.

2. **Give the Council a Binding and Quasi-Judicial Role**: The Council's recommendations are purely advisory and non-binding, which often renders State participation futile. To address this, expand its role to function as a "collaborative council" with quasi-judicial powers to ensure its advice is heeded .
3. **State-Initiated Agenda**: The agenda is currently set by the Prime Minister, limiting the council's ability to address State-initiated concerns . A reformed ISC should allow States to put forth items for discussion, ensuring their most pressing issues are heard.
4. **Link with Zonal Councils**: The effectiveness of the ISC could be enhanced by better integrating it with the Zonal Councils, which have also become largely dormant. These Councils could act as filtering mechanisms, resolving issues at the regional level before they reach the ISC.
5. **Implement Pending Recommendations from Key Commissions:**
    a. **Punchhi Commission (2010):**
        - **Mandatory Consultation on Concurrent List**: The Union should consult the States through the ISC before introducing any bill in Parliament regarding subjects in the Concurrent List.
        - **Internal Security Role**: The Commission suggested that the ISC should be the primary forum for discussing internal security and communal harmony.
        - **Treaty-Making Powers**: It recommended that the Union consult the ISC when making international treaties that significantly impact the subjects in the State List.
        - **Functional Continuity**: It proposed that the Zonal Councils should meet at least twice a year and their secretariats should be merged with the ISC Secretariat to ensure better coordination between regional and national federal issues.
    b. **National Commission to Review the Working of the Constitution (NCRWC, 2002):**
        - **Regularity of Meetings**: It recommended a constitutional or statutory mandate that the ISC must meet at least thrice a year.
        - **Broadening the Agenda**: The NCRWC suggested that the ISC should not just discuss "disputes" but should proactively discuss socio-economic planning and development, moving beyond the narrow interpretation of Article 263.
        - **Permanent Secretariat**: It pushed for an independent and permanent Secretariat for the ISC, staffed by experts, to ensure that research and follow-up are continuous rather than "event-based."

Conclusion: The Inter-State Council is vital for strengthening cooperative federalism in India. Regular meetings, constructive dialogue and effective follow-up on its recommendations can enhance Centre-State coordination and promote harmonious inter-State relations.

UPSC GS-2: Polity
Read More: Indian Express

Digital Arrest Fraud – Meaning, Causes & Initiatives – Explained Pointwise

Describing digital arrest scams as one of the biggest financial frauds threatening the country's economy, the Supreme Court has proposed directions requiring banks to compensate victims and face prosecution if their failure to exercise due diligence is found to have facilitated such frauds.

Digital arrest fraud is a new form of cybercrime in India. As of January 2026, the Supreme Court of India has noted that victims (primarily the elderly) have lost over **₹3,000 crore** to this fraud. These cyber crimes have seriously grave concerns and, hence, these must be addressed at the earliest.

What is Digital Arrest? What is the modus operandi?

- Digital arrest is a **cyber fraud technique** in which criminals **psychologically trap a person online**, making them believe they are under arrest or investigation and coercing them into transferring money.
- Digital arrest involves cybercriminals posing as law enforcement agents (from the CBI, Narcotics Department, or Reserve Bank of India) who claim that the victim is involved in illegal activities like movement of drugs or a suspicious package. The victims are tricked into remaining under constant visual surveillance via Skype or other video conferencing platforms until the criminals' demands are met.
- The victim is **not physically detained**, but is **mentally confined through fear** — hence the term *digital arrest.*

Modus Operandi of Digital arrest:

Caller ID Spoofing	Scammers disguise their phone number to look like it is from a legitimate government office or police department. Scammers also reach out via video calls using WhatsApp or Skype.
Intimidation	Victims are falsely accused of crimes like drug trafficking or money laundering, and are shown fake documents and setups that mimic police stations. The scammers use fear tactics, such as threatening for jail-term or property seizure, to create urgency.
Isolation	Victims are instructed to remain on the call and not to contact anyone else. This creates a sense of urgency and fear. The fraudsters also use deepfake videos and fake arrest warrants to impersonate officials of law enforcement agencies.
Demands for Money and Personal Identity Theft	The fraudsters demand immediate payment, often via gift cards, wire transfers, or cryptocurrency, which would make the money transfer difficult to trace. Some scammers ask for Aadhaar Details, Bank account details, and other personal information, which are later used for identity theft.

xamples of Digital Arrest Fraud Cases:

Digital arrest fraud cases have not only targeted the vulnerable groups, but also wealthy individuals as well. Vast sums of Money have also been stolen from wealthy individuals.

Vardhman Group Director's case	Scammers duped the textile industry doyen S P Oswal into transferring Rs 7 crore to their bank accounts, by posing as CBI Officers and intimidating him on false money laundering cases.
Fake impersonation as CJI	There have been cases where a person impersonated the former Chief Justice of India D Y Chandrachud, faked hearing a matter on skype and thereafter passed an order.
NRI Doctor Couple Defrauded in Delhi	In a **sophisticated "digital arrest" scam**, an elderly **NRI doctor couple in South Delhi's Greater Kailash** was duped of **around ₹14.85 crore** by fraudsters. Scammers **posed as law enforcement and investigative officials**, claiming the couple was under investigation and threatening immediate legal action if they didn't cooperate. Over **more than 2 weeks**, the couple was kept under **continuous video calls**, intimidated and coerced into transferring huge sums of money to accounts controlled by the criminals.

Rise in Digital arrest cases:

- The Ministry of Home Affairs (MHA) in March 2024, issued a press release, alerting people against incidents of blackmail and digital arrest by cyber criminals impersonating Police authorities, Central Bureau of Investigation (CBI), Narcotics Department, Reserve Bank of India (RBI), Enforcement Directorate and other law enforcement agencies.
- According to data compiled by the Indian Cyber Crime Coordination Centre (I4C), Ministry of Home Affairs (MHA), and reports submitted before the Supreme Court:

Year	Reported Complaints	Financial losses
2022	39,925	Rs 91.14cr
2023	60,676	Rs 339cr
2024	1,23,672	Rs 1935 cr
2025	58,239	Rs 1211cr

Jan-Aug 2026	21,928	Rs 647cr

What are the reasons behind rise in the digital arrest cases in India?

1. **Rapid Digitalisation without Matching Awareness:** There has been an explosion of smartphones, online banking, UPI & digital payments in India. However, the legal awareness about arrest procedures has not growth at the same pace. Many citizens are not aware that arrests cannot happen online. This creates a trust gap which has been exploited by the scammers.
2. **Fear of Law Enforcement & Social Stigma:** Fraudsters exploit the fear of police, courts, ED, CBI & the shame linked to the allegations like money laundering or drugs. Victims comply silently instead of verifying with the authorities.
3. **Sophisticated Social Engineering:** Scammers use fake official uniforms, IDs, court orders & caller ID spoofing to confine the victim into a psychological trap. Thus, cybercriminals are using technological and psychological tactics to target citizens.
4. **Availability of Digital Tools to Criminals:** Criminals have easy access to devices & tools like SIM Box, encrypted communication apps, mule bank accounts – using which they are able to route calls & SMSes, bypassing international charges, making foreign calls appear local & funnel the stolen money through mule accounts within minutes, making it impossible for Police to freeze the funds in time.
5. **The "Shame" Factor:** Many victims, especially high-ranking professionals or the elderly, do not report the crime due to the embarrassment of being "duped," allowing scammers to operate without fear.
6. **Serious Allegations:** By accusing victims of "Money Laundering," "Narcotics Trafficking (MDMA)," or "Terror Financing," scammers trigger a "fight or flight" response. The fear of social stigma and a permanent criminal record makes people desperate to "settle" the matter.

What are the concerns with the rising Digital Arrest Fraud cases in India?

1. **Financial Losses:** The financial losses to the victims become impossible to recover because the scammers request payments through untraceable methods like cryptocurrency, gift cards, or wire transfers. The financial loss due to digital arrest have grown from **₹91 crore** in 2022 to **₹1,935 crore** in 2024.
2. **Negative emotional and Psychological Impact:** Victims feel intimidated and psychological pressure, which can lead to anxiety, stress. The scammers use threatening language and claim serious consequences like jail time, asset seizures, or even deportation.
3. **Data Leaks:** Large-scale data breaches (from insurance portals, travel sites, etc.) provide scammers with a "lead list" that includes the victim's name, Aadhaar number, and financial status, making the initial "official" call sound incredibly credible.
4. **Targeting the "Wealthy & Vulnerable" (Seniors):** Senior citizens and retired professionals often have significant life savings but may not be fully aware of the latest cyber-tactics.
5. **Organized Cross-Border Syndicates:** These are no longer individual hackers but **organized "Cyber-Slavery" hubs**, mostly operating out of Southeast Asian countries (Cambodia, Laos, Myanmar). Scammers are given scripts, trained in Indian accents/languages, and taught how to navigate Indian legal terminology (BNS/BNSS).
6. **Use of 'Deepfakes' & AI:**
    a. **Visual Authenticity:** Scammers now use AI to create high-quality deepfake videos of real IPS officers, CBI directors, or even sitting judges.

b. **Virtual Courtrooms:** Fraudsters set up elaborate "studio" backgrounds that mimic police stations or courtrooms. On a WhatsApp or Skype call, a victim sees what looks like a genuine judicial proceeding.
c. **Voice Cloning:** AI can now mimic the voice of a family member "calling from the police station," adding an emotional layer of panic that overrides logical thinking.

What has the Supreme Court observed and directed in various cases concerning digital arrest scams in India?

October 2025: Suo motu cognisance	● The Supreme Court initiated suo motu proceedings after a senior citizen couple complained of losing their life savings of approximately ₹1.05 crore to fraudsters impersonating CBI, ED and judicial officials. ● The fraudsters used forged Supreme Court documents and threatened the couple with arrest and property seizure. ● The Court recognised the **organised nature of these crimes** and the vulnerability of senior citizens.
December 2025: Coordinated investigation and preservation of evidence	● Directed intermediaries to preserve data relating to mobile phones allegedly used in cybercrimes. ● Sought coordinated participation of the Ministry of Home Affairs, Department of Telecommunications, MeitY and Ministry of Finance.
August 2026: Stronger financial safeguards and victim protection	● **RBI's responsibility**: Directed RBI to adopt and circulate an SOP for temporary debit holds on bank accounts and transactions linked to cyber fraud and mule-account activity. ● **Grievance redressal**: Directed States and UTs to operationalise grievance redressal and money-restoration mechanisms. ● **e-Zero FIR**: Asked States and UTs to adopt the e-Zero FIR mechanism in consultation with I4C. ● **Victim compensation**: Asked the inter-departmental committee to examine a framework for shared liability and victim compensation. ● **Faster recovery**: Directed adjudicating authorities, including courts, consumer forums and RBI Ombudsman, to ensure speedy disbursement of recovered money to victims. ● **Public awareness**: Asked State Legal Services Authorities to develop awareness programmes and assistance mechanisms for victims.

October 2026: Accountability of banks and financial institutions	• **Seriousness of the menace:** Described digital arrest as the "biggest financial fraud" affecting the country's economy, involving thousands of crores of rupees. • **Bank accountability**: Proposed holding banks liable to compensate victims and face prosecution where failure of due diligence contributes to cyber fraud. • **Unusual transactions:** Emphasised that banks should temporarily suspend transactions inconsistent with customers' established transaction patterns. • **Use of AI**: Suggested that banks use artificial intelligence and transaction-history analysis to identify suspicious financial activities. • **Physical verification**: Suggested verification of unusually large transactions, particularly those involving vulnerable customers such as pensioners and senior citizens. • **RBI regulations:** Stressed that proposed RBI regulations must contain enforceable provisions for victim compensation and institutional accountability.

What have been the efforts of the government to control these frauds?

Inter-Departmental Committee (IDC)	Formed in **December 2025**, this high-powered panel is chaired by the Special Secretary (Internal Security) and includes members from **RBI, MeitY, DoT, and Ministry of Law**. Their mandate is to identify legal gaps and ensure "time-bound compliance" by social media platforms to block scammers.
Role of CBI	In 2025, the Supreme Court granted the **CBI a countrywide jurisdiction** to probe digital arrest cases. This allows the CBI to bypass the need for specific state permissions, enabling them to dismantle interstate and international syndicates more effectively.
Indian Cyber Crime Coordination Centre (I4C)	The Indian Cybercrime Coordination Centre (I4C), part of the cyber and information security division of the Union Ministry of Home Affairs, is dedicated to address rising cybercrime.
Joint Cyber Coordination Teams (JCCTs)	Based at the **Indian Cyber Crime Coordination Centre (I4C)**, these teams focus on "hotspots" like Mewat, Jamtara, and Ahmedabad. They coordinate raids across state lines to catch the "mule account" holders and technical operators.
International Spoofed Calls Prevention System	The Department of Telecommunications (DoT) has deployed a system that identifies and blocks international calls that manipulate the "Calling Line Identity" (CLI) to appear as Indian phone numbers (+91).

Mass Blocking of Identifiers	By the end of 2025, the government had successfully blocked: ● **7.8 lakh+ SIM cards** linked to fraud. ● **2.9 lakh+ IMEI numbers** (mobile devices). ● **83,000+ WhatsApp accounts** and **3,900+ Skype IDs** used for digital arrests.
Inter-ministerial committee against transnational crime	In May 2024, an inter-ministerial committee, comprising various law enforcement and intelligence agencies, was established to address the increase in transnational cybercrimes targeting Indians, especially from Southeast Asian countries like Cambodia.
1930 Helpline & NCRP	The National Cyber Crime Reporting Portal (**cybercrime.gov.in**) and the **1930** toll-free number allow for the immediate reporting of fraud.
CFCFRMS (Citizen Financial Cyber Fraud Reporting System)	This backend system links police with banks. If a victim reports a fraud within the "**Golden Hour**," the system can freeze the funds in the scammer's account before they are siphoned off.
Samanvaya & Pratibimb Platforms	These AI-driven tools provide real-time mapping of cyber-criminal locations and help law enforcement agencies track the movement of money across different states.
Uniform Inter-State Laws	Under the **Bharatiya Nyaya Sanhita (BNS)**, the government is working to ensure that "Digital Arrest" is explicitly defined as a distinct criminal act of extortion and impersonation, removing any legal ambiguity.

What Should be the Way Forward?

1. **Instant Freezing without FIR:** Building on the Supreme Court's December 2025 directive, **I4C** and banks should be allowed to freeze suspicious accounts immediately upon a 1930 report, even before a formal FIR is filed. The first 60-120 minutes (called the **'Golden Hour'**) after a fraud occurs are critical for fund recovery.
2. **AI-Driven Transaction Monitoring:** Mandating banks to deploy AI/ML models that flag "unusual velocity" (e.g. a senior citizen suddenly transferring a large sum to a new account). This "speed-breaker" approach can halt transactions until a secondary verification is performed.
3. **SIM & IMEI Blacklisting:** Aggressive use of the **Sanchar Saathi** portal to block not just the SIM, but the entire handset (IMEI) of identified scammers. By January 2026, over 9 lakh SIMs have been blocked, but the goal is to make the hardware itself unusable for any network.

4. **Mule Account Liability:** Making banks legally and financially accountable for "Mule Accounts" opened with weak KYC. If a bank branch consistently hosts accounts used in scams, then penalize the branch or its management.
5. **"Cyber-Diplomacy":** India is pushing for a specialized **BRICS or G20 Cyber-Task Force** to allow for the rapid extradition of scammers and the dismantling of "Cyber-Slavery" compounds across borders.
6. **VoIP Regulation:** Tightening the gateway for international VoIP (Internet) calls that spoof Indian numbers (+91). The DoT is moving toward a system where unverified international headers are automatically dropped by telecom providers.
7. **Specialized Cyber-Courts:** To improve the currently low conviction rates, set up dedicated courts to handle digital fraud. The first conviction in 2025 (West Bengal) where nine scammers were given life imprisonment has set a precedent for "deterrence through harsh sentencing."
8. **Actions at the personal level:**
    a. **Staying Calm:** On receiving a suspicious call, one should do not panic. A person should take a moment to assess the situation.
    b. **Verification of Identity:** The personal information should not be shared over the phone or video calls.
    c. **Documenting Evidence:** A person should try to record the call or take screenshots for evidence. This documentation can be crucial in the times of need of reporting the scam.
    d. **Contacting Authorities:** In case of digital arrest cases, a person should report the incident to local police or through national cyber helplines (1930).
9. **Education and awareness:** Education and awareness is the key to avoid digital arrest frauds. Understanding that digital arrests are fraudulent can help the masses recognize and avoid such scams.

Conclusion: During one of his Mann Ki Baat addresses, the Prime Minister urged citizens to adopt the mantra "**Ruko, Socho, Action Lo**" (Stop, Think, Take Action) to combat digital arrest scams. This should become an immediate response at the individual level to prevent digital arrest fraud and protect citizens from financial exploitation.

Read More- The Indian Express
UPSC Syllabus- GS-3 Internal security challenges (Cyber Security)

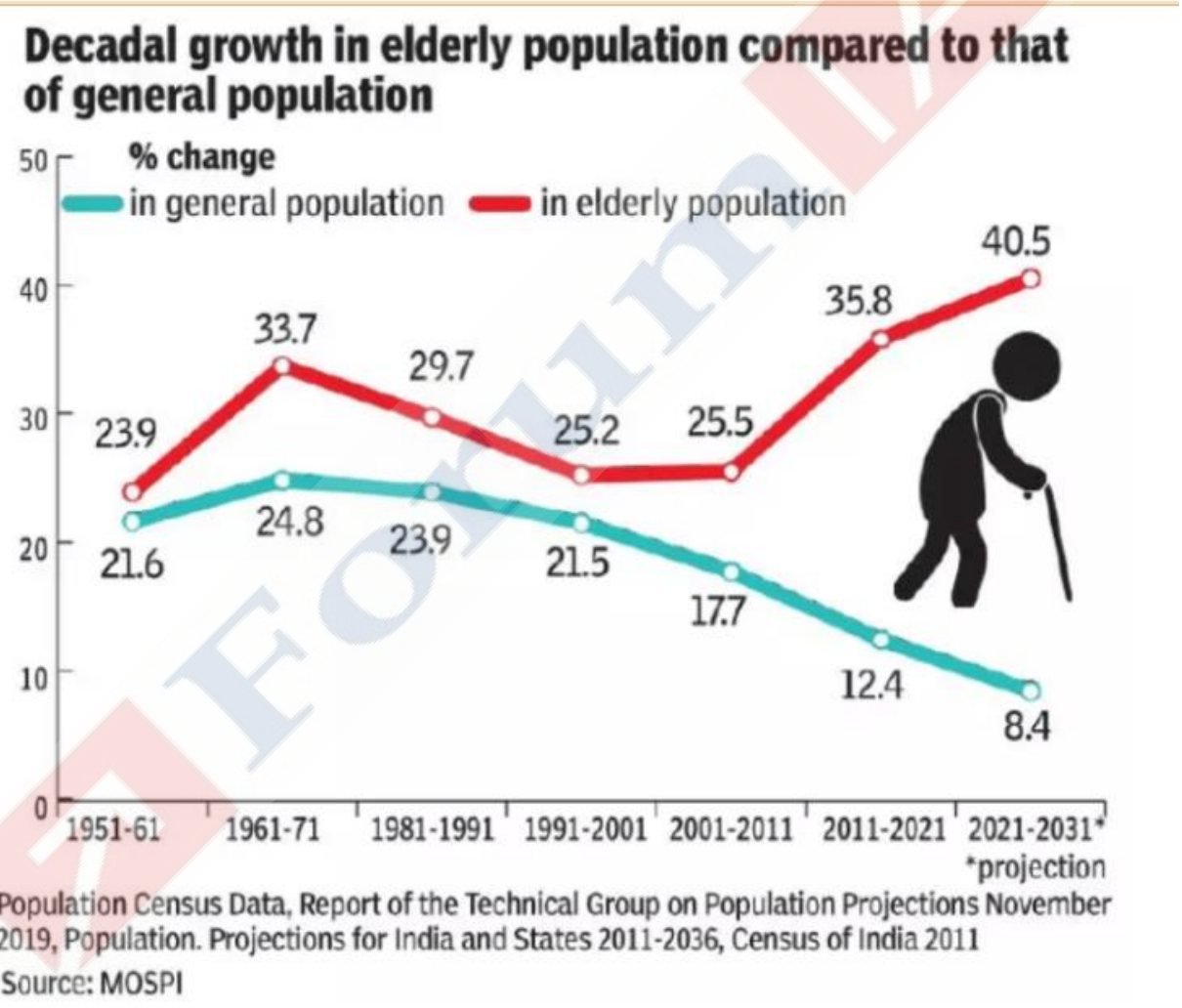
Elderly Care in India – Need & Challenges – Explained Pointwise

India is undergoing a significant demographic transition, with a steadily increasing proportion of its population entering old age. This has created a growing need for accessible healthcare, social security, financial support and institutional care for senior citizens. Recognising this challenge, the Keralam Government has introduced a series of initiatives for the welfare and protection of its rapidly ageing population. Keralam faces a significant demographic transition, with its population aged 60 and above projected to increase from approximately 16.5% to 23% by 2036.

What is the Status of Elderly Population in India?

- According to the Government of India and the United Nations, India currently has **more than 150 million** elderly people (about **10%** of total population), making it the **second-largest elderly population globally**.

- The number of elderlies (persons above 60 years) is set to increase from 100 million in 2011 to **230 million** in 2036 (about **15%** of the population). By 2050, the elderly population is expected to constitute nearly **one-fifth** of the total population, that is around 350 million.
- The population aged 80 years and above is expected to expand by a massive **279%** between 2022 and 2050, triggering an urgent demand for long-term palliative care.
- **Old Age-Dependence Ratio:**
    - The old age-dependence ratio denotes the number of persons aged 60-plus per 100 persons in the age group of 15-59 years.
    - According to the Ministry of Statistics and Programme Implementation's (MOSPI) **'Elderly in India 2021' report**, the old-age dependency ratio is increasing in India. The old age-dependence ratio has increased from 10.9% in 1961 to 14.2% in 2011, to 15.7% in 2021 and is projected to increase to 20.1% in 2031 respectively.



Source- MOSPI

- **Inter-State Variation:**

- The demographic transition happening in India is not even across the States. According to the RBI report, **Kerala & TN** will be "**ageing States**" by 2036 because their elderly populations will exceed 22% & 20% respectively.
- On the other hand, the **working age populations** of **Bihar, UP, Jharkhand** will continue to rise beyond 2031, **Karnataka & Maharashtra** occupy the middle ground – balancing growth with the onset of ageing pressure.

What is the need for taking care of the Elderly Population in India?

1. **Unlocking the "Silver Dividend"**: Healthy, well-supported seniors possess a lifetime of institutional knowledge, professional skills, and cultural wisdom. By keeping them healthy and integrated into society, India can leverage their potential for mentorship, community leadership, and part-time economic contributions – turning a perceived challenge into a national asset.
2. **Generational Link:** The elderly citizens provide a vital generational link for the upcoming generation, such as providing support and stability to families and society at large. **For e.g.** Grandparents in joint families provide a crucial link for transferring values and morals to the younger generation.
3. **Social Harmony:** The deep cultural impressions and social experiences of the elderly population in India provide the necessary buffer against intolerance, violence and hate crimes.
4. **Relieving Pressure on the Working-Age Workforce:** Without formal elder care infrastructure (like day-care centers, trained caregivers, and assisted living), the burden of full-time care falls on working-age children. This often forces women out of the workforce or reduces overall economic productivity as families struggle to balance work and caregiving.
5. **Moral and ethical responsibility:** It is the moral and ethical responsibility of the society to care for its people beyond their prime. This helps in reciprocating their lifetime of physical, social, emotional, and economic investment in the society.
6. **Constitutional Mandate: Article 41** of the Constitution of India directs the State to secure the right to work, education, and public assistance in cases of old age, sickness, and disablement. Taking care of seniors is a fulfillment of this constitutional directive.

What are the Challenges Faced by Elderly Population in India?

Social Challenges	1. **Social Neglect:** Elderlies are increasingly being neglected by the younger generation due to various social reasons such as western education, globalisation, nuclear family structure. 2. **Abuse of the elderly population:** Elderlies in India face various forms of abuse such as physical, sexual, psychological or financial. They suffer from emotional harm that emerges from verbal or emotional abuse. 3. **Inter-section of Caste and Elderly:** The lower caste elderly have to keep on working for livelihood even at old age due to financial issues. While for the upper caste elderlies, good jobs become less available and they hesitate to take menial jobs which creates a feeling of 'worthlessness' amongst them. 4. **Feminisation of ageing:** Ageing in India is increasingly female-centric. **Over 54% of elderly women are widows**, making them highly vulnerable to economic dependency, lack of property rights, and social isolation. The life of elderly widows is riddled with stringent moral codes of the society. Social bias against elderly women results in unjust allocation of resources, neglect, abuse, exploitation, gender-based violence, lack of access to basic services and prevention of ownership of assets.

Economic and Financial Challenges	1. **Lack of Social Security Protection:** Approximately **90% of India's workforce is in the informal sector** (agriculture, daily wage labor, domestic work). Consequently, an overwhelming majority of seniors do not have access to formal, employer-matched pensions or retirement benefits. 2. **Inadequate Government Safety Nets:** India spends only about 1% of its gross domestic product on pensions. While government pension schemes like the Indira Gandhi National Old Age Pension Scheme (IGNOAPS) exist, the monthly payouts are heavily critiqued as being too low to cover basic nutritional and survival needs. 3. **Lack of housing and other basic amenities:** The housing available to a majority of the senior citizens are sometimes inappropriate and unsuitable to their requirement.
Health Issues and Challenges	1. **High Burden of Chronic Diseases:** Data from the Longitudinal Ageing Study in India (LASI) reveals that nearly **75% of senior citizens suffer from at least one chronic illness** (such as diabetes, hypertension, cardiovascular diseases, or severe arthritis). Multi-morbidity (suffering from two or more chronic conditions simultaneously) affects over half of the elderly population. 2. **Crippling Out-of-Pocket Expenditure:** India has a remarkably low penetration of health insurance tailored for senior citizens. High premium rates and exclusions for pre-existing conditions mean that families must pay for treatments entirely out-of-pocket, frequently driving vulnerable families into poverty. 3. **Mental Health and Cognitive Decline:** Issues like depression, severe anxiety, and cognitive impairments (such as Alzheimer's and dementia) affect roughly 20% to 25% of the elderly. Mental health stigma, combined with a severe shortage of trained geriatric psychologists, leaves these conditions largely undiagnosed and untreated. 4. **Rural-Urban Healthcare Divide:** While 71% of India's elderly reside in rural villages, specialized tertiary healthcare facilities and doctors are heavily concentrated in urban centers, making access a geographic nightmare for frail seniors.

What are the Government initiatives for elderly care in India?

Atal Vayo Abhyuday Yojana (AVYAY)	It is an umbrella scheme that consolidates various efforts under a single, strategic framework aimed at improving the quality of life for senior citizens. The scheme has five key components that address different needs: 1. **Integrated Programme for Senior Citizens (IPSrC):** To provide institutional care. 2. **Rashtriya Vayoshri Yojana (RVY):** To provide Physical Aids and Assisted-living Devices for Senior citizens belonging to the BPL category. 3. **Seniorcare Ageing Growth Engine (SAGE):** Aims to create Silver Economy. 4. **Senior Citizen Opportunities for Productive Engagement (SCOPE):** Portal that aims to utilize the experience, time and energy of the elderly population which can be used by the business enterprises looking for stable employees with experience.

	5. **State Action Plan for Senior Citizens (SAPSrC):** Empowers states to develop and implement their own action plans for elderly welfare.
National Policy for Older Persons 2011	The policy aims to encourage individuals to make provisions for their own and their spouse during old age, to bring non-governmental organizations for caring for older persons and to provide healthcare facilities to the elderly.
The Maintenance and Welfare of Parents and Senior Citizens Act, 2007	The Act provides a legal framework for the care of the elderly. It makes it a legal obligation for children and heirs to provide maintenance to their parents/senior citizens, a provision that is increasingly important as family structures change. The Act also provides for the establishment of old age homes and the protection of life and property of seniors.
National Social Assistance Programme (NSAP)	This is a social security program that provides a monthly pension to seniors living below the poverty line. Under the **Indira Gandhi National Old Age Pension Scheme (IGNOAPS)**, eligible individuals between 60-79 years receive **₹200 per month**, while those aged 80 and above receive **₹500 per month**.
Pradhan Mantri Vaya Vandana Yojana	The scheme aims to provide social security during old age. It also protects elderly persons aged 60 and above against a future fall in their interest income due to uncertain market conditions.
Senior care Ageing Growth Engine (SAGE) Initiative and SAGE portal	This initiative aims to create a **"Silver Economy"** by identifying, evaluating, and supporting start-ups that develop innovative, age-friendly products and solutions to help seniors lead more independent lives.
Ayushman Bharat (AB-PMJAY) Expansion	Every senior citizen in India **aged 70 years and above is eligible for a ₹5 lakh annual free health insurance cover**, entirely irrespective of their socio-economic or income status. For families already covered under PMJAY, seniors over 70 get an exclusive, unshared ₹5 lakh top-up.

National Programme for the Health Care of the Elderly (NPHCE)	This program provides dedicated healthcare delivery systems for seniors down to the grassroots level. It sets up 10-bed geriatric wards in district hospitals, runs weekly clinics at Primary Health Centers (PHCs), and establishes specialized **National Centres of Ageing (NCAs)** at premier medical colleges like AIIMS New Delhi for tertiary research and palliative care.
Elderline (14567)	A national, toll-free helpline number specifically operationalized to support senior citizens. It offers immediate real-time support across India for grief counseling, guidance against elder abuse, clarity on pension schemes, and emergency rescue operations for abandoned citizens.

What initiatives has the Keralam Government introduced for the welfare of the elderly population?

Keralam Senior Citizens (Care and Protection of Rights) Bill, 2026	● Keralam became the first State in India to pass a comprehensive legislation specifically aimed at protecting senior citizens. ● Key provisions include: ○ **Protection from abuse:** Legal safeguards against physical, emotional and financial exploitation of elderly people. ○ **Property protection:** Provisions against illegally possessing or taking control of senior citizens' property. ○ **Regulation of old-age homes**: Registration, regulation and monitoring of institutions providing elderly care. ○ **Healthcare and social security:** Improved access to healthcare and welfare services. ○ **Silver economy:** Encouraging senior citizens to use their knowledge, skills and professional experience for productive activities.
Dedicated Department for Senior Citizens	● In May 2026, the Keralam Government announced the establishment of a separate department for elderly welfare. ● It aims to address the challenges arising from Kerala's rapidly ageing population. ● It will focus on specialised healthcare, geriatric care and social protection. ● The initiative draws inspiration from international elderly-care systems, including Japan's model.
Annual Dementia Screening Initiative	● Kerala is planning annual cognitive screening of its entire population aged 60 and above to enable early detection of dementia. ● Screening through Primary Health Centres (PHCs) in rural areas and the **Vayomithram programme** in urban areas. ● Involvement of ASHA and Anganwadi workers.

	• Establishment of memory clinics across all 14 districts. • Expansion of dedicated dementia-care centres.

What should be the Way Forward?

1. **Formalization of caregiving economy:**
    - According to a NITI Aayog report, healthcare offered at home can replace up to 65% of unnecessary hospital visits and reduce hospital costs by 20%.
    - Well-trained caregivers possessing empathetic outlook towards elderly need to be provided formal and better work place conditions.
    - Recognition of "home" as a place for providing care and as a "place of work" for caregivers will be the first step towards elderly care.
2. **Reforming the National Pension System:** The current monthly payouts under the Indira Gandhi National Old Age Pension Scheme (IGNOAPS) need to be systematically revised and pegged to inflation indices to ensure they cover basic living and nutritional costs.
3. **Strengthen Geriatric Healthcare Infrastructure**: India must **establish geriatric departments in all medical colleges** and increase the number of specialist physicians. States like Tamil Nadu have already recommended creating geriatric units in every medical college as a model to follow.
4. **Replication of Switzerland's TIME BANK initiative:** Under this initiative, the younger generation start to save 'time' by taking care of senior citizens. Later, they can use the saved 'time' when they get old, sick, or in need of someone to take care of them. This initiative must be applied to Indian setup.
5. **Incentivizing the "Silver Economy":** The government should offer tax incentives, subsidies, and grants to startups and private enterprises developing senior-friendly technologies, assistive devices, universal design infrastructure, and specialized senior living communities.
6. **Public-Private Partnerships (PPP):** Private healthcare providers should be incentivized to establish specialized geriatric wings and day-care centers in semi-urban and rural areas, backed by state viability gap funding.
7. **Address the Feminisation of Ageing**: Since over 50% of elderly women are widows facing social exclusion, targeted policy must ensure **property rights, survivor pensions, access to healthcare, and legal protections** for elderly women – especially in rural areas where vulnerability is highest.
8. **Rationalisation of subsidies:** The RBI report recommends the ageing States to rationalize their subsidies to afford rising pension costs & youthful States to invest heavily in human capital.

Conclusion: India must transition from viewing elderly people as passive recipients of welfare to recognising them as valuable members of society. A comprehensive, inclusive and rights-based elderly care framework is essential to ensure that ageing in India is accompanied by dignity, security and a better quality of life.

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