

SARAANSH



Monthly Current Affairs

December 2025

✧ **Polity and Governance**

✧ **Nation & States**

✧ **Economic Scenario**

✧ **International Relations**

✧ **Environment & Ecology**

✧ **Science & Technology**

✧ **History, Art & Culture**

✧ **Social Issues**

✧ **Facts for Prelims**



C-171/2,
Block-A,
Sector-15,
Noida



641, Mukherjee
Nagar,
Opp. Signature
View Apartment,
New Delhi



21, Pusa Road,
Karol Bagh
New Delhi



Tashkent Marg,
Civil Lines,
Prayagraj,
Uttar Pradesh



Tonk Road,
Vasundhara
Colony,
Jaipur, Rajasthan



Burlington Arcade Mall,
Burlington Chauraha,
Vidhan Sabha Marg,
Lucknow



12, Main AB
Road, Bhawar
Kuan, Indore,
Madhya Pradesh



Crystal Heights,
Circular
Road, Lalpur
Chowk, Ranchi,
Jharkhand



Shahi Lane,
SP Verma Rd,
South Gandhi
Maidan,
Patna, Bihar

E-mail : care@groupdrishti.in

Phone: +91-87501-87501



CURRENT AFFAIRS

(Coverage from 24th November 2025 to 23rd December 2025)

INDEX

Polity & Governance

1-26

● PMLA, 2002 and Enforcement Directorate	1
● Judiciary Cannot Impose Timelines on President and Governors: SC	2
● Supreme Court to Review Anonymous Political Donations	3
● Integrated Child Development Services (ICDS) Programme	4
● Custodial Violence in India	4
● Passive Euthanasia and the Right to Die with Dignity	5
● Scheme to Promote Manufacturing of Sintered Rare Earth Permanent Magnets	6
● Calls for a National Judicial Policy and NJAC	7
● SC Directions on 'Digital-Arrest' Scams	8
● NEP 2020: India's Innovation Push in School Education	9
● Addressing Systemic Failure in Implementation of SC/ST (PoA) Act, 1989	10
● Police Reforms in India	12
● Curbing Hate Speech in India	12
● PM Surya Ghar: Muft Bijli Yojana	13
● Impeachment and In-House Inquiry for Judges	14
● DHRUVA Framework	15
● Strengthening the National Commission for Minorities	15
● SC Declares Involuntary Narco Test as Unconstitutional	16
● SC Addresses Delays in Providing Relief to Acid Attack Survivors	16
● Hybrid Model Framework for Generative AI	17
● Mercy Petition	18
● SHANTI Act 2025	19
● Year End Review-2025: Department of Biotechnology	20
● Parliamentary Privileges in India	21
● Strengthening Central Information Commission	23
● Viksit Bharat- Guarantee For Rozgar And Ajeevika Mission (Gramin) Act, 2025	24
● Sabka Bima, Sabki Raksha Bill, 2025	25

Nation & States

27-32

● The Threat of Digital Tradecraft in Terrorism	27
● India's Evolving Counterterror Response Since 26/11 Attacks	28
● 23 rd Law Commission and One Nation One Election	29
● Assam's Three-Tier Classification of STs	30
● Indian Maritime Doctrine 2025	31
● Biological Weapons Convention and Bioterrorism	31

Economic Scenario

33-49

● Surge in India's Ultra-Processed Food Market	33
● Nationwide Implementation of India's Four Labour Codes	33
● Strengthening MSMEs for Economic Resilience	35
● Insolvency and Bankruptcy Code (IBC) Process	36
● Navigating the Coal Transition for Energy Security	37
● India's Disaster Risk Financing	38
● Fully Accessible Route (FAR) Bonds	39
● Masala Bonds	40
● Health Security se National Security Cess Bill, 2025	40
● FDTL Norms and India's Aviation Sector	41
● RBI Cuts Repo Rate to Sustain 'Goldilocks Phase'	42
● Export Promotion Mission	43
● National Mission on Edible Oils (NMEO)	44
● Hybrid Mutual Funds	45
● Reviving MGNREGA For Effective Rural Employment	45
● India's Shift to Domestic-led Capital Markets	47
● Deepening the Corporate Bond Market in India	48
● Proposed Roadmap for Deepening the Corporate Bond Market as per NITI Aayog	49
● India's Transport System Under Stress	49

International Relations 50-61

- Seychelles Joins Colombo Security Conclave (CSC) 50
- India, Brazil, and South Africa (IBSA) Forum 50
- UN Secretary-General 51
- Revitalizing India–Bangladesh Relations 52
- 23rd India–Russia Annual Summit 53
- India's Strategic Turn to Free Trade Agreements 55
- India–Jordan Relations 56
- India–Oman Comprehensive Economic Partnership Agreement 58
- BRICS in the Era of Geopolitical Shifts 59
- India– Ethiopia Relations 60

Environment & Ecology 62-70

- Protection of Aravalli Hills 62
- UNFCCC COP 30 in Belém, Brazil 64
- Climate Change Threatens India's Tea Industry 65
- Early Closure of the Antarctic Ozone Hole 66
- Invasive Alien Plant Species Crisis 66
- Global Environment Outlook 2025 67
- Mangroves as Ecological Buffers 68
- Methane Emissions 69
- Inhalable Microplastics 70
- Bharat Stage Emission Norms 70

Science & Technology 71-83

- Indigenous TnpB-Based Gene Editing Technology 71
- India Advances Quantum Technology 71
- India Plans to Allow Private Sector Participation in Nuclear Energy 72
- India Adds 7 New Names to the Martian Map 73
- India's Policy Shift Toward Genome-Edited Crops 74
- World AIDS Day 2025 75
- Alaknanda Galaxy 76
- Bioremediation in India 77
- ANEEL Fuel for Thorium-based Reactors 78
- The New Nuclear Frontier in Space 79
- Thalassemia Burden in India 80
- Google's Quantum Echoes Experiment 81
- National Supercomputing Mission 81
- Year End Review-2025: Department of Atomic Energy 82
- Google's Project Suncatcher 83

History, Art & Culture 84-86

- Mahatma Jyotiba Phule and His Major Social Reforms 84
- Year End Review-2025: Ministry of Culture 84
- Deepavali Inscribed on UNESCO ICH List 85
- Role of Bengal in Indian National Movement 85
- Kakori Train Action 86

Social Issues 87-96

- Supreme Court Guidelines on Child Trafficking 87
- Elimination of Violence against Women 88
- Manual Scavenging 90
- Towards Prohibition of Polygamy 91
- India's Roadmap for Empowering Divyangjans 92
- Poverty in India 93
- PC&PNDT Act in the Digital Age 94
- World Inequality Report 2026 96

Facts for Prelims 97-115

- Reports & Indices 97
- Awards & Honours 97
- Important Days 97
- Defence & Security 99
- Summits & Conferences 102
- Places in News 103
- Portals & Apps 106
- Species in News 107
- Miscellaneous 107

Polity & Governance

PMLA, 2002 and Enforcement Directorate

A Delhi special court has declined to take cognisance of the **Directorate of Enforcement (ED)** prosecution complaint in the alleged Rs 2,000-crore National Herald case, placing the spotlight on the **Prevention of Money Laundering Act (PMLA), 2002**.

Prevention of Money Laundering Act (PMLA), 2002

- **About:** The PMLA which came into force in 2005, is an act to **prevent money-laundering and to provide for confiscation of property** derived from, or involved in, money-laundering and for matters connected therewith or incidental thereto.
- **Enforcement Agency:** The act empowers the **Directorate of Enforcement (ED)** to investigate, attach, confiscate assets, and prosecute offenders.
- **Scope:** Applies to individuals, companies, financial institutions, and intermediaries involved directly or indirectly in money laundering.
- **Key Provisions of PMLA:**
 - **Offences and penalties:** Defines money-laundering offences and prescribes rigorous imprisonment and fines. All the offences under PMLA are cognisable and non-bailable.
 - **Attachment and confiscation:** Empowers authorities to attach and confiscate proceeds of crime through an Adjudicating Authority.
 - **Proceeds of crime:** Covers any property derived or obtained, directly or indirectly, from criminal activity related to scheduled offences, and also includes **equivalent property** when such proceeds are held or taken **outside the country**.
 - **Reporting Obligations:** Mandates banks and financial institutions to maintain records and report suspicious transactions to **Financial Intelligence Unit-India (FIU-IND)**
 - **Institutional framework:** Provides for a Designated Authority and an Appellate Tribunal to ensure investigation oversight and appellate review.
- **Judicial Pronouncements:**
 - **Vijay Madanlal Choudhary v. Union of India (2022):** The Supreme Court upheld the **constitutional validity of the PMLA**, including the ED's powers of arrest, attachment, and investigation. It ruled that the accused has no right to receive a copy of the ECIR (Enforcement Case Information Report).

- **Arvind Kejriwal v. Directorate of Enforcement (2024):** The Supreme Court held that arrest under Section 19 of the PMLA must satisfy a **high threshold of "reason to believe"**, based on material that is legally admissible and not merely on suspicion.

Key Facts About Directorate of Enforcement (ED)

- **About:** The **Directorate of Enforcement (ED)** was established in **1956** with its headquarters in **New Delhi**. It is the key agency responsible for enforcing **economic and financial laws** in India, primarily the **Foreign Exchange Management Act (FEMA), 1999**, the **Prevention of Money Laundering Act (PMLA), 2002** and the **Fugitive Economic Offenders Act, 2018 (FEOA)**.
- **Structure:** Organisationally, the ED is headed by a **Director** (not below the rank of Additional Secretary, to the Government of India).
 - It has a nationwide presence with **10 Zonal Offices** and **11 Sub-Zonal Offices**, ensuring coverage across major regions.
 - The ED functions under the **Department of Revenue** for operational matters. Policy issues related to **FEMA fall under the Department of Economic Affairs**, while policy matters concerning **PMLA are handled by the Department of Revenue**.
- **Functions of the Enforcement Directorate:**
 - Collects, analyses, and disseminates intelligence related to violations of **FEMA and PMLA**.
 - Investigates offences such as **hawala transactions**, foreign exchange racketeering, and non-repatriation of export proceeds.
 - Conducts **search, seizure, arrest, attachment, and prosecution** in money laundering cases under PMLA.
 - Recommends cases for **preventive detention** under **Sponsoring agency for preventive detention under Conservation of Foreign Exchange and Prevention of Smuggling Activities Act, 1974, (COFEPOSA) (1974)**.
 - Facilitates **mutual legal assistance** with foreign countries for attachment, confiscation of proceeds of crime, and extradition-related matters.
 - The ED is empowered to **attach and confiscate properties** of fugitive economic offenders and vest them with the Central Government.
- **Achievements of ED:** In FY 2024–25, the ED issued provisional attachment orders worth Rs 30,036 crore, reflecting a **44% increase in number and a 141% increase in value over 2023–24**.

- As of 2025, the total value of assets under provisional attachment stood at **Rs 15.46 lakh crore**.
- Between 2014 and 2024, ED initiated around 5,000 new PMLA investigations, showcasing a significant increase in enforcement activities.

NOTE: Whenever any offence registered by a local police station generates proceeds of crime exceeding Rs 1 crore, the investigating officer forwards the details to the ED.

- Alternatively, if the offence comes to the notice of the **central agency**, the ED may **call for the First Information Report (FIR) or chargesheet** to examine whether **money laundering** is involved.
- The **local police** primarily investigate the **predicate (original) offence** such as theft, fraud, or cheating. If the illegal money is **simply recovered and not used or transferred**, the case remains limited to the original offence and the **ED does not intervene**.
- The **ED steps in** when there is **suspicion of money laundering**, that is, when the proceeds of crime are **used, transferred, layered, or invested**, for example, in purchasing properties or routing funds through others.
 - The ED focuses on **tracing the flow of illicit money and attaching the assets** of the accused to **recover the proceeds of crime**.

Judiciary Cannot Impose

Timelines on President and Governors: SC

A 5-judge Constitution Bench of the **Supreme Court of India** has delivered its **advisory opinion** in the **16th Presidential Reference** under **Article 143 of the Constitution**.

- The Court ruled that it **cannot impose judicial timelines on the President or Governors for assenting to State Bills**, declaring such timelines to be against the principles of **federalism and the doctrine of separation of powers**.
- The reference stemmed from the Court's ruling in **State of Tamil Nadu vs Governor of Tamil Nadu (April 2025)**, which had introduced timelines for constitutional assent and deem assent for pending bills.

Key Highlights of SC Ruling on 16th Presidential Reference

- **No Judicially-Imposed Timelines:** The Court held that neither a **Governor (under Article 200)** nor the **President (under Article 201)** is subject to **fixed, court-imposed timelines** for granting or withholding assent to bills, as doing so would amount to **judicial overreach** and violate the doctrine of **Separation of Powers**.
 - The Court clarified that Articles 200 and 201 contain **no fixed timelines**, and the phrase **"as soon as possible"** cannot be interpreted as a strict or **enforceable deadline**.
 - However, the SC held that **"prolonged, unexplained, and indefinite inaction"** can be **reviewed by the judiciary**, and in such cases the Court may direct the

Governor to act, but **without imposing a deadline or examining the merits of the decision**.

- **'Deemed Assent' is Unconstitutional:** The Court firmly rejected the idea that a bill automatically becomes law ("**deemed assent**") simply because the Governor or President did not act within some timeframe.

- The Court held that **deemed assent has no constitutional basis** and using **Article 142 to create it is impermissible**, as it would let the judiciary replace the Governor or President and violate separation of powers.

- **No Mandatory SC Advice for President:** SC clarified that the President is **not mandatorily required** to seek the Court's opinion under **Article 143** for every reserved bill, and that decisions under Article 201 can be taken based on the President's own constitutional satisfaction.

Role of the Governor and President after a State Legislature Passes a Bill

■ Governor's Role (Article 200)

- After a State Legislature passes a Bill, it is sent to the **Governor under Article 200**.
- The Governor may:
 - ❖ **Grant Assent:** The Governor may approve the Bill, allowing it to become law.
 - ❖ **Withhold Assent:** The Governor has the authority to refuse assent to the Bill.
 - ❖ **Return the Bill (except a Money Bill) for Reconsideration:** The Governor may send the Bill back to the State Legislature for further review and reconsideration. If the legislature passes the bill again after reconsideration, the Governor is limited to two options: either grant assent or reserve it for the President. At this stage, the Governor cannot withhold assent again.
 - ❖ **Reserve for the President's Consideration:** In certain cases, the Governor can reserve the Bill for the President's approval, especially if the Bill **concerns matters of national importance** or conflicts with central laws.

■ President's Role (Article 201)

- When a bill is reserved by the Governor, It goes to the **President under Article 201**.
- The President may:
 - ❖ **Grant Assent:** The President can approve the Bill, making it law.
 - ❖ **Withhold Assent:** The President may choose to withhold assent to the Bill.
 - ❖ **Return for Reconsideration:** For non-Money Bills, if the President withholds assent, the President can

direct the Governor to send the Bill back to the Legislature for reconsideration.

- ◆ The Legislature is required to act within six months. If the Bill is passed again, it must be resubmitted to the President for final approval.
- ◆ If passed again after reconsideration, the President must take a final decision, with **no constitutional timeline prescribed**.

Examine the constitutional scheme governing the role of the Governor and the President after a State Legislature passes a Bill.

Drishti Mains Question

Supreme Court to Review Anonymous Political Donations

The **Supreme Court** has decided to review a petition challenging the rule that allows political parties to receive **anonymous cash donations below Rs 2000**, which petitioners say creates a **loophole for opaque, untraceable political funding**.

Key Concerns Highlighted in the Petition

- **Total Ban on Cash Donations:** It seeks to end cash donations even up to Rs 2000 allowed under **Section 13A(d) of the Income Tax Act, 1961**, which enables **anonymous contributions**, and demands **full disclosure of donor details**.
- **Violation of Fundamental Rights:** The petition argues that **Section 13A(d)** violates **Article 19(1)(a)** by denying citizens their **right to information**, asserting that voters must know the **sources of political funding** to make informed choices.
- **Directions Sought on Form 24A:** The petition seeks a **mandamus** directing the **Election Commission of India (ECI)** to scrutinise **Form 24A contribution reports** and require political parties to deposit contributions lacking **address or PAN details**.
 - It also urges the ECI to suspend or withdraw party symbols under **Paragraph 16A of the Election Symbol Order, 1968** by issuing notices to defaulting parties.
- **Further Proposed Reforms:** It urges that political parties' accounts be audited by **independent auditors appointed by the ECI**, and calls for stronger mechanisms to ensure **timely submission of contribution and audit reports**.

Rules that Govern Political Donations in India

- **Representation of People Act (RPA), 1951: Section 29B of the RPA, 1951** permits political parties to receive **voluntary contributions** from individuals and companies (excluding government companies and foreign sources).

- **Companies Act, 2013:** Any company—except a **government company** or one that is **less than three years old**—can donate **any amount**, directly or indirectly, to a political party. However, it is capped at a maximum of **7.5% of their average annual net profit over 3 years**.
- **Income Tax Act, 1961:** Indian companies and individuals can claim **tax deductions** on donations made to political parties or electoral trusts under **Sections 80GGB and 80GGC**.
- **Foreign Contributions (Regulations) Act, 2010 (FCRA):** Generally, **foreign donations are prohibited**. However, the definition of a **foreign source** was amended to **exclude Indian companies** with foreign investment (an Indian company with foreign shareholding beyond 50% is not treated as a foreign source). This allows companies (**including foreign subsidiaries**) to donate, provided they **comply with FEMA sectoral caps**.
- **Electoral Trusts Scheme, 2013:** An **Electoral Trust** is set up by companies to collect donations from individuals and firms and distribute them to political parties.
 - It can retain up to **5%** of its funds (for administrative expenses), must distribute **95%** to eligible parties (registered under section 29A of the RPA, 1951), and **cannot accept cash donations**.

Need for Transparency in Political Funding

- **Informed Political Choice:** Citizens have a **fundamental Right to Information** on who funds political parties, implicitly protected under **Article 19(1)(a)**, and affirmed in **Union of India v. Association for Democratic Reforms (2002)** that helps voters make **informed choices**.
 - The Supreme Court in **Association for Democratic Reforms v. Union of India (2024)** struck down the **Electoral Bond Scheme** for violating voters' **Right to Information** under **Article 19(1)(a)**.
- **Supports Institutional Probity:** **Transparent funding** helps dismantle the cycle of **quid pro quo** and strengthens **institutional probity**. By reducing opacity, it curbs routine **policy distortions** in areas such as resource allocation, taxation, and regulation.
- **Safeguard for National Sovereignty:** **Anonymous funding channels** enable **foreign interference**, allowing hostile **state or non-state actors** to influence **foreign policy, defence procurement, or internal security**, threatening India's **strategic autonomy**.
- **Preventing Market Distortions:** Hidden **corporate donations** fuel **crony capitalism**, where political connections override market efficiency.
 - This distorts **resource allocation**, suppresses **innovation**, hurts **honest businesses**, and undermines **sustainable economic growth**.

- **Upholds “Egalitarian Democracy”:** Without transparency, democracy risks becoming a **plutocracy**, where the wealthy buy **political access and influence**, undermining the **egalitarian principles** of the Constitution’s **Preamble**.
- **Meeting Global Standards:** Many countries mandate **transparent political funding**, such as the **United States**, which has required disclosures since **1910**.

Reforms Required for

Transparent Political Funding in India

- **Ban on Anonymous Cash Donations:** Amend Section 13A(d) of the Income Tax Act to eliminate or lower the Rs 2000 threshold; mandate digital contributions for audit trail and voter access.
- **170th Law Commission’s Recommendations:** Remove Section 77 RPA’s Explanation 1 to count all candidate-related expenses toward expenditure limits.
- **Strengthen Enforcement:** Enhance ECI’s powers, appoint independent auditors, and involve RBI/SEBI for stricter corporate donation oversight. Introduce whistleblower protection.
- **Real-Time Transparency:** Require political parties to upload donor details (PAN, address, amount) to an ECI portal, integrated with the Income Tax Department for verification.
- **Systemic Reforms:** Implement partial state funding for campaigns (as per Indrajit Gupta Committee (1998) and Law Commission (1999)), set a national election expenditure limit, and ensure accountability in fund usage.

Discuss the significance of transparency in political funding for strengthening democratic accountability in India.

Drishti Mains Question

Integrated Child Development Services (ICDS) Programme

The ICDS programme, launched 50 years ago as a pilot in Karnataka, is now the world’s largest community-based early childhood development initiative.

ICDS Programme

- **About:** Launched on 2nd October 1975 by the Ministry of Women and Child Development, ICDS focuses on improving nutrition, health, and early learning for children (0-6 years) and pregnant/lactating mothers. It is now part of ‘Mission Saksham Anganwadi & Poshan 2.0.’
- **Objectives:**
 - Improve health and nutrition of children.
 - Support psychological, physical, and social development.
 - Reduce child mortality, malnutrition, and school dropouts.
 - Strengthen coordination for child development.

- **Significance:** Tackles malnutrition and improves health outcomes.

- Supports pregnant and lactating mothers, reducing mortality.
- Integrates nutrition, health, and education services, strengthening human capital and reducing poverty.

Mission Saksham Anganwadi & Poshan 2.0

- **About:** Launched in FY 2021-22, it integrates key child and maternal welfare programs like ICDS, Poshan Abhiyan, and the Scheme for Adolescent Girls, aiming to improve nutrition and early childhood care from 2021–26.
- **Major Verticals:**
 - **Supplementary Nutrition:** For children (6 months–6 years), pregnant women, lactating mothers, and adolescent girls (14–18) in Aspirational Districts and the Northeast.
 - **Early Childhood Care & Education (ECCE):** Focus on children (3–6 years) and early stimulation for ages 0–3.
 - **Anganwadi Infrastructure Upgradation:** Modern Saksham Anganwadi centres.
 - **Poshan Abhiyaan:** National mission for a malnutrition-free India.
- **Special Focus Areas:**
 - Maternal nutrition, Infant and Young Child Feeding (IYCF), SAM and MAM treatment with AYUSH wellness.
 - Real-time nutrition monitoring through the Poshan Tracker.
 - Nutrition focus for adolescent girls (14–18) through the Scheme for Adolescent Girls.

Custodial Violence in India

The SC revisited custodial torture due to poor compliance with its 2020 order (**Paramvir Singh Saini vs. Baljit Singh**) for CCTV cameras in police stations and investigative offices (NIA, CBI, ED, NCB, DRI, etc). The concern was intensified by reports of 11 custodial deaths in eight months in Rajasthan.

Custodial Violence

- **Definition:** Unlawful physical or psychological harm inflicted on a person in police or judicial custody, including torture, assault, harassment, and even deaths.
- **Custody Types (BNSS, 2023):** Police custody (up to 15 days for interrogation) and judicial custody (detention in prison).
- **Recent Statistics (2023-2024):** NHRC reported 2,346 deaths in judicial custody and 160 in police custody.

Regulation of Custodial Violence

- **Constitutional Provisions:**
 - **Article 21:** Right to life and liberty, including freedom from torture.
 - **Article 20(1):** Protection from retrospective or excessive punishment.

- **Article 20(3):** Protection from self-incrimination and coerced confessions.
- **Legal Provisions:**
 - **Bharatiya Nyaya Sanhita (2023):** Penalizes causing harm to extract confessions.
 - **BNSS (2023):** Requires documented procedures for arrests and detentions.
 - **Bharatiya Sakshya Adhiniyam (2023):** Invalidates coerced confessions.
- **International Safeguards:**
 - **UN Charter (1945):** Mandates prisoner dignity and rights under the ICCPR (India ratified in 1979).
 - **Universal Declaration of Human Rights (1948):** Protects from torture and cruel treatment.
- **Law Commission (273rd Report, 2017):** Recommended India ratify UNCAT and create a law criminalizing torture.
- **Judicial Pronouncements:**
 - **DK Basu v. State of West Bengal (1997):** SC set guidelines for arrest and detention, prohibited third-degree methods, State's accountable for custodial violence.
 - **Nambi Narayanan v. Siby Mathews (2018):** SC awarded compensation for wrongful arrest and harassment.

Challenges in Curbing Custodial Violence

- **Weak Legal Framework:** Lack of clear legal definition of torture, colonial-era laws still influence policing, and the Prevention of Torture Bill never became law.
- **Poor Accountability:** BNSS requires government sanction for prosecution, delaying investigations, and resulting in low conviction rates.
- **Colonial Policing Culture:** Force and third-degree methods are ingrained in police subculture, with societal approval and political interference reinforcing punitive practices.
- **Lack of Professional Capacity & Corruption:** Inadequate training and resources lead to reliance on physical force, with corruption allowing abuse for personal gain.
- **Delayed Justice & Weak Oversight:** Slow judicial processes, delayed reports, and ineffective oversight institutions (NHRC) allow custodial violence to go unchecked, with weak compliance to reforms like CCTV installation.

Measures to Curb Custodial Violence

- **Define Custodial Violence & Ratify CAT:** Clearly define custodial violence in law and ratify the UNCAT to criminalize torture and strengthen accountability.
- **Enhance Transparency Through Technology:** Expand CCTV monitoring, digital arrest records, and real-time reporting systems (e.g., CCTNS) to reduce abuse and improve evidence.

- **Improve Professional Capacity:** Provide training in non-coercive interrogation, forensic tools, human rights, and ethical policing.
- **Strengthen Human Rights Institutions:** Empower NHRC with binding powers, mandate timely reporting of custodial deaths with penalties for non-compliance.
- **Increase Public Awareness:** Raise awareness on arrest rights through civil society, media, and community policing to reduce tolerance for custodial violence.

Colonial policing structures and a punitive police sub-culture are the primary causes of custodial violence in India. Discuss.

Drishti Mains Question

Passive Euthanasia and the Right to Die with Dignity

The **Supreme Court** has instructed a hospital to constitute a medical board to assess a petition seeking **passive euthanasia** for a 32-year-old individual who has remained in a “**persistent vegetative state**” for the past 12 years.

- **A Persistent Vegetative State (PVS)** is a medical condition in which a person **loses higher brain functions** (like awareness, thinking, and purposeful movement) but **retains basic bodily functions** such as breathing, circulation, sleep–wake cycles, and reflexes.

Euthanasia

- **Euthanasia:** Ending life to relieve incurable suffering.
 - **Active:** Direct act to cause death (illegal in India).
 - **Passive:** Withdrawing/withholding life support (permitted under SC guidelines).
- **Legal Position in India: Active euthanasia barred under BNS 2023 (Sec. 100–101).**
 - **Passive euthanasia** allowed under **SC rulings**, tied to **Article 21 (dignity)**.
 - **Law Commission 241st Report (2012):** Patients can refuse life support; doctors not liable.
- **Related Judicial Pronouncements:**
 - **Aruna Shanbaug v. Union of India (2011):** The SC allowed **withholding or withdrawing** life-sustaining treatment, even for patients **who cannot make decisions** but only under strict **legal and medical safeguards**.
 - **Common Cause v. Union of India (2018):** The SC noted that **active euthanasia** (deliberate action to cause death) and **passive euthanasia** (withdrawing life-saving treatment) are **distinct**, stating that **passive euthanasia** may be permitted in **rare cases**.
 - ❖ The **Court** established that a **terminally ill patient** has a **fundamental right to die with dignity**, which includes the right to **refuse medical treatment** through **advance medical directives**, known as **living wills**.

- **Supreme Court Directives on Euthanasia:**
 - **Original 2018 Directives:** The **2018 guidelines** required a **two-stage medical review**:
 - ❖ **Primary Medical Board:** Constituted by the hospital, including the **Head of the treating department** and **at least 3 specialists** from **general medicine, cardiology, neurology, nephrology, psychiatry, or oncology**, each with **20 years of experience**.
 - ❖ **Secondary Medical Board:** Appointed by the **district collector**, including the **Chief District Medical Officer** as Chairman and **three expert doctors** from the same fields.
 - **2023 Modifications:** The **Supreme Court** retained both boards but reduced the **experience requirement** from 20 years to five and set a **48-hour time limit** for opinions.
 - ❖ The **secondary board** now excludes the **Chief District Medical Officer**, allows a nominee by the **District Medical Officer**, and both boards have **three members** each.
- **Global Position on Euthanasia:**
 - **Both euthanasia & assisted suicide allowed:** Netherlands, Belgium, Luxembourg, Australia (conditions apply).
 - **Assisted suicide allowed, euthanasia banned:** Switzerland.

Arguments FOR Euthanasia (Pro-Choice)	Arguments AGAINST Euthanasia (Pro-Life)
■ Supremacy of Autonomy (Libertarianism): Drawing from John Stuart Mill's Liberalism , proponents argue that an individual is sovereign over their own body and mind. Therefore, a competent adult has the libertarian right to self-determination, including the choice to end their life when it becomes unbearable, without state interference.	■ The Sanctity of Life (Deontology): Immanuel Kant's Deontological ethics asserts that human life is an "end in itself" and never a means to an end. Therefore, intentionally destroying life—even to escape pain—treats humanity merely as a tool, violating the Natural Law duty to preserve life regardless of its quality .
■ Minimizing Suffering (Utilitarianism): Based on Jeremy Bentham's Act Utilitarianism , the moral worth of an action is determined by its ability to maximize happiness and minimize pain. Since prolonged agony serves no purpose, euthanasia is viewed as a compassionate, rational choice that reduces the net suffering in the world.	■ Value of Endurance (Virtue Ethics): Virtue Ethicists argue that suffering, while painful, is a part of the human condition that calls for the virtues of courage and endurance. Gandhian ethics (Ahimsa) generally rejects active killing, suggesting that spiritual strength is found in facing life's natural end rather than prematurely escaping it.
■ Beneficence Over Biology: The medical principle of Beneficence (acting in the patient's best interest) implies that a doctor's duty is to relieve suffering. When a cure is impossible and pain is unmanageable, aiding a peaceful death is seen as fulfilling the humanitarian obligation of the medical profession.	■ "Do No Harm" (Non-Maleficence): The core of medical ethics, rooted in the Hippocratic Oath, is Primum non nocere (First, do no harm) . Opponents argue that a doctor is a healer, not an executioner; engaging in euthanasia corrupts the telos (purpose) of medicine and destroys the doctor-patient trust.
Rational Resource Management (Pragmatism): From a pragmatic utilitarian standpoint, maintaining life support for PVS (Persistent Vegetative State) patients consumes scarce medical resources. Redirecting these funds to treatable patients upholds the principle of Distributive Justice, ensuring the greatest good for the greatest number.	The "Slippery Slope" (Rule Utilitarianism): Rule Utilitarians warn that even if a specific case of euthanasia seems merciful, legalizing it creates a dangerous rule. It risks a "Slippery Slope" where society eventually starts justifying the involuntary killing of the elderly, disabled, or poor to save costs, leading to moral decay.

Differentiate between active and passive euthanasia. What are the procedural safeguards mandated by the Supreme Court for the withdrawal of life support?

Drishti Mains Question

Scheme to Promote Manufacturing of Sintered Rare Earth Permanent Magnets

The Union has approved the **Scheme to Promote Manufacturing of Sintered Rare Earth Permanent Magnets** to build domestic **REPM** capacity.

Scheme for Manufacturing Sintered REPMs

- **Objective:** Develop **6,000 MTPA** integrated **REPM** capacity: oxides → metals → alloys → sintered magnets.
- **Incentives:** ₹**6,450 crore** (sales-linked, 5 yrs) + ₹**750 crore** capital subsidy.

- **Beneficiaries:** **5 firms**, up to **1,200 MTPA** each, via **global bidding**.
- **Duration:** **7 years** (2 yrs setup + 5 yrs incentive disbursal).
- **Need:** India imported **53,000 MT** **REPMs** in **2024–25**.
 - **China's export curbs** caused **supply delays, cost hikes** for EV/auto sector.
 - Supports **EVs, energy security, Net Zero 2070, Viksit Bharat 2047**.

REPMs

- Magnets made from **Nd, Sm, Pr, Dy, Ce**.

- **High-performance:** compact, high-energy, durable.
- **Sintered REPMs** (e.g., **NdFeB, SmCo**) are the **strongest commercial magnets**.
- **Use in EVs:**
 - Critical for **traction motors, steering, braking**.
 - Boost **efficiency, power output, and range**.

Calls for a National Judicial Policy and NJAC

Chief Justice of India Surya Kant called for a **national judicial policy** to reduce divergence across courts, and also stated that the **Supreme Court** would consider a plea seeking revival of the **National Judicial Appointments Commission (NJAC)**, which challenges the **Collegium system**.

Need for a National Judicial Policy

- **Resolve Divergent Judgments:** Different High Courts and even SC benches often deliver conflicting rulings on key issues (bail, reservations), causing legal uncertainty and encouraging forum shopping (choosing a favourable court to get a more favourable outcome).
 - A unified policy **would promote standards, better use of precedent, and consistent constitutional interpretation** would enhance clarity and public trust.
- **Bridge Access-to-Justice Gaps:** Massive pendency (over 5 crore cases), long delays, high litigation costs, distance barriers, and language **constraints hinder timely, accessible, and affordable justice**, especially for marginalised groups. A National Judicial Policy can **reduce barriers created by cost, distance, delays, and linguistic hurdles** by promoting uniform standards.
- **Address Structural Gaps:** The **India Justice Report 2025** shows that about **33% of High Court judges' posts** remain vacant, leaving India with **just one High Court judge for every 18.7 lakh people**, further burdening an already overstretched judiciary.
 - District courts face overcrowded courtrooms, inadequate IT systems, lack of fire safety, insufficient furniture, and poor facilities for staff.
 - A national judicial policy could guide systematic **capacity-building across all levels of the judiciary**.
- **Standardise Technology & Case Management:** Adoption of e-filing, virtual hearings, and digital case management varies widely across courts, leading to unequal access and inconsistent user experience, a common policy ensures uniform, citizen-friendly experience across jurisdictions.
- **Promote Judicial Harmony:** A unified framework helps all courts uphold common constitutional values while preserving their independence, creating coherence across the justice system.

Concerns with a National Judicial Policy

- **One-Size-Fits-All Problem:** States differ widely in caseload, infrastructure, digital readiness, and staffing; a single national template may not suit diverse judicial realities.
- **Risk of Executive Influence:** If the policy process involves the executive, it may raise concerns about separation of powers and judicial independence.
- **Implementation Capacity Gaps:** Many courts lack staff, funds, digital tools, and infrastructure—making uniform standards difficult to implement nationwide.
- **Resistance from High Courts:** High Courts under **Articles 214–226**, control their own procedures, rosters, and administrative practices. Uniformity may face institutional pushback.
- **Data Gaps & Poor Judicial Statistics:** Many states lack real-time case-flow, pendency and performance data, hindering evidence-based policymaking.

National Judicial Appointments Commission (NJAC)

- **About:**
 - **NJAC** was created through the **99th Constitutional Amendment Act, 2014** to replace the **Collegium system** for appointing judges to the **Supreme Court and High Courts**.
 - Under the NJAC system, the President was to appoint judges “recommended” by a six-member commission comprising the **CJI as Chairperson, the two senior-most SC judges, the Union Law and Justice Minister, and two eminent persons**.
 - ❖ These eminent persons were to be selected by a panel comprising the **Prime Minister, the Chief Justice of India, and the Leader of Opposition in the Lok Sabha**.
- **Struck Down of NJAC:**
 - In **2015 (Fourth Judges Case)**, the SC struck down the **99th Amendment and the NJAC Act** as unconstitutional, holding that giving the **executive and non-judicial members veto power** undermined judicial independence, a basic structure feature.
 - The vague criteria for selecting “eminent persons” risked excessive executive influence, while the possibility of reciprocal obligations threatened impartiality, since the government is the largest litigant.
 - The SC therefore **restored the Collegium system**, affirming that judicial primacy in appointments is essential to the basic structure.

Aspect	Collegium System	NJAC
Primacy	The Judiciary has complete primacy in appointments.	Judicial primacy diluted with executive & eminent persons had equal say.
Transparency	The Collegium operates without published criteria or records, making appointments opaque and raising concerns that judges appointing judges weakens transparency and checks and balances.	NJAC introduces diverse voices and more transparent processes.
Veto Power	No veto and Decisions based on consensus & reiteration rule.	Any 2 members could veto a candidate, including non-judicial members.
Risk Factors	Allegations of nepotism, lack of accountability & secrecy	Risk of political interference; threat to judicial independence
Judicial Independence	Upheld as part of the basic structure (Kesavananda Bharati case (1973))	SC held NJAC compromised independence (Supreme Court Advocates-on-Record Association vs. Union of India (2015))
Efficiency	Delays due to government clearance & informal processes	A structured commission could have ensured timelines

Constitutional Basis for Appointment of Judges

- **Article 124:** SC judges appointed by the President in consultation with the Chief Justice of India (CJI) and other judges.
- **Article 217:** HC judges appointed by the President in consultation with CJI, Governor, and HC Chief Justice.
- **Ad hoc Judges (Article 127):** If quorum of SC judges is not available, CJI (with President's consent) can request a HC judge to sit in SC.
- **Acting CJI (Article 126):** In case of vacancy/absence, senior most available SC judge appointed by the President.
- **Retired Judges (Article 128):** With President's consent, CJI may request a retired SC judge to sit and act as SC judge for a specified period.
- **Appointment Procedures:**
 - **CJI:** Outgoing CJI recommends a successor, usually by seniority.
 - **SC Judges:** CJI initiates the recommendation, consulting **Collegium members** and the senior-most judge from the candidate's High Court. Their opinions are recorded in writing.
 - ❖ The Collegium's recommendation is sent to the Law Minister, then the Prime Minister, who advises the President for the appointment.
 - **HC Chief Justices/Judges:** The Chief Justice of a High Court is appointed by the President in consultation with the CJI and the Governor of the State. The procedure for appointing puisne Judges is the same except that the Chief Justice of the High Court concerned is also consulted.

Measures to Strengthen the Judiciary in India

- **Judicial Policy with Federal Flexibility:** National standards + state-specific adaptation.
- **Case Management:** Standard rules for filing, listing, adjournments, disposal.
- **Timely Appointments:** Transparent, criteria-based, time-bound judge appointments.
- **Expand Access to Justice:** Expand regional courts, legal aid, local language services, ADR (esp. mediation).

Examine the arguments for and against reviving the National Judicial Appointments Commission (NJAC).

Drishti Mains Question

SC Directions on 'Digital-Arrest' Scams

The **Supreme Court of India** has given the **Central Bureau of Investigation (CBI)** a free hand to investigate 'digital arrest' scams nationwide, after the Union government reported that fraudsters had siphoned off about Rs 3,000 crore, largely from senior citizens.

Supreme Court Directions on Digital Arrest Scams

- **Fast-Track Digital Arrest Cases:** CBI authorised to investigate digital arrest first, followed by fraudulent investment and part-time job scams.
 - SC directed all concerned states to **grant consent under Delhi Special Police Establishment (DSPE) Act, 1946** to enable CBI jurisdiction. SC asked the CBI to **work with INTERPOL** to identify offshore cybercrime networks.
- **Financial Tracking:** SC issued notice to the **Reserve Bank of India (RBI)** to explore use of **Machine Learning and Artificial Intelligence tools** for detecting money "layering" across multiple bank accounts.
- **Intermediary Compliance:** Ordered digital platforms to **cooperate under Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules of 2021**, and provide necessary data to investigators.
- **Institutional Strengthening:** Directed states/UTs to operationalise **regional cybercrime coordination centres** and integrate them with **Indian Cybercrime Coordination Centre (I4C)**.

- **Telecom Accountability:** Asked the Telecom Department to propose measures for **strict SIM issuance norms and better Know Your Customer (KYC) verification**.

Digital Arrest

- **About:** Digital arrest is a **cyber scam** in which fraudsters **impersonate law-enforcement agencies** to extort money by creating fear and urgency.

SC Directions on Digital Arrest Scams	Challenges in Curtailing Digital-Arrest Scams
<ul style="list-style-type: none"> ■ Fast-Track Cases: CBI to probe digital arrest scams first, then fraudulent investment & part-time job scams. States to give consent under Delhi Special Police Establishment (DSPE) Act, 1946 for CBI jurisdiction. CBI to coordinate with INTERPOL to trace offshore networks. ■ Financial Tracking: RBI to explore AI/ML tools to detect money layering across bank accounts. ■ Intermediary Compliance: Digital platforms to comply with IT Rules, 2021 and share data with investigators. ■ Institutional Strengthening: States/UTs to activate regional cybercrime coordination centres and link with I4C. ■ Telecom Accountability: DoT to propose stricter SIM issuance and KYC verification norms. 	<ul style="list-style-type: none"> ■ Advanced Digital Tradecraft: Use of spoofed numbers, deepfakes, fake documents, encrypted apps. ■ Social Engineering: Exploits fear, urgency, impersonates CBI/ED, targets senior citizens, low-awareness users. ■ Weak Cybersecurity: Poor passwords, outdated software, unsafe device use. ■ Digital Payments Rise: Fraud via UPI, QR codes, SIM swaps, fake alerts. ■ Dark Web-Driven Crime Networks: Access to stolen data, malware kits, ransomware-as-a-service on the dark web. ■ Legal & Enforcement Gaps: Slow probes, weak cyber police, cross-border jurisdiction issues.

What is Digital Arrest? Explain how it works and why it is rising in India.

Drishti Mains Question

NEP 2020: India's Innovation Push in School Education

India's education system is making headlines as it undergoes a **profound transformation** under the **National Education Policy 2020 (NEP 2020)**. The government's initiatives are moving away from rote learning to **inquiry-based, experiential education**, fostering creativity, critical thinking, and innovation among students.

Role of NEP 2020 in Transforming the School Education System in India

- **Multidisciplinary Learning:** Flexible subject choices (e.g., Physics + Music); **vocational training from Grade 6**; integration of **art, tech, and skills**.
- **Assessment Reforms:** Focus on **core competencies** via **360° Holistic Progress Card** (cognitive, social, emotional tracking).
- **Digital Integration:**
 - Platforms like **PM e-VIDYA, DIKSHA** serve **25+ crore students** with virtual labs and training.
- **Inclusive Education:**
 - **Gender Inclusion Fund, Special Education Zones**, assistive tech, and inclusive resources for CwDs.

Key Targets	
Key Area	Target / Objective
Universal School Enrollment	Achieve 100% Gross Enrollment Ratio (GER) in school education (pre-school to secondary) by 2030.
Out-of-School Children	Bring 2 crore out-of-school children back into the mainstream education system.
Higher Education Access	Raise GER in higher education to 50% (from ~27%) by adding 3.5 crore new seats by 2035 .
Teacher Qualification	Make a 4-year integrated B.Ed. degree the minimum qualification for all school teachers by 2030.
Institutional Autonomy	Phase out the college affiliation system and grant graded autonomy to all colleges within 15 years.

National Education Policy (NEP) 2020

- **About:** NEP 2020 seeks to tackle challenges related to **quality, equity, access, and affordability** across all educational levels.
 - It **replaces** the 34-year-old **NEP of 1986** and is founded on the recommendations of the **Dr. K. Kasturirangan Committee (2019)**.

- **NEP 2020 Structure:** Introduces a **5+3+3+4 structure**, with foundational years (ages 3–8) being 100% play-based.
- **Performance Evaluation:** Every **textbook, question paper, and classroom activity** must now assess **application and innovation** rather than simple recall.
 - **Board exams**, overseen by the **National Assessment Centre (PARAKH)**, can be **attempted twice a year**.

Key Initiatives:

- **PM SHRI scheme:** It aims to develop 14,500 ideal schools to serve as role models.
- **NIPUN Bharat Mission:** It was launched to ensure foundational literacy and numeracy by Grade 2.
- **PARAKH:** PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development) have been introduced to monitor learning outcomes.
- **NISHTHA:** NISHTHA (National Initiative for School Heads' and Teachers' Holistic Advancement) teacher training program launched to equip educators with skills aligned with NEP's transformative goals.

India's Key Initiatives for Transforming the Education System

- **Atal Innovation Mission (AIM):** AIM is a flagship initiative launched in 2016 by **NITI Aayog** to promote **innovation and entrepreneurship** across schools, colleges, and startups. Key components include:
 - **Atal Tinkering Labs (ATLs):** Innovation labs in schools providing tools like **3D printers, robotics kits, and sensors**. Over **1.1 crore** students engaged.
 - **Atal Incubation Centres (AICs):** Support startups with **mentorship, seed funding, and infrastructure**, incubating **3,500+** startups.
 - **Atal Community Innovation Centres (ACICs):** Bring technology-driven innovation to **underserved regions**.
 - **Atal New India Challenges (ANIC):** Fund and mentor **technology-based solutions** addressing national priorities
- **SICs and SIATP:** School Innovation Councils (SICs) have been established in schools to foster **creativity, design thinking, and entrepreneurship**. Activities include leadership talks, workshops, field visits, and Demo Days.
 - **School Innovation Ambassador Training Program (SIATP)** trains teachers in **design thinking, IPR, entrepreneurship, and project mentoring**.
 - ❖ Over **72 hours of intensive training**, enabling teachers to mentor students and implement **innovation-based pedagogy**.
- **INSPIRE Awards – MANAK:** Encourages students to **propose science and technology solutions** addressing societal problems.

- Top innovations receive **mentorship, prototypes, and national awards**, fostering early-stage **entrepreneurship and problem-solving skills**.

- **School Innovation Marathon:** Students solve real-world problems aligned with **Viksit Bharat 2047**. Includes workshops on **design thinking, robotics, and IPR**.
- **Viksit Bharat Buildathon 2025:** Nationwide hackathon for students of **classes 6–12** on themes like **Vocal for Local, Atmanirbhar Bharat, and Swadeshi**.
 - Culminates with **over 1,000 winners** receiving awards from a **Rs 1 crore prize pool**.

Role of Innovation in Education Policy in Transforming School Education in India

- **Critical Thinking:** Boosted via **ATLs, SICs, INSPIRE–MANAK** through **STEM & design thinking**.
- **Entrepreneurship:** Enabled via **ATL Student Innovator Program (SIP), Atal Incubation Centres (AICs), and Atal New India Challenges (ANIC)**, from idea to startup.
- **Scaling Innovations:** Hackathons & Buildathons offer national platforms, funding, mentoring.
- **National Alignment:** Supports **Atmanirbhar Bharat, Viksit Bharat 2047**, and global innovation goals.

The National Education Policy (NEP) 2020 aims to transform India's education system from a content-centric to a competency-based model. Critically examine the key initiatives driving this pedagogical shift and their potential impact on fostering an innovation ecosystem.

Drishti Mains Question

Addressing Systemic Failure in Implementation of SC/ST (PoA) Act, 1989

A series of reports from Tamil Nadu has exposed **serious delays**, systemic failures, and **persistent caste-based pressures** in cases filed under the **Scheduled Castes and Scheduled Tribes (Prevention of Atrocities (PoA) Act, 1989**.

- The **Act** is being rendered **toothless**, leaving **victims** in a perpetual state of **fear and injustice**, undermining **social justice**.

Scheduled Castes and Scheduled Tribes (PoA) Act, 1989

- **About:** It is a **comprehensive Indian law** enacted to **prevent, punish, and redress crimes and discrimination** specifically targeted against **members of the Scheduled Castes (SC) and Scheduled Tribes (ST)**.
- **Key Provisions:**
 - **Define Atrocities:** The **Act** defines various **atrocities**, including **forced consumption**, sexual exploitation, land grabbing, **bonded labour**, **public humiliation**, and electoral intimidation.

- ❖ It prescribes **punishments** of 6 months to 5 years imprisonment with a **fine**, and **enhanced penalties** (up to **life imprisonment** or **death**) for severe crimes.
- **Speedy Justice**: Mandates **Special Courts** in each district for **speedy trials** and the appointment of **Special Public Prosecutors** to handle cases effectively.
- **Proactive and Preventive Measures**: Allows authorities to **extern (remove) individuals** likely to commit an **atrocities** and empowers **magistrates** and **police** to declare areas **prone to atrocities** and take **preventive action** for SC/ST safety.
- **Stringent Procedural Safeguards**: It bars **anticipatory bail**, presumes **abetment** if financial aid is given to the accused, and allows the **Special Court** to **attach or forfeit property** used in the offence.
- **Accountability of Public Servants**: **Section 4** punishes **public servants** (non-SC/ST) who **wilfully neglect duties** under the Act with **imprisonment** of at least **one year**, extending up to the **punishment** for the offence committed.
- **Victim & Witness Focus**: The Act requires **Union and State Governments** to ensure **implementation**, providing **victim legal aid**, **witness expenses**, and **economic rehabilitation**.
- **Parliamentary Oversight**: Every year, the **Union Government** must submit a **report to Parliament** on the measures taken by itself and the **State Governments** to implement the Act effectively.

Systemic Failures in Effective

Implementation of the SC/ST (PoA) Act, 1989

- **Procedural Neglect**: Mandatory provisions are routinely **flouted**. **FIRs** are not registered immediately, and **chargesheets** are rarely filed within the stipulated **60 days**.
- **Misplaced Priorities**: Authorities frequently bypass the **mandated legal procedure** by opting for informal **peace meetings** and **extra-legal settlements**, a practice that not only lacks **legal sanction** but also reveals a **systemic and ingrained caste bias**.
- **Weak Rehabilitation**: While **monetary relief** is sometimes provided, the comprehensive **socio-economic rehabilitation** mandated by law—including **land**, **employment**, and **educational support**—is delayed or never delivered.
- **Lack of Accountability**: **Section 4** of the Act, which punishes **public servants** for **wilful neglect of duties**, has hardly ever been invoked, creating a culture of **impunity** among officials.
- **Intimidation with Impunity**: Accused often remain free, **asserting dominance over** the same locality, creating an environment of fear that pressures victims and witnesses to turn hostile or withdraw complaints.

Impact of Ineffective Implementation of the SC/ST (PoA) Act, 1989

- **Erosion of Deterrence**: Low **conviction rates**, combined with the **premature release** of convicted perpetrators—such as in the **Melavalavu massacre (1997, 6 SC men killed)** where 16 convicts were freed for **good conduct**—embolden offenders and weaken **deterrence**.
- **Reinforcement of Caste Terror**: Atrocities like the **Melavalavu massacre (1997)** and the **Sennagarampatti double murder case (1992)** aimed to **terrorize entire communities** into silence and submission. **Delayed justice** serves this goal by perpetuating **fear** and **impunity**.
- **Psychological Warfare**: The **process** itself becomes a **punishment**, with **victims** fighting not just for **justice** but against constant **threats** and **bureaucratic indifference**, breaking their will to pursue **legal recourse**.
- **Undermining of Constitutional Mandates**: The failure of the **Act** to provide **protection** renders the constitutional abolition of **untouchability (Article 17)** and the promise of **social justice** hollow and ineffective.
- **Breakdown of Social Harmony**: Unresolved crimes and **biased responses** intensify **inter-caste tensions**, damaging community relationships and **social cohesion**.

Steps to Ensure the Effective

Implementation of the SC/ST (PoA) Act, 1989

- **Robust Monitoring Mechanism**: A **high-level special committee** must actively monitor cases from **FIR** to **rehabilitation**, replacing the **defunct** state and district-level committees.
- **Ensure Swift Trials**: The **government** must establish fully functional **Exclusive Special Courts** with dedicated **judges** and **prosecutors**, eliminating **vacancies** and **additional charges** that cause **delays**.
- **Enforce Accountability**: Strictly implement **Section 4** to penalize **investigating officers**, **prosecutors**, or **magistrates** who neglect their duties under the Act.
- **Provide Immediate Protection**: Instil **confidence** in **victims** and **witnesses** through **credible** and **visible** protection measures.
- **Grassroots Social Reformation**: Cultivating **social consciousness** and **fraternity** through **education** like **Manual for Social Democracy** is essential for **long-term change** to complement **legal measures**.

The Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989 is often called a “toothless law.” Critically analyze the systemic and implementation challenges that render this powerful legislation ineffective on the ground.

Drishti Mains Question

Police Reforms in India

At the 60th All India Conference of DGPs/IGPs in Raipur on the theme 'Viksit Bharat: Security Dimensions', the PM stressed the urgent need to improve public perception of the police by enhancing their professionalism, sensitivity & responsiveness.

Challenges Facing Police Forces in India	Reforms to Improve the Effectiveness of Policing
<ul style="list-style-type: none"> ■ Colonial Legacy: Operates under Police Act of 1861; leads to excessive use of force. Status of Policing in India Report 2025– 30% support custodial torture even for minor offences. ■ Public Perception & Trust Deficit: Marginalized groups fear police due to discrimination & brutality. Weakens community intelligence; outreach models like Janamaithri (Kerala), Mohalla Committees (Maharashtra) are rare. ■ Excessive Workload: Police-population ratio– 154.84 per 100,000 vs UN norm of 222. ~24% officers work over 16 hrs, 44% over 12 hrs, average: 14 hrs/day. Handle multiple duties without adequate rest/compensation. ■ Poor Infrastructure & Technology: Lack of training in investigation, forensics, cybercrime. Forensic scientists– 0.33 per 100,000 vs 20–50 globally. ■ Political Interference: Transfers/suspensions/promotions controlled by political executive. 2019 study– 72% officers faced political pressure in high-profile cases. 	<ul style="list-style-type: none"> ■ Implement SC's 7 Directives (2006): Create State Security Commissions (SSC) with majority non-political members. Establish Police Complaints Authorities (PCA) at state/district levels with statutory powers. ■ Strengthen Internal Accountability: Strengthen Police Establishment Boards. Use performance audits based on public satisfaction, crime prevention, investigation quality (not just crime rates). ■ Functional Specialization: Separate Investigation wing from Law & Order. Upgrade cybercrime units, forensic labs; implement NATGRID for agency data integration. ■ Institutionalise Community Policing: Promote structured police-public partnerships. Adopt Police-as-Service model, Citizens' Charters, and social media-based grievance redressal. ■ Addressing New-Age Challenges (Padmanabhaiah Committee): Create specialized units for financial fraud, cyberterrorism, organized crime, narcotics. Enable inter-agency data-sharing and joint operation protocols.

Discuss the impact of the colonial Police Act of 1861 on contemporary policing in India. What key judicial directives aim to address this legacy?

Drishhti Mains Question

Curbing Hate Speech in India

Karnataka has become the **first Indian state** to introduce a **dedicated legislation** to curb hate speech and hate crimes — the **Karnataka Hate Speech and Hate Crimes (Prevention) Bill, 2025**.

- The **Bill** aims to plug a **legislative gap** in **Indian criminal law** where "**hate speech**" remains **undefined**, despite its frequent invocation in **political** and **social discourse**.

Key Provisions of Karnataka Hate Speech and Hate Crimes (Prevention) Bill, 2025
<ul style="list-style-type: none"> ■ Definition of hate speech: <ul style="list-style-type: none"> ● The Bill defines hate speech as any expression causing injury or disharmony against a person or group based on religion, race, caste, gender, sexual orientation, place of birth, or disability. ■ Collective liability: The Bill introduces organisational accountability, where persons in positions of responsibility can be held guilty if hate speech is linked to their organisation. ■ Internet regulation: The Bill empowers the state government to block or remove hateful content online, addressing the digital propagation of hate speech.

Hate Speech

- **About:** According to the **267th Law Commission Report (2017)**, hate speech means words or actions meant to **stir hatred** against groups based on **race, ethnicity, gender, religion, sexual orientation**, etc. Thus, it includes **spoken or written words, signs, or visuals** intended to create fear, provoke violence, or incite hatred.
- **Constitutional Framework:** **Article 19(1)(a)** ensures **free speech**, while **Article 19(2)** permits **reasonable limits** to protect sovereignty, security, **public order**, morality, dignity, foreign relations, and to prevent **defamation, contempt of court, or incitement of offences**.
- **Legal Framework:**
 - **Bharatiya Nyaya Sanhita (BNS), 2023: Section 196 of BNS** (formerly section 153A of Indian Penal Code (IPC), 1860) penalises promoting enmity between groups based on religion, race, language, etc.
 - ❖ **Section 299** (formerly IPC 295A) punishes deliberate acts intended to outrage religious feelings.
 - **Information Technology Act, 2000: Section 66A** of this act was used for online hate speech, but was struck down in the **Shreya Singhal Case, 2015** for vagueness.

- **Representation of People's Act (RPA), 1951:** Section 8 of the RPA, 1951 bars those **convicted** of promoting **group enmity** or acts **harmful to harmony** based on religion, race, birthplace, residence, or language.
- **Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989:** It punishes anyone who **intentionally insults or humiliates** a member of a Scheduled Caste or Scheduled Tribe.
- **Protection of Civil Rights Act, 1955:** It punishes **inciting or encouraging untouchability** through **words, signs, visible representations**, or other means.

Key Judgements Related to Hate Speech in India

- **Shaheen Abdulla v. Union of India and Ors, 2022:** The Supreme Court (SC) observed a rising **climate of hate** and directed police to take **suo motu action** without waiting for formal complaints.
- **Tehseen S. Poonawalla v Union of India, 2018:** The SC issued guidelines under **Sections 153 and 295A of IPC** to tackle hate speech-fueled mob violence, including a **district nodal officer** to prevent **lynching** and **cow vigilantism**.
- **Pravasi Bhalai Sangathan v. Union of India, 2014:** The SC asked the **Law Commission** to consider defining **hate speech** and recommend ways to empower the **Election Commission** to curb it.
- **Shreya Singhal v. Union of India, 2015:** The SC struck down **Section 66A of the IT Act, 2000**. It agreed that the law was too **vague** and violated **free speech**, as terms like “annoyance” and “insult” did not qualify as **reasonable restrictions** under **Article 19(2)**.

India's Attempt to Curb Hate Speech

- **Law Commission: 267th Law Commission Report (2017)** recommended adding **Sections 153C and 505A** to the IPC to criminalise **incitement to hatred** and **provoking violence**.
- **Legal Initiative:** In 2022, the Hate Speech and Hate Crimes (Prevention) Bill, 2022 (**Private Member Bill**) was introduced in the **Rajya Sabha** to define **hate speech** as any expression that **incites, promotes, or spreads discrimination, hatred, or violence**, but it was not passed.
- **Committees:**
 - **Viswanathan Committee 2015:** It proposed adding **Sections 153C(b) and 505A** to the IPC to punish **incitement to offences** based on **religion, race, caste, community, sex, gender identity, sexual orientation, birthplace, residence, language, disability, or tribe**, with up to **two years imprisonment** and a **Rs 5,000 fine**.
 - **Bezbaruah Committee 2014:** It proposed amending **Section 153C IPC** (promoting acts against **human dignity**) with up to **five years imprisonment** and fine, and **Section 509A IPC** (insulting a **particular race**) with up to **3 years imprisonment** or fine.

Measures to Effectively Curb Hate Speech in India

- **Legal Enforcement:** Create a **precise legal definition** for hate speech that specifically targets expression inciting **violence or discrimination**. Enforce **tiered penalties**, from **fines to imprisonment** for severe cases. Implement **Viswanathan and Bezbaruah Committee** recommendations by adding specific sections in the BNS, 2023.
- **Social & Educational Approaches:** Integrate **media literacy** and **critical thinking** into **school programs** and **public campaigns** to build public resilience against hate speech. Amplify **credible community voices** to actively challenge and dismantle harmful stereotypes.
- **Institutional Mechanisms:** Establish **independent oversight bodies** to monitor **hate speech trends** with privacy safeguards, and create secure, confidential reporting systems with **whistleblower protection**.
- **International Cooperation:** Develop **international agreements** to address **transnational hate speech** with cultural sensitivity, and create global forums for sharing effective counter-strategies.

Hate speech is not merely a legal issue but a socio-cultural one. Evaluate the role of educational, social, and technological measures as complementary tools to legal frameworks in creating a resilient society against hate speech.

Drishti Mains Question

PM Surya Ghar: Muft Bijli Yojana

The **Parliamentary Standing Committee** highlighted the **slow progress** of the **PM Surya Ghar: Muft Bijli Yojana**, aimed at installing rooftop solar systems in one crore households by FY27.

- As per the committee, as of **June 2025**, **16 lakh rooftop solar units** (16% of the target) were installed, though the government claims **24 lakh households** (24% of the target) have benefited.

PM Surya Ghar: Muft Bijli Yojana

- **Launched:** Feb 2024 by MNRE; **world's largest domestic rooftop solar initiative**
- **Implementation:** **National Programme Implementation Agency (NPIA)** (national level) and by **State Implementation Agencies (SIA)** (state level).
- **Aim:** Free electricity via **rooftop solar** for **1 crore households** by **March 2027**; offers up to **300 units/month** free electricity
- **Installation Milestones:** **10 lakh** by March 2025, **20 lakh** by Oct 2025 & **40 lakh** by March 2026.
- **Eligibility:** Must be an **Indian citizen**; Own a house with **solar-suitable roof**; Have a **valid electricity connection**; **No prior subsidy** for solar panels

■ Key Components:

- **Central Financial Assistance (CFA):** Financial support via **National Portal** for rooftop solar
- **Model Solar Village:** 1 per district; eligible if population >5,000 (or >2,000 in special category states)

■ Subsidies & Financial Support:

Up to **40%** for residential rooftop solar (RTS) systems; **collateral-free, low-interest loans (~7%)** for up to **3 kW** systems

■ Key Benefits:

Adds **30 GW** solar capacity; Creates **~17 lakh** direct jobs; Cuts **CO₂ by 720 million tonnes** (over 25 years); Saves govt **Rs 75,000 crore/year** on electricity; Households with **3 kW systems** producing **300+ units/month** can earn **~Rs 18,000/year** from surplus power sales to **DISCOMs**

■ Role of DISCOMs:

Act as **SIAs**; provide **net meters**, conduct **inspections** and **installation commissioning** to promote rooftop solar adoption.

Impeachment and In-House Inquiry for Judges

INDIA bloc **Members of Parliament (MPs)** intend to submit an **impeachment** motion in Parliament against Justice G.R. Swaminathan of the Madurai Bench of the Madras HC.

- The move follows his order directing the **Subramaniya Swamy Temple** authorities to ensure the lighting of a lamp at the **deepathoon (pillar)** near a dargah during the Karthigai Deepam festival.

Impeachment Process for Judges in India

- **Judicial Impeachment:** Though the term “impeachment” is not explicitly used in the Constitution, it refers to the **formal process of removing a SC or HC judge for proved misbehaviour or incapacity**, aimed at ensuring **judicial accountability without political interference**.
- **Constitutional & Legal Basis:** **Articles 124(4)** of the Constitution of India, along with the **Judges (Inquiry) Act, 1968**, provide the framework for removing judges of the Supreme Court. **Article 218 extends these provisions to High Court judges**.
 - Judges can only be removed for **Proved misbehaviour** and **incapacity**.
- **Impeachment Process:**
 - **Initiating the Motion:** An impeachment motion can be introduced in either the Lok Sabha or the Rajya Sabha.
 - ❖ It must have the support of at least **100 Members of Parliament (MPs) in the Lok Sabha** or **50 MPs in the Rajya Sabha**.
 - ❖ The motion can proceed only if accepted by the Speaker or the Chairman.
 - **Inquiry Committee:** A three-member committee is set up under the Judges (Inquiry) Act, 1968. It includes a **Supreme Court judge (or the Chief Justice of India)**, the **Chief Justice of a High Court**, and an **eminent jurist**.

- ❖ The committee acts like a **fact-finding body** and holds a **quasi-judicial inquiry** into the charges.

- **Committee Report and Parliamentary Debate:** The inquiry committee submits its report to the House that initiated the motion.

- ❖ If the judge is found guilty, the **motion is debated and must be passed in both Houses by a special majority** (two-thirds present and voting, plus absolute majority of total membership).

- ❖ After Parliament’s approval, the **President issues the final removal order**.

■ Key Drawbacks:

If the judge **resigns mid-process**, proceedings usually end.

- **No judge has been successfully impeached in India** so far.
- **A very high voting threshold** makes removal extremely rare.

In-house Inquiry Procedure

- **Origin:** SC introduced an **in-house inquiry procedure** in 1999.
 - This was prompted by the **C. Ravichandran Iyer v. Justice A.M. Bhattacharjee case (1995)**, which exposed the absence of a **mechanism to deal with judicial misconduct** falling below the impeachment (Article 124 and 218 of the Constitution) threshold.
 - In-house Inquiry Procedure aimed to address judicial misconduct below the impeachment threshold, it bridges the gap between **minor misconduct** and “**proved misbehaviour**”.
- **Screening of Complaints:** Complaints are examined by the Chief Justice of the concerned High Court, or Chief Justice of India (CJI) directly.
 - Frivolous complaints are rejected at an early stage. Serious complaints require a response from the judge.
- **Constitution of Inquiry Committee:** If further inquiry is needed, the CJI forms a three-member committee (different compositions for HC Judges, HC Chief Justices, or SC Judges).
 - **HC Judge:** (3-member committee comprising 2 Chief Justices of other High Courts and 1 High Court judge).
 - **HC Chief Justice:** (3-member committee comprising 1 Supreme Court judge and 2 High Court Chief Justices).
 - **SC Judge:** (3-member committee comprising 3 SC judges)
 - **CJI:** (No specific in-house procedure defined).
 - The committee conducts the inquiry while ensuring natural justice, allowing the judge to respond.
- **Outcomes:**
 - **Misconduct is Proved:** The judge may be advised to resign or take voluntary retirement.
 - ❖ Upon refusal, the judge may be relieved of judicial duties, and if necessary, the CJI may recommend impeachment.
 - **Misconduct is Minor:** The judge is cautioned and the report is placed on record.

DHRUVA Framework

The **Department of Posts** has prepared a draft of proposed amendments to the **Post Office Act, 2023** to provide the necessary legislative backing for the **Digital Hub for Reference and Unique Virtual Address (DHRUVA) framework**.

- The amendments aim to support DHRUVA's ecosystem reforms and enable its nationwide rollout.

DHRUVA Framework

- **DHRUVA:** A Digital Public Infrastructure (DPI) like Aadhaar & UPI
 - Enables logistics companies, e-commerce firms, and gig platforms to receive a user's digital address "label" instead of full physical address
 - Can access both the descriptive address and the geo-coded DIGIPIN (Digital Postal Index Number) with user consent
- **Ecosystem:**
 - **Address Service Providers (ASPs):** Generate digital address labels
 - **Address Validation Agencies (AVAs):** Verify and authenticate addresses
 - **Address Information Agents (AIAs):** Manage consent and address-sharing settings
 - **Central Governance Entity:** Similar to NPCI to regulate standards & operations
- **Significance:**
 - **User Control & Privacy:** Consent-based address sharing, limits repeated disclosure
 - **Operational Efficiency:** Single verified digital address reduces delivery failures, returns, and costs
 - **Seamless Updates:** Auto-updates address across platforms during relocation

DIGIPIN

Open-source system by India Post, assigns 10-digit alphanumeric code to every 12 sq. m block using latitude–longitude. Uses 16 characters for precise location encoding. Aids delivery in rural areas lacking clear addresses, as a geo-location fallback to PIN code.

Strengthening the National Commission for Minorities

The **Ministry of Minority Affairs** has not committed to any **timeline** for filling the long-pending **vacancies** in the **National Commission for Minorities (NCM)**, even after the **Delhi High Court** sought a response from the **government** over the **delay**.

- The **NCM** has been **headless** since **April 2025**, with all posts of **Chairperson**, **Vice-Chairperson**, and **Members** remaining **vacant**.

National Commission for Minorities (NCM)

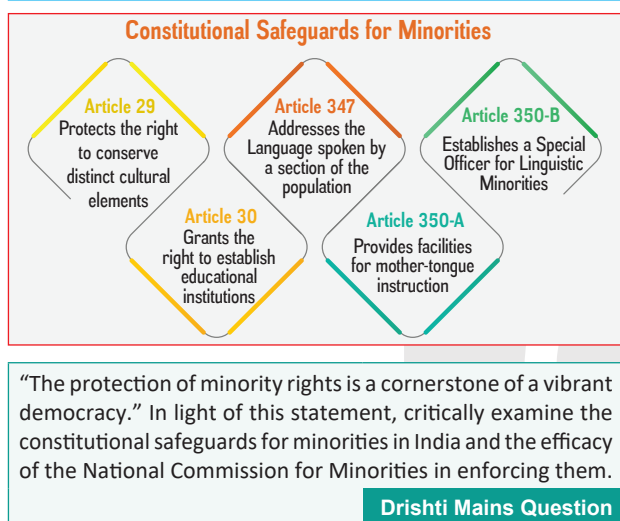
- **About:** The **NCM** is a **statutory body** set up under the **National Commission for Minorities (NCM) Act, 1992** to safeguard the **rights and interests of minorities** and ensure their protection and development.
 - The first Commission was constituted on **17th May 1993**.
- **Origin:** The **Minorities Commission (MC)** was set up in **1978** by a Ministry of Home Affairs Resolution and moved to the **Ministry of Welfare** in **1984**. In **1988**, **linguistic minorities** were excluded from its jurisdiction.
- **Composition:** The NCM consists of a **Chairperson**, **Vice-Chairperson**, and **5 Members**, all **nominated by the Central Government** from persons of **eminence, ability, and integrity**.
 - At least **five members**, including the Chairperson, must belong to **notified minority communities** (Muslim, Christian, Sikh, Buddhist, Parsi, and Jain).
- **Mandate and Duration:** It has **quasi-judicial powers**, and each member serves a **3-year term** from the date of joining.
- **Removal:** The Central Govt. may remove the Chairperson/Member if they are insolvent, take outside employment, become incapable of acting, are declared of unsound mind, abuse their office, or are convicted of a moral turpitude offence.

Minorities in India

- **About Minorities:** The term '**Minority**' is not explicitly defined in the **Constitution of India**; however, it recognizes the existence of **religious and linguistic minorities**.
 - The NCM Act, 1992 provides a statutory definition, specifying a **minority** as a **community officially notified** as such by the **Central Government**.
- **Minority Communities:** Under the NCM Act, 1992, the Ministry of Welfare, through a **1993 notification**, officially designated five **religious communities—Muslims, Christians, Sikhs, Buddhists, and Zoroastrians (Parsis)**—as minority communities.
 - This list was later expanded in **2014** to include **Jains** as the **sixth notified minority community**.
- **Minorities Population:**

Religion	Number (in crores)	%
Muslims	17.22	14.2
Christians	2.78	2.3
Sikhs	2.08	1.7
Buddhists	0.84	0.7
Jains	0.45	0.4
Total	23.37	19.30

Major Challenges Faced by NCM	Suggestions
<ul style="list-style-type: none"> ■ Chronic Vacancies: Key positions vacant (Chairperson, Vice-Chairperson & Members), affecting functionality despite Delhi HC reminders. ■ Limited Autonomy: Appointments made by the Central Govt., raising concerns over NCM's independence & political neutrality. ■ Ambiguity in "Minority" Definition: Minority status based only on religion, excluding linguistic or ethnic minorities. ■ Advisory Nature & Lack of Enforcement Power: As a statutory body, the commission can only recommend actions, not enforce or penalize, limiting effectiveness. ■ Erosion of Institutional Credibility: A defunct Commission leads to judicial burden and international scrutiny. 	<ul style="list-style-type: none"> ■ Legislative Reforms: Upgrade NCM to a Constitutional body or amend NCM Act to make recommendations binding, and ensure transparent appointments. ■ Functional Empowerment: Allow suo motu action, penalties for non-compliance, and strengthen the investigation wing. ■ Judicial Oversight & Review: Enable courts to review NCM orders & use its report in PILs and promote public engagement. ■ Integration with Broader Governance: Link NCM with monitoring minority welfare schemes and create a cross-ministry committee for coordinated action. ■ Learning from Global Best Practices: Adopt models like South Africa's Commission for Cultural, Religious & Linguistic Communities or the UK Equality and Human Rights Commission.



SC Declares Involuntary Narco Test as Unconstitutional

The **Supreme Court (SC) of India** has ruled that **any forced or involuntary narco test is unconstitutional**, setting aside a 2025 Patna High Court order that allowed such a test in *Amllesh Kumar v. State of Bihar* (2025).

Narco Test

- **About:** A narco test is an investigative technique in which the accused is administered **sedative drugs such as barbiturates** (a class of sedative-hypnotic drugs) like **Sodium Pentothal** to lower inhibitions.
 - The aim is to extract concealed information by reducing reasoning and conscious control.
 - It is considered a **non-violent investigative method**, similar to polygraph and brain-mapping tests.
- **Forced Narco Tests:** They violate individual autonomy, a core principle of **natural justice**, and ethical philosophy, including **Immanuel Kant's ideas**, holds that actions without consent are morally invalid.

- In a democratic criminal justice system, **justice requires balancing victims' rights with the rights of the accused**, and any compromise of protection against self-incrimination and personal liberty undermines constitutional morality.

Constitutional Protections:

- **Article 20(3):** Protection against self-incrimination and no accused can be compelled to testify against oneself.
- **Article 21:** Guarantees life, personal liberty, and the **right to privacy**, and any such test without the **express consent of the person (accused)** would violate it.
 - ❖ A democratic criminal justice system must balance victims' rights with the accused's rights.
- **Article 21, along with Articles 14 and 19**, forms the **Golden Triangle** of the Constitution, as held in *Maneka Gandhi v. Union of India* (1978).
 - ❖ Any violation of the **Right to Privacy** therefore amounts to a violation of the **Right to Life and Personal Liberty**, disrupting this core constitutional framework.

- **Legal Provisions:** A person may voluntarily opt for a narco test at the **defence stage** under Section 253 of the **Bharatiya Nagarik Suraksha Sanhita (BNSS), 2023**. However, there is no absolute or indefeasible right to demand such a test.

SC Addresses Delays in Providing Relief to Acid Attack Survivors

In the *Shaheen Malik v. Union of India case 2025*, the **Supreme Court (SC)** decided to examine why key **directives on acid attack survivors (Laxmi v. Union of India case, 2015)** have largely gone unimplemented, forcing survivors to struggle for both **financial support** and essential **healthcare**.

Key Directives Issued by the SC in the *Laxmi v. Union of India Case 2015*

- **Victim Compensation:** Acid attack survivors are entitled to a **minimum compensation of Rs 3 lakh**, with **Rs 1 lakh** payable within **15 days** for immediate medical treatment and the remaining **Rs 2 lakh** within **2 months** for aftercare and rehabilitation, including **reconstructive surgeries**.
 - The **SC** also directed **NALSA** to gather data from **State legal services authorities** on **compensation disbursed to acid attack victims**.
- **Regulation of Sale of Acid:** Over-the-counter **sale of acid** is prohibited unless sellers maintain a **log** with buyer details, buyers provide a **government-issued photo ID**, and the purpose of purchase is specified.
 - Sales to persons **under 18** are banned, and violations can attract a **fine of up to Rs 50,000**.
- **Implementation and Oversight:** **Chief Secretaries** and **Administrators** must ensure all **directives are followed** and **publicize rules** regarding acid sale regulations and **compensation schemes**.
- **Free Treatment and Rehabilitation:** Private hospitals must provide **free treatment** to acid attack victims, including **medicines, bed, food, and rehabilitative care**, and can be held **liable** for refusing treatment.
- **Legal Enforcement:** Offences under the Poisons Act, 1919 to be made **cognizable and non-bailable**. **SubDivisional Magistrate (SDM)** is responsible for taking action against violations regarding acid sale and storage.

Judicial Pronouncement Related to Acid Attack Cases in India

- **Parivartan Kendra v. Union of India Case, 2015:** The **SC** awarded **Rs 13 lakhs** to two **acid attack victims** and ordered the **State of Bihar** to ensure their **treatment and rehabilitation**. It also directed all **States and Union Territories** to include **acid attack victims** in the **disability list**.
- **Bengai Mandal alias Begai Mandal v. State of Bihar, 2010:** **Patna High Court** upheld the decisions of the **trial court**, which had convicted the **appellant** and sentenced him to **life imprisonment** for throwing acid that led to her **death**.

Barriers Faced by Acid Attack Survivors in Accessing Support and Justice

- **Legal & Judicial Hurdles:** Delayed or partial compensation (esp. in **UP & Maharashtra**), weak enforcement of acid sale bans, prolonged trials, low convictions, and **re-victimization** in court.
- **Systemic & Institutional Failures:** Lack of a centralized database, and limited shelters and **dedicated crisis centers**.
- **Medical & Physical Trauma:** High medical costs, denial of free treatment, and **limited access to specialized care**, especially in rural areas.
- **Psychological & Social Stigma:** Mental health issues, social ostracization, and **abandonment by family**, leading to **isolation and lack of support**.

Suggestions

- **Legal & Compensation Framework:** Implement time-bound compensation, fast-track courts, and witness protection.
- **Medical Rehabilitation:** Enforce free medical care, establish burn centers, and provide **lifetime coverage under Ayushman Bharat**.
- **Preventive Measures:** Strengthen acid sale controls, **GST-based tracking for industrial acid**, while mandating a rehabilitation cess on manufacturers & sellers.
- **Psychological Support:** Support & fund survivor-led groups and **train mental health professionals** on acid attack trauma.
- **Socio-Economic Rehabilitation:** Provide vocational training, job quotas, scholarships, and financial support like **interest-free loans and seed funding**.

The Supreme Court's directives in the *Laxmi vs. Union of India* case form a robust framework for acid attack survivors. Critically examine the systemic and institutional failures that have hindered their effective implementation.

Drishti Mains Question

Hybrid Model Framework for Generative AI

The **Indian government** is initiating a major **overhaul of the Copyright Act, 1957** under the **hybrid model** to address the **challenges posed by artificial intelligence (AI)** to copyrighted works.

- The **hybrid model** involves a **mandatory blanket license** allowing **AI firms** to use **copyrighted works** for **training**, coupled with a **statutory right to remuneration** for creators.

Proposed Changes to the Copyright Act, 1957

- **Blanket License for AI Developers:** Introduction of a **statutory provision** granting AI developers **mandatory**

blanket license to use all lawfully accessed **copyright-protected** works for training AI systems.

- **Rights holders** will lose the **right to withhold their works** from being used in AI training.
- The **license** would be **non-negotiable** and **universal**, eliminating the need for **individual permissions** currently required under **Section 14** (copyright as the exclusive right of the owner) of the Act.
- **Statutory Remuneration Rights:**
 - Creation of a new statutory **remuneration right** for **copyright holders** as **compensation** for use of their works in AI training.

- **Copyright holders** entitled to **royalties** even without their **explicit consent**. **Royalty** to be calculated as a **fixed percentage of revenue** generated from **AI systems** trained on copyrighted content.
- **AI firms** will pay **royalties** only after **commercialising** their models, not while **collecting or training data** from the internet.
- **Collection and Distribution Mechanism: Amendment** to establish a **centralized non-profit entity** designated by the Central Government for **collecting payments** from AI developers.
 - The **entity** would comprise **Copyright Societies** and **Collective Management Organizations (CMOs)** as members.
- **Protection for Startups and MSMEs:** Possible **concessional provisions** or **differential royalty** structures for **startups** and **MSMEs** to ensure level playing field.

Need to Amend the Copyright Act, 1957

- **Absence of AI-Specific Definitions:** The **Copyright Act, 1957** lacks definitions for key terms like **Artificial Intelligence, Generative AI, machine learning, and training data**, making it outdated for modern technologies.
 - It creates **legal uncertainty** regarding the applicability of existing provisions to AI systems and **text and data mining (TDM)**.
- **Ambiguity on AI Training as Copyright Use:** No specific **provisions** exist addressing whether **AI training** constitutes **reproduction, adaptation, or infringement** under **Section 14 (exclusive rights)**.
 - Current law is **ambiguous** on whether **AI training** falls under **fair dealing exceptions** under **Section 52** (certain acts not to be infringement of copyright).
- **Unauthorized Use of Copyrighted Materials:** Current **practice** of AI training bypasses the **permission-based framework** that forms the foundation of the **Copyright Act, 1957**.
 - **Mass-scale scraping** and use of **copyrighted content** for **AI training** occurs without **compensation to creators**.
- **Copyrightability of AI-Generated Outputs:** **Section 2(d) (vi)** of the 1957 Act defines an **author** only in **human terms**, leaving no clarity on **authorship** of AI-generated content or its copyrightability.
 - Although **Section 2 (ffc)** mentions **computer-generated works**, it treats the computer as a **tool**, creating **uncertainty over ownership** of AI-created works.
- **Cross-Border and Jurisdictional Issues:** **Section 40** of the 1957 Act protects **foreign works** based on traditional territorial copyright but does not address **AI systems trained abroad with Indian works, cloud-based AI training, or cross-border data flows**.

- This creates **enforcement challenges** for AI developers outside India and highlights a gap in international coordination for **AI copyright issues**.

Global Views on AI-Generated Content

- **United States:** Copyright requires **substantial human creativity** (Thaler v. Perlmutter, 2023). Purely AI-generated works are not protected.
- **European Union:** The AI Act (2024) mandates **training data transparency**. A new **sui generis right** for AI outputs is under debate, as the current 2019 Copyright Directive lacks specific rules.
- **China:** The Beijing Internet Court has recognized **AI-generated images** as **protected art**, emphasizing the "originality" and intellectual contribution of the human creator.
- **United Kingdom:** Section 9(3) of the Copyright, Designs and Patents Act, 1988 grants **copyright** for **computer-generated works** without a **human author**, assigning it to the person making the "necessary arrangements." Such works lack **moral rights**, and the provision is rarely applied due to **legal ambiguities**.

Critically analyze the gaps in the Copyright Act, 1957 concerning AI-generated content and cross-border enforcement.

Drishti Mains Question

Mercy Petition

The **President of India** has rejected the **mercy petition** of a **convict** found guilty of kidnapping, raping, and murdering a two-year-old girl in Maharashtra in 2012, reaffirming the constitutional process governing capital punishment.

Mercy Petition

- **About:** A Mercy Petition is a constitutional remedy available to convicts, especially in **death sentence cases**, seeking pardon, commutation, remission, or suspension of sentence.
- **Constitutional Basis:** The power to grant pardon, commutation, remission, or suspension of sentences is vested in the **President under Article 72** and the **Governor under Article 161 of the Constitution**.
 - The President's pardoning power is broader than the Governor's power, as it **extends to court-martial cases**, while the Governor's power is limited to offences under **State laws and does not apply to military court sentences**.
- **Grounds for Filing:** A mercy petition may be filed on grounds such as **good conduct, mental health, age, medical condition, humanitarian factors, miscarriage of justice, or rehabilitation efforts**.
- **Legal Provisions:** Section 472(1) of the **Bharatiya Nagarik Suraksha Sanhita (BNSS), 2023** sets a time-bound process for mercy petitions.

- A convict must file within 30 days of dismissal of appeals by the Supreme Court or confirmation of a death sentence by the High Court, while in cases with multiple convicts, petitions must be filed within 60 days.
- **Role of Governments:** Under BNSS, 2023 upon receiving a mercy petition, the Central Government seeks comments from the State Government, examines the case records, and makes its **recommendation to the President within 60 days**.
 - It may also obtain the trial judge's opinion and certified records. In cases with multiple convicts, petitions are decided together.
 - While **no time limit is set for the President's decision**, the Centre must communicate the President's order to the State Home Department and jail authorities within 48 hours.
- **Finality and Non-Justiciability:** Section 472(7) of the BNSS declares that the **President's decision on a mercy petition is final**.
 - Courts are barred from **questioning or reviewing the grounds of pardon or commutation**, reinforcing the **exclusive executive nature of clemency powers**.
- **Judicial Pronouncements:**
 - **Maru Ram v. Union of India (1981):** The Supreme Court clarified that these powers are to be exercised on the **aid and advice of the Council of Ministers**, making clemency an executive function rather than a personal discretion.
 - **Kehar Singh v. Union of India (1988):** The Supreme Court held that the President's pardoning power is independent of the judiciary but subject to **limited judicial review** to ensure **procedural fairness**, not to examine the merits of the decision.
- Indian companies, joint ventures, and foreign entities to **build, own, operate, and decommission nuclear power plants**, ending the monopoly of **Nuclear Power Corporation of India Ltd (NPCIL)** in plant operations.
- **Retention of Strategic State Control:** While allowing private participation, the Bill retains government control over sensitive areas such as **nuclear fuel production, heavy water manufacturing, and radioactive waste management**, safeguarding national security and non-proliferation commitments.
- **Statutory Status to the Nuclear Regulator:** The Bill grants **statutory backing to the Atomic Energy Regulatory Board (AERB)** and makes it accountable to Parliament, strengthening regulatory independence, transparency, and safety oversight.
- **Revised Nuclear Liability Framework:** The SHANTI Bill repeals the CLND Act, 2010 and **removes supplier liability**, ensuring that nuclear plant operators alone are **responsible for compensation**, thereby aligning India's regime with international nuclear liability conventions.
 - Operator liability is capped and linked to the installed capacity of nuclear plants **rather than the extent of damage**, with graded limits to reduce financial uncertainty and encourage investment.
- **Creation of a Dedicated Atomic Disputes Tribunal:** Proposes a dedicated atomic disputes tribunal to improve regulatory certainty and investor confidence.
- **Facilitation of Advanced Nuclear Technologies:** By enabling private participation and regulatory clarity, the Bill supports the deployment of Small Modular Reactors and indigenous reactor designs, contributing to India's clean energy transition and long-term energy security.

Evaluate the significance of time-bound procedures for mercy petitions introduced under Bharatiya Nagarik Suraksha Sanhita (BNSS), 2023.

Drishti Mains Question

SHANTI Act 2025

President Droupadi Murmu has granted assent to the Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Bill, 2025, passed by Parliament during the Winter Session.

Key Provisions of SHANTI Act 2025

- **Replacement of Existing Nuclear Laws:** It repeals the **Atomic Energy Act, 1962 and the Civil Liability for Nuclear Damage Act, 2010**, creating a single, consolidated legal framework to govern India's civil nuclear energy sector and simplify regulatory and liability procedures.
- **Enabling Private and Joint Venture Participation:** For the first time since Independence, the Bill permits private

Related Core Concerns

- By removing **supplier liability** and capping operator penalties, the Bill is criticised for **weakening accountability** in case of nuclear accidents.
 - Critics argue that limiting liability based on plant size rather than actual damage may undermine the **"polluter pays"** principle and compromise public safety. Also, private firms may benefit commercially while accident costs and long-term risks are ultimately borne by the State and citizens.
 - Given India's historical experience with industrial disasters, such as the **Bhopal Gas Tragedy (1984)**, critics stress that weakening liability provisions may erode public confidence in nuclear governance.

Need for Reforms in Nuclear Governance in India

- **Ambitious Capacity Targets:** India aims to expand nuclear capacity from **8.8 GW to 22 GW by 2032 and 100 GW by 2047**, but NPCIL alone lacks the capital, manpower, and execution capacity to meet these goals.

- **Large Financing Gap:** Achieving 100 GW requires about Rs 15 lakh crore, while Budget 2025–26 provides only Rs 20,000 crore, making private investment essential to mobilise long-term capital.
- **Project Delays:** NPCIL projects like Kudankulam Units 3–6 face chronic delays; private players can improve **project management and Engineering, Procurement, and Construction (EPC) efficiency**.
- **Technology and Innovation Needs:** Private participation can accelerate adoption of **SMRs, advanced reactors, and global best practices**, improving safety and scalability.
- **Weak Uranium Supply Chains:**
 - Limited domestic production and Government-to-Government (G2G) imports necessitate private involvement in **uranium mining, processing, and imports** for fuel security.
- **Energy Security and Climate Goals:**
 - Enhanced focus on nuclear power supports **grid stability and net-zero 2070**, complementing renewables with low-carbon baseload power.

India's Current Nuclear Energy Landscape

- As of 2025, India's current power capacity stands at **8.18 GW**, with an **ambitious target of 100 GW by 2047**.
 - Currently, India operates more than 20 nuclear reactors, all managed by Nuclear Power Corporation of India Limited (NPCIL), with over a dozen new projects planned.
- The **Nuclear Energy Mission** was launched in the **Union Budget 2025-26** which is focused on research and development (R&D) of Small Modular Reactors (SMRs).
 - India aims to develop at least **five indigenously designed and operational SMRs by 2033**.
 - Key new technology developments include **Bharat Small Reactors (BSRs), Small Modular Reactors (SMRs), Molten Salt Reactors, and High-Temperature Gas-Cooled Reactors**.

Measures to Strengthen Nuclear Governance in India

- **Regulatory Independence:** AERB operational independence must be strengthened through transparent appointments, financial autonomy, and protection from executive interference.
- **Rebalance Safety and Investment Incentives:** Liability caps should be periodically reviewed and indexed to inflation and risk, ensuring investor confidence does not come at the cost of public safety and the “polluter pays” principle.
- **Build Public Trust Through Transparency:** Mandatory disclosure of safety audits, accident reporting protocols, and emergency preparedness plans is essential to address public concerns rooted in past industrial disasters.

- **Centre–State Coordination in Emergency Response:** Clear protocols are needed for coordination between the Centre, States, and local authorities during nuclear emergencies, especially as private operators enter the sector.
- **Waste Management and Decommissioning Frameworks:** Clear, enforceable norms for long-term waste disposal and plant decommissioning must be laid down before large-scale private expansion.

Private participation in nuclear energy can accelerate India's clean energy transition but also raises governance concerns. Discuss.

Drishti Mains Question

Year End Review-2025: Department of Biotechnology

The **Department of Biotechnology's (DBT) 2025 Year-End Review** shows India's **biotechnology sector** grew from **USD 10 billion in 2014** to over **USD 165.7 billion in 2024**, with a **USD 300 billion** projection for 2030.

- This growth has positioned **India** as the **world's 12th largest** biotech hub, the **3rd largest** in the Asia-Pacific, the **3rd largest startup ecosystem** globally, and the largest vaccine manufacturer.

Key Initiatives in India's Biotechnology Sector

- **Infrastructure and Policy Initiatives:** India's 1st **National Biofoundry Network** launched to strengthen **indigenous** biomanufacturing capabilities.
 - **BioE3 Policy** implementation across **6 thematic sectors** including bio-based chemicals, precision biotherapeutics, and **climate-resilient agriculture**.
 - **D.E.S.I.G.N for BioE3 Challenge** launched to empower **youth-led innovation** for sustainable bioeconomy.
- **Guidelines on Stacked Plants:** Guidelines on **Genetically Engineered Plants Containing Stacked Events, 2025** notified to ensure **biosafety and innovation**.
 - **Stacked** refers to combining **two or more transgenes**—such as those for herbicide tolerance (HT) and insect resistance (Bt)—into a **single crop**.
- **GenomeIndia Project 2020:** Creation of a **national genomic database** with **10,000** accessible whole genome samples under the **GenomeIndia Project**.
- **One Day One Genome Project 2024:** It highlights **India's unique microbial diversity** and its vital roles in ecosystems, agriculture, and health. A core feature is the **daily public release** of one fully annotated microbial genome, focusing on **bacterial strains isolated in India**.
- **Biomedical Research Career Programme (BRCP) Phase-III (2025-26 to 2037-38):** It aims to **nurture top scientific talent** for cutting-edge and **translational biomedical research**, strengthen research systems, reduce regional disparities, and build globally impactful research capacity.

Key Achievements of DBT in 2025

- **Healthcare & Research:** Indigenous AI-driven models developed for **pregnancy dating** and **preterm birth prediction** with 66 genetic markers identified.
 - **Dare2eraD TB programme:** 18,000 Mycobacterium tuberculosis (MTB) **isolates sequenced** for comprehensive drug-resistant TB mapping.
 - **GARBH-INi Cohort:** 12,000 pregnant women enrolled with **14 lakh biospecimens** and 1 lakh ultrasound images archived.
 - **Commercialization of *Lactobacillus Crispatus*:** Consortia of beneficial *Lactobacillus crispatus* (lactic acid-producing bacteria) isolates have been developed and transferred to a leading Indian **nutraceutical company** for application in **nutraceutical and cosmetic products**.
- **Agricultural Biotechnology Innovations:** High-yielding gene-edited **rice cultivar (DEP1 mutation)** showing **20% increased yield** over wild type developed.
 - Rice variety **ADT 39-Sub1** with **submergence tolerance** released in 2025. Drought-resistant **rice variety 'Arun'** developed for variable climatic conditions.
 - Two drought-tolerant chickpea varieties (**ADVIKA** and **SAATVIK**) contributed to **30%** of total breeder seed indent developed.
- **Space Biomanufacturing:** **Microalgae** demonstrated **two-fold growth increase** in microgravity.
 - A **proof of concept** for growing **cyanobacteria** on urea in microgravity has been achieved, potentially enabling the use of **human waste (CO₂ and urea)** to produce **nutritional supplements** for astronauts on long-term space missions.
 - India's **1st human muscle stem-cell experiment** revealed microgravity as an accelerated model of muscle aging (sarcopenia).
- **Technology Transfer and Commercialization:** Engineered **Glucoamylase Secreting yeast strain** developed for **1G ethanol production** (50% reduction in external glucoamylase requirement).
 - Multiple technology transfers including **white rust resistance mustard** varieties to eight seed companies.
 - **E-YUVA scheme** scaled to 19 pre-incubation centres across 15 states, supporting 460+ Fellows.
- **North-Eastern Region Development:** Value-added products from **wild apples** and **theaflavin** extraction technology developed. **218 beneficiaries** including **farmers trained** through targeted interventions.
 - A **Network project on Large Cardamom** is under **implementation** with the **Sikkim State S&T Council** in collaboration with **iBRIC+**.

- **Strategic Partnerships:** **Centre-State BioE3 Cells** initiated. International collaborations with the **United Kingdom (FEMTECH, (Women-Orientated Health Tech)), Switzerland (One Health)**.

Analyze the contributions of biotechnology to climate-resilient agriculture in India, with reference to recent developments in gene-edited crops and drought-resistant varieties.

Drishti Mains Question

Parliamentary Privileges in India

The **Lok Sabha Speaker** is examining a notice for **breach of Parliamentary privilege** and **contempt of the House** over alleged disruptive conduct during the debate on **Viksit Bharat–Guarantee For Rozgar And Aajeevika Mission (Gramin) Bill, 2025**.

- The notice cites **misconduct in the House, disobedience to the Speaker, and obstruction of House officers**, constituting a collective breach of MPs' privileges.
- Challenges include **misuse, conflict with rights, and lack of transparency**; reforms suggest a **statutory framework, ethics enforcement, and alignment with fundamental rights**.

Parliamentary Privileges Enjoyed by MPs

- **Individual Privileges:** The rights and immunities granted to MPs and State Legislators, allowing them to perform their duties independently and without obstruction. Key Privileges are:
 - **Freedom of Speech:** Members enjoy complete freedom of speech within Parliament, protected under Article 105(1) of the Constitution.
 - **Immunity from Legal Proceedings:** Members cannot face legal action for speeches made or votes cast in Parliament or its committees, as per Article 105(2).
 - **Protection for Authorized Publications:** No legal proceedings can be initiated for publishing any report, paper, vote, or proceeding that has been authorized by Parliament (Article 105(2)).
 - **Exemption from Judicial Inquiry:** Courts are barred from inquiring into the validity of parliamentary proceedings based on alleged procedural irregularities, under Article 122(1).
 - **Freedom from Arrest:** Members are exempt from arrest in civil cases during parliamentary sessions, as well as 40 days before and after a session, according to Section 135A of the Code of Civil Procedure, 1908.
 - **Exemption from Jury Service:** They are exempted from jury service. They can refuse to give evidence and appear as a witness in a case pending in a court when Parliament is in session.

- **Collective Privileges:** It refers to the collective rights and immunities granted to the Indian Parliament and State Legislatures, as well as their members and officers, to protect their functioning and authority. Key Privileges:
 - **Publication Rights:** Parliament holds the exclusive right to publish its own reports, debates, and proceedings. The 44th Amendment Act, 1978, permits the press to publish accurate reports of these proceedings without prior approval, except during secret sittings.
 - **Right to Secret Sitings:** It can hold confidential discussions by excluding strangers during critical matters.
 - **Rule-Making and Disciplinary Authority:** Parliament can establish its own rules of procedure and conduct business. It also has the power to punish members or outsiders for breach of privilege or contempt through measures like reprimand, imprisonment, suspension, or expulsion.
 - **Right to Information:** The legislature must be immediately informed about the arrest, detention, conviction, imprisonment, or release of any of its members.
 - **Inquiry and Summoning Powers:** It possesses the authority to conduct inquiries, summon witnesses, and demand relevant documents and records.

Procedure for Handling a Breach of Privilege Complaint

- **Notice:** A member gives written notice to the Presiding Officer (Speaker/Chairman).
- **Consent:** The Presiding Officer examines it and may give or withhold consent for it to be raised in the House.
- **Leave of the House:** If consent is given, the member asks for “leave of the House” to raise the issue. If 25 members support it, leave is granted.
- **Action:** The House may either decide the matter itself or refer it to the Committee of Privileges for investigation and report which is the usual practice.
- **Punishment:** Based on the House’s decision, the offender may be: Imprisoned (till the prorogation of the House).
 - Reprimanded or Admonished (warned) at the Bar of the House.
 - Suspended or Expelled (if the offender is a member).

**Key Judicial Pronouncements
Concerning Parliamentary Privileges**

- **Pandit MSM. Sharma vs Shri Sri Krishna Sinha, 1958 (Searchlight Case):** The Supreme Court (SC) ruled that legislative privileges under Article 194(3) prevail over freedom of the press under Article 19(1)(a) in case of conflict, allowing state legislatures to control the publication of their proceedings, similar to the British House of Commons.

- **PV Narasimha Rao vs. State, 1998 (JMM Bribery Case):** The SC ruled that lawmakers who accepted bribes could not be prosecuted for corruption if they voted or spoke in the House according to the bribe agreement.
- **State of Kerala vs. K. Ajith and Others, 2021:** The SC clarified that parliamentary privileges and immunities do not exempt members from general laws, including criminal laws that apply to all citizens.
- **Sita Soren vs. Union of India, 2024:** In a landmark reversal, the SC overturned its ruling in the PV Narasimha Rao case, 1998. The Court held that constitutional immunity does not extend to bribery, affirming that accepting a bribe is a distinct criminal offense that corrupts democratic processes and falls outside a legislator’s protected duties.

Parliamentary Privileges
<ul style="list-style-type: none">■ About: Special rights, immunities, and exemptions enjoyed by each House, its committees, and members; extend to the Attorney General, not the President.■ Objective: Ensure effective discharge of parliamentary functions, exceeding those of other bodies.■ Types of Privileges:<ul style="list-style-type: none">● Collective: Rights of the House (e.g., regulate proceedings, punish for contempt, exclude strangers).● Individual: Rights of members (e.g., freedom of speech, freedom from arrest in civil cases).■ Sources of Privileges:<ul style="list-style-type: none">● Constitutional: Articles 105, 122, 194, 212.● Legal: Article 105(3) refers to British House of Commons privileges (1950); Code of Civil Procedure, 1908, grants freedom from civil arrest during sessions.● Conventions & Procedure: Based on British practices; Rules of Procedure and Conduct of Business.● Judicial Interpretations: e.g., Searchlight Case (1958), JMM Bribery Case (1998).■ Breach of Privileges (BoP): Occurs when parliamentary privileges are violated.■ Privilege Motion: Moved against a minister for alleged breach; aims to censure.■ Privilege Notice: Formal complaint by an MP against another member or external entity.■ Committee of Privileges: Examines BoP cases and recommends action; Lok Sabha: 15 members, Rajya Sabha: 10 members.■ Contempt of House (CoH): Broader than BoP; includes acts obstructing or lowering authority of the House.■ All BoP amount to CoH, but CoH can occur without a specific privilege breach (e.g., disobeying committee summons, publishing derogatory remarks).

Key Issues and Debates Surrounding Privileges

- **Codification Debate:** There is a long-standing debate on whether to codify privileges into a single law. While this could clarify their scope, successive committees have recommended against codification (e.g., Committee of Privileges of the Lok Sabha 2008), fearing it might restrict the House's inherent ability to address novel forms of contempt.
- **Tensions with Other Rights:** A persistent tension exists between the legislature's power to punish for misreporting and the constitutional freedom of the press.
- **Conflict with Democratic Principles:** Certain privileges, such as immunity from arrest, conflict with the fundamental principle of equality before the law.
- **Risk of Misuse and Erosion of Trust:** Privileges are sometimes exploited to evade legal accountability or to make inflammatory, unsubstantiated statements under the cloak of immunity.
 - Inadequate regulatory mechanisms heighten this risk, eroding public trust and allowing privilege motions to be used for political vendettas rather than upholding legislative dignity.
- **Opacity and Lack of Oversight:** Privileges are frequently invoked through non-transparent processes, severely limiting public scrutiny and undermining confidence in the legislature.

International Practices on Parliamentary Privileges

- **United Kingdom:** Privileges, including freedom of speech, immunity from arrest, and self-regulation, derive from statutes, common law, and precedent.
- **Canada:** Privileges such as freedom of speech, immunity from arrest, and authority over breaches are defined in the Constitution Act, 1867 and the Parliament of Canada Act, 1985.
- **Australia:** The Constitution enshrines privileges similar to the UK and Canada, guaranteeing freedom of speech, immunity from arrest, and the right to regulate proceedings.

Reforms that can be Taken

to Reform Parliamentary Privileges in India

- **Balanced Statutory Framework:** Instead of rigid codification, a broad statutory framework should define core privileges and set clear principles for their use. This would incorporate key judicial rulings and set boundaries, while preserving parliamentary discretion to address new forms of contempt through its own procedures.
- **Transparent Procedures for Privilege Cases:** Develop and standardize detailed, publicly accessible procedures for handling privilege complaints—from notice to final disposition—ensuring principles of natural justice (right to be heard, right to representation) are followed.

- **Strengthen Internal Ethics:** Strengthen the Code of Conduct for Members and explicitly link it to the responsible use of privileges, particularly freedom of speech.
 - Empower the Ethics Committees to proactively educate and advise members when privilege claims conflict with public interest or ethical norms, promoting a culture of restraint.
- **Clarify the Privilege-Fundamental Rights Interface:** Formally endorse the Supreme Court's principle of harmonious construction in the Rules of Procedure, guiding the Houses to interpret their privileges in a manner that respects constitutionally guaranteed rights like freedom of speech and equality before law.

"Parliamentary privileges, though essential for legislative independence, often conflict with democratic principles and fundamental rights." Critically examine.

Drishti Mains Question

Strengthening Central Information Commission

The **President** appointed **Raj Kumar Goyal** as **Chief Information Commissioner** and **8 new Information Commissioners**, thereby fully constituting the **Central Information Commission (CIC)** for the **first time in 9 years**.

Central Information Commission (CIC)

- **About:** Statutory body under **RTI Act, 2005**; functions as **quasi-judicial authority**; **Jurisdiction:** Central Govt, PSUs, financial institutions, UTs;
- **Composition:** 1 **CIC** + up to 10 **ICs**
- **Appointment:** By **President** on recommendation of committee: **PM (Chairperson)**; **LoP in Lok Sabha**; **Union Cabinet Minister**— currently Home Minister (nominated by PM)
- **Eligibility:** Eminent persons with experience in **law, science & tech, social service, mass media, governance**, etc.
- **Disqualifications:** Cannot be **MP/MLA**, hold **office of profit**, be in **political party**, or **pursue business/profession**
Removal: Removal by **President** under— **Insolvent**; **Moral Turpitude**; **Paid Employment**; **Infirmity**; **Financial Interests**
- **Removal for misbehavior or incapacity** requires **SC inquiry** & recommendation before the President can remove.
- **Powers & Functions:**
 - **Receives complaints** on denial, incomplete, or false RTI info
 - **Quasi-judicial powers**— equivalent to **civil court**
 - **Unrestricted access** to all public authority records during inquiry
 - **Reports annually to Central Government**; laid before **Parliament**

Right to Information Act, 2005 (RTI Act, 2005)

- **About:** The RTI Act, 2005 was enacted to give citizens the **right to access information** from public authorities.
 - It seeks to enhance **transparency, accountability, and good governance** in the operations of government bodies and public authorities.
- **Key Provisions:** The Act applies to all levels of **government**, including **central, state, and local bodies**.
 - **Section 8(2)** allows for the **disclosure of information** when the **public interest** outweighs **confidentiality of information**.
 - **Section 22** ensures that the RTI Act, 2005 takes **precedence** over any **inconsistencies** with other **laws**.
- **Right to Information (Amendment) Act, 2019:** Under the RTI Act, 2005, the **term of the Chief IC and ICs** was fixed at **5 years** or until the **age of 65**, whichever is earlier. After the **2019 Amendment**, the **term** is decided by the **Central Government**.
 - Originally, the **CIC's salary and terms of service** aligned with the **Chief Election Commissioner (CEC)**, and the **IC's** with an **Election Commissioner**. After the amendment, **salaries, allowances, and terms of service** for both **CICs and ICs** are prescribed by the **Central Government**.

Concerns are Associated with CIC	Measures
<ul style="list-style-type: none"> ■ Opaque appointments: SC in <i>Anjali Bhardwaj v. Union of India</i> (2019) directed more transparency ■ Independence issue: RTI (Amendment) Act, 2019 lets Centre decide tenure & service conditions ■ Weak enforcement: Penalties imposed in only 2.2% of disposed cases ■ Backlog: ~22,000 cases pending (Nov 2024) due to vacancies & staff shortage ■ Adjudication flaws: Procedural dismissals, adjournments, and overuse of exemptions reduce info disclosure 	<ul style="list-style-type: none"> ■ Transparent appointments: Follow SC guidelines; ensure time-bound vacancy filling ■ Reduce pendency: Add more ICs, create sectoral benches, enforce case disposal timelines, enable digital & video hearings ■ Stronger enforcement: Grant contempt/enforcement powers, implement compliance tracking monitored by Parliamentary committees ■ Proactive disclosure: Enforce Section 4, RTI Act; publish data on bench disposal, penalties, compliance ■ Administrative autonomy: End executive dependence for staffing and infrastructure

How can the CIC's enforcement powers be strengthened to ensure effective implementation of its orders, addressing low penalties and poor compliance?

Drishti Mains Question

Viksit Bharat- Guarantee For Rozgar And Aajeevika Mission (Gramin) Act, 2025

The President of India has given assent to the Viksit Bharat Guarantee for Rozgar and Aajeevika Mission (Gramin) (VB-G RAM G) Bill, 2025, which will serve as an upgrade to MGNREGA.

- Rural poverty has declined sharply from **25.7% in 2011–12 to nearly 5% in 2023–24**, **reducing the need for MGNREGA** as a pure distress-relief programme and warranting a shift towards productivity-linked employment.

Key Provisions of the VB–G RAM G Bill, 2025

- **Statutory Wage Employment Guarantee:** Provides a legal guarantee of **125 days of wage employment per rural household per financial year** to adult members willing to undertake unskilled manual work.
- **Conditional and Non-Universal Coverage:** Unlike MGNREGA's universal coverage, employment under the Bill will be available **only in rural areas notified by the Union Government**, making the guarantee conditional rather than nationwide.

- **Bottom-Up Planning through VGPPs:** Mandates preparation of **Viksit Gram Panchayat Plans (VGPPs)** using spatial technology, aggregated at Block, District, and State levels, and integrated with **PM Gati Shakti** for coordinated infrastructure planning.
- **Centrally Sponsored Scheme (CSS) Structure:** Significantly increases the financial burden on States by revising the cost-sharing pattern to 60:40 for most States (from the earlier 10% share under MGNREGA), while retaining 90:10 only for North-Eastern and Himalayan States/UTs.
 - State-wise allocations will be determined annually by the Union Government based on objective parameters, **curtailing flexibility to expand spending in response to distress or rising demand**.
- **Flexibility during Agricultural Seasons:** The Bill empowers States to pause the programme for up to 60 days in a financial year during peak sowing and harvesting seasons, ensuring the availability of farm labour for agricultural activities.
- **Unemployment Allowance Provision:** Mandates payment of **unemployment allowance by State Governments** if employment is not provided within **15 days** of demand.

Limitation of VB-G RAM G Act, 2025

- **Erosion of the Right to Work:** Critics argue that the Bill weakens the rights-based framework of MGNREGA by converting a demand-driven, legally enforceable entitlement into a supply-driven, budget-capped programme.
- **Loss of Universal Coverage:** Employment is no longer guaranteed across all rural areas and is limited to regions notified by the Centre, raising concerns of exclusion of needy households.
- **Increased Financial Burden on States:** The revised cost-sharing pattern (60:40 for most States) significantly raises States' fiscal responsibility, which may constrain effective implementation, especially in poorer States.
- **Capped Allocations Limit Responsiveness:** Fixed State-wise normative allocations restrict the ability to expand employment during periods of distress.
 - Provision allowing suspension of work for up to 60 days during agricultural seasons is criticised for reducing income support during periods when rural households may still need employment.

Key Government Initiatives to Promote Rural Growth and Employment

- **Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM):** Promotes self-employment through SHGs, financial inclusion, and livelihood diversification in rural areas.
- **Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY):** Focuses on skill development and placement-linked employment for rural youth.
- **Survey of Villages and Mapping with Improved Technology in Village Areas:** Provides property cards to rural households, enabling access to credit and investment.
- **PM Vishwakarma:** Supports traditional artisans through skilling, toolkits, and credit linkage to generate rural non-farm employment.

Measures to Strengthen Rural Growth and Employment in India

- **Strengthen Convergence Across Schemes:** Effective integration of DAY-NRLM, DDU-GKY, and PM Vishwakarma can ensure that short-term wage employment translates into sustainable livelihoods through skilling, credit access, and market linkage.
- **Promote Rural Non-farm Employment:** Expansion of rural MSMEs, agro-processing units, handicrafts, and service enterprises is essential to absorb surplus agricultural labour.
 - Cluster-based development, common facility centres, and improved logistics can boost rural manufacturing and services.
- **Build climate-resilient rural livelihoods:** Investments in climate-smart agriculture, watershed management, drought-proofing, and renewable energy-based livelihoods can reduce vulnerability to climate shocks and stabilise rural employment.
- **Empower Panchayati Raj Institutions (PRIs):** Greater devolution of funds, functions, and functionaries along with capacity building of PRIs will improve local planning, implementation, and accountability of rural development programmes.
- **Leverage Digital and Financial Inclusion:** Expanding Direct Benefit Transfer Scheme, digital payments, rural broadband, and credit access through SHGs and FPOs can enhance transparency, reduce leakages, and support rural entrepreneurship.

Evaluate the role of rural employment programmes in creating climate-resilient assets.

Drishti Mains Question

Key Issues Hindering Effective Rural Growth and Employment in India

- **Low-quality Employment Dominance:** As per Periodic Labour Force Survey (PLFS 2022–23), nearly 45% of rural workers remain self-employed in low-productivity agriculture, with disguised unemployment persisting.
- **MGNREGA Fiscal and Operational Stress:** Comptroller and Auditor-General of India (CAG) highlights issues of delayed wage payments, frequent fund shortages, and rising pending liabilities under MGNREGA due to its open-ended demand-based nature.
- **Skill Mismatch:** National Skill Development Corporation (NSDC) reports indicate that rural skilling programmes often lack alignment with local market demand, leading to low placement and retention rates.
- **Climate Vulnerability:** IPCC AR6 notes that agriculture-dependent rural livelihoods are highly exposed to climate shocks, worsening employment volatility and income uncertainty.

Sabka Bima, Sabki Raksha Bill, 2025

The Lok Sabha has passed the *Sabka Bima, Sabki Raksha (Amendment of Insurance Laws) Bill, 2025*, proposing to raise the Foreign Direct Investment (FDI) limit in the insurance sector from 74% to 100%.

- The move is positioned as a key reform to deepen insurance coverage and advance the goal of "Insurance for All by 2047."

Key Provisions of the Sabka Bima, Sabki Raksha (Amendment of Insurance Laws) Bill, 2025

- **100% FDI in Insurance:** The Bill raises the foreign direct investment limit in insurance companies from 74% to 100%, allowing full foreign ownership to attract long-term capital, advanced technology, and global best practices.
- **Amendments to Insurance Laws:** It updates the Insurance Act, 1938, LIC Act, 1956, and Insurance Regulatory and Development Authority (IRDA) Act, 1999 to reflect sectoral reforms and regulatory strengthening.

- **Reinsurance Liberalisation:** The **Net Owned Fund** requirement of Foreign Reinsurance Branches is **reduced from Rs 5,000 crore to Rs 1,000 crore**, this aims to deepen the reinsurance market and promote India as a regional hub.
 - **Net Own Funds (NOF)** refers to the minimum capital that a reinsurance entity must maintain as a financial buffer to ensure solvency and meet claim obligations.
- **Policyholders' Education and Protection Fund:** It will be set up to promote insurance awareness and safeguard consumer interests, while policyholders' data must be collected and protected in line with the **Digital Personal Data Protection (DPDP) Act, 2023**.
- **Stronger Powers for IRDAI:** The Bill significantly enhances IRDAI's **enforcement authority**, enabling it to investigate violations, curb illegal commissions and rebates, and ensure stricter compliance by insurers and intermediaries.
 - The **IRDAI Chairperson can order searches, inspections, and seizures** where records are withheld or tampered with.
 - IRDAI can deploy officers to scrutinise returns, statements, and disclosures submitted by insurers, improving transparency and regulatory vigilance.

Limitations of the Bill

- Critics argue that allowing 100% foreign ownership places citizens' **long-term savings in the hands of foreign corporations**, raising concerns about national control over **household financial security**.
 - There are worries that foreign insurers could **prioritise profit repatriation and urban markets**, neglecting rural and social sector needs.
- Critics also point to a **trust deficit**, as insurance relies heavily on public confidence in state-backed institutions.
- Also, the reform is perceived as a **recalibration of the state's role in social risk protection**, with greater emphasis on shared responsibility rather than direct state provision.

Key Government Initiatives to Promote Insurance Penetration in India

Pradhan Mantri Jan Arogya Yojana (PM-JAY); Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY); Pradhan Mantri Suraksha Bima Yojana (PMSBY) and Jan Dhan-Aadhaar-Mobile (JAM) Trinity.

- **Greater Autonomy for LIC:** LIC is granted **operational freedom to open new zonal offices** without prior government approval, enabling quicker expansion and better regional management.
- **Eased Compliance Regime:** Procedural and compliance requirements are simplified to improve ease of doing business while maintaining consumer protection.

State of the Indian Insurance Sector

- 10th largest insurance market globally, 2nd among emerging markets; 1.9% global share. Expected to become 6th largest by 2032 (Swiss Re).

- 5th largest life insurance market globally, growing at 32–34% annually; LIC holds ~60% market share (largest player).
- 4th largest general insurance market in Asia, 14th globally.

Key Challenges in India's Insurance Sector

- **Low Insurance Penetration:** General insurance penetration in India remains relatively low at **1% of GDP, compared to a global average of 4.2% in 2023**.
- **Limited Rural and Informal Coverage:** Urban and salaried segments dominate coverage, while **rural areas, MSMEs, gig workers, and the unorganised workers** remain largely uninsured.
- **Product Mismatch:** Insurance products are often complex and poorly tailored to the needs of low-income households and small businesses.
 - Many products remain generic and poorly aligned with emerging risks like **climate events, cyber risks, and pandemic-related losses**.
- **Mis-selling and Trust Deficit:** **Product complexity, opaque terms, delayed claim settlements, mis-selling by intermediaries**, and complex policy terms weaken consumer confidence and lead to high grievance volumes.
- **Limited Awareness:** Large sections of the population still view insurance as an expense rather than a risk-management tool.

Measures to Strengthen India's Insurance Sector

- **Leverage Tech & DPI Integration:** Use **RegTech/SupTech** for compliance; integrate with **India Stack** for onboarding, claims, and premiums. **AI & Analytics**—for **fraud detection, underwriting & personalised products**
- **Encourage Product Innovation & Risk Coverage:** Focus on cyber, climate, pandemic, supply-chain risks; promote **usage-based/on-demand insurance**
 - Align with **financial inclusion, climate resilience, infra financing goals**
- **Deepen Insurance Penetration & Inclusion:** Expand **PMJJBY, PMSBY, PMFBY, Ayushman Bharat**. Promote micro & parametric insurance for farmers, coastal, climate-vulnerable regions
 - Use **SHGs, PACS, CSCs, and post offices for last-mile distribution**
- **Policy Imperative:** The bill must be backed by **tight regulation & vigilant oversight** with rising **foreign participation**

"Raising FDI in insurance to 100% addresses supply-side constraints but not demand-side barriers." Examine in the context of India's insurance sector.

Drishti Mains Question

Nation & States

The Threat of Digital Tradecraft in Terrorism

The car explosion near **Delhi's Red Fort** has exposed the growing **threat of digital tradecraft in terrorism**. The **National Investigation Agency (NIA)** investigation shows terror modules are now **using encrypted apps, anonymous servers**, and spy-style digital methods to plan attacks.

Digital Tradecraft in Terrorism

- **About:** Digital tradecraft in terrorism is the modern **set of online techniques that terror groups use to hide their identities, communicate securely, radicalise recruits, move money, and plan attacks**.
 - It mirrors **intelligence tradecraft** but operates through encrypted, anonymous, and decentralised digital systems.
- **Key Elements of Digital Tradecraft:**
 - **Encrypted Communication:** Terror groups use end-to-end encrypted apps (e.g., Threema (requires **no phone number or email**), Telegram, Signal) to plan attacks without interception.
 - **Anonymity Tools:** Techniques such as **Virtual Private Networks**, Tor browser, burner devices, and proxy servers help mask locations and identities.
 - **Decentralised Platforms:** Use of **dark web forums**, anonymous hosting services, temporary email IDs, and self-destructing messages.
 - **Digital Surveillance Evasion:** Tactical methods like avoiding metadata trails, using offline communication (**Bluetooth mesh, Wi-Fi dead drops**), and anti-tracking tools.
 - ❖ Terror operatives used a **shared email account to communicate through unsent draft messages**, avoiding any sent-mail trail. This classic dead-drop method leaves minimal digital footprints.
 - **Online Radicalisation & Recruitment:** Use of social media, gaming platforms, encrypted channels, and AI-generated content to target and indoctrinate individuals.
 - **Financial Concealment:** Cryptocurrencies, prepaid wallets, crowdfunding using fake charities, and hawala networks integrated with digital payments.
 - **Operational Planning:** Use of **open-source intelligence (OSINT), satellite maps, AI tools, and cyber reconnaissance** to identify targets.

Challenges of Rising Digital Tradecraft for India's Counter-terrorism Efforts

- **Outdated Legal Frameworks:** Existing counter-terror laws are not aligned with **decentralised, encrypted, and self-hosted platforms** now used by terror modules.
 - India lacks **specific legal provisions** to detect, investigate, and prosecute digital tradecraft methods like draft-only emails and ephemeral messaging.
 - Despite being banned under **Section 69A of the Information Technology (IT) Act, 2000**, Threema was accessed via **VPNs**, showing bans alone are insufficient.
- **Limited Advanced Cyber-Forensic Capabilities:** Many agencies lack specialised **tools for memory dumps, server forensics, and encrypted-network mapping**, while **private self-hosted encrypted servers** further block lawful access even with warrants.
 - **VPNs, proxies, and anonymising tools** mask user locations, causing digital footprints to fragment and slowing down attribution and forensic verification.
 - A persistent **shortage of trained cyber-intelligence personnel** widens the capability gap against increasingly sophisticated terror cells.
- **Radicalisation in Professional & Academic Spaces:** Involvement of doctors and educated recruits shows radicalisation is shifting to high-skill, low-suspect environments. Security institutions lack mechanisms to **detect ideological shifts in professional circles**.
- **Weak International Coordination:** Key evidence often lies on **foreign servers or encrypted platforms outside India's jurisdiction**, making direct access difficult.
 - Limited cross-border data-sharing agreements further slow real-time intelligence flow, creating critical delays in tracking and disrupting transnational terror networks.

Measures to Counter the Rising Threat of Digital Tradecraft in Terrorism

- **Strengthen Advanced Cyber-Forensics Capabilities:** Create specialised units within **NIA, National Technical Research Organisation (NTRO), Intelligence Bureau (IB), and State Anti-Terrorism Squads (ATS)** focusing on memory forensics, encrypted-network mapping, and server analysis.
 - Expand **Indian Computer Emergency Response Team (CERT-In)** mandate to include counter-terror cyber-forensics and rapid threat attribution.

- **Modernise Legal and Regulatory Frameworks:** Update the **Unlawful Activities (Prevention) Act 1967** to explicitly cover digital tradecraft methods such as draft-only emails, self-hosted encrypted servers, and anonymised IDs.
 - Create a policy framework requiring private servers used for communication apps to maintain **minimum compliance standards**. Strengthen the role of **Telecom Regulatory Authority of India (TRAI)** in monitoring anonymising services and **VPN** gateways used for terror activity.
- **Build Institutional Capacity and Talent Pipelines:** Partner with **IITs, IIITs, Defence Research and Development Organisation (DRDO), and Indian Space Research Organisation (ISRO)** to create specialised courses in **cryptography**, digital forensics, malware analysis, and open source intelligence (OSINT). Expand staffing and adapt it for counter-terror intelligence.
- **Strengthen Tech Diplomacy:** Sign **Mutual Legal Assistance Treaties (MLATs)** and **data-sharing agreements** with countries hosting encrypted platforms (e.g., Switzerland for Threema).
 - Collaborate with **INTERPOL, Europol, and UN Security Council** for tracking cross-border digital footprints.
- **Counter Radicalisation in High-Skill Environments:** Empower **University Grants Commission, All India Council for Technical Education (AICTE)** to issue advisory frameworks for early detection of extremist behaviour.
 - Strengthen community-based monitoring under the **National Integration Council** and district-level security committees.

Analyse how the rise of encrypted and decentralised communication platforms has changed the terrorism threat landscape in India. Suggest reforms to respond effectively.

Drishti Mains Question

India's Evolving Counterterror Response Since 26/11 Attacks

The President **honoured the soldiers** who sacrificed their lives during the 26/11 attack and urged everyone to **renew their commitment** to fight terrorism in all forms.

- On **26th November 2008**, **10 armed terrorists** linked to **Pakistan-based Lashkar-e-Taiba (LeT)** carried out **coordinated strikes** in **Mumbai**, leading to the tragic loss of **166 lives**, including **18 security personnel**, over a **60-hour ordeal**.

Major Reforms Introduced in India's Counter-terrorism Framework Following the 26/11 Attacks

- **Legal Reforms:** The enacted **National Investigation Agency (NIA) Act, 2008** that established the **National Investigation**

Agency (NIA) as a **federal body** to investigate **terror cases**, overcoming **inter-state coordination issues**.

- The **Unlawful Activities (Prevention) Act, 1967 (UAPA)** was amended to broaden the definition of a **terrorist act**.
- **Bolstering Intelligence:** The **National Intelligence Grid (NATGRID)**, established in **2010**, serves as a key **counter-terrorism initiative** by creating a **secure, integrated database** that enables **security agencies** to share information and **track suspects** using data from multiple **government sources**.
 - It further strengthened the national intelligence architecture by enhancing the **Multi-Agency Centre (MAC)** to enable **real-time information coordination**.
- **Coastal Security Reinforcement:** India implemented a **multi-layered defense system**, with the **Indian Navy** responsible for overall **maritime security** and the **Indian Coast Guard** managing **territorial waters** and coordinating with **marine police stations**.
 - A **Coastal Surveillance Network** of **radar sensors** was also installed along the coastline to monitor vessel movement in real-time.
- **Modernization of Police and Special Forces:** To ensure a faster response, many states created their own **Special Forces**, such as **Force One** in Maharashtra, while the **NSG** was decentralized with **four regional hubs** in **Mumbai, Chennai, Hyderabad, and Kolkata** for rapid, **pan-India deployment**.
- **Soft Target Protection:** Security for major **soft targets** like **hotels and airports** was drastically upgraded with enhanced **protocols, CCTV cameras, and access control**.
 - Simultaneously, India's **cyber security** was strengthened by empowering **CERT-In** to counter **digital threats**.

Key Limitations Continuing to Impede India's Counter-terrorism Capabilities

- **Lack of a National Counter-Terrorism Doctrine:** India still lacks a **unified, long-term counter-terrorism doctrine**, resulting in a **predominantly reactive approach** that **intensifies only after major attacks**.
 - Without a clear strategic framework, **policies tend to vary with political leadership**, preventing a consistent and bipartisan national security approach.
- **Fragmented Intelligence Apparatus:** A critical weakness is the persistent **stove-piping of intelligence**, where agencies like the **IB, R&AW, and state police** lack seamless **integration**, hindering the **Multi-Agency Centre (MAC)**.
 - The **November 2025 Red Fort car blast** exposed serious **coordination gaps** as earlier seizures of explosives by neighbouring states were not properly linked or shared.

- Critics argue that poor **information integration at the MAC** prevented timely action by the **Delhi Police**.
- **Legal and Judicial Lacunas:** India's **judicial process** for **terror cases** remains hampered by **weak prosecution**, where **shoddy investigation** and **witness intimidation** often cause cases to **collapse** despite strong **initial evidence**.
 - For instance, in **July 2025**, a special **NIA court in Mumbai** acquitted all **seven accused** in the **2008 Malegaon blast case**, noting that the prosecution **failed to prove the charges**, giving the accused the **benefit of doubt**.
- **Technological Lacunas:** **Security agencies** lack effective **counter-narrative strategies** against **extremist propaganda** and have uneven **cyber forensics capabilities** to track **sophisticated online terror activities**.
 - Terror groups now use **dead-drop methods** (saving drafts in shared email accounts without sending them) and **peer-to-peer crypto transfers** to evade traditional surveillance, while intelligence agencies struggle with a **shortage of cyber-intelligence analysts** and **linguistic experts** needed to decode such encrypted communications.
- **Manpower & Capacity Crises:** As of **July 2025**, the **NIA** faced a **28% staff shortage** with **541 vacancies**, leaving key operational posts, especially **Inspectors and DSPs**, undermanned and forcing reliance on deputation instead of a specialized cadre.
 - State **Anti-Terrorism Squads (ATS)** units also remain under-equipped, lacking **dedicated firing ranges**, **modern night-vision gear**, and **forensic labs**, as repeatedly noted by **CAG audits**.

Measures to Strengthen Counter-terrorism Efforts

- **Deepen Tech Integration with MAC:** Integrate **Artificial Intelligence (AI)** and **Machine Learning (ML)** with the **MAC data feeds**.
 - This can analyze vast amounts of **intercepted data** (chats, financial transactions, travel records) to identify **patterns**, predict **potential attacks**, and flag **suspicious networks** far more efficiently than **human analysts** alone.
- **Strengthen Police at the Last Mile:** Since **state police** are the **first responders**, strengthening their capacity requires continuous funding for **modern equipment**, **specialized counter-terrorism training**, and **seamless MAC/SMAC intel-sharing systems** to ensure timely, actionable responses.
- **Strengthen Legal Provisions:** Strengthening counter-terror justice requires **fast-track courts** to **expedite trials** that act

as a **deterrent**, alongside regular **review and amendment of laws like UAPA** to address modern threats while ensuring safeguards.

- **Cripple Terror Financing:** Strengthen the **Financial Intelligence Unit (FIU)** to monitor **hawala transactions**, **cryptocurrency payments**, and **shell companies** funding terrorism, while enhancing **international cooperation** with **FATF** to target safe havens.
- **International Cooperation:** Deepen **intelligence sharing** by enabling real-time, actionable exchanges with key partners like **USA, Israel, France, and Gulf countries** to disrupt plots from abroad.
 - Apply **diplomatic pressure** through multilateral forums (**UN, G20, BRICS, SCO**) to isolate **state-sponsors of terrorism**, supported by initiatives like the **"No Money for Terror"** conferences.

Examine the key changes made to India's coastal security architecture post-26/11. To what extent have they addressed the vulnerabilities exposed during the attacks?

Drishti Mains Question

23rd Law Commission and One Nation One Election

The **23rd Law Commission** has shared its initial views with the **Joint Parliamentary Committee** examining the **Constitution (129th Amendment) Bill, 2024**, and the **Union Territories Laws (Amendment) Bill, 2024**, both aimed at **enabling One Nation One Election**.

- The Commission has said that the proposals do not violate the **Constitution's basic structure** and that the **Model Code of Conduct (MCC)** does not need statutory backing.

Key Highlights of 23rd Law Commission

- **23rd Law Commission of India:** Law reform in India has been ongoing since independence, with the first Law Commission set up in 1955.
 - The Union government has constituted the **23rd Law Commission** for a three-year term from **September 1, 2024, to August 31, 2027**, with Justice (Retd.) **Dinesh Maheshwari** as **Chairperson**.
 - The Commission includes a full-time chairperson, four full-time members, the Secretaries of Legal Affairs and Legislative Departments as ex-officio members, and up to five part-time members.
 - Its mandate covers **reviewing and repealing obsolete laws**, **simplifying legal language and procedures**, and **aligning legislation with current economic needs**.
 - The Commission also advises the government on legal issues, and studies the impact of globalisation on vulnerable groups.

■ **23rd Law Commission's Views Regarding One Nation One Election Bills:** The Commission stated that the One Nation One Election Bills **do not violate the Constitution's basic structure**, noting that **federalism and the voter's rights remain fully protected**.

- It clarified that synchronising elections alters **only the frequency and timing of polls** and does not in any way dilute the **democratic right to vote**.
- It is the Commission's view that the **Bills do not require ratification by states**, as they do not propose amendments to subjects under **Article 368(2), clauses (a) to (e), which mandate state ratification**.
- Simultaneous elections are viewed positively as they would lead to saving of time and money.

■ **Model Code of Conduct (MCC):** The Law Commission advised **against giving statutory status to the MCC**, arguing that codifying it would slow down decision-making during elections.

- It stressed that the current flexible, consensus-based MCC works better, as it allows the Election Commission to act quickly when needed.

One Nation, One Election

■ **About:** Simultaneous elections, or "One Nation, One Election", refer to holding Lok Sabha, State Assembly, and local body elections at the same time.

- A high-level committee headed by former President Ram Nath Kovind has recommended enabling One Nation, One Election through two constitutional amendment bills **the Constitution (129th Amendment) Bill, 2024, and the Union Territories Laws (Amendment) Bill, 2024**.

■ **Historical Context:** India experienced synchronized elections from 1951 to 1967, during which elections for the Lok Sabha and most State Assemblies were held simultaneously.

- However, this practice eroded due to political factors and premature dissolutions of assemblies. The election cycles diverged further due to political instability and defections in the 1960s.

■ **Rationale for Simultaneous Elections:**

- **Promotes consistent governance** by reducing the continuous election cycle that distracts governments and leaders from development and welfare work.
- **Prevents policy paralysis**, as the **Model Code of Conduct** would be imposed less frequently, allowing uninterrupted implementation of schemes and decisions.
- **Reduces diversion of administrative resources**, since simultaneous polls limit the repeated deployment of personnel for election duties.

- **Preserves the relevance of regional parties** by ensuring that state-level issues receive focused attention without being overshadowed by national campaigns.
- **Improves focus on governance**, as fewer elections mean fewer political disruptions, less aggressive campaigning, and more attention to public needs.
- **Cuts financial burden**, lowering repeated expenditure on manpower, security, logistics, and equipment required for separate election cycles.

Assam's Three-Tier Classification of STs

Assam is facing unrest after a Group of Ministers (GoM) proposed a **new three-tier Scheduled Tribes (ST) classification** to grant ST status to six communities. While the move has satisfied the applicant groups, it has triggered strong opposition from existing tribals, sparking **protests across the state**.

Assam's GoM Recommendations on ST Classification

■ The GoM proposed a three-tier ST structure:

- **ST (Plains):** Continues for existing tribal communities in the plains.
- **ST (Hills):** Remains unchanged for existing hill tribes.
- **ST (Valley):** Newly suggested category for the six communities demanding ST status: **Ahom, Chutia, Moran, Matak, Koch-Rajbongshi, and Tea Tribes/Adivasis**.
- The GoM said this structure would let the state reorganise reservations without reducing the existing entitlements of **ST (Plains) and ST (Hills)**.
 - ❖ Separate quotas would apply for state jobs and education, but all groups would share a single ST list for central services.
- Notes that **Parliament must pass special legislation** for statutory approval of the three-tier classification.

Process of Scheduled Tribe Notification in India

- **Article 366(25):** "Scheduled Tribes" refers to the tribes or tribal groups that are recognised as STs under Article 342.
- **Article 342:** The President can notify which **tribes or tribal groups** are recognised as Scheduled Tribes for each State or Union Territory, after consulting the Governor.
 - Any later inclusion or removal from this **ST list can be done only by Parliament** through legislation, not by executive notification.
- **ST Categorization:** The term "Scheduled Tribes" appears in the Constitution, but it **does not lay down criteria for identifying them**.
 - The government set up the **Lokur Committee in 1956**, which defined a tribe using criteria such as **primitive**

traits, a distinctive culture, geographical isolation, shyness of contact with the wider community, and social and economic backwardness.

- Before independence, the 1931 Census described such groups as “backward tribes” living in **excluded or partially excluded areas**.
- In *State of Punjab v. Davinder Singh (2024)*, the Supreme Court upheld the validity of sub-classifying SCs and STs and allowed states to create **sub-groups to ensure fair distribution of benefits**.

■ Reservation in Services/ Posts:

- **Article 16(4)**: Permits reservations for backward classes who are inadequately represented in state services.
- **Article 46**: The State must promote the educational and economic interests of weaker sections, especially SCs and STs, and protect them from social injustice and exploitation.
- **Article 335**: The claims of SCs and STs must be considered in appointments to Union or State services, while maintaining administrative efficiency.

Indian Maritime Doctrine 2025

The Chief of the Naval Staff released the **Indian Maritime Doctrine 2025** on **India Navy Day**, aligning it with India's long-term strategic vision and maritime priorities.

Indian Maritime Doctrine 2025

- **About**: The **Indian Maritime Doctrine 2025** is the Navy's apex guidance document that defines how India plans, prepares, and operates across the entire maritime conflict spectrum.
 - It outlines the Navy's **strategic principles, roles, force employment, capability development**, and its approach to emerging maritime challenges
 - First issued in 2004 and updated in 2009 and 2015, the 2025 edition reflects major changes in India's maritime environment and **strategic outlook over the past decade**.
- **Key Highlights of 2025 Edition**: Formally recognises “**no-war, no-peace**” as a distinct operational category, acknowledging the **grey zone between peace and conflict** as a critical space where contemporary maritime competition increasingly occurs.
 - The doctrine prioritises **jointness and interoperability** among the three services to **support theaterisation**.
 - Integrates lessons on **grey-zone, hybrid, and irregular warfare**, and multi-domain threats.
 - The doctrine emphasises emerging domains like **space, cyber, and cognitive warfare**.

- Promotes adoption of **uncrewed systems, autonomous platforms, and advanced technologies**.

- **Significance**: The doctrine promotes a maritime-conscious nation that recognises the strategic importance of the oceans and positions maritime power as a key pillar of **Viksit Bharat 2047**.

- It aligns with major national initiatives such as **Sagarmala, PM Gati Shakti, Maritime India Vision 2030, Maritime Amrit Kaal Vision 2047 and MAHASAGAR**, while reflecting India's shift toward a more proactive maritime posture in the Indo-Pacific.
- The document also supports **tri-service joint doctrines** (Special Forces, Airborne/Heliborne and Multi-Domain Operations) to strengthen interoperability and integrated operations.
- It emphasises a coherent maritime strategy that supports economic growth, **infrastructure expansion and blue economy development**.

The Indian Maritime Doctrine 2025 marks a shift from a platform-centric to a strategy-driven Navy. Discuss.

Drishti Mains Question

Biological Weapons Convention and Bioterrorism

At the 50-year commemoration of the **Biological Weapons Convention (BWC)** in New Delhi, India's External Affairs Minister highlighted that the world is still not prepared to deal with **bioterrorism**, stressing rising risks from **non-state actors** and calling for stronger **global biosecurity frameworks**.

Biological Weapons Convention (BWC)

- **About**: The BWC, formally titled “*The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction*,” effectively prohibits the **development, production, acquisition, transfer, stockpiling and use** of biological and toxin weapons.
 - The **General Purpose Criterion** under **Article I** of the BWC bans any biological agents, toxins, or related materials that lack **legitimate peaceful, protective, or prophylactic use**, instead of listing specific agents or technologies.
 - BWC opened for signature in 1972 and entered into force in 1975 (India ratified in 1974).
 - ❖ The Convention is reviewed **every five years** to align it with evolving scientific, technological, and security challenges.
 - The BWC supplements the **1925 Geneva Protocol**, which had prohibited only the use of biological weapons.

- **Key Features:** The BWC defines biological and toxin weapons as microorganisms (such as viruses, bacteria, and fungi) or toxins produced by living organisms that are deliberately released to cause disease or death in humans, animals, or plants.
 - It is the **first multilateral disarmament treaty banning an entire category of Weapons of Mass Destruction (WMD)**.
 - It prohibits development, production, acquisition, stockpiling, transfer, and use of biological and toxin weapons.
- **India and BWC:** To ensure BWC full implementation, India has established a strong domestic regulatory framework, including the **Manufacture, Use, Import, Export and Storage of Hazardous Micro-organisms, Genetically Engineered Organisms or Cells Rules, 1989**, the **Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005**, and export controls under the **Special Chemicals, Organisms, Materials, Equipment and Technologies (SCOMET)** list.
- **Gaps in BWC:** Lacks a formal compliance and verification mechanism to ensure member countries follow treaty obligations.
 - The BWC's **Implementation Support Unit**, was set up to handle administrative and coordination tasks, has **no verification powers**, leaving the Convention without an enforcement mechanism unlike the **Organisation for the Prohibition of Chemical Weapons (OPCW)** under the **Chemical Weapons Convention**.
 - No structured system to track emerging scientific and technological developments.
 - These gaps weaken global confidence in the treaty and reduce collective preparedness against bioweapons.

Bioterrorism

About: According to the **INTERPOL**, **Bioterrorism** is the deliberate release of harmful biological agents or toxins to cause disease and **fear, aiming to pressure or influence governments** or civilian populations for political or social objectives.

Concerns Associated with Bioterrorism

- **High Casualty Potential:** Biological agents can spread rapidly, cause mass infections, and overwhelm public health systems.
 - Covid-19 exposed major gaps in global outbreak response, showing how unprepared nations were even for natural pathogens.
- **Difficult Detection & Attribution:** Many biological attacks resemble natural outbreaks, making it hard to detect early or identify the perpetrator.

- **Dual-Use Research Risks:** Advances in biotechnology, synthetic biology, and genetic engineering can be misused to create more potent or resistant pathogens.
- **Low-Cost, High-Impact Threat:** Biological weapons are cheaper to produce compared to nuclear or chemical weapons, making them attractive to non-state actors.
- **Psychological & Economic Disruption:** Fear, misinformation, and public panic can destabilise societies, disrupt supply chains, and damage economies.

Measures to Strengthen Biosecurity

- **National Implementation Framework:** India has proposed a comprehensive framework covering high-risk biological agents, oversight of dual-use research, mandatory domestic reporting, and incident-management mechanisms.
- **Bio-Forensics & Attribution:** Build scientific capacity to trace the source of outbreaks, support investigations, and deter deliberate misuse.
- **Focus on the Global South:** India stresses that Global South countries should be central to future biosecurity planning because they are most vulnerable and must have equitable access to vaccines, medicines, and technology.
- **Dual-Use Dilemma Oversight:** Research on vaccines, diagnostics, or biofuels can be misused, so **stricter ethical review, monitoring, and regulatory checks** are essential.
- **Article VII Assistance Mechanism:** India (along with France) recommended creating a **global database** to facilitate timely assistance to any State Party exposed to biological threats or treaty violations.
- **International Cooperation:** India stresses that biological threats cannot be addressed in isolation and require stronger international cooperation, especially in capacity building, surveillance, and technology sharing.
 - Agreements like the **Cartagena Protocol on Biosafety, 2000** support this by promoting the safe handling and movement of living modified organisms to protect biodiversity and human health.
- **Confidence Building Measures (CBMs):** Improve transparency through regular data sharing, facility declarations, and national legislation updates to strengthen trust under the BWC.

Critically examine the main gaps in the Biological Weapons Convention (BWC) and suggest reforms to make it responsive to 21st-century biotechnology risks.

Drishti Mains Question

Economic Scenario

Surge in India's Ultra-Processed Food Market

A series in *The Lancet* highlights that India is witnessing the fastest growth in sales of **Ultra-Processed Foods (UPFs)** globally — from **USD 0.9 billion in 2006** to nearly **USD 38 billion in 2019**, a ~40-fold rise.

- This rapid **dietary transition** is closely tied to rising rates of **obesity, diabetes, and cardiovascular diseases** in India.

Ultra-Processed Foods (UPFs)

- **About:** UPFs are **industrial formulations** created for convenience, long shelf life, and mass consumption. They rely heavily on **manufactured ingredients, preservatives, and additives** rather than whole, natural foods.
 - Common examples include **soft drinks, chips, chocolates, ice cream, sweetened breakfast cereals, packaged soups, and various ready-to-heat meals.**
- **Reasons for Surge in UPF Consumption:**
 - **Aggressive Marketing:** Celebrity endorsements, buy-one-get-one-free offers, and sports sponsorships,

targeted ads—especially aimed at **children**— boost consumption.

- **Lifestyle Changes:** Fast-paced urban living boosts dependence on **quick, convenient, and ready-to-eat options.**
- **Cultural Dietary Shifts:** Growing preference for **Western-style diets** has increased the intake of **fast food, sugary snacks, and ready-to-eat meals.**
- **Alternative Food Option:** Ultra-processed foods are viewed as **time-saving alternatives** to traditional meal preparation, helping working individuals **balance** their **professional and personal lives** more easily.
- **Difference between Processed from UPFs:**
 - **Processed foods** involve minimal changes like **washing, cooking, or canning** and retain their natural structure, while **UPFs** contain **industrial starches, protein isolates, flavours, additives, and emulsifiers**—and the presence of any such additive classifies a product as a UPF.

Impact of the Surge in UPF Consumption in India	Measures
<ul style="list-style-type: none"> ■ Nutritional Deficiency: High in fat, sugar, salt (HFSS), and additives; low in nutrients → poor diet quality. ■ Health Risks: Linked to 12 major issues incl. obesity, diabetes, hypertension, heart/kidney diseases, and premature death; Indians more prone to visceral obesity & metabolic diseases. ■ Children at Risk: Childhood obesity rose from 2.1% to 3.4% (NFHS 2016 to 2019-21); causes addictive eating, gut microbe imbalance, brain development issues. ■ Weak Regulation: No mandatory front-of-pack warning labels; Economic Survey 2024-25 highlights the urgent need for stronger regulations ■ Identification Issues: Misleading packaging hides HFSS content; confusion b/w processed & ultra-processed foods. 	<ul style="list-style-type: none"> ■ Implement Strong Regulations: Mandatory front-of-pack warning labels (High in Sugar/Salt/Fats); strict rules to limit aggressive marketing, esp. to children. ■ Create Healthy Food Environments: Follow models like Brazil; promote minimally processed foods in schools & public spaces. ■ Nationwide Awareness Campaigns: Promote avoiding products with >10% sugar/fat or >1 mg sodium/kcal; encourage whole foods (milk, nuts, fruits, etc.). ■ Improve Monitoring & Research: Study UPF intake patterns, esp. among children/youth, for targeted regulation. ■ Global & National Coordination: Align with WHO standards; involve FSSAI, health, education, industry, civil society; WHO Guideline— limit free sugar to <10% of total daily energy (ideally 5% or 25g/day).

India's Initiatives to Promote Healthy Food Habits: World Food Safety Day, Eat Right India, State Food Safety Index, RUCO (Repurpose Used Cooking Oil) and Food Safety Mitra

Examine the role of ultra-processed foods (UPFs) in the rising burden of non-communicable diseases in India and suggest policy measures to mitigate the risk.

Drishiti Mains Question

Nationwide Implementation of India's Four Labour Codes

India has announced the implementation of the **four Labour Codes** (the Code on Wages, 2019, Industrial Relations Code, 2020, Code on Social Security, 2020, Occupational Safety, Health and Working Conditions (OSH) Code, 2020) replacing 29 earlier labour laws.

- The reform aims to **modernise labour regulation, strengthen worker protections and create a simpler, future-ready framework** supporting a resilient workforce and Aatmanirbhar Bharat.
- The four labour codes were enacted based on the **2nd National Commission on Labour (2002)**, which recommended merging multiple labour laws into four functional codes.

India's Four Labour Codes

- **The Code of Wages, 2019:** It merges four key laws (The Payment of Wages Act, 1936; The Minimum Wages Act, 1948; The Payment of Bonus Act, 1965; and The Equal Remuneration Act, 1976) into a single framework.
 - It brings uniformity in **wage rules, ensures fair and timely payment, promotes gender equality** and simplifies compliance for employers while strengthening workers' rights.
- **The Industrial Relations Code, 2020:** It combines and simplifies provisions from earlier laws like the **Trade Unions Act, 1926, the Industrial Employment (Standing Orders) Act, 1946 and the Industrial Disputes Act, 1947.**
 - It seeks to balance worker rights with industrial stability by streamlining rules on union recognition, employment terms and dispute resolution.
- **The Code on Social Security, 2020:** It merges **nine existing laws like The Employee's Compensation Act, 1923, The Employees' State Insurance Act, 1948, The Employees' Provident Funds and Miscellaneous Provisions Act, 1952 into one unified framework** and extends benefits to all workers, including those in the unorganised, gig and platform sectors.
 - It covers maternity, health, life insurance and provident fund benefits while promoting digital processes and easier compliance.
- **The Occupational Safety, Health and Working Conditions Code 2020:** It consolidates **13 labour laws** such as Factories Act, 1948, Plantations Labour Act, 1951, and Mines Act, 1952.
 - The Code aims to ensure safer working conditions while simplifying compliance for businesses, creating a more efficient, fair and future-ready labour framework.

Need to Reform India's Labour Laws

- **Fragmented Legal Framework:** India had **29 separate labour laws with overlapping provisions**, making compliance complex and time-consuming for workers and employers.
- **Outdated Provisions:** Many laws were created during the **pre-Independence and early post-Independence era**, and no longer suited modern industry practices, technology, or new forms of employment.

- **High Compliance Burden:** Multiple **licences, registrations and returns** increased paperwork and made it difficult for businesses especially for **Micro, Small, and Medium Enterprises (MSME)** to operate smoothly.
- **Limited Worker Coverage:** Several protections applied only to **specific categories or sectors, leaving large numbers of informal and unorganised workers uncovered.**
- **Changing Nature of Work:** The rise of **gig work, platform jobs, fixed-term employment and flexible service-based roles** required updated regulatory frameworks.
- **Global Competitiveness:** Most major economies like Singapore have modernised and consolidated labour rules, and **India needed similar reforms to attract investment and support growth.**
- **Improving Worker Welfare:** The earlier system lacked **uniform standards for wages, safety and social security**, leading to gaps in labour protection.
- **Boosting Employment and Formalisation:** Simplified rules support industries, improve job creation and help shift workers from informal to formal employment.

Key Concerns Regarding India's New Labour Codes

- **Higher Compliance Burden for Small Businesses and MSMEs:** Expanded ESIC, PF and safety mandates raise labour costs significantly for micro and small enterprises.
 - MSMEs may need to restructure workforce size, invest in digital HR systems, medical checks and new workplace standards.
- **Coordination Between Centre and States:** Labour falls under the **Concurrent List**, so both the Centre and states must frame and align their rules.
 - State-level flexibility in thresholds and exemptions may create confusion, compliance gaps and legal disputes, **resulting in uneven worker protections across the country.**
- **Regulating Strikes and Union Recognition:** The 51% single-union rule may marginalise smaller unions and complicate representation. Strike restrictions may escalate tensions rather than prevent them if workers feel procedural hurdles are unfair.
- **Awareness Gap Among Workers:** Many workers especially informal, migrant and contractual may not understand new entitlements such as appointment letters, ESIC, floor wages or grievance rights.
- **Concerns Around Fixed-Term Employment:** Employers may overuse **FTE contracts to avoid permanency**, increasing job insecurity.
 - Courts may face rising litigation on whether repeated fixed contracts constitute disguised permanent employment.

- The retrenchment approval threshold has **increased from 100 to 300 workers, offering employers more flexibility** but potentially weakening worker protection.
- **Workforce Disruption During Transition:** Changes in wage structures, overtime rules, and employment categorisation may lead employers to pause hiring.

Constitution and Labour Legislation in India

- **Role of the Preamble:** The Preamble outlines values such as **justice, liberty, equality, and dignity**, which form the moral foundation for labour laws.
 - Though not enforceable, it guides the interpretation of labour legislation in favour of workers.
 - Labour laws reflect principles like **social justice, economic fairness, and protection of vulnerable workers**.
- **Fundamental Rights and Labour Laws (Part III: Articles 14–35):**

Right	Relevant Articles	Labour Link
Equality	14–18	Fair wages, non-discrimination based on caste, gender or status
Freedom	19–22	Freedom of association (trade unions)
Against Exploitation	23–24	Prohibits forced labour; child labour in hazardous work
Life and Personal Liberty	21	Right to dignified work conditions
Constitutional Remedies	32–35	Public interest Litigation (PIL) used for labour rights enforcement

- **Key Judgments:**
 - **Bandhua Mukti Morcha (1984):** Right to live with dignity includes labour rights.
 - **People's Union for Democratic Rights (1983):** Less than minimum wage amounts to forced labour under Article 23.
 - **Neerja Choudhary (1984):** Bonded labour must be rehabilitated.

Measures for Effective

Implementation of the New Labour Codes

- **Uniformity Across States:** To harmonize implementation of Labour codes, a model rulebook or intergovernmental labour council could reduce confusion and ensure uniform protection standards nationwide.
- **Safeguards Against Misuse of Fixed-Term Employment:** Clear guidelines must prevent employers from using fixed-term contracts to **avoid permanency**.
 - Regular audits and grievance redressal mechanisms should protect workers from **disguised exploitation**.
- **Strengthen Social Security for Gig Workers:** Develop a National Gig and Platform Workers Policy mandating aggregator contributions.
- **Capacity and Compliance Support for MSMEs:** Provide digital helpdesks, simplified filing modules, and temporary fiscal support (such as EPF co-payment) to help **small firms absorb cost and compliance transitions**.

India's consolidated Labour Codes strike a balance between labour welfare and industrial flexibility." Critically examine.

Drishti Mains Question

Strengthening MSMEs for Economic Resilience

The **Delayed Payments Report 3.0**, highlights **challenging conditions** with **MSMEs** that limit their **growth** and **contribution** to the **Indian economy**.

MSMEs

- **About: MSMEs** are businesses classified according to their investment and **annual turnover**.
- **MSME Regulation: MSME Development Act, 2006** - Establishes a National Board, defines enterprises, and empowers the Government to enhance MSME competitiveness.
 - **Ministry of MSME (2007):** Formed to develop policies, facilitate programs, and monitor implementation to support MSMEs.

New classification of MSME

Type	INVESTMENT		TURNOVER	
	Current	Revised	Current	Revised
MicroEnterprise	Rs 1cr	Rs 2.5cr	Rs 5cr	Rs 10cr
Small Enterprise	Rs 10cr	Rs 25cr	Rs 50cr	Rs 100cr
Medium Enterprise	Rs 50cr	Rs 125cr	Rs 250cr	Rs 500cr

Source: Budget 2025-2026, Speech of Nirmala Sitharama, Union Minister of Finance February 1, 2025.

Role of MSMEs in India's Economic Growth

- **Economic Growth & Employment:** Contribute 29% to GDP, 36% to manufacturing, and employ over 120 million people.
- **Exports & Global Trade:** Account for 45% of exports; the handicraft sector contributes 40% of global handmade carpet exports.
- **Rural Development & Inclusivity:** Drive rural industrialization and support balanced regional growth, aligning with Dr. APJ Abdul Kalam's PURA vision.

- **Innovation:** MSMEs drive India's startup ecosystem, particularly in e-commerce, fintech, and emerging industries.
- **Women Empowerment:** Over 20% of MSMEs are women-owned, reflecting growing female entrepreneurship.

Key Challenges Hindering MSME Growth in India

■ Financial Hindrances:

- **Delayed Payments:** Rs. 8.14 lakh crore tied up in delayed payments, limiting working capital.
- **Unmet Credit Needs:** Rs. 25 lakh crore credit gap, forcing reliance on expensive informal credit.
- **Rigid Banking Practices:** Information asymmetry and NPA norms hinder MSME access to loans.

■ Other Hindrances:

- **Formalization Barrier:** Over 90% MSMEs remain informal, limiting access to formal credit and schemes.
- **Lack of Specialized Knowledge:** Limited access to advisory services for exports, IP filing, and quality certifications.
- **Vulnerability to Supply Chain Shocks:** Reliance on imports exposes MSMEs to global disruptions.
- **Limited Market Access:** High tariffs and small size reduce competitiveness and export potential.
- **Working Capital Crisis:** Struggle for survival leaves little capital for R&D, new tech, or machinery upgrades.

Committees on Strengthening MSMEs

- **Standing Committee on Finance Report (April 2022):**
 - **Cash-flow Based Lending:** Shift to real-time cash-flow loans using GSTIN.
 - **Accelerating Formalisation:** Link credit access to GST registration.
 - **Targeted Credit Guarantees:** Provide guarantees for vulnerable sectors.
 - **Strengthening SIDBI:** Inject Rs 5,000–10,000 crore into SIDBI to support NBFCs.
- **UK Sinha Committee (2019):** Recommended a Rs 5,000 crore fund for stressed MSMEs and doubling collateral-free loan limits to Rs 20 lakh.
- **Abid Hussain Committee (1997):** Focus on promotion, training, marketing support, and enterprise cluster infrastructure.
- **Nayak Committee (1992):** Recommended banks to provide 20% of turnover as finance, with a 5% margin from businesses.

Strategies for MSME Transformation

- **Alternative Financing:** Promote invoice discounting, P2P lending, and cash-flow-based lending.
- **Market Access:** Collaborate with e-commerce platforms and support export consortia.

- **Technology Adoption:** Provide grants for tech upgrades and set up tech clinics.
- **Strengthen MSME Samadhaan Portal:** Penalize delayed payments and clear dues for micro-enterprises.
- **Fostering Resilience:** Develop MSME clusters with shared infrastructure and incentivize green practices.

"The MSME sector is the backbone of the Indian economy, yet it remains its Achilles' heel." Critically analyze this statement in the context of the financial and structural challenges faced by MSMEs.

Drishti Mains Question

Insolvency and Bankruptcy Code (IBC) Process

The finance ministry, after reviewing delays in case admissions and resolutions at various **National Company Law Tribunal (NCLT) benches**, urged banks to adopt a more strategic and coordinated approach to strengthen the **Insolvency and Bankruptcy Code (IBC) process** for faster timelines and better value recovery.

Insolvency and Bankruptcy Code (IBC) Process

- **Insolvency and Bankruptcy Code (IBC):** Enacted in 2016 and based on the recommendations of the **T.K. Vishwanathan's Bankruptcy Law Reforms Committee (2015)**, the IBC created a **unified, time-bound, and creditor-driven framework** for resolving corporate distress in India.
 - It was introduced when **non-performing assets (NPAs)** were rising and older mechanisms **SARFAESI, Lok Adalats** were proving ineffective and slow.
 - The IBC ensures that when a business becomes "sick" and defaults on its loans, creditors can **recover value quickly**, either through **resolution** (restructuring, sale to new owners) or **liquidation**.
 - Its core objective is to **prevent the loss of asset value**, maintain a healthy credit cycle, and free up stuck capital to keep the economy vibrant.
- **Regulating Authority:** The **Insolvency and Bankruptcy Board of India (IBBI)**, a statutory body established under the IBC, 2016, is responsible for formulating rules and regulations for insolvency resolution in India.
 - It comprises members from the **Ministry of Finance, Ministry of Corporate Affairs, and the Reserve Bank of India**.
- **Adjudicating Authority:** In the IBC, the Adjudicating Authority for corporate persons is the NCLT, while for individuals and firms, it's the **Debt Recovery Tribunal (DRT)**.
- **The Committee of Creditors (CoC):** It is a decision-making body under IBC, 2016. composed mainly of **financial creditors**, its primary role is to evaluate, approve, or reject resolution plans for a corporate debtor undergoing the **Corporate Insolvency Resolution Process (CIRP)**.

Pre-packaged Insolvency Resolution Process (PPIRP)

- The PPIRP is a faster, cost-effective insolvency mechanism introduced for Micro, Small, and Medium Enterprises (MSMEs).
- It was launched through the **Insolvency and Bankruptcy Code (Amendment) Ordinance, 2021** to help MSMEs facing financial stress, especially after the COVID-19 pandemic.
- Under the PPIRP for MSMEs, creditors and existing owners can agree out of court to sell the business to an approved buyer (either a third party or a related party).
- The mechanism is currently available for defaults up to Rs 1 crore. It must be completed within **120 days** of commencement.

IBC Process

- **Triggering Insolvency:** A financial creditor, operational creditor, or the debtor may file for insolvency on default.
- **Admission by NCLT:** NCLT admits or rejects the application within 14 days. Once admitted, the formal CIRP starts.
- **Appointment of IRP:** NCLT appoints an Interim Resolution Professional (IRP) to take control of the company, secure assets, and collect financial data.
- **Formation of CoC:** The IRP forms the Committee of Creditors (CoC) of financial creditors, which decides on revival or sale of the company and may retain or replace the IRP.
- **Resolution Plan:** Resolution plans are invited, evaluated, and approved by the CoC with **66% votes**; failing this, liquidation follows.
- **NCLT Approval:** The approved plan is submitted to NCLT for final clearance, making it binding on all stakeholders.
- **Timeline:** CIRP must be completed within **330 days**, ensuring faster recovery and preventing value erosion.

Navigating the Coal Transition for Energy Security

The government has allowed **private entities**, accredited by the **Quality Council of India (QCI)**, to serve as **Accredited Prospecting Agencies (APAs)** and carry out prospecting work under the **Mines and Minerals (Development and Regulation) Act, 1957**.

- It will boost coal availability, strengthen **energy security**, and support India's economic growth through a more transparent and efficient mineral exploration framework.

Role of Coal in India's Energy Security

- Coal contributes **55%** to India's energy mix & fuels **>74%** of electricity generation; provides **continuous and reliable power**.
- Generates **> Rs. 70,000 cr annually** for central & state governments through royalties and taxes; coal is the **largest freight item for Indian Railways**, forming **49%** of freight earnings & helping subsidise passenger fares.

- Required for **steel & cement production**; coking coal forms **~42% of steel production cost**; coal fuels cement kilns, essential for infrastructure.
- Coal India Ltd. **directly employs >2.39 lakh** people, with millions more in linked sectors.
- Government promotes coal gasification with Rs. **8,500 cr to produce syngas and methanol** with lower emissions; Coal revenue funds renewable energy expansion, including NTPC's plan for **60 GW of renewable capacity by 2032**.

Key Facts Regarding the Coal Sector in India

- **About Coal:** Coal is a **combustible black or brownish-black sedimentary rock** made mostly of **carbon** and is considered a **fossil fuel** because it formed from ancient plant remains.
 - Over millions of years, layers of sediment buried this material, and the **pressure and heat** removed water and gases, increasing carbon content and gradually transforming **peat into different grades of coal**.
- **Grades of Coal:** Coal is classified according to its **carbon content, heat value, and energy output**, with the main types being:
 - **Anthracite:** It contains **86%–97%** carbon and generally has the **highest heating value** of all ranks of coal. Found primarily in **Jammu and Kashmir**.
 - **Bituminous:** It contains **45%–86%** carbon. Found predominantly in **Jharkhand, West Bengal, Odisha, Chhattisgarh, and Madhya Pradesh**.
 - **Subbituminous:** It typically contains **35%–45%** carbon, and it has a **lower heating value** than **bituminous coal**.
 - **Lignite (Brown Coal):** It contains **25%–35%** carbon. It has **high moisture (30–55%)**, high **volatile matter**, and low **ash content**, making it inferior to higher-rank coals in **heating value and stability**.
 - ❖ It is **light, porous, and friable**, and cannot be transported over long distances due to the risk of **spontaneous combustion**.
 - ❖ Found in **Tamil Nadu, Puducherry, Gujarat, Rajasthan and Jammu & Kashmir**.
- **Coal Reserves in India:** India holds the **5th-largest coal reserves** and is the **2nd-largest consumer** globally.
 - The top 3 states—**Odisha, Jharkhand, and Chhattisgarh**—together account for about **69% of the country's total coal reserves**.
- **India's Coal Production:** Coal production reached **1,047 Million Tonnes (MT)** in **FY 2024-25**, marking a **4.99% growth** from **997 MT** the previous year.
- **Coal Imports:** Coal imports fell by **8.4%** to **183 MT** in **April–December 2024**, saving **USD 5.43 billion** in foreign exchange.

Challenges Related to Coal Sector	Suggestions
<ul style="list-style-type: none"> ■ Coal-based Thermal Power Plants (TPPs) emit much more than industrial sector, contributing 60% of PM, 45% of SO₂, 30% of NO₂, and 80% of Hg. ■ Fossil fuel air pollution in India led to 1.72 mn deaths (2022) & cases of asthma, respiratory & cardiovascular illnesses (The Lancet Countdown 2025). ■ India depends on imports for high-grade coking & thermal coal, with 85% of coking coal imported, exposing the economy to price volatility and foreign exchange outflow. ■ With solar & wind becoming cheaper, new coal plants are uneconomical, and many existing units risk becoming stranded assets, with ~2/3rd of coal power costlier than renewables (Greenpeace). ■ The phase-out of coal poses a critical challenge to ensure a just transition for millions of workers & communities reliant on the sector, requiring reskilling and alternative employment. 	<ul style="list-style-type: none"> ■ Gradually retire old coal plants while using cleaner technologies like Selective Catalytic Reduction & Electrostatic Precipitators to cut emissions during the transition. ■ Strengthen pollution control by enforcing Flue Gas Desulfurization & other emission-reduction systems in all thermal plants to reduce sulphur dioxide and related health impacts. ■ Accelerate renewable expansion, building a solar- and wind-centric system toward 500 GW non-fossil capacity by 2030, with >190 GW already achieved across solar, wind, hydro, and nuclear. ■ Develop strong energy storage by expanding the green energy corridor and supporting Battery Energy Storage Systems and pumped hydro, including Viability Gap Funding (VGF) scheme targeting 4,000 MW-hour storage by 2030–31. ■ Use coal flexibly for grid stability, operating coal plants as peaking power units that ramp up quickly when renewable supply is low, ensuring a reliable round-the-clock electricity supply.

“Coal is the bedrock of India’s energy security, but its long-term sustainability is questionable.” Critically analyze this statement in the context of India’s developmental and environmental goals.

Drishti Mains Question

India’s Disaster Risk Financing

The Union Government recently sanctioned only Rs 260 crore in disaster relief to Kerala following the devastating **Wayanad landslides** of July 2024, against the State’s estimated losses of Rs 2,200 crore.

- This glaring disparity has reignited debates around the weakening of **cooperative federalism** and the increasing centralisation of **disaster-risk finance in India**.

India’s Current Disaster-Financing Framework

- **15th Finance Commission (2021-22 to 2025-26)**: Expanded India’s disaster-financing architecture beyond the earlier response-only funds, the **National Disaster Response Fund (NDRF) and State Disaster Response Fund (SDRF)** created under the **Disaster Management Act, 2005**.
 - It recommended separate **mitigation funds** at both levels, leading to the creation of the **National Disaster Risk Management Fund (NDRMF)** and **State Disaster Risk Management Funds (SDRMF)**, combining **relief and mitigation** into a unified risk-management framework.
 - The **15th Finance Commission (2021–26)** allocates disaster-management funds primarily on **population, total geographical area, and historical spending trends**.
- **State Disaster Response Fund**: Primary fund with States for **immediate relief** (food, shelter, medical aid, compensation).
 - Funded **75:25 (Centre:State)** for general States and **90:10** for Northeast & Himalayan States.

- Covers notified disasters such as floods, cyclones, earthquakes, landslides, etc.
- States may use **up to 10%** for *local disasters* based on State-defined norms.
- The annual Central contribution is released in two equal installments as per the recommendation of the Finance Commission.
- **National Disaster Response Fund (NDRF)**: It supplements SDRF **when a disaster is declared “severe”** and SDRF is insufficient.
 - NDRF is entirely funded by the **Central Government**.
- **National & State Disaster Risk Management Funds (NDRMF & SDRMF)**:
 - As recommended by the 15th Finance Commission central government had constituted the National Disaster Mitigation Fund (NDMF) in 2021 and also advised all the State Governments to set up State Disaster Mitigation Fund (SDMF) in the State.
 - So far, all the States, except Telangana, have initiated the setting up of SDMF.
 - The Centre contributes **75% of SDMF for general states and 90% for North-Eastern and Himalayan states**, strengthening long-term resilience across vulnerable regions.
 - These funds support states in implementing mitigation projects such as flood control, landslide prevention, and seismic safety.

Concerns Associated with India's Disaster-Financing Framework

- **Widening Union–State Fiscal Asymmetry:** States often receive far less than the losses they report, leading to a growing gap between assessed needs and actual **NDRF/SDRF disbursements**, weakening cooperative federalism.
- **Outdated Relief Norms:** Compensation amounts (e.g., Rs 4 lakh per life lost and Rs 1.2 lakh for fully damaged houses) have **not kept pace with rising costs**, leaving households unable to rebuild.
- **Ambiguous ‘Severe Disaster’ Classification:** The **Disaster Management Act, 2005** does not define the ‘**Severe Disaster**’ term clearly, creating scope for discretion and selective approval of NDRF support.
- **Procedural Delays & Uneven Relief Allocation:** Fund release requires multiple clearances (from the State’s memorandum, to central assessment teams, to the Home Ministry and high-level approvals), slowing relief when speed is crucial.
 - The Centre delayed classifying the Wayanad landslides as a severe disaster, limiting **Kerala’s access to higher NDRF support**, reflecting growing gaps between actual losses and central aid.
- **Distorted Allocation and Misinterpretation:** Risk funding is poorly aligned because the Finance Commission relies on **population and area instead of scientific hazard exposure**.
 - The centre often counts committed **SDRF funds as “unspent,”** even though they are already earmarked for ongoing work, leading to a misleading picture of underutilisation.
- **Inadequate Local Capacity:** Many DDMAAs and urban local bodies lack staff, GIS capability, digital tools, and planning capacity, hampering implementation even when funds are available.
- **Centralisation Trends:** Increasing reliance on conditional approvals and discretionary fund releases suggests a shift away from **cooperative federalism** towards a more centralised model of disaster financing.

Reforms for an Effective and Equitable Disaster-Financing System in India

- **Create Objective, Rule-Based Triggers:** Shift to automatic fund release using clear indicators like rainfall intensity, crop loss, fatalities, and loss-to-GSDP, backed by a **scientific Disaster Risk Index**.
 - Expand hazards to cover landslides, cloudbursts, avalanches, and pest attacks, and promote **parametric insurance**, better crop and property insurance, and regional risk pools.

- **Update Relief Norms:** Revise compensation amounts for death, house damage and livelihood loss to match current costs and inflation, replacing decade-old figures.
- **Strengthen Federal Balance:** Ensure NDRF/SDRF allocations are timely, transparent and predictable, and prevent conditional or negotiated fund release that weakens cooperative federalism.
- **Improve Finance Commission Criteria:** Replace population- and area-based allocations with a scientific **multi-hazard vulnerability index**, incorporating GIS risk maps and climate-exposure data.
- **Enhance Local-Level Capacity:** Strengthen DDMAAs, urban local bodies, and panchayats with trained staff, GIS tools, fire services, and emergency operation centres.
 - Expand SDMF and NDMF utilisation for flood protection, slope stabilisation, cyclone shelters, early-warning systems, and resilient infrastructure.
 - Scale up **Aapda Mitra-like programs and local volunteer networks** to support first response and last-mile disaster governance.

Critically examine India’s current disaster-financing framework. How did the 15th Finance Commission reshape it and what gaps remain?

Drishti Mains Question

Fully Accessible Route (FAR) Bonds

Foreign portfolio investment (FPI) through **Fully Accessible Route (FAR)** eligible **bonds** stood at **Rs 5,760 crore in November**, drawing attention to India’s debt market and the factors influencing **FPI participation**.

Fully Accessible Route (FAR)

- **About:** The FAR is an **Reserve Bank of India (RBI) framework** introduced in 2020 that allows **unrestricted foreign investment in select Government of India securities known as FAR Bonds**.
- **Key Features:**
 - **No Investment Limits:** Under FAR, **Foreign Portfolio Investors (FPIs)**, Non-Resident Indians, Overseas Citizens of India and other eligible entities can invest in these government securities without quantitative caps.
 - **Open Access:** These bonds offer free buy–sell access, making them more attractive for global investors.
- **Significance:** FAR bonds are crucial for making India’s debt market more competitive and internationally visible.
 - In **2024**, **JP Morgan added 29 Indian FAR-designated G-secs** to its **Emerging Market Bond Index (EMBI)**, marking India’s first entry into a major global bond benchmark.

- This inclusion is expected to attract significant foreign inflows into Indian government bonds.

Other Routes for Foreign Investment in Indian Debt

- **General Route (GR):** The standard route FPIs use to invest in corporate bonds. It is subject to quantitative limits, unlike FAR.
- **Voluntary Retention Route (VRR):** It is a special RBI framework that allows FPIs to invest in Indian debt with fewer regulatory restrictions, provided they voluntarily commit to retain a minimum share of their investments in India for a fixed period.

Masala Bonds

The **Enforcement Directorate (ED)** has issued show-cause notices to the Kerala Chief Minister, and the former Finance Minister for allegedly violating **Foreign Exchange Management Act (FEMA)** and the directions of the **Reserve Bank of India (RBI)** over the issue of **Masala Bonds**.

Masala Bonds

- **About: Masala Bonds** are the **rupee-denominated bonds** issued to overseas buyers for raising money by the Indian corporates. The price of the bond is denominated in Indian currency.
 - The **currency exchange risk** is borne by the **foreign investor**, not the **Indian issuer**. This protects Indian borrowers from **rupee depreciation volatility**.
- **Origin & Objective:** The term was introduced by the **International Finance Corporation (IFC)** to reflect India’s cultural identity (**masala** meaning spice blend).
 - Its **primary objective** is to help Indian entities raise **foreign capital** without **forex risk** and to **internationalize** the Indian Rupee.
- **Regulations:** Governed by **RBI** guidelines under the **External Commercial Borrowing (ECB)** framework and **Securities and Exchange Board of India (SEBI)** norms.
- **Listing:** Typically listed on major international exchanges like the **London Stock Exchange (LSE)** or **Singapore Exchange** to attract global investors.
 - The first **Masala Bond** was issued in **November 2014** by the **IFC** on the **London Stock Exchange**.
- **Maturity Norms:** Under **RBI** guidelines, the **minimum maturity** is **3 years** for bonds raising up to **USD 50 million** equivalent and **5 years** for amounts above that threshold.
- **Eligible Investors and Issuers:** These bonds target **qualified foreign investors** (e.g., **sovereign wealth funds**, **global pension funds**, and **insurers**) who can take on **rupee-denominated risk**.
 - **Eligible Issuers:** Indian **corporations**, **NBFCs**, and **government-affiliated entities**.

Permitted & Restricted End-Uses of Funds:

- **Permitted Uses:** **Refinancing** existing **rupee-denominated debt**, **Funding infrastructure**, **affordable housing**, and **integrated townships**, and Meeting corporate **working capital** requirements.
- **Restricted Uses:** **Real estate** (except approved housing projects), Activities barred under **FDI guidelines**, Investment in **domestic capital/equity markets**, **Land purchase** or **on-lending** for prohibited activities.

Other Similar Types of Bonds

- **Dim Sum Bonds (China):** **Renminbi (RMB)**-denominated bonds issued outside mainland China (primarily in Hong Kong).
 - **Panda Bonds** (**RMB-denominated** but issued within mainland China by foreign entities).
- **Samurai Bond (Japan):** **Yen**-denominated bonds issued in Japan by foreign entities.
- **Yankee Bonds (United States):** **US Dollar**-denominated bonds issued in the US by foreign governments or corporations.
- **Kangaroo Bonds (Australia):** Foreign bond issued in the **Australian market** by non-Australian firms and is denominated in **Australian dollars (AUD)**.

Health Security se National Security Cess Bill, 2025

The Lok Sabha has passed the **Health Security se National Security Cess Bill, 2025**, which introduces a **special cess on paan masala manufacturing units and any additional goods notified by the Government**.

- The revenue generated will be used to strengthen national security and improve public health infrastructure.

Key Highlights of the Health Security se National Security Cess Bill, 2025

- **Purpose of the Cess:** The Bill establishes a **special excise cess** to create a stable, rule-based revenue stream for funding **India’s national security and public health needs**.
 - The proceeds of this cess will be credited to the **Consolidated Fund of India**.
 - The cess is imposed on the **machinery installed** or the processes undertaken (whether manual or hybrid) for manufacturing specified goods, and is applicable in addition to existing duties and taxes.
- **Goods Covered:** **Initially**, the cess applies **only to pan masala**, but the Government is empowered to notify additional goods in the future.
 - The Government may **increase the cess up to twice** the existing rate in public interest, exempt **certain persons or processes**, and add new goods to the cess schedule.

- The Bill introduces a **capacity-linked monthly levy** calculated using machine parameters such as maximum rated speed, pack weight or a flat monthly rate for manual process.
- **Taxable Persons:** Any individual or entity that **owns, operates, or controls machinery** or processes used for manufacturing specified goods must pay the cess.
 - Liability applies regardless of the person's existing tax status, ensuring comprehensive coverage of all producers.
- **Enforcement Framework:** The Bill includes a stringent enforcement system prescribing **penalties, prosecution, arrest, and confiscation** for violations such as undeclared machinery, cess evasion, falsification of records, or obstruction of officials.
- **Appeals Authority:** A multi-tier appellate mechanism allows taxpayers to challenge decisions before the **Appellate Authority, then the Tribunal, and subsequently the High Court and Supreme Court**, ensuring procedural fairness and legal remedy at all stages.

Cess

- **About:** It is a **tax on tax** imposed by the government for a **specific, earmarked purpose (public good)**. Cess is levied in **addition to existing taxes** such as excise duty or income tax.
 - It is collected **until enough funds are raised** for the designated objective.
- **Constitutional Basis:** The **80th Amendment** formally amended **Article 270**, explicitly excluding cesses and surcharges from the **divisible pool** (revenue from cesses is not shared with states).
 - Cesses are recognized in the **Constitution under Article 277 and Article 270** (which outlines the revenue-sharing framework between the Union and States).
- **Examples of Cess:** Education Cess, Swachh Bharat Cess, and Krishi Kalyan Cess.

FDTL Norms and India's Aviation Sector

IndiGo Airlines has come under scrutiny after mass flight cancellations triggered by the implementation of **revised Flight Duty Time Limitation (FDTL) norms** left thousands of passengers stranded, prompting the **Directorate General of Civil Aviation (DGCA)** to grant temporary exemptions for operational stabilisation.

Revised Flight Duty Time Limitation (FDTL) Rules

- **About:** FDTL norms are safety regulations issued by the **Directorate General of Civil Aviation (DGCA)** that prescribe how long pilots can remain on duty, how many hours they can fly, the number of night landings permitted, and the minimum rest they must receive.

- These norms are designed to **prevent pilot fatigue, reduce human error, and enhance aviation safety**, and are aligned with international aviation standards.

New FDTL Rules:

- **Weekly Rest Increased:** Pilots must now get **48 consecutive hours of rest**, up from 36 hours earlier.
- **Night Landings Capped:** Pilots can perform **only 2 night landings**, reduced from 6 earlier. **No more than 2 continuous night duties** are allowed.
- **Mandatory Roster Adjustments:** Airlines must redesign **crew rosters** as per the new limits.
- **Quarterly fatigue reporting:** Airlines must submit **regular fatigue risk reports** to the DGCA.
- **Objective:** Fatigue is a major operational risk in aviation, especially during early morning departures and night landings.
 - The new FDTL rules aim to improve pilot alertness, reduce human error, and align India's aviation safety standards with global norms.

Status of India's Aviation Sector

- **3rd largest domestic market** globally (after US, China)
- **Passenger traffic** to reach **1.1 billion by 2040**
- **Economic Impact:** Supports **7.7 million jobs, 1.5% GDP**
- **Fleet:** ~2.4% of global fleet
- **Airports:** Increased from **74 (2014)** to **163 (2025)**; Target: **350–400 by 2047**.
- **Regulation:** Air Corporations Act, 1953, Open Sky Policy (1990–94), The Bharatiya Vayuyan Adhiniyam, 2024.

Key Challenges in India's Aviation Sector

- **Pilot and Crew Shortages:** Rapid growth in air traffic has created a mismatch between demand and availability of trained pilots, cabin crew, and maintenance staff.
 - New safety norms like FDTL have further increased manpower requirements, leading to frequent flight cancellations, delays, and operational disruptions because **airlines did not hire and train sufficient pilots** in advance to meet the new staffing needs.
- **Airport Infrastructure Bottlenecks:** Major airports like Delhi, Mumbai, and Bengaluru operate near full capacity, leading to **runway congestion, parking shortages, and airspace crowding**, especially during peak hours.
- **High Operating Costs:** Airlines face heavy financial pressure due to **high Aviation Turbine Fuel (ATF) prices**, aircraft leasing costs in dollars, and rising maintenance expenses.
- **Aggressive Capacity and Scheduling Practices:** Airlines often announce **ambitious flight schedules without adequate backup crews or spare aircraft**, increasing the risk of mass cancellations during disruptions.

- **Passenger Protection and Grievance Redressal:** During large-scale disruptions, passengers face **poor communication, weak compensation mechanisms, and limited legal remedies.**
- **Dependence on Foreign Aircraft and Supply Chains:** Heavy reliance on **imported aircraft, engines, and spare parts** exposes the sector to **global supply chain disruptions and currency volatility.**
- **Exchange Rate Volatility:** The **depreciation of the Indian rupee against the US dollar** raises costs for airlines, as key expenses like aircraft leasing and fuel imports are dollar-denominated.
- **Aviation Safety Risks:** Recent crashes in 2025 and rising traffic highlight concerns over safety oversight and emergency response.

Measures to Strengthen India’s Aviation Sector

- **Temporary Regulatory Relief for Stabilisation:** DGCA has granted **IndiGo a temporary one-time exemption from certain night-operation.** This short-term relief should be used strictly for **operational stabilisation**, not for long-term dependence.
 - **FDTL norms must not be diluted**, as fatigue management is critical to aviation safety.
- **Build Operational Buffers:** Maintain **standby pilots, reserve cabin crew, and spare aircraft** to handle disruptions during peak seasons and technical failures.
- **Improve Passenger Communication & Compensation:** Real-time updates, automatic refunds, and compensation must be strengthened to **restore public trust.**
- **Encourage Sustainable Aviation:** Promote **Sustainable Aviation Fuel (SAF)**, energy-efficient airports, and compliance with **ICAO’s Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)** for carbon reduction.
- **Airspace Modernisation:** Expedite the proposed Civil Air Traffic Management System with Advanced-Surface Movement Guidance and Control System to optimize airspace usage and reduce delays.

RBI Cuts Repo Rate to Sustain ‘Goldilocks Phase’

The Reserve Bank of India’s Monetary Policy Committee (MPC) has cut the **repo rate** by **25 basis points**, reducing it to **5.25%**. This marks a **cumulative cut of 125 bps** in 2025. RBI termed the current economic scenario as a **“Goldilocks phase”** — characterized by **low inflation** and **strong GDP growth.**

‘Goldilocks Phase’ in an Economy

- **About:** A **Goldilocks phase** in the economy refers to a situation where the economy is **perfectly balanced**—growth is **strong and sustainable** without overheating, and

inflation remains low and stable without slipping into weak demand or deflationary risk.

- In **December 2025**, RBI Governor called India’s economy a **“rare Goldilocks phase”** as growth stood at **8.2%** in Q2 (July-September) of 2025–26 while inflation averaged **1.7%** in Q2 and dipped to **0.3%** in October 2025.
- **Significance:** In a **Goldilocks phase**, central banks often have more **room to maneuver**—they can keep **rates lower for longer** to boost growth, or (as in India’s case) **cut rates** to extend the favorable cycle.
 - It’s a **temporary ideal window** that policymakers try to **protect and prolong.**

Repo Rate
<ul style="list-style-type: none">■ About: The repo rate (Repurchase Agreement Rate) is the interest rate at which commercial banks borrow funds from the central bank.■ Functioning: It helps banks meet short-term liquidity needs by borrowing funds, with securities provided as collateral and repurchased later at a higher price including interest.■ Influence on Credit Costs: A higher repo rate raises loan costs and slows borrowing, while a lower repo rate lowers borrowing costs.■ Role in Monetary Policy: The central bank uses the repo rate to control money supply, inflation, and economic growth.
Flexible Inflation Targeting
<ul style="list-style-type: none">■ Flexible Inflation Targeting (FIT): FIT is a monetary policy framework in which the central bank’s goal is to achieve a specific medium-term inflation target, while retaining flexibility to consider short-term output and employment stabilization.■ Primary Mandate: The primary mandate of FIT is a publicly declared, specific inflation target, usually expressed as a point or a range.<ul style="list-style-type: none">● For example, in India, the RBI’s mandate is to maintain Consumer Price Index (CPI) inflation at 4%, within a band of ±2% (i.e., 2% to 6%).■ Trade-off Management: FIT formally recognizes short-term trade-offs between controlling inflation and supporting growth, giving the central bank leeway to balance these objectives while keeping inflation as the overriding nominal anchor.

Key Factors that Lead to a Repo Rate Cut by the RBI

- **Sustained Disinflation:** Inflation fell sharply—averaging **1.7%** in Q2 of 2025-26 and dropping to **0.3%** in October 2025—well **below the RBI’s lower tolerance band (4% ±2%).**
 - This collapse in price pressures created the **policy space** for the RBI to cut rates without risking overheating of the economy.
- **Headline inflation** fell **below the 2% lower tolerance band** for the first time under the **Flexible Inflation Targeting (FIT)** regime.

■ India's Goldilocks Moment:

- Growth remained strong at **8.2%** in Q2 while inflation stayed low at **2.2%**, creating ideal macroeconomic conditions for sustained economic development.
- The RBI cut rates to **reinforce momentum** and support domestic demand to prolong this favourable phase.

■ Counterbalance External Headwinds:

- Weak **global trade, volatile markets, and geopolitical risks** threatened India's exports and investment.
- The rate cut aimed to **cushion the economy** by boosting **domestic demand** against these external drags.

■ Support for Growth Momentum:

- The rate cut aims to reinforce **festive-season demand**, the effects of **GST rationalisation**, and overall **domestic consumption**, thereby nurturing growth during this favourable macro phase.

Implications of the RBI's Repo Rate Cut on the Indian Economy

- **Boost to Economic Growth:** Lower rates reduce **borrowing costs**, increase **bank lending**, stimulate **consumption**, and encourage **business investment** in **capital expenditure**.
- **Inflationary Pressures:** Increased **liquidity** may raise **demand-pull inflation** if the **supply** of goods & services is tight; the **RBI's cut** reflects confidence that **inflation** will stay within the **2–6% target band**.
- **External Sector Dynamics:** Reduced **interest rate** appeal may weaken the **rupee**, improving **export competitiveness** but raising **import costs** and widening the **trade deficit**.
- **Effect on Savings:** Lower interest rates reduce returns on **fixed deposits** and **small savings**, potentially discouraging **household savings**.

Discuss the role of the Monetary Policy Committee (MPC) in navigating the trade-off between inflation management and growth stimulation, with reference to India's recent economic data.

Drishti Mains Question

Export Promotion Mission

The Government of India has approved the **Export Promotion Mission (EPM)**, aiming to boost exports—especially from **Micro, Small and Medium Enterprises (MSMEs)** labour-intensive sectors and low-export-intensity regions.

Export Promotion Mission (EPM)

- **About:** The EPM, announced in **Union Budget 2025–26**, merges fragmented export-support schemes into a single, digitally enabled framework.

- With a Rs 25,060 crore outlay for **FY 2025–26 to FY 2030–31**, it aims to strengthen India's export ecosystem and boost competitiveness for MSMEs and labour-intensive sectors.

- **Structure and Governance:** EPM is anchored in a coordinated institutional framework involving the **Department of Commerce, MSME Ministry, Finance Ministry, Export Promotion Councils**, Commodity Boards, financial institutions, industry bodies and state governments.

- The **Directorate General of Foreign Trade (DGFT)** serves as the implementing agency.

- **Integrated Sub-Schemes:** EPM operates through two integrated sub-schemes **Niryat Protsahan & Niryat Disha**, that together address finance and non-financial enablers.

- **Niryat Protsahan:** Provides financial support such as affordable trade finance, interest subvention, factoring, exporter credit cards, collateral aid and credit enhancement for MSMEs.

- **Niryat Disha:** Provides non-financial support such as quality and compliance help, branding, trade fairs, logistics and transport support, and district-level capacity-building.

- **Digital Implementation and Monitoring:** EPM uses a DGFT-run digital platform for paperless, integrated processing and faster, transparent delivery.

- Its **outcome-based digital design** ensures coordinated implementation and quick response to global trade changes.

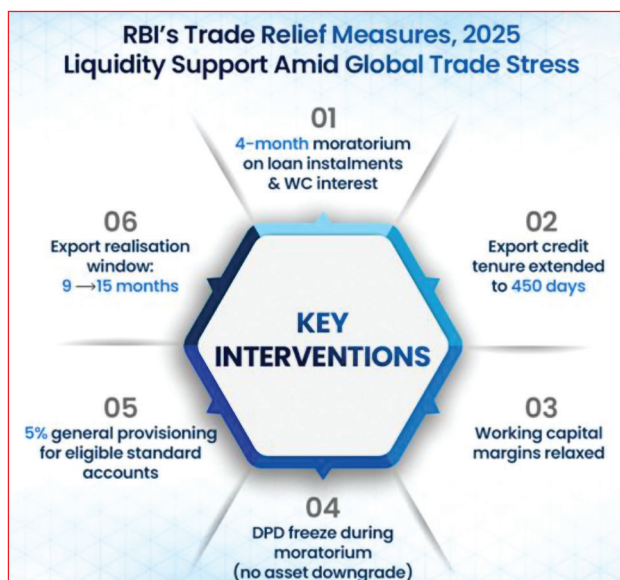
- **Sectoral and Regional Focus:** EPM prioritises **tariff-hit sectors** such as textiles, leather, gems & jewellery, engineering goods and marine products, while supporting MSMEs, first-time exporters and labour-intensive value chains.

- Under Niryat Disha, targeted support to **interior and low-export districts**, to expand India's export base and ensure more inclusive participation in global markets.

- **Regulatory and Central Bank Support:** **Reserve Bank of India (RBI) Trade Relief Measures 2025** complement EPM by easing liquidity stress and supporting export-oriented businesses.

- **Expected Outcomes:** Include better trade finance for MSMEs, stronger certification and quality compliance, enhanced branding and global visibility, and increased exports from non-traditional districts.

- These outcomes support export-led growth, align with **Atmanirbhar Bharat**, and **advance the vision of Viksit Bharat @ 2047** by making India a more competitive global trade partner.



Critically examine the design of the Export Promotion Mission (EPM) as a unified, digital framework for export facilitation.

Drishti Mains Question

National Mission on Edible Oils (NMEO)

Govt. launched NMEO with two initiatives: NMEO-Oil Palm (2021) & NMEO-Oilseeds (2024), aiming to reduce reliance on edible oil imports, which met 56% of domestic edible-oil demand in 2023-24.

National Mission on Edible Oils – Oil Palm (NMEO-OP)

- **Approved:** 2021, Centrally Sponsored Scheme, with Rs 11,040 crore outlay
- **Objective:** Boost domestic edible oil supply by expanding oil palm cultivation and increasing Crude Palm Oil (CPO) production

Key Features:

- **Price Assurance:** Introduction of Viability Price (VP) to protect farmers from international CPO price fluctuations
- **Increased Subsidies:** Planting material subsidy raised from Rs 12,000/ha to Rs 29,000/ha
- **Rejuvenation Support:** Special assistance of Rs 250/plant for old garden rejuvenation
- **Focus Regions:** Special focus on Northeastern states and traditional areas like Andhra Pradesh & Telangana
- **Key Targets:** Area Expansion– 6.5 lakh hectares under oil palm plantations by 2025-26; Production Targets– 11.20 lakh tonnes CPO by 2025-26, 28 lakh tonnes CPO by 2029-30; Consumption Awareness– Maintain 19 kg/person annually until 2025-26
- **Progress:** 2.50 lakh hectares under NMEO-OP, total oil palm coverage at 6.20 lakh hectares. CPO Production– Increased from 1.91 lakh tonnes (2014-15) to 3.80 lakh tonnes (2024-25)
- **Strategic Focus Areas:** Improving Fresh Fruit Bunches (FFBs); Increasing Drip Irrigation Coverage; Diversification from Low-Yielding Crops; Inter-Cropping for Economic Returns; Establishing Seed Gardens and Nurseries

National Mission on Edible Oils – Oilseeds (NMEO-OS)

- **Approved:** 2024, for 2024-25 to 2030-31; aims to achieve self-sufficiency in edible oils by boosting production of 9 primary oilseeds (e.g., mustard, groundnut, soybean) and enhancing extraction from secondary sources (e.g., cottonseed, coconut, rice bran, Tree-Borne Oilseeds).
- **Key Objectives:** Bridge yield gaps via innovative technologies and seeds through cooperatives, FPOs, and private partners. Expand oilseed area using fallow lands and intercropping.
 - Strengthen market access and boost secondary oil sources for better returns & production.

Status of India's Export Industry

- **Export Growth:** India's exports reached a historic USD 778.21 billion in 2023–24, marking a sharp 67% rise from 2013–14.
 - The rise in exports reflects expansion of manufacturing, digital capabilities, and greater market diversification, not short-term fluctuations.
- **Major Export Markets:** Top destinations (2023–24) include US, UAE, Netherlands, China, Singapore, UK, Saudi Arabia, Bangladesh, Germany, Italy. These 10 countries account for 51% of total merchandise exports.
 - Export reach has expanded across North America, EU, ASEAN, West Asia, North-East Asia, showing diversified geographic spread.
- **Evolution of India's Export Composition:** India's export structure is undergoing a clear upgrade, **shifting from low-value goods** like textiles and basic agriculture to **high-value manufacturing** such as electronics and engineering goods.
 - The **services sector now contributes nearly 44% of total exports**, reinforcing India's global competitiveness.
 - New sunrise sectors including medical devices, renewable-energy components, and advanced electronics are further strengthening India's export diversification and value addition.

India's Major Initiatives to Promote Exports

PM Gati Shakti National Master Plan, National Logistics Policy (NLP), Credit Guarantee Scheme for Exporters (CGSE), Remission of Duties and Taxes on Exported Products (RoDTEP), Rebate of State and Central Taxes and Levies (RoSCTL), PLI Schemes, TIES (Trade Infrastructure for Export Scheme), Free Trade Agreements (FTAs), Districts as Export Hubs (DEH) and MSME Lean & ZED Schemes

- **Key Targets:** Increase oilseed area from 29 million ha (2022-23) to 33 million ha (2030-31); raise primary production from 39 million tonnes to 69.7 million tonnes over the same period
 - Add 40 lakh hectares of cultivation by 2030-31 via fallow lands, intercropping & crop diversification
 - NMEO-OP & NMEO-OS aim for 25.45 million tonnes of edible oil by 2030-31, meeting ~72% of domestic demand.
- **Implementation:** SHGs, particularly Krishi Sakhis act as Community Agriculture Service Providers (CASP), supporting farmers; Krishi Mapper platform tracks data for real-time, effective implementation
 - India produces 5-6% of global oilseeds, but its 12.18 million tonnes (2023-24) meets only 44% of domestic demand, leading to high import reliance.
 - Top States– Rajasthan, MP, Gujarat & Maharashtra contribute 77% of India's oilseed output.

Analyze the challenges faced by India's oilseed sector despite being the world's fourth-largest edible oil player. How does the National Mission on Edible Oils address these structural constraints?

Drishti Mains Question

Hybrid Mutual Funds

As equity markets touch new highs, **hybrid mutual fund schemes** are gaining popularity among investors. Wealth managers are increasingly recommending these funds, especially for **investors who find it difficult to rebalance investments on their own.**

Hybrid Mutual Funds

- **About:** Hybrid mutual funds are **mutual fund schemes that invest in more than one asset class**, mainly **equity (stocks) and debt (bonds)**, and in some cases **gold, REITs (Real Estate Investment Trusts) and InvITs (Infrastructure Investment Trusts)**.
 - Their primary objective is to provide a **balanced mix of growth and stability** by distributing investments across different assets.
 - They are also known as **asset allocation funds** because they follow a pre-decided investment pattern.
- **Working Mechanism:** Hybrid funds follow a fixed or flexible mix of investments. A part of the **money is put into equity for growth**, while the rest goes into **debt or other assets for safety**.
 - The fund manager regularly rebalances the portfolio to keep this mix intact, so the risk stays under control without any effort from the investor.

- **Significance:** Hybrid funds are preferred because they spread risk across different assets, show lower ups and downs than pure equity funds, and give more stable returns.
- **Tax Benefits:** In traditional debt mutual funds or direct investments in bonds or deposits, the **income earned is taxed according to the investor's tax slab**. This can be as **high as 30% for those in the higher tax brackets**.
 - Hybrid funds with over **65% in equity** (or a mix of equity and arbitrage) are considered **"equity funds" for tax purposes**. The debt portion in such funds benefits from **long-term capital gains (LTCG) tax rates**.
 - ❖ This means any profits from stocks (if held for more than a year) are taxed at a lower rate than profits from bonds or other investments.
 - ❖ This makes hybrid funds tax-efficient compared to regular debt investments.

Major Types of Hybrid Mutual Funds	
Type of Fund	Description
Equity Savings Fund	Invests a small portion in equity (10–25%) and the rest in debt and arbitrage for stable, low-risk returns
Balanced Hybrid Fund	Allocates 40–60% each to equity and debt to balance growth and stability
Aggressive Hybrid Fund	Invests 65–80% in equity and the rest in debt for higher growth with higher risk
Dynamic Asset Allocation / Balanced Advantage Fund	Shifts between equity and debt based on market conditions and valuations
Multi-Asset Allocation Fund	Invests in at least three asset classes such as equity, debt, and gold for wider diversification

Reviving MGNREGA For Effective Rural Employment

The **Central government** has agreed to **resume Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)** works in **West Bengal**, subject to stringent conditions to ensure **transparency** and prevent **corruption**.

- In March 2022, the Centre invoked **Section 27 of the MGNREGA Act, 2005** to **withhold funds** due to **corruption, mismanagement, and bogus beneficiaries** in West Bengal.

Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)

- **About:** It is a **Centrally Sponsored Scheme** designed to provide **guaranteed rural employment** as a form of **social security** in India.
 - It was launched in **2005** and is implemented under the **Ministry of Rural Development**, which serves as the nodal ministry.

- **Statutory Employment Guarantee:** It guarantees **100 days of wage employment** per rural household, with **50 additional days** in drought- or disaster-affected areas.
 - If work is not provided within **15 days** of application, households receive **unemployment benefits—25% of the minimum wage** for the first 30 days and **50%** thereafter.
- **Administrative Framework:** At least **50%** of scheme works must be executed by **Gram Panchayats**. **DMs** serve as **District Programme Coordinators**, ensuring comprehensive implementation.
 - The Centre funds **100% of unskilled wages** and **75% of material costs**, while States cover the remaining **25%**.
- **Central Oversight:** **Section 27** of the MGNREGA Act, 2005 grants the **Central Government** the authority to ensure the **Act** is implemented properly.
 - Under it, upon receiving a **credible complaint of fund misuse**, the **Central Government** can order an **investigation**, and, if necessary, **suspend fund releases** for the related scheme.
- **Remuneration Systems:** Wages are deposited directly into workers' **bank/Aadhaar-linked accounts** to ensure **transparency**.
 - Workers receive **0.05% daily compensation** on **delayed payments** starting from the **16th day** after **muster roll** closure.
 - **Financial support** is provided in cases of on-site **fatalities** or **permanent disabilities**.
- **Equity Measures:** Mandates **one-third female participation** to ensure **equitable work opportunities**. In forest areas, **tribal families** without private assets (excluding **Forest Rights Act (FRA), 2006** land rights) qualify for **enhanced employment provisions**.
- **Digital Infrastructure:**
 - **GeoMGNREGA Platform:** For **geographic tagging** of created assets across all Gram Panchayats.
 - **JanMGNREGA Mobile Application:** Facilitate **attendance recording**, payment tracking, **asset mapping**, feedback submission, complaint resolution.
 - **NREGASoft Information System:** Record all activities under the MGNREGA.

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)

- **Employment Guarantee:** Provides 100 days of wage employment per household.
- **Work Assurance:** Guarantees minimum wages; work within 15 days (else unemployment allowance).
- **Local Governance Implementation:** Through local governance structures like Gram Panchayats.

- **Empowerment of Marginalized Communities:** Focuses on empowering marginalized groups, especially women.
- **Poverty Reduction:** Aims to reduce poverty through job creation.
- **Rural Economic Resilience:** Contributes to rural economic resilience and sustainable development.

Key Challenges Facing the MGNREGA Scheme

- **Delays in Wage Payments:** Frequent wage delays arise from **ABPS glitches**, **bank mismatches**, and **bureaucratic hurdles**. The mandated **0.05% daily delay compensation** is rarely paid.
 - E.g., In **2021**, the **Centre** owed **Rs 7,500 crore** to **West Bengal**, out of which **labour wages** alone amounted to **Rs 2,744 crore**.
 - Substantial variations in **wage rates** across **states** (ranging from **Rs 220** to **Rs 350+**) create **migration pressures**.
- **Corruption and Leakage:** **Fake job cards** and **ghost workers** divert **funds** through **fictitious beneficiaries**, while **material theft** occurs via the **diversion** or **over-invoicing** of **project supplies**.
 - E.g., Centre invoked **Section 27** of **MGNREGA Act, 2005** due to **widespread irregularities** in implementation (**fake job cards**, misappropriation, improper work allocation etc).
- **Ineffective Social Audits:** **Social audits** are often **ritualistic** with limited participation and inadequate **auditor training**, while **workers fear retaliation**, which discourage genuine participation and suppress findings.
- **Poor Quality of Assets:** **Poor workmanship** causes many **built assets** to deteriorate rapidly, and the absence of **dedicated maintenance** accelerates their **degradation**.
 - The focus on **short-term**, and **labor-intensive earthwork** results in **infrastructure** with limited **long-term utility**.
- **Digital Divide:** **Digital initiatives** like the **JanMGNREGA app** can exclude those without **digital literacy** or **smartphone access**. Mandatory **Aadhaar seeding** further marginalizes workers lacking **reliable biometric authentication** documents e.g., **forest-dwelling tribal communities**.

Steps Needed to Strengthen MGNREGA Scheme

- **Capacity Building Programs:** Empower **gram panchayats** with real **financial** and **administrative authority** for **autonomous project management**.
 - Support them with dedicated **block level technical cells** staffed by **engineers** and **specialists** to ensure **quality design** and **oversight**.
- **Adequate and Timely Funding:** Frame **budgets** on realistic **employment demand** rather than past allocations, and

create **district-level contingency funds (10–15%)** for emergencies. Mandate timely **state release of 25% material costs with penalties for delays** to ensure **project flow**.

- E.g., In WB, the **labour budget** will be allotted **quarterly**, based on **performance** and **compliance**. Usually, it is approved for the **full year**.
- **Technology-Enabled Transparency:** Mandate **100% geo-tagging with photo uploads** at all project stages and **video documentation** for high-value works.
 - Implement **machine learning** to analyze **payment patterns, attendance records, and work measurements** to flag **anomalies**, and pilot **blockchain** for **immutable, direct worker payments**.
 - E.g., the Center directed **100% electronic KYC (e-KYC)** for all workers, **100% Aadhaar seeding** and mandatory wage payments via the **Aadhaar Payment Bridge System (APBS)** in WB.
- **Fair and Adequate Wages:** Offer higher **wage rates** for **certified barefoot technicians** (local individuals trained to provide **basic technical support** for **MGNREGA works**) and **skilled tasks**. Enforce a strict **15-day payment deadline** with **automatic penalties for delays**.

Persistent issues of wage delay and asset quality plague MGNREGA. Suggest institutional and technological reforms to address these core implementation challenges.

Drishti Mains Question

India's Shift to Domestic-led Capital Markets

India's **capital markets** are witnessing a structural transformation where **domestic household savings are increasingly replacing foreign portfolio investment (FPI)** as the primary source of market liquidity.

- While the shift has **reduced exposure to volatile global capital** and improved market stability, it has also highlighted concerns over unequal participation, investor protection, and inclusive growth in the **run-up to Viksit Bharat 2047**.

Domestic Money Shaping Indian Capital Markets

- **Shift in Market Ownership and Power:** FPI ownership of Indian equities has declined to a **15-month low of 16.9%**, and to **24.1% in the NIFTY 50**.
 - In contrast, **domestic mutual funds are hitting record highs quarter after quarter**, supported by sustained SIP inflows.
 - **Retail investors**, through direct equity holdings and mutual funds, now own **nearly 19% of the equity market**, the highest level in over two decades.
 - This marks a **shift in market power** from globally mobile capital to domestic savers, making Indian equities less vulnerable to external shocks.

- **Boom in Primary Markets and Capital Formation:** In 2025, domestic confidence is visible in a booming primary market, with 71 mainboard **Initial Public Offerings (IPOs)** raising over Rs 1 lakh crore this fiscal.
 - **Corporate investment** announcements in FY25 rose by 39% year-on-year, with nearly 70% led by the private sector, reflecting stronger domestic risk appetite and capital mobilisation.
- **Greater Market Stability:** Domestic savings act as a **stable, long-term anchor**, dampening volatility caused by sudden FPI inflows and outflows.
 - This was evident in the **2025 October rally in the NIFTY 50**, where domestic flows provided a **"flight-to-stability" buffer despite global uncertainty**.
- **Enhanced Policy Space for RBI:** Reduced dependence on FPI flows gives the **Reserve Bank of India (RBI)** **greater monetary autonomy**.
 - This gives RBI greater space to boost bank credit, manage the growth–inflation balance, and reduce the need for frequent rupee defence against capital flight.
 - However, this policy flexibility is **contingent on sustained household confidence** and may quickly reverse if markets correct sharply.

Key Challenges from India's Shift to Domestic-led Capital Markets

- **Investor Readiness and Financial Literacy Gap:** Millions of new retail investors are entering equity markets, many with **limited understanding of risk, cycles, and valuation**.
 - During market corrections, these investors are more likely to suffer losses, which can weaken long-term trust in equity markets.
- **Valuation Excesses:** Several IPOs and new-age companies are being priced far **above their earnings and fundamentals**.
 - If market sentiment turns, such stretched valuations can lead to sharp corrections, **disproportionately affecting small investors**.
- **Low Investor Returns:** Despite their popularity, most active mutual funds fail to consistently outperform the market after accounting for fees and risk, **yet dominate investments**.
 - While **low-cost passive funds remain underused**, reducing returns for small investors.
- **Unequal Participation:** Equity and mutual fund ownership remains concentrated among higher-income and urban households with better financial access.
 - As a result, market gains are unevenly distributed, limiting the role of capital markets in inclusive growth.
- **Corporate Governance Concerns:** Declining promoter shareholding raises questions about long-term commitment and the risk of opportunistic exits.

- Stronger governance and transparency are needed to safeguard the interests of domestic savers who now anchor the markets.

Measures Needed to Strengthen India's Capital Markets

- **Fix Access and Information Asymmetry:** Strengthen Securities and Exchange Board of India's investor protection framework by moving beyond disclosure under the SEBI (Listing Obligations and Disclosure Requirements) Regulations 2015 to suitability-based selling, simplified products, and tighter oversight of distributors, especially for first-time investors.
- **Promote Low-cost Passive Investing:** Encourage index funds and ETFs through lower expense ratios and investor awareness via Mutual Fund Sahi Hai campaign to address poor post-fee returns from active funds.
- **Strengthen Financial Literacy and Trust:** Scale up financial education under the National Strategy for Financial Education (NSFE), with focused outreach to small investors, women, and first-time market participants.
- **Deepen Corporate Governance Reforms:** Enforce stronger governance through the Companies Act, 2013, SEBI LODR norms, independent directors, and enhanced disclosure to ensure declining promoter stakes reflect genuine capital formation, not value extraction.
- **Adopt Data-driven Inclusion Policies:** Leverage data from RBI, SEBI, and NPCI, and align with Jan Dhan–Aadhaar–Mobile (JAM) and Digital India frameworks to identify access gaps and design targeted interventions for underrepresented investors.

Discuss how the shift from foreign portfolio investment to domestic household savings is reshaping India's capital markets.

Drishti Mains Question

Deepening the Corporate Bond Market in India

NITI Aayog has released Deepening the Corporate Bond Market in India report emphasizing that a more efficient corporate bond market is crucial for expanding market access, improving liquidity, and enhancing investor participation.

Current State of India's Corporate Bond Market

- **Significant Growth, Yet Untapped Potential:** The market has expanded from Rs 17.5 trillion in FY2015 to Rs 53.6 trillion in FY2025, growing at ~12% CAGR (Compound annual growth rate). However, at 15-16% of GDP, it remains shallow compared to peers like South Korea (79%) and Malaysia (54%).
- **Concentrated and Institutional:** Fundraising through bonds is now comparable to bank credit, but the market is dominated by private placements (98% of issuances) and top-rated (AAA/AA) borrowers.

- Participation from MSMEs, retail investors (<2%), and foreign portfolio investors is minimal.

- **Liquidity Challenges:** The secondary market is illiquid with a low annual turnover ratio (0.3), driven by a buy-and-hold approach by institutional investors like insurance and pension funds.
- **Future Potential:** With continued reforms and innovation, India's corporate bond market could exceed Rs 100–120 trillion by 2030, becoming a pillar of financial stability and growth.

Significance of Deep Corporate Bond Market for India

- **Viksit Bharat 2047:** Needed to support \$30 trillion economy, \$18,000 per capita income
- **Financial Architecture Balance:** Expands funding avenues, lowers borrowing costs, enables access to long-term capital
- **Capital Formation Engine:** Channels savings to productive sectors; supports credit derivatives, securitization
- **Reducing Banking Sector Risk:** Diversifies funding; banks focus on MSMEs, priority sectors; reduces NPAs, credit concentration risk
- **Strengthens Monetary Policy Transmission:** Enables faster interest rate pass-through; provides benchmark yield curve

Key Challenges in Developing a Deep Corporate Bond Market

- **Regulatory Overlap & Complexity:** Multiple regulators (SEBI, RBI, Ministry of Corporate Affairs) lead to fragmented compliance, increased costs, and delays, especially for new instruments.
- **Stringent Investment Mandates:** Institutional investors (insurance, pension funds) are often restricted by regulation to invest primarily in high-rated (AA and above) papers, starving lower-rated corporates of funds.
 - Limited enforcement capacity of debenture trustees and gaps in bondholder protection undermine investor confidence, especially in lower-rated debt.
- **Weak Insolvency Recovery & Infrastructure:** Despite the Insolvency and Bankruptcy Code (IBC), resolution processes face delays (average 713 days vs. 330-day mandate) and declining recovery rates, affecting investor confidence.
- **High Costs & Tax Disincentives:** High issuance/listing costs, complex Tax Deduction at Source (TDS) rules on interest, and less favourable capital gains tax treatment compared to equities make bonds less attractive.
- **Underdeveloped Ecosystem:** Shallow markets for risk-mitigation tools (like Credit Default Swaps), securities lending, and a fragmented data infrastructure hinder growth. It also reduces price transparency, constraining efficient risk assessment and trading activity.

Reforms Taken to Strengthen the Corporate Bond Market

- **RBI:** Launched tri-party repos, Partial Credit Enhancement (PCE), the Retail Direct platform, and the Voluntary Retention Route (VRR) for Foreign portfolio investment (FPI).
- **Government:** Enacted the IBC, launched the Corporate Debt Market Development Fund (CDMDF) as a safety net, and provided incentives for municipal bonds under AMRUT 2.0.
- **Parliamentary Recommendations:** The Select Committee of Lok Sabha has proposed fixing a 3-month time limit for the National Company Law Appellate Tribunal (NCLAT) to decide insolvency appeals.
 - It recommended including registered value within the definition of service provider under the IBC, and inserting a clear definition for registered valuer.
 - Additionally, it proposed allowing multiple resolution plans for a corporate debtor during the corporate insolvency resolution process (CIRP).
- **SEBI Initiatives:**
 - Introduced electronic platforms for trading and insurance. This includes Request for Quote (RFQ) and Electronic Book Provider (EBP).
 - Simplified disclosure requirements with the General Information Document. This makes information more accessible.
 - Reduced ticket sizes for retail investors to Rs 10,000. This allows smaller investments.
 - Established frameworks for green bonds, InvITs, and REITs. This supports sustainable and infrastructure investments.

Proposed Roadmap for Deepening the Corporate Bond Market as per NITI Aayog

- **Phase I (1-2 Years, Strengthen Foundations):** Streamline regulations across SEBI, RBI, MCA. Enhance retail access via digital platforms and investor education
 - Improve insolvency timelines; strengthen debenture trustees. Pilot AI-based credit scoring for SMEs; promote voluntary market-making
- **Phase II (2-4 Years, Expand & Innovate):** Introduce covered bonds, targeted subsidy bonds, fractional bond funds
 - Create platforms for SME bonds & lower-rated debt. Review insurer/pension fund investment mandates for diversification
- **Phase III (4-6 Years, Integrate & Mature):** Set up unified bond market regulator or statutory task force
 - Use Blockchain & AI for digital bond ecosystem. Integrate with global systems like Euroclear to attract foreign capital

Critically analyze the structural and regulatory challenges hindering the deepening of India's corporate bond market. What measures have been taken, and what further reforms are needed?

Drishti Mains Question

India's Transport System Under Stress

In 2025, India faced major disruptions in transportation sector, from overcrowded trains to flight cancellations, highlighting the strain on the transport system due to limited supply & underinvestment amid neoliberal policies.

Challenges Hinder India's Transport System

- **Infrastructure Deficiencies:** Delhi, Mumbai & Kolkata suffer from severe congestion. Railways face overcrowding & delays, with outdated infrastructure.
- **Neo-Liberal Constraints:** India's economic model limits state investment & promotes privatization with minimal oversight, leading to overcrowding, underfunding, and monopolies/oligopolies (IndiGo in aviation).
- **Safety & Security Concerns:** India has high road accident rates; railway accidents still occur, and the 2025 Air India crash in Ahmedabad highlighted safety gaps.
- **Environmental Sustainability:** The transport sector contributes 14% of India's CO₂ emissions. There's a slow shift toward EVs, and extreme weather events threaten infrastructure.
- **Lack of Data-Driven Decision Making:** Lack of comprehensive data strategies for traffic management, congestion reduction, and logistics optimization, with innovations like smart traffic lights, GPS-enabled buses & digital ticketing still developing.
- **Social Equity & Accessibility:** Low fares don't always improve access, with public transport systems being overcrowded, unreliable & difficult for vulnerable groups.

Suggestions

- **Modernise Public Transport:** Prioritize urban mobility, rail upgrades, and integrated logistics parks through NIP & Gati Shakti. The N.K. Singh Review Committee (2016) recommended a more flexible Fiscal Responsibility and Budget Management (FRBM) framework
- **Build Safer Transport Systems:** Align with the National Road Safety Policy (2010) & WHO's Safe System Approach. Accelerate deployment of Kavach 5.0 and make urban safety audits mandatory under MoHUA's Urban Transport Policy (NUTP 2006).
- **Promote Sustainable, Low-Carbon Mobility:** Use NEMMP to shift to EV-based public transport & build climate-resilient infrastructure under NAPCC & National Mission on Sustainable Habitat. Expand NMT through schemes like Streets for People and Cycles4Change.
- **Accelerate Data-Driven Governance:** Enhance monitoring under the ITS Policy for real-time data and digital traffic management.
- **Strengthen Social Equity & Accessibility:** Enforce accessibility mandates under the Rights of Persons with Disabilities Act, 2016, and improve women's safety with Nirbhaya Fund-supported CCTV, panic buttons, and accessible transport options.

Examine the causes and consequences of the transport disruptions in India.

Drishti Mains Question

International Relations

Seychelles Joins Colombo Security Conclave (CSC)

The 7th **National Security Adviser (NSA)** - level meeting of the **Colombo Security Conclave (CSC)** was held in New Delhi, where **Seychelles** was inducted as the 6th full member, marking a significant **expansion of the grouping** and strengthening its role in **safeguarding the Indian Ocean Region**.

Key Facts About CSC

- **About:** CSC is a regional security grouping comprising **India, Bangladesh, Sri Lanka, Maldives, Mauritius, and Seychelles**.
 - It aims to strengthen regional security by addressing **transnational threats** and challenges shared by member states.
 - The grouping brings together **National Security Advisors (NSAs)** and Deputy NSAs for coordinated security cooperation
- **Origin and Evolution:** It began in 2011 as the **Trilateral Maritime Security Cooperation** between India, Maldives, and Sri Lanka.
 - Activity stalled after **2014** due to India–Maldives tensions and shifting geopolitical dynamics.
 - Revived and rebranded as the **CSC** in **2020**. Membership expanded with **Mauritius (2022), Bangladesh (2024)** and **Seychelles (2025)**.
- **Objective:** Promote regional security by addressing transnational threats and challenges of common concern to the Member States.
- **Pillars of Cooperation:**
 - Maritime safety and security
 - Countering terrorism and radicalisation
 - Combating trafficking and transnational organised crime
 - Cyber security and protection of critical infrastructure
 - Humanitarian assistance and disaster relief (HADR)
- **Institutional Structure:** It has a **permanent secretariat in Colombo**, providing continuity and coordination for the grouping.
 - CSC operates through meetings of **NSAs and Deputy NSAs** of the member countries.
- **Significance for India:** The CSC is significant for strengthening **India's strategic influence in the Indian Ocean Region** by fostering coordinated maritime security, counter-terrorism cooperation, and cyber resilience among six like-minded coastal states.

- By institutionalising regular NSA-level dialogue, the CSC reinforces India's neighbourhood-first and SAGAR (Security and Growth for All in the Region) vision and contributes to a more stable, secure, and rules-based regional order.

Seychelles

- Seychelles is a sovereign island nation and **archipelagic state** of 155 islands, located in the **western Indian Ocean**, northeast of **Madagascar** and off the **east coast of mainland Africa**.
 - The islands of Seychelles are situated on the **Mascarene Plateau**, an extensive submarine plateau in the Indian Ocean.
- It is **Africa's smallest and least populated country**.
- **Capital:** Victoria (on Mahé Island).
- **Strategic Importance for India:** It sits along crucial maritime trade routes in the Indian Ocean and plays a key role in **anti-piracy operations, maritime security, and the Blue Economy**.
 - Seychelles is a vital partner in India's SAGAR vision and Indian Ocean diplomacy.



India, Brazil, and South Africa (IBSA) Forum

On the sidelines of the **G20 Summit in Johannesburg**, India's Prime Minister met with the **Brazilian and South African President** to discuss strengthening the **IBSA (India-Brazil-South Africa) forum**.

- The meeting focused on **climate-resilient agriculture, digital innovation, UN reforms, terrorism, and Global South initiatives**.

IBSA Forum

- **About:** IBSA is a unique **forum of India, Brazil, and South Africa**, three **large democracies** and major **economies** from three continents facing similar challenges.

- **Formalized** as the **IBSA Dialogue Forum** on **6 June 2003** in **Brasilia**, issuing the **Brasilia Declaration**. **South Africa** is the current **IBSA Chair**.
 - **IBSA does not** have a **headquarters** or a **permanent secretariat**.
- **Areas of Cooperation:**
- Cooperation in IBSA is on **3 fronts**:
 - ❖ **Political consultation**: Coordination on **global and regional political issues**.
 - ❖ **Trilateral collaboration**: Joint projects through **working groups** and **People-to-People Forums**.
 - ❖ **Assistance to other developing countries**: Projects implemented through the **IBSA Fund**.
- **IBSA Trust Fund:**
- Established in **2004**, operational from **2006** for **poverty and hunger alleviation**.
 - Allocated **USD 53.27 million** to **46 South-South development projects** in **34 partner countries**, mostly **Least Developed Countries (LDCs)**.
- **IBSAMAR**: Joint multinational **maritime exercise** among **India, Brazil, and South Africa navies**. **8th edition** held in **October 2024** off the coast of **South Africa**.
- **Initiatives Proposed in 2025:**
- India's PM proposed a **National Security Advisers-level Dialogue** for regular **security and counter-terrorism consultations** among the three countries.
 - He also suggested an **IBSA Fund for Climate-Resilient Agriculture** and a **Digital Innovation Alliance** to share **UPI, CoWIN, and cybersecurity frameworks**.
- Role of IBSA Forum in Advancing India's Interests**
- **Voice of the Global South:**
- IBSA, representing **three major democracies and economies** from **Asia, South America, and Africa**, serves as a collective **voice** to advance the **shared interests** and **development priorities** of the **Global South**.
 - It allows **India** to assert **leadership** in the **Global South** and influence the **agenda** without the dominance or interference of **China**, unlike in **BRICS** or **SCO**.
- **Advocacy for Multilateral Reform:**
- A key goal of IBSA is to push for **global governance reform**, especially the **UN Security Council (UNSC)**, as all members are candidates for **permanent membership** and argue current structures do not reflect **21st-century geopolitics**.
 - This aligns directly with **India's quest** for a **permanent UNSC seat** and amplifies its **reform agenda**.
- **Democracy and Shared Values:**
- IBSA is united by **shared values** as **large, multi-ethnic democracies**, enabling cooperation on **human-centric development** and a **rules-based international order**.
 - It enhances **India's soft power** by positioning it as a responsible **"Democratic Anchor"** of the **developing world**, distinguishing it from authoritarian alternatives like **China**.
- **Practical Cooperation through IBSA Fund:**
- The **IBSA Fund** exemplifies **South-South Cooperation**, pooling resources for **development projects** in **health, education, and agriculture**, demonstrating solidarity beyond member countries.
 - It provides a **low-cost, high-goodwill** tool for **India** to project itself as a **benevolent development partner** without the accusation of **debt-trap diplomacy**.
- **Strategic Dialogue on Global Issues:**
- The forum enables **coordination** on **terrorism, climate change, and trade**, amplifying their **influence** in shaping **global agendas**.
 - It serves as a platform to **globalize India's concerns** on **cross-border terrorism** (demanding "no double standards") and to export **Indian solutions** like **UPI** and **Digital Public Infrastructure (DPI)** to other **emerging economies**.

Future Pathways for IBSA Cooperation

- **Focus on Niche Cooperation**: Collaborate on **democratic governance, climate change and green energy, and Digital Public Infrastructure (DPI)**, leveraging shared values and India's experience with **UPI** and **Aadhaar** to benefit the **Global South**.
- **Enhance Institutional Capacity**: Establish a **small, permanent IBSA secretariat** for continuity and project monitoring, and create an **IBSA Business Council** to identify trade opportunities and strengthen economic ties.
- **Strategic Alignment and Fund Revitalization**: Use IBSA as a **caucus within BRICS** to coordinate positions and balance **China and Russia's** influence, and **revitalize the IBSA Fund** for poverty and hunger alleviation to showcase effective **South-South cooperation**.

Elaborate on the key areas of cooperation under the IBSA framework. Recently, what new initiatives have been proposed to strengthen this trilateral partnership?

Drishti Mains Question

UN Secretary-General

The **United Nations** has officially launched the selection process to choose the next **Secretary-General (SG)**, who will take office in January 2027 once **Antonio Guterres** completes his second term on 31st December 2026.

Key Facts About the UN Secretary-General

About:

- The Secretary-General (SG) is the **chief administrative officer** of the United Nations under **Article 97 of the UN Charter**.
- SG is **equal parts diplomat and advocate, civil servant and CEO**, a symbol of UN ideals and a spokesperson for the world's peoples, especially the poor and vulnerable.
- Traditionally, the post rotates among regions, though this is not legally binding.
- All UN Secretaries-General so far have been **men**, prompting calls for a woman SG.

Selection and Appointment of SG:

- **Initiation:** sg selection process begins with a joint invitation from the Presidents of the UNGA and UNSC for Member States to submit nominations.
 - ❖ Each nominee submits a vision statement, curriculum vitae and campaign financing disclosures.
- **Security Council Screening:** Conducts informal consultations and secret straw polls marking candidates as **“encourage”, “discourage” or “no opinion”**.
 - ❖ Ballots from the **five permanent members** (US, UK, Russia, China, France) are colour-coded to indicate potential vetoes.
- **Threshold for Recommendation:** Candidate requires **at least nine votes and no veto to move forward**.
- **UNSC Resolution:** Council adopts a formal resolution recommending one candidate to the General Assembly.
- **General Assembly Appointment:** UNGA approves the recommendation by simple majority or by acclamation.
- **Term:** Five-year tenure, generally renewable once.

Role of SG:

- **Administrative and Executive Duties:** Acts as the chief administrative officer of the UN under Article 97 of the Charter.

- ❖ Heads the UN Secretariat, overseeing staff, budgets and operations across global missions and programmes.
- ❖ Chairs the **UN System Chief Executives Board (CEB)** for system-wide coordination.
- ❖ Performs functions assigned by the **Security Council, General Assembly, ECOSOC, and other UN bodies**.
- ❖ SG can bring to the Security Council’s attention any **matter that may threaten international peace and security (Article 99)**.
- ❖ SG holds a mandate that combines administrative responsibilities with considerable political discretion.

Diplomatic and Mediation Role:

- ❖ The SG uses their “good offices” to prevent or ease conflicts through **quiet diplomacy, public appeals and mediation**.
- ❖ They travel widely to meet governments and communities, staying closely connected to global concerns.

Symbolic and Advocacy Role:

- ❖ The Secretary-General serves as the UN’s moral voice, promoting peace, justice and multilateral cooperation.
- ❖ The role requires balancing Member States’ concerns while upholding the principles and values of the UN Charter.

Revitalizing India–Bangladesh Relations

The Parliamentary Standing Committee on External Affairs’ report, **‘Future of India-Bangladesh Relationship,’** states that developments in Bangladesh pose the most significant strategic challenge to India since the 1971 Liberation War.

Developments in Bangladesh that Present Strategic Challenges to India	
<ul style="list-style-type: none">○ Fundamental Political Realignment: The fall of the pro-India Awami League government in August 2024 led to instability. Return of new force– National Citizen Party (NCP), Jamaat-e-Islami.○ Intensifying External Influence: Bangladesh’s growing ties with China (e.g., upgrading Lalmonirhat airfield) and Pakistani outreach (e.g., Pakistan Navy frigate PNS Saif visited Bangladesh).○ Anti-India Protests & Communal Violence: The killing of Sharif Osman Hadi led to unrest, including vandalism of India’s Assistant High Commission in Chattogram, highlighting the impact of internal issues on diplomatic relations.	<ul style="list-style-type: none">○ India’s Humanitarian Response: India’s decision to shelter PM Sheikh Hasina has become a bilateral issue, with Bangladesh accusing her of causing trouble from Indian soil and demanding extradition, while India denies offering a political platform.○ Critical Bilateral Issues in Limbo: The Ganga Water Treaty (1996) is due for renewal in Dec 2026, but formal discussions with Bangladesh have not yet started, risking potential disputes.○ Shifting Societal Sentiments: New generation, less connected to the 1971 history, is fostering nationalism skeptical of India. Resurgent Islamist groups & youth nationalism create instability. For example, Hasnat Abdullah of NCP threatened India’s Northeastern states and offered shelter to separatist groups.

Ways to Revitalize India-Bangladesh Bilateral Relations

- **Institutional Crisis Management:** Establish a formal political crisis response mechanism with a senior envoy and dedicated foreign ministry channel for rapid fallout management. Create a **High-Level Consular Coordination Cell** for secure visa operations and citizen mobility.
- **Engage Beyond Governments:** Engage with all political parties, civil society, youth groups, media, and intellectuals to avoid favoring any faction. **Intensify Track 1.5 & Track II dialogues.** Frame India's refuge to Sheikh Hasina as a humanitarian gesture, not political patronage.
- **Transparent Water Diplomacy:** Start discussions on the **Ganga Water Treaty renewal before 2026 deadline**, and adopt a basin-wide management approach for shared rivers like Teesta, including joint hydrological models and data sharing.
- **Offer a Positive Alternative:** Offer more attractive, transparent, and faster-implementing partnerships in infrastructure and development to counter strategic competition.
- **Intensify Security Coordination:** Implement real-time border security protocols between **BSF & Bangladesh border forces**, with joint hotlines to prevent infiltrations and miscalculations.



Implications of these Developments on India

- **Geopolitical & Security:** Fall of pro-India Sheikh Hasina removes strategic certainty & security cooperation; China's Lalmonirhat upgrade & Pakistani outreach heighten two-front war risks.
- **Internal Security:** Increased instability raises risks of illegal migration, infiltration, communal violence, and radicalization across borders.
- **Diplomatic:** Sheltering Hasina leads to extradition issues & accusations of interference, while anti-India protests complicate negotiations like the Ganga Water Treaty.

- **Economic:** Political instability and anti-India sentiment threaten connectivity projects, undermining **India's Neighbourhood First & Act East policies**.
- **Narrative:** India is losing the perception battle, viewed as an imperialist power supporting an authoritarian regime.
- Bangladesh is **India's largest trade partner** in South Asia. Bilateral trade— **USD 14.01 billion** in FY 2023-24.

In light of recent political changes in Dhaka, discuss the challenges and opportunities for revitalizing India- Bangladesh bilateral relationship.

Drishti Mains Question

23rd India–Russia Annual Summit

Russian President Vladimir Putin visited India for the **23rd India–Russia Annual Summit**, during which both nations signed agreements across defence, trade, economy, culture, healthcare, and education, reaffirming their long-standing **India - Russia strategic partnership**.

Key Outcomes of 23rd India–Russia Annual Summit

- **Strengthening of the Strategic Partnership:** India and Russia reaffirmed their Special and Privileged Strategic Partnership on the 25th anniversary of the **India–Russia Strategic Partnership Declaration (2000)**, signing 16 agreements across defence, healthcare, trade, and culture.
 - India and Russia agreed to fast-track the **Free Trade Agreement (FTA)** with the **Eurasian Economic Union**, adopted **Programme 2030** to expand strategic economic cooperation, and **set a target of USD 100 billion bilateral trade by 2030**.
 - Both sides agreed to **deepen cooperation on payment systems**, resolve pending investment issues, and reaffirmed **energy as a key pillar of their partnership**.
- **Connectivity and Transport Initiatives:** India and Russia agreed to deepen cooperation on major connectivity corridors, including the **International North–South Transport Corridor (INSTC)**, the **Chennai–Vladivostok maritime route**, and the **Northern Sea Route (NSR)**, along with training specialists for polar-water navigation.

- Both sides also noted ongoing collaboration between their railways to support technology exchange and strengthen transport links.
- **Cooperation in the Russian Far East and Arctic:** India and Russia agreed to deepen trade and **investment engagement in the Far East and Arctic**, guided by the **2024–2029 cooperation framework** covering sectors like energy, mining, agriculture, and maritime transport.
 - Both sides also highlighted growing collaboration on the NSR and affirmed regular Arctic consultations, with India ready to play a more active **role as an Observer in the Arctic Council**.
- **Civil Nuclear and Space Cooperation:** India and Russia agreed to deepen cooperation in nuclear energy, covering the **full fuel cycle**, support for the **Kudankulam Nuclear Power Plant**, and future high-technology applications, aligned with **India's goal of reaching 100 GW nuclear capacity by 2047**.
 - The two sides welcomed the strengthened **ISRO–Roscosmos partnership** in peaceful space cooperation, covering human spaceflight, satellite navigation and planetary exploration.
- **Military Cooperation:** Reaffirmed defence ties, with the partnership now shifting **toward joint R&D, co-development, and co-production of advanced military systems**.
 - Both sides welcomed outcomes of **India-Russia Inter-Governmental Commission on Military & Military Technical Cooperation (IRIGC-M&MTC)** and agreed to boost **Make-in-India** manufacturing of spare parts and equipment for Russian-origin platforms, including for export to friendly countries.
- **Multilateral Cooperation:** Russia backed India's demand for a **permanent UNSC seat** and assured full support for India's **BRICS Chairship in 2026**.
 - Russia adopted the Framework Agreement to join the **International Big Cat Alliance (IBCA)**. India welcomed Russia's interest in joining the **International Solar Alliance and the Coalition of Disaster Resilient Infrastructure (CDRI)**.
 - Agreed to deepen cooperation on low-carbon technologies, climate finance, and implementation of **Article 6 of the Paris Agreement**.
- **Counter-Terrorism Commitments:** Both sides condemned recent attacks in **Pahalgam (2025)** and **Crocus City Hall (2024)**, called for action against all UN-listed terror groups, and highlighted the need for a zero-tolerance approach rooted in international law.
 - They supported finalizing the **Comprehensive Convention on International Terrorism** and emphasized strict implementation of UN resolutions.



Key Areas of Cooperation Between India and Russia

- **Economic Cooperation:** Bilateral trade reached **USD 68.7 billion in FY 2024–25**, driven largely by energy imports by India. Both countries aim for **USD 100 billion in trade by 2030** and **USD 50 billion in mutual investments by 2025**.
 - Indian exports are mainly pharmaceuticals, chemicals, iron & steel, and marine products
 - India's imports from **Russia include crude oil and petroleum products**, sunflower oil, fertilizers, coking coal, and precious stones/metals.
- **Diplomatic cooperation:** India and Russia maintain dense diplomatic engagement through mechanisms like the Annual Summit, **Intergovernmental Commission on Trade, Economic, Scientific, Technological, and Cultural Cooperation (IRIGC-TEC)**, IRIGC-M&MTC and the **2+2 Dialogue**, ensuring continuous high-level coordination.
 - Both countries also work closely in multilateral forums such as the **G20, BRICS, and SCO**, reinforcing their global partnership.
- **Defence Cooperation:** It is the cornerstone of the partnership, guided by the **2021–2031 military-technical cooperation agreement**.
 - The relationship has evolved from a **buyer–seller model to joint development** and production of systems such as BrahMos, Su-30MKI, T-90 tanks and AK-203 rifles.
 - Regular exercises like **INDRA and Zapad-2025 reinforce interoperability**, while major platforms like **submarines, frigates and the S-400 system** highlight continued trust.
- **Science and Technology:** India - Russia collaboration on **Gaganyaan training reflects deep space partnership**, while the **Kudankulam Nuclear Power Plant** remains India's biggest civilian nuclear project with foreign support.

- The Science, Technology & Innovation roadmap signed in 2021 aims to boost innovation and commercialization between both countries.
- **Education & Cultural:** Education ties are strong, with nearly 20,000 Indian students studying in Russia, mainly in medical universities. Large-scale events like Bharat Utsav 2025 in Moscow and the Indian Film Festival held across multiple Russian cities reflect the growing cultural enthusiasm for India.

Challenges in India–Russia Ties and Measures to Address Them	
Challenge	Measures
<ul style="list-style-type: none"> ○ Slow arrival of S-400 units and Akula submarines due to the Ukraine war affects India's readiness. ○ In FY 2024-25, India imports over USD 63 billion from Russia but exports under USD 5 billion, making the trade structure unsustainable. ○ Moscow's growing reliance on Beijing limits its ability to stay neutral in an India–China friction. ○ Sanctions have blocked normal banking channels, leaving large dues unsettled. ○ The recruitment of Indian nationals into the Russian army, often through fraudulent job offers, has resulted in casualties and widespread public anger in India. 	<ul style="list-style-type: none"> ○ Boost indigenous production via Make in India, Aatmanirbhar Bharat, and iDEX. Expand joint spares support under the IRIGC-M&MTC. ○ Improve market access using the India–EAEU FTA negotiations. Promote pharma, IT and engineering exports through Trade Promotion Council of India missions. ○ Strengthen ties with Quad, Europe and Central Asia to offset reduced Russian strategic utility. ○ Develop alternate payment routes using Special Rupee Vostro Accounts, RBI's INR settlement framework, and escrow systems via non-sanctioned banks. ○ Strengthen migrant protections via the MADAD portal, eMigrate system, and bilateral mechanisms for monitored repatriation under Consular Dialogue Platforms with Russia.

India's engagement with the Arctic and Russian Far East is an economic necessity. Critically discuss the opportunities and constraints.

Drishti Mains Question

India's Strategic Turn to Free Trade Agreements

India is currently accelerating its pursuit of **Free Trade Agreements (FTAs)** with a wide range of countries like **New Zealand, Russia and Oman**, even though past FTAs delivered modest trade gains.

- This shows a shift in focus, with FTAs now used more to secure strategic partnerships and geopolitical interests than to boost trade alone.

Reasons Behind India's Renewed Emphasis on FTAs

- **Strategic Realignment in Global Geopolitics:** The global shift from a unipolar to a **multipolar order** (e.g., US-China rivalry, weakening of the **World Trade Organization (WTO)**) has made **bilateral and regional FTAs a tool of strategic engagement**.
 - India is leveraging FTAs to **strengthen political alignments**, especially in the Indo-Pacific, West Asia, and Africa.
 - In a volatile world order, FTAs act as “**political safety nets**”, ensuring closer bilateral ties and strategic insurance (e.g., **India-Australia Economic Cooperation and Trade Agreement (ECTA)**, **India-UAE Comprehensive Economic Partnership Agreement (CEPA)**).
- **Decline of Multilateralism:** The **stagnation of WTO negotiations (Doha Round)** and protectionist trends globally have reduced the effectiveness of multilateral trade forums.

- FTAs provide a platform to pursue **WTO-plus commitments**, especially in areas like services, digital trade, and investment.
- The **India-EFTA TEPA exemplifies this shift binding commitment of USD 100 billion in FDI over 15 years**.
- **Diversification of Economic and Trade Partners:** FTAs help **reduce overdependence** on a few markets (e.g., **US, EU, China**).
 - They enable India to **access new markets**, diversify supply chains, and secure critical resources (e.g., energy, minerals).
 - Also, FTAs are no longer just about market access, they are strategic tools to operationalize the “**China Plus One**” policy and secure upstream supply chains.
- **Unlocking Untapped Potential in Services and Investment:** India has a **comparative advantage in services** (IT, healthcare, education), but past FTAs underutilised this potential.
 - New FTAs (e.g., **UAE-India CEPA**) focus more on **services, fintech, and investment flows**.
- **Strengthening Domestic Capabilities and Value Chain:** FTAs are aligned with initiatives like ‘**Make in India**’ and **Production Linked Incentive schemes**, aiming to integrate Indian manufacturing into global value chains. Strategic FTAs can help attract **Foreign Direct Investment (FDI)** and **technology transfers**.

- **Correcting Past Imbalances:** Learning from asymmetric gains in earlier FTAs (e.g., ASEAN), India now seeks **better-balanced, services-focused agreements**, ensuring domestic industry interests are protected.
 - For example, India's export share to **ASEAN increased only marginally from 10.2% to 10.8%**, while it declined from **2.1% to 1.9% with Japan**, and from **1.9% to 1.4% with South Korea**, based on **five-year averages before and after the respective FTAs**.
 - This trend suggests that previous FTAs have mostly codified existing trade flows rather than generating significant new trade.

Concerns Related to India's Expanding Network of FTAs

- **Trade Deficits and Asymmetric Gains:** Many of India's earlier FTAs have not led to a **strong export boost**. Imports from partner countries often rose faster than **exports, widening trade deficits**.
 - **Example:** Between FY 2009 and FY 2023, **imports from ASEAN to India grew by 234.4% while exports from India rose only by 130.4% despite FTA**.
 - ❖ Indian exporters often fail to gain reciprocal market access.
- **Non-Tariff Barriers (NTBs):** Developed economies impose stringent standards (e.g., **IPR, sanitary measures**) that dilute tariff benefits. India-EU FTA has stalled over **data localisation and IPR issues**.
 - Furthermore, India's **FTA utilization rate remains low at just 25%**, compared to 70–80% in developed countries.
 - FTAs with the EU and the UK involve stringent environmental and labour compliance requirements, which India is cautious about adopting and risk India's exclusion from emerging "green" trade regimes.
- **Harm to Domestic Sectors:** MSMEs, farmers, and labour-intensive sectors struggle to compete with cheaper imports. Tariff cuts can hurt sectors that are not yet globally competitive.
 - FTAs often commit to **zero-duty imports on finished goods** while domestic tariffs on raw materials remain high (to protect upstream industries), creating a structural disadvantage for Indian manufacturers.
 - ❖ This **"Inverted Duty Structure"** incentivizes trading (importing finished goods) over manufacturing, directly **contradicting the Atmanirbhar Bharat (Make in India) vision**.
 - ❖ **Example:** Indian rubber farmers hurt by cheaper imports under the ASEAN FTA.
 - Opening markets in dairy, plantation crops, or cereals raises concerns over farmer livelihoods.

- **Risk of Import Surges via Third Countries:** Goods from non-FTA countries may enter India through partner nations by **exploiting rules of origin**. This weakens domestic manufacturing and undermines the spirit of FTAs.

India's Policy Approach to Enhance the Effectiveness of Its FTA Strategy

- **Strengthen Domestic Competitiveness:** Invest in **R&D, infrastructure, skill development**, and MSME support to prepare industries for global competition.
- **Focus on WTO-Plus Areas:** Prioritise sectors like **digital trade, green energy, and services**, especially in future FTAs with developed economies.
- **Incorporate Balanced Safeguards:** Ensure **strong Rules of Origin**, safeguard duties, and anti-dumping provisions to prevent misuse by third countries.
- **Institutional Reforms and Inter-Ministerial Coordination:** Enhance cooperation between the **MEA, Commerce Ministry, and NITI Aayog** to align strategic and economic interests.
- **Improve Dispute Resolution Frameworks:** Include **binding timelines and independent panels** in FTAs for swift resolution of trade disputes.
- **Monitor and Review Existing FTAs:** Establish mechanisms for **periodic impact assessment**, public consultation, and course correction.
- **Promote Inclusive and Sustainable Trade:** Integrate **labour and environmental safeguards** without undermining domestic flexibility.

India's recent surge in Free Trade Agreements reflects a strategic shift from market access to geopolitical alignment. Discuss.

Drishti Mains Question

India–Jordan Relations

India's **Prime Minister** visited **Jordan**, engaging in extensive discussions with **King Abdullah II** of Jordan. This marks his **first full-fledged bilateral visit** to Jordan, having previously visited in **February 2018** en route to **Palestine**.

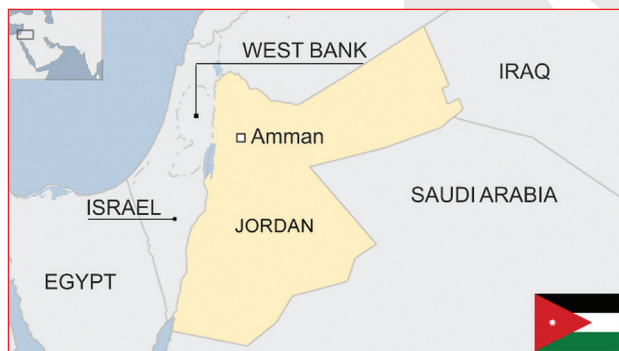
Key Outcomes of the Visit

- **5 MoUs Signed between India and Jordan:**
 - MoU on Technical Cooperation in the Field of **New and Renewable Energy**.
 - MoU on Cooperation in the field of **Water resources Management & Development**
 - Twinning Agreement between **Petra (ancient city in Jordan) and Ellora**.
 - Renewal of the **Cultural Exchange Programme** for the years 2025–2029.

- Letter of Intent on Cooperation in the field of sharing successful **digital solutions** implemented at population scale for digital transformation.
- **Ambitious Trade Target:** Both countries aim to enhance bilateral trade to **USD 5 billion** over the next 5 years. India is Jordan's **3rd largest** trading partner.
- **Regional & Global Alignment:** Leaders reiterated strong condemnation of **terrorism** and shared perspectives on ensuring **regional peace and stability**.

Jordan

- **Location & Borders:** Strategically located in the **Middle East**, bordering **Syria, Iraq, Saudi Arabia, Israel**, and the **West Bank**.
- **Physical Features:** Dominated by **desert (over 80% of land)**, with the fertile **Jordan River Valley**, and rocky highlands.
- **Population:** Predominantly **Arab**, with a significant **Palestinian refugee population (about one-third)**. Majority **Muslim** with a Christian minority. Highly urbanized (75% in cities).
- **Maritime Access:** Gateway via the **port of Aqaba** to the **Red Sea**.
- **Modern Formation:** Established as **Transjordan** under British mandate (1920), gaining **independence in 1946** under **King Abdullah I** of the Hashemite dynasty.
- **Arab-Israeli Conflicts:** Fought wars against Israel in **1948 and 1967**, losing the **West Bank and eastern part of Jerusalem**, leading to large Palestinian refugee inflows.
- **Peace & Stability:** Renounced claims to the **West Bank (1988)** and signed a historic peace treaty with Israel in 1994 (**Wadi Araba Treaty 1994**).



Strategic Significance of Jordan for India's West Asia Policy

- **Geopolitical Bridge:** Jordan is a key **pro-Western**, modernizing Arab **constitutional monarchy** with a peace treaty with Israel.
 - It serves as a vital **diplomatic bridge** enabling India to balance its ties with **Israel, Arab states**, and **Iran** without entrapment in **sectarian divisions**.
 - Jordan hosts a **large refugee population**, primarily **Syrians**, and its sustained humanitarian role strengthens its position as a **regional stabilizer**.

- **Counter-Terrorism Convergence:** Engagement in forums like the **Aqaba Process 2015**, the 2018 defence MoU, and participation in **Special Operations Forces Exhibition and Conference (SOFEX)** underscore deepening military-to-military and counter-terrorism ties.
- **Core Diplomatic Support:** Jordan's influence in the **Organisation of Islamic Cooperation (OIC)** provides valuable support for India's multilateral interests, and helps counter narratives on **Kashmir**, given Jordan's generally **balanced stance**.
- **Jordan's Role in Regional Stability:** Jordan's custodianship of **Jerusalem** makes it central to **de-escalation efforts**, aligning with **India's interest** in regional stability and protecting its diaspora and trade routes.
- **Corridor Logistics:** Jordan is positioned as a **linchpin** in the **India-Middle East-Europe Economic Corridor (IMEC)**, enhancing **India's trade connectivity** and energy transition goals.
 - It offers potential as a **gateway** for reconstruction and logistics in **post-conflict Iraq** and the **Levant**.
 - During the **Red Sea crisis**, **overland cargo routes** from Gulf ports **via Saudi Arabia and Jordan into Israel** have emerged to **bypass maritime chokepoints**, underscoring Jordan's rising importance in resilient regional logistics.

Pillars of the India-Jordan Bilateral Relationship

- **Diplomatic Engagement:** Established in **1950**, **diplomatic ties** are strengthened by regular **summits (e.g., UNGA)**, mutual **counter-terrorism** support, as seen after the **Pahalgam attack (2025)**, and shared concerns on **regional stability**.
- **Trade & Economic Integration:** India is Jordan's **3rd largest trading partner**, with bilateral trade of **USD 2.875 billion** in FY 2023-24.
 - Joint ventures like **Jordan India Fertiliser Company (JIFCO)** make Jordan a critical **supplier of phosphates and potash** for India's **agricultural security**.
 - Over 15 NRI-owned garment units in **Jordan** (investment **~USD 500 million**) leverage **trade agreements** to access **Western markets**.
- **Defence & Security Cooperation:** India and Jordan signed an MoU on Defence Cooperation in 2018.
- **Science & Technology Partnership:** The India-Jordan Center of Excellence in IT at **Al-Hussein Technical University** is equipped with a **supercomputer PARAM Shavak**, which aims to train **3,000 Jordanian IT professionals**. Indian master trainers upskill Jordanians in **Cyber Security, AI, and Big Data Analytics**.
- **People-to-People Ties:** Approximately **17,500 Indians** in **Jordan** work in key sectors including **healthcare, IT, and**

education. Strong cultural ties are maintained through Jordan's interest in **Bollywood** and events like the **Jerash Festival**.

- **Personal Diplomacy:** The **Jordanian Crown Prince Al Hussein bin Abdullah II** personally took the Indian PM to the **Jordan Museum**, showing the **warm ties** between **India** and **Jordan**.

Challenges Constraining the Partnership Between India and Jordan

- **Structural Trade Imbalance:** Trade is largely confined to a few **commodities**, with **India** importing **phosphates** and **potash** and exporting **cereals** and **petroleum products**, leaving the relationship vulnerable to **price fluctuations**. High-value and advanced technology exchanges remain **minimal**.
 - **Jordan's economy** continues to face notable constraints, including **unemployment of around 21%** and **public debt** approaching **90% of GDP** as of 2024. These pressures **limit fiscal flexibility**, suggesting that **substantial trade expansion** may be **challenging** to realize in the near term.
- **Geopolitical Sensitivities in West Asia:** Jordan's foreign policy is heavily constrained by the **Palestinian issue** and **Israel-related developments**, making its external alignments highly sensitive during **regional crises** and complicating **stable, long-term cooperation** whenever West Asia escalates.
- **Connectivity Gaps:** The single **Amman-Mumbai flight** highlights limited **people-to-people** and **business ties**, especially compared to India's robust links with Gulf states. This **sparse connectivity**, coupled with **Jordan's economic challenges**, constrains growth in **trade, investment, and tourism**.

Steps to Build a More Robust Bilateral Relationship between India and Jordan

- **Diversify Economic Relationship:** India and Jordan must move from commodity-centric trade to **value-chain integration** by establishing a **Ministerial Strategic Economic & Technology Dialogue**, focusing on **investment, MSMEs, startups, and supply chains**.
 - Cooperation can also include sharing **India's Digital Public Infrastructure (DPI)** expertise to enable payment interoperability and **scalable digital solutions** in **health and e-governance**.
- **Build a Green & Water-Secure Partnership:** Given Jordan's existential challenges of **water scarcity** and energy transition, India can cooperate in **solar and green hydrogen technologies**. **Collaboration** can also extend to **water recycling, desalination, smart irrigation, and climate-resilient agriculture**.

- **Gateway for Regional Stabilisation:** India can partner with **Jordan** in establishing **reconstruction supply chains**, using it as a base for **humanitarian aid, skilling, and health missions**, and collaborating on multilateral development initiatives.
- **Amplify Cultural Links:** Jointly produce **cultural content, film festivals, and archaeological collaborations** (e.g., **Petra–Ellora twinning**). Promote **Jordan** as a **film shooting destination** for **Bollywood** and **Indian OTT platforms**.
- **Enhance Connectivity:** Incentivize **direct flights** (Amman–Delhi/Chennai) to boost tourism and business. Create a dedicated **digital platform** for e-commerce, tech startups, and virtual collaboration to connect **businesses** and **academia**.

Discuss the strategic significance of Jordan in India's West Asia policy. How can cooperation in defense and security be enhanced to mutual benefit?

Drishti Mains Question

India-Oman Comprehensive Economic Partnership Agreement

India and Oman signed a **Comprehensive Economic Partnership Agreement (CEPA)**, marking a major milestone in India's trade diplomacy in the Gulf region.

- It is **Oman's first bilateral trade agreement since 2006** and **India's second CEPA in the GCC, after the UAE (2022)**.
- Additionally, the Prime Minister **Narendra Modi** was conferred with the **Order of Oman** by His Majesty Sultan Haitham bin Tarik (Sultan and Prime Minister of Oman) for his exceptional contribution to **India–Oman relations**.
 - The award, instituted in 1970 by **Sultan Qaboos bin Said**, honours select global leaders for outstanding contributions to public life and bilateral ties.

Key Features of the India–Oman CEPA

- **Near-Universal Duty-Free Market Access:** Oman has granted zero-duty access on **98.08% of its tariff lines, covering 99.38% of India's exports by value**.
 - Immediate tariff elimination on nearly 98% of lines ensures quick and tangible benefits for Indian exporters, especially in the Gulf market.
- **Boost to Labour-Intensive Sectors:** Full tariff elimination for **textiles, leather, footwear, gems & jewellery, engineering goods, plastics, furniture, agricultural products, pharmaceuticals, medical devices, and automobiles**.
 - Expected to generate employment and strengthen **MSMEs, artisans, and women-led enterprises**.
- **Balanced Tariff Concessions by India:** India has offered tariff liberalisation on 77.79% of its total tariff lines, covering 94.81% of imports from Oman.

- Sensitive sectors are protected through **exclusion lists and Tariff Rate Quotas (TRQs)**, covering **agriculture, bullion and jewellery, select labour-intensive goods, and base metal scrap**, ensuring a balanced and calibrated trade framework.
- **Ambitious Services Liberalisation:** Oman commits to **liberalisation across 127 services sub-sectors**, including IT, business and professional services, R&D, education, health, and audio-visual services.
 - These commitments are expected to unlock high-value opportunities and expand India's services exports.
- **Enhanced Mobility of Indian Professionals:** For the first time, Oman has offered wide-ranging **Mode 4 commitments**, including an increase in the **Intra-Corporate Transferees quota** from 20% to 50% and extension of stay for Contractual Service Suppliers from 90 days to two years, with further extension possible, easing professional mobility.
 - Under the **General Agreement on Trade in Services (GATS)**, **Mode 4** refers to the **temporary movement of natural persons** from one WTO member to another to supply services, including **employees of service firms and self-employed professionals**.
- **100% FDI in Services:** The CEPA allows **100% Foreign Direct Investment** by Indian companies in major services sectors in Oman through commercial presence, enabling Indian firms to expand operations and establish a long-term footprint in the Gulf region.
- **Landmark Provision on Traditional Medicine:** The agreement includes the **world's first comprehensive commitment on Traditional Medicine across all modes of supply**, opening new avenues for India's AYUSH and wellness sectors and promoting medical value travel.
- **Trade Facilitation and Regulatory Cooperation:** The CEPA addresses **non-tariff barriers** through fast-tracking of pharmaceutical approvals, acceptance of **Good Manufacturing Practices (GMP)** inspection documents, mutual recognition of Halal certification, acceptance of **India's National Programme for Organic Production (NPOP) organic certification**, and enhanced cooperation in standards and conformity assessment.

India-Oman Relations

- **Strategic & Political Ties:** India and Oman share warm, historic relations upgraded to a **Strategic Partnership in 2008**, with Oman being India's oldest strategic partner in the Gulf and an important interlocutor at **GCC, Arab League, and IORA**.
- **Defence & Maritime Cooperation:** Oman is the first Gulf country to conduct tri-service exercises with India (**Al Najah (Army), Eastern Bridge (Air Force), and Naseem Al Bahr (Navy)**) reflecting strong cooperation in Indian Ocean maritime security.

- **Economic & Trade Relations:** Bilateral trade crossed **USD 10.6 billion (FY 2024–25)**.

- In **FY 2024–25**, Oman was **India's 29th largest export market, 25th largest import source, and 28th largest overall trading partner**, while India ranked as **Oman's 4th largest source of non-oil imports and 3rd largest market for non-oil exports**.

- **Trade Profile:**

- **India's Exports:** Petroleum products, aluminium oxide, rice, machinery, aircraft, electronics, plastics, steel
- **India's Imports:** Crude oil, LNG, fertilisers, ammonia, chemicals, sulphur, iron ore

- **People-to-People & Cultural Links:** With a **6.7 lakh-strong Indian diaspora**, centuries-old cultural links, and strong institutional support, people-to-people ties remain a key pillar of India–Oman relations.

How does the India–Oman CEPA reflect a shift in India's trade diplomacy from tariff reduction to strategic economic partnerships?

Drishti Mains Question

BRICS in the Era of Geopolitical Shifts

Brazil handed over the **BRICS presidency to India**, passing a symbolic gavel made of recycled wood from Amazon rainforest symbolizing sustainability.

- Brazil stated that the relevance of BRICS has grown amid rising mistrust in multilateralism, reinforcing its role as a platform for dialogue & bridge-building.

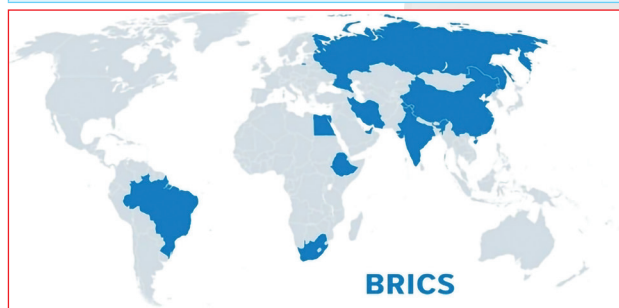
BRICS' Growing Relevance Amid Rising Mistrust in Multilateral Institutions

- **Pragmatic Response to Multilateral Paralysis:** Amid deadlocks in the **WTO & UNSC**, BRICS enhanced relevance through cooperation in **food security (BRICS Grain Exchange)**, **digital governance, technology sharing (STI Framework)**, **vaccine equity during Covid-19**, and **climate finance via NDB**.
- **Rising Representativeness:** With **Indonesia's accession** and the **partner-country model**, BRICS has widened its **Global South footprint** while preserving institutional flexibility.
- **Material Economic and Energy Weight:** Representing **~45% of global population** and **over 35% of world GDP (PPP)**, and strengthened by **energy-rich members** (Iran, UAE; Saudi Arabia pending), BRICS exerts growing influence on global growth and energy markets.
- **Institutional Alternatives to Western-Led Frameworks:** The **NDB** and **CRA** provide development, climate and liquidity support outside **IMF-centric conditionality**, strengthening BRICS' institutional role.

- **Multipolar Narrative & Diplomatic Adaptability:** By advocating a **fairer multipolar order** and sustaining dialogue during crises like **Covid-19 and Ukraine War**, BRICS appeals to Global South states seeking **strategic autonomy**.

BRICS

- **About:** It is a collaborative intergovernmental organization of **major emerging economies**, established to enhance economic cooperation & amplify global political and economic influence of its members.
 - The acronym originally stood for **Brazil, Russia, India, and China**, with **South Africa** joining later in 2010.
- **Key Purpose:** Promoting trade & investment among members, reforming global governance institutions like UN and IMF, and establishing alternative financial systems to reduce dollar dependency.
- **Significance:** ~45% of world's population & ~37.3% of global GDP (in purchasing power parity terms), collectively surpassing economic share of the G7 (29.3%).
- **Key Initiatives:** NDB, 2014, Contingent Reserve Arrangement (CRA), BRICS Grain Exchange, and Science, Technology and Innovation (STI) Framework Programme (2015).



Key Challenges Hindering the Effective Functioning of BRICS

Challenge Area	Description
Geopolitical & Strategic Divergence	Conflicting interests (e.g., India–China border, India–US vs Russia–China) hinder consensus on security, trade, and governance. Rival visions among China, India, Russia; no consensus on democracy, human rights, governance.
External Coercion & Political Pressure	Faces US pressure over de-dollarisation; alternatives (payment systems, reserve currencies) are fragmented and weakly trusted.
Economic Asymmetry	China accounts for ~70% of BRICS GDP, creating influence and resource imbalances.
Institutional Underdevelopment	NDB and CRA are limited compared to IMF and World Bank.
Expansion–Cohesion Trade-off	Post-2024 expansion risks focus dilution, sub-blocs, slower decision-making; lack of collective security limits credibility in crises.

Steps that BRICS could take to Strengthen its Effectiveness and Strategic Influence

- **Institutional & Financial Deepening:** Operationalize a **unified digital payment platform (BRICS Pay)**, expand **local-currency lending** via NDB, and create funds for **green energy and strategic sectors** to reduce reliance on SWIFT, USD, and IMF channels.
- **Trade Integration & Supply-Chain Stabilization:** Implement a **BRICS Common Market Framework** with tariff rationalization, mutual standards, and seamless logistics, alongside the **BRICS Grain Exchange** to stabilize food and critical sector trade.
- **Coordinated Diplomacy & Global South Alignment:** Formalize a **unified BRICS voice** on governance reforms, establish **crisis-diplomacy mechanisms**, and institutionalize **BRICS+ dialogue** with AU and ASEAN to strengthen South–South cooperation.
- **Permanent Institutional Architecture:** Establish a **technocrat-led BRICS Secretariat** to ensure policy continuity, monitor implementation, and convert summit declarations into measurable outcomes.
- **Strategic Autonomy & Value-Chain Power:** Develop **collective legal and financial shields** and coordinate investments in **value-chain segments** (refining, logistics, standards) to enhance sanctions resilience and structural economic power.

Critically examine the role of BRICS as a counterweight to traditional Western-dominated multilateral institutions. What are its key achievements and limitations?

Drishti Mains Question

India- Ethiopia Relations

PM's three-nation visit to Jordan, Ethiopia and Oman underscored India's bid to consolidate its **strategic footprint in the Middle East and Horn of Africa**. During the Ethiopia leg of the tour, India–Ethiopia relations were elevated to a Strategic Partnership, representing a major upgrade in bilateral ties.

- **Prime Minister Narendra Modi was conferred Ethiopia's highest civilian honour** - The Great Honor Nishan of Ethiopia.

Key Outcomes of the Prime Minister's visit to Ethiopia

- **Agreements and Institutional Mechanisms:** The two sides signed **eight MoUs and agreements**, including for establishing a **Data Centre at Ethiopia's Ministry of Foreign Affairs** and for **debt restructuring** in respect of Ethiopia under the G20 Common Framework.
 - Existing mechanisms such as Foreign Office Consultations and the Joint Trade Committee were reinforced.

- **Economic and Investment Outcomes:** India highlighted that Indian companies have invested over USD 5 billion in Ethiopia, particularly in manufacturing and pharmaceuticals, creating **more than 75,000 local jobs**.
- **Global Issues:** India noted Ethiopia's solidarity following the **Pahalgam terror attack and its support for the global fight against terrorism**.
- **Parliamentary and People-to-People Engagement:** Prime Minister of India addressed a Joint Session of the Ethiopian Parliament, underscoring democratic engagement and people-to-people ties.
 - Both sides emphasised education, capacity building, and cooperation through platforms such as the International Big Cat Alliance (IBCA), Coalition for Disaster Resilient Infrastructure (CDRI), Global Biofuel Alliance (GBA) and International Solar Alliance (ISA).

India- Ethiopia Relations

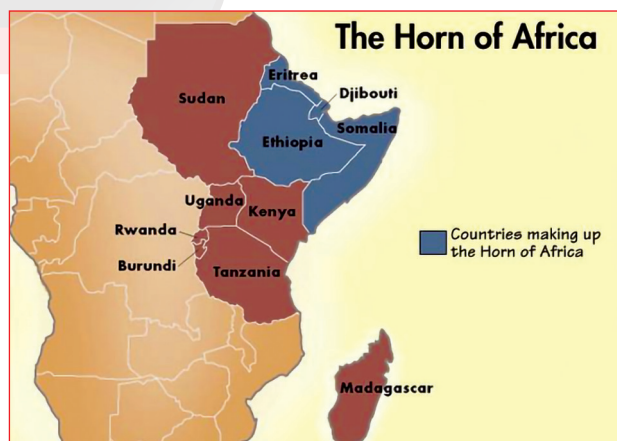
- **Historical Foundation:** India–Ethiopia relations trace back to the **Axumite Empire** (1st century AD), when Indian traders exchanged silk and spices for gold and ivory through the ancient port of Adulis.
 - In the 16th century, Indians from **Goa supported the Ethiopian king alongside the Portuguese**, and Indian soldiers later formed a key part of British forces that ended Italy's occupation of Ethiopia (1936–41).
 - India and Ethiopia established **diplomatic ties in 1950**, which have since grown into a broad partnership.
- **Economic and Trade Relations:** India is the **2nd largest trading partner for Ethiopia**.
 - In FY 2024–25, India–Ethiopia bilateral trade stood at USD 550.19 million, with Indian exports at USD 476.81 million and imports at USD 73.38 million, making the relationship strongly export-driven in India's favour.
 - Ethiopia also benefits from **India's Duty-Free Tariff Preference (DFTP)** scheme for least developed countries.
- **Education and Human Capital Linkages:** India has historically shaped Ethiopia's education system, now reinforced through Indian Council for Cultural Relations scholarships, Indian Technical and Economic Cooperation Programme and India's role as a major destination for African students.
 - Ethiopia served as a pilot country for India's Pan-African e-Network, enabling tele-education and tele-medicine with institutions like IIT Delhi, and marking an early example of India's digital public diplomacy in Africa.
- **Indian Community:** The Indian community in Ethiopia dates back to the late 19th century, with early settlers from

Gujarat, and today numbers **about 2,500 people contributing to education and industry**.

Significance of Ethiopia for India

- **Strategic Partner in Africa:** Ethiopia is a key political and development partner for India and a **gateway to Africa due to its central location in the Horn of Africa**.
- **Global South & Multilateral Influence:** As a **BRICS member and host of the African Union** and United Nations Economic Commission for Africa (UNECA), Ethiopia amplifies India's engagement on Global South issues at the UN, G20, and BRICS.
- **Economic Opportunities:** Ethiopia's **large market, growing manufacturing base, and strong demand for Indian exports** make it an important trade and investment destination.
- **Energy & Sustainability:** Ethiopia's **hydropower and renewable energy potential** aligns with India's clean energy and climate goals.

Ethiopia	
○	Location: It is a landlocked country in the Horn of Africa, centrally located in East Africa, with Addis Ababa as its capital.
●	Ethiopia is bordered by Eritrea (north), Djibouti (northeast), Somalia (east), Kenya (south), South Sudan (west), and Sudan (northwest).
○	Geographic Features: Ethiopia is characterised by the rugged Ethiopian Highlands (with Mount Ras Dejen as the highest peak), the Great Rift Valley, major river systems including the Blue Nile (Abay), Tekeze and Baro, and the Danakil Depression, one of the hottest and lowest regions on Earth.
●	The Hayli Gubbi volcano is located in the Afar Region of Ethiopia.



Discuss the strategic significance of Ethiopia in India's Africa policy in the context of the recently elevated Strategic Partnership.

Drishti Mains Question

Environment & Ecology

Protection of Aravalli Hills

SC put a temporary hold on its previous judgment (Nov 2025), which had upheld a government expert panel's definition of the Aravalli range. That **definition limits the Aravalli to hills that are 100 metres high or more**, as well as hill clusters, slopes, and hillocks that are within 500 metres of each other.

- The stay will continue until the case is finally decided, and **no irreversible administrative or environmental actions should be taken meanwhile**.

Government's Stance on the Aravalli Issue

- The Centre clarified that the **Supreme Court–approved framework does not dilute Aravalli protection or allow large-scale mining**.
- **No new mining leases** will be granted until a **Management Plan for Sustainable Mining** is finalised.
- The government identifies **illegal mining as the main threat** and supports **stronger monitoring and enforcement**, including use of **drones and surveillance technologies**.

Earlier Interventions for Protection and Restoration of the Aravalli Range

- **MoEF Restrictions (1990s)**: Environment Ministry imposed restrictions limiting mining to sanctioned projects in the Aravalli range.
 - Weak enforcement by States led to large-scale non-compliance with mining regulations.
- **Defining Aravalli Hills**: Earlier, only Rajasthan had a formally notified definition for regulating mining in the Aravallis, based on the **2002 State Committee Report** using **Richard Murphy landform classification**, identifying hills as landforms rising 100 metres above local relief and prohibiting mining on hills and their supporting slopes.
- **Supreme Court Ban on Mining (2009)**: Blanket ban imposed on mining in Faridabad, Gurugram and Mewat districts of Haryana.
 - In 2024, the Court prohibited granting of fresh mining leases and renewals across the Aravalli range and directed the **Central Empowered Committee (CEC)** to conduct a detailed examination.
- **CEC Recommendations (2024)**: It recommended complete **scientific mapping** of the Aravalli range across all States. Suggested a **macro-level Environmental Impact Assessment (EIA)** of mining activities.
 - Recommended that no new mining leases or renewals be allowed until mapping and impact assessments are completed.

SC's Ruling on the New Aravalli Definition

- **About**: The **Supreme Court** accepted a **uniform, scientific definition** of the **Aravalli Hills and Ranges** proposed by a committee under the Ministry of Environment, Forest and Climate Change (**MoEF&CC**) to regulate mining and protect the ecosystem.

- The Supreme Court banned mining in **core/inviolable areas** such as protected areas, eco-sensitive zones, tiger reserves and wetlands, permitting exceptions only for **atomic minerals (Part B of the First Schedule)**, **critical and strategic minerals (Part D)**, and minerals listed in the **Seventh Schedule of the MMDR Act, 1957**.

- **Aravalli Hills**: Defined as **any landform that rises 100 metres or more above the surrounding local terrain**.

- Local relief is determined using the **lowest contour line encircling the landform**. Protection extends to the **entire hill system**, including **supporting slopes and associated landforms**, irrespective of height.

- **SC Directions**: The Court also directed a **temporary ban on issuing new mining leases** in areas falling under this definition until a **Management Plan for Sustainable Mining (MPSM)** is prepared by the **Indian Council of Forestry Research and Education (ICFRE)**.

- The plan must identify **no-mining zones**, strictly **regulated mining areas**, **sensitive habitats and wildlife corridors**, assess **cumulative ecological impacts and carrying capacity**, and prescribe **restoration and rehabilitation measures**.
- The Court noted that **blanket bans often fuel illegal mining**, so it adopted a **calibrated approach**: existing **legal mining under strict regulation**, a **pause on new mining**, and **permanent protection of ecologically sensitive areas**.

Criticisms Regarding the New Definition of Aravalli Hills

- **Exclusion of Majority Landscape**: An **internal Forest Survey of India (FSI) assessment** shows that the **100-metre threshold excludes over 90% of the Aravalli system** from the new definition. This raises **significant ecological, environmental, and governance concerns**, especially for the **Delhi-NCR region**, as the Aravalli range acts as a **natural dust and pollution sink**, supporting **air quality control, groundwater recharge, and climate regulation**.
- **Threat of Expanded Mining**: Areas falling outside the definition may become vulnerable to **mining, construction, and urban expansion**, potentially reversing decades of conservation efforts.
- **Ignoring Ecological Continuity**: The Aravallis function as a **continuous ecological system**, but the definition is seen as **peak-centric**, overlooking the ecological role of **foothills, valleys, and connecting ridges**.
- **Risk to Groundwater Recharge**: Lower hills and slopes are crucial for **rainwater percolation and aquifer recharge**;

their disturbance could **lower water tables** across **Rajasthan, Haryana, Gujarat, and Delhi-NCR**.

- **Accelerated Desertification:** Weakening the Aravalli barrier could allow the **Thar Desert to advance eastward**, intensifying **dust storms, land degradation, and aridity**, undermining India's obligations under the **UN Convention to Combat Desertification**.
- **Implementation and Enforcement Challenges:** Without comprehensive mapping and strict oversight, the new definition may create **regulatory loopholes**, making **illegal mining harder to curb**.

Key Facts About Aravalli Range

- **Geological Origin and Evolution:** The **Aravalli Range** is one of the **oldest mountain systems in the world and the oldest in India**, dating back nearly **2,000 million years** to the **Precambrian era**.
 - **Guru Shikhar Peak on Mount Abu** is the highest peak in the Aravalli Range (1,722 m).
 - It spans over 800km from Gujarat to Delhi (through Rajasthan and Haryana).
- **Climatic and Ecological Importance:** The Aravallis acts as a **natural barrier against Thar Desert expansion** into north-western India.
- **Contribution to Water Regime:** Located in a **semi-arid region receiving 500–700 mm of rainfall annually**, the Aravalli range functions as a **major watershed** dividing drainage between the **Bay of Bengal** and the **Arabian Sea** systems.

Rivers and Wetlands of Aravalli Region		
Name of State	Name of Major Rivers	Wetland
Haryana	Sabi, Indori	Sultanpur Bird Sanctuary
Rajasthan	Luni, Jawai, Kantli, Banganga, Banas, Berach, Kothari, Banas (west), Mansi, Vakal, Jakham, Mahi	Siliserh Lake, Sambhar Lake
Gujarat	Banas, Sabarmati, Arjuni River	
Delhi		Asola Bhatti Wildlife Sanctuary

- **Biodiversity and Wildlife Significance:** The Aravalli landscape supports **dry deciduous forests, grasslands, and wetlands** with a unique mix of Saharan, Peninsular, and Oriental biodiversity.
 - It houses **22 wildlife sanctuaries and three tiger reserves**, and provides habitat for endangered species such as the **tiger, leopard, Indian wolf, sloth bear, and Great Indian Bustard**.

- **Agriculture, Livelihoods, and Livestock:** Agriculture in the Aravalli region is **rainfed and subsistence-based**, with **bajra, maize, wheat, mustard, and pulses**, while **large livestock dependence and forest resources** make ecosystem health vital for rural livelihoods.
- **Economic and Mineral Importance:** The Aravalli region is rich in minerals, with over **70 commercially valuable minerals** including **zinc, lead, silver, tungsten, marble, and granite**. Mining has emerged as a major economic activity, particularly in Rajasthan, which accounts for **around 80% of the range**.
- **Cultural and Heritage Significance:** The Aravalli range houses **UNESCO World Heritage Sites** like **Chittorgarh and Kumbhalgarh forts**.
 - It is also home to major religious centres such as **Pushkar, Ajmer Sharif, Mount Abu, and Ranakpur**, making it sacred to **Hindu, Islamic, and Jain traditions** and reinforcing its civilisational value.

Measures Required to Strengthen Protection of the Aravalli Range

- **Scientific Identification and Mapping:** Undertake **comprehensive, standardised mapping** of hills, ranges, slopes, valleys, recharge zones, and wildlife corridors using **authoritative datasets**.
 - Apply **graded and risk-based controls** on mining activities, supported by clear criteria for prohibition, regulation, and monitoring
- **Prevention of Illegal mining:** Strengthen **monitoring, surveillance, and enforcement mechanisms** through institutional coordination and technology-based tools.
 - Use **drones, satellite imagery, CCTV, e-challans, and district task forces** to curb illegal mining and sand mafias.
- **Ecosystem restoration and management:** Promote **restoration of degraded forests, grasslands, and mined areas** based on ecological suitability and long-term sustainability.
 - Indigenous systems like **taankas, jhalaras, talab-bandis** strengthen **watershed management** in Aravalli villages.
- **Wind Erosion & Sand Drift Control:** Surface vegetation using species like **Calligonum and Acacia** stabilised sand dunes and reduced wind erosion.
 - It helps control **dust storms and desertification** in Aravalli gap areas.
- **Restoration and Global Commitments:** The **New Delhi Declaration (UNCCD CoP-14)** highlights that desertification undermines livelihoods and development, stressing sustainable land management.
 - Restoring the Aravalli ecosystem is vital to protect water regulation, biodiversity, climate resilience, and to meet

India's commitments under the **Paris Agreement, Bonn Challenge, and Land Degradation Neutrality, while safeguarding local livelihoods.**

How can India balance mineral extraction with ecological security in fragile landscapes like the Aravallis?

Drishti Mains Question

UNFCCC COP 30 in Belém, Brazil

The 30th edition of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP30) concluded in Belém, Brazil, with countries formally adopting the **Belém Package** as the key negotiated outcome.

Key Outcomes of COP30

- **Belém Package:** A comprehensive set of 29 negotiated decisions adopted at COP30, focused on **moving from discussion to implementation through stronger finance**, just transition measures, adaptation tracking, gender inclusion, and enhanced cooperation to accelerate delivery of the **Paris Agreement goals**.
- **Global Mutirão Agreement:** COP 30 ended with the Global Mutirão Agreement, which **prioritises cooperation and implementation** rather than new mandatory targets.
 - The deal is viewed as a **compromise between developed and developing countries**, focusing on deliverability over ambition.
 - Brazil launched the **Global Mutirão Platform**, a digital initiative to drive collective climate action and narrow the gap between commitments and implementation, with a focus on accelerating progress in energy, finance, and trade.
- **Just Transition Mechanism:** COP30 adopted a new **Just Transition Mechanism (JTM)**, also called the Belém Action Mechanism (BAM), to support capacity-building and cooperation for workers and economies shifting away from fossil fuels, but it **does not include new or guaranteed finance**.
- **Global Implementation Tracker and the Belém Mission to 1.5°C:** Launched at COP 30, both designed to monitor whether national actions and **Nationally Determined Contributions (NDCs)** align with pathways compatible with limiting warming to 1.5°C.
 - These mechanisms signal a growing focus on tracking delivery rather than setting new targets.
 - **The National Adaptation Plan (NAP) Implementation Alliance** was launched at COP30 to speed up national adaptation planning.
 - ❖ Countries also agreed to triple adaptation finance by 2030 compared to 2025 levels, but the lack of clarity on who will provide these funds remains a key concern.
- **Global Goal on Adaptation (GGA):** Parties also finalised the **Baku Adaptation Roadmap** and agreed on 59 voluntary indicators to track progress under the **Global Goal on Adaptation (GGA)**.
- **Belem Health Action Plan:** Announced on COP30's Health Day (13th November 2025), this flagship initiative aims to **strengthen global health systems** to better respond to climate impacts.
 - It is built on the **principles of health equity, climate justice, and stronger governance** with community participation.
- **Tropical Forests Forever Facility (TFFF):** Launched by **Brazil**, TFFF is a **payment-for-performance model** that rewards countries for preserving tropical forests using satellite-based monitoring.
 - It aims to mobilise about **USD 125 billion**, with Brazil contributing the first USD 1 billion.
- **Belém 4x Pledge:** This pledge aims to quadruple the use of **sustainable fuels** by 2035 compared to 2024 levels, with flexibility for national circumstances.
 - The **International Energy Agency (IEA)** will monitor progress annually. It focuses on scaling fuels like **hydrogen, biofuels, biogas, and e-fuels** at affordable costs to support the energy transition, especially in transport and industry.
- **Belem Declaration on Hunger, Poverty, and People-Centred Climate Action:** Signed by 43 countries and the EU, this declaration puts **vulnerable communities at the core of climate policy**.
 - It calls for **continued mitigation efforts but prioritises adaptation** through social protection, crop insurance, and measures that strengthen community resilience.
- **Belém Gender Action Plan (GAP):** Adopted at COP 30 aims to **strengthen gender-responsive climate action** and ensure meaningful participation of women, especially those from vulnerable communities, in climate governance.

India's Positioning at COP30

- **Climate Finance as a Legal Obligation:** With **BASIC (Brazil, South Africa, India and China)** and **Like-Minded Developing Countries (LMDC)**, demanded **grant-based, predictable, scaled-up finance**, not loan-driven models.
 - Urged full implementation of **Paris Agreement Article 9.1 & a universal climate finance definition**; called for mobilising **USD 1.3 trillion** (Baku-to-Belém Roadmap, COP29).
 - Highlighted **USD 310–365 billion/year** adaptation need vs. current **USD 26 Bn** flows (2025 Adaptation Gap Report); Noted **Glasgow pledge of USD 40 Bn by 2025** is unlikely to be met.

- **Equity & Climate Justice:** Reaffirmed **Common But Differentiated Responsibilities and Respective Capabilities (CBDR-RC)**, urged **historical emitters** to lead mitigation; called for full implementation of **UNFCCC, Kyoto Protocol & Paris Agreement**; opposed EU's **CBAM** as a **discriminatory trade barrier**.

Major Shortcomings from COP30

- **No Agreement on Fossil Fuel Phase-Out:** The final Belém Package **avoided committing to a clear roadmap for transitioning away from fossil fuels**.
- **Weak Progress on Climate Finance:** Negotiations failed to secure clarity on finance obligations under Article 9.1, and there was **no concrete plan to scale funding** to the level demanded by developing countries.
- **Delay in NDC Submissions and Ambition Gap:** Several major emitters, including **India delayed submitting updated NDCs**, widening the global emissions gap and weakening momentum.
- **Implementation Gap Remains Unaddressed:** While many pledges were announced, concrete timelines, enforcement mechanisms, and accountability systems remain unclear.
- **Just Transition Without Dedicated Funding:** The new Just Transition mechanism lacks new or predictable financial support, reducing its ability to help workers and economies adapt.

Climate finance is not charity but a legal obligation under the Paris Agreement. Discuss India's stance at COP30 and its implications for climate justice.

Drishti Mains Question

Climate Change Threatens India's Tea Industry

Assam's **tea-growing regions** are facing **prolonged heat, delayed rainfall, and persistent humidity** even after October, threatening the livelihoods of over **12 lakh workers in Assam**, and jeopardising the future of **India's tea economy**.

Impact of Climate Change on India's Tea Industry

- **Rising Temperatures & Extreme Heat:** This directly stresses **tea plants**, leading to **blackened leaves, wilting, and erratic flush cycles**. Crucially, extreme heat **hampers tea plants' ability to absorb nutrients**, weakening the **bushes**.
- **Erratic Rainfall:** **Dry spells and declining winter rains** are directly **reducing soil moisture** undermining the core of tea cultivation. Conversely, **intense downpours** lead to **soil erosion and waterlogging** rather than effective absorption.
- **Altered Suitability of Growing Regions:** The cumulative effect of **rising heat and erratic rain** is a fundamental **geographical shift**.

- Assam's prime regions like **South Bank and Upper Assam** may lose suitability, pushing tea cultivation toward higher altitudes such as **Karbi Anglong and Dima Hasao**.

- **Compounding Economic Paradox:** **Tea prices** have grown only **4.8% annually** over 30 years—well below inflation and staples like **wheat and rice (10%)**—while **production costs** keep rising.

- This **cruel paradox** leaves growers unable to earn market gains or invest in **climate-resilient practices** and replant **ageing bushes**.

- **Absence of Adequate Climate Protection Policies:** Unlike other **staple crop farmers**, **tea growers** receive minimal **government support** for **drought or heatwaves**, leaving the industry exposed to increasingly severe **climate shocks**.

Key Facts Regarding India's Tea Industry

- **About:** Tea, made from the *Camellia sinensis* plant, is the world's second most consumed drink after water.
- **Growth Requirements:**
 - **Temperature:** 13°C to 28°C, optimal at 23–25°C.
 - **Rainfall:** 1,500–2,500 mm annually, well-distributed to maintain soil moisture.
 - **Soil:** Deep, friable, and rich in organic matter.
 - **Seasons:** Distinct, regulating growth cycles and flush periods for flavor development.
- **Tea Board of India:** Established in 1953, it provides financial and technical support for tea cultivation and marketing, headquartered in Kolkata with overseas offices in London, Dubai, and Moscow.
- **India's Tea Market:**
 - **Major Producers:** 2nd largest producer and consumer, 3rd largest exporter.
 - **Tea-Producing Regions:** Assam, West Bengal, Tamil Nadu, and Kerala account for 96% of production.
 - **Consumption:** India consumes 80% of its tea, with per capita consumption of 840 gm/year.
 - **Exports:** Exports to 25+ countries, mainly black tea (96%). Key export destinations include Russia, Iran, UAE, USA, UK, Germany, and China.

Building Climate Resilience in India's Tea Industry

- **Agricultural Adaptations:** Promote resilient tea varieties, improve soil and water management with mulching, micro-irrigation, and rainwater harvesting. Adopt agroforestry to reduce heat stress and control pests.
- **Economic & Market Solutions:** Expand sustainable certification programs like 'trustea' for climate resilience and better market access. Promote direct-to-consumer trade models (e.g., e-commerce) to improve profit margins.

- **Policy & Structural Support:** Advocate for policies offering tea parity with other crops, including disaster relief and subsidies. Ensure research funding for climate-resilient cultivation and train small growers in sustainable practices.
- **Learning from Other Countries:** Equip farmers with skills for sustainable tea production, inspired by Kenya's Tea Development Agency using Farmer Field Schools for hands-on training.

Climate change is posing an existential threat to India's tea economy. Analyse the key environmental challenges and discuss the framework of a sustainable adaptation strategy for the sector.

Drishti Mains Question

Early Closure of the Antarctic Ozone Hole

The **Antarctic ozone hole** closed unusually early in 2025, offering one of the strongest signs yet that the ozone layer is on a steady path to long-term recovery.

Antarctic Ozone Hole

- **About:** The **Antarctic ozone hole** refers to the **seasonal thinning** of the **stratospheric ozone layer** over Antarctica during the **austral spring (September–November)**.
 - Scientists use the term “**ozone hole**” for regions where ozone levels fall **below 220 Dobson Units (DU)**, not because ozone disappears entirely, but because concentrations drop far below normal.
 - This phenomenon was first detected in the **early 1980s**, when ground-based and satellite measurements showed dramatic drops in ozone levels over the South Pole.
- **Reasons for Ozone Holes Over Antarctica:**
 - **Polar Vortex:** During the Antarctic winter, a strong and stable polar vortex forms, trapping **air and creating extremely cold temperatures** in the stratosphere.
 - ❖ This isolated air mass prevents mixing with warmer air, allowing conditions ideal for ozone-destroying reactions.
 - **Polar Stratospheric Clouds (PSCs):** The extreme cold enables the formation of PSCs.
 - ❖ These clouds host chemical reactions that activate **chlorine and bromine**, mainly released from **CFCs (chlorofluorocarbons)**.
 - ❖ About 80% of stratospheric chlorine and bromine over Antarctica comes from **anthropogenic sources**.
 - **Sunlight in Spring:** When sunlight returns in spring, these reactive chemicals rapidly destroy ozone molecules, this leads to a large region of severely reduced ozone, known as the “**ozone hole**.”
- **Ozone Hole Closure:** Ozone hole closure refers to the point each year when ozone levels over Antarctica **rise above**

220 DU again, marking the end of the seasonal thinning. As the Antarctic stratosphere warms after spring, **polar clouds fade, ozone production resumes**, and winds bring in ozone-rich air, restoring the layer and closing the hole.

- The early 2025 closure signals recovery driven by the **Montreal Protocol (which phased out CFCs and other ozone-depleting substances)**, lower chlorine and bromine levels, and favourable stratospheric conditions.
- **Significance of Early 2025 Closure:** It signals recovery driven by the **Montreal Protocol (which phased out CFCs and other ozone-depleting substances)** is effective, and cuts harmful UV exposure.
 - Boosts confidence that the ozone layer may return to pre-1980 levels **globally around 2040, the Arctic by 2045, and the Antarctic by 2066. ozone recovery cools the stratosphere, potentially strengthening Southern Hemisphere jet streams**

Invasive Alien Plant Species Crisis

A *Nature Sustainability* study finds that **invasive alien plants** are spreading across **15,500 sq km of India's natural areas** each year, causing economic losses of Rs 8.3 lakh crore over 60 years and threatening **ecosystems, wildlife, agriculture, and rural livelihoods**.

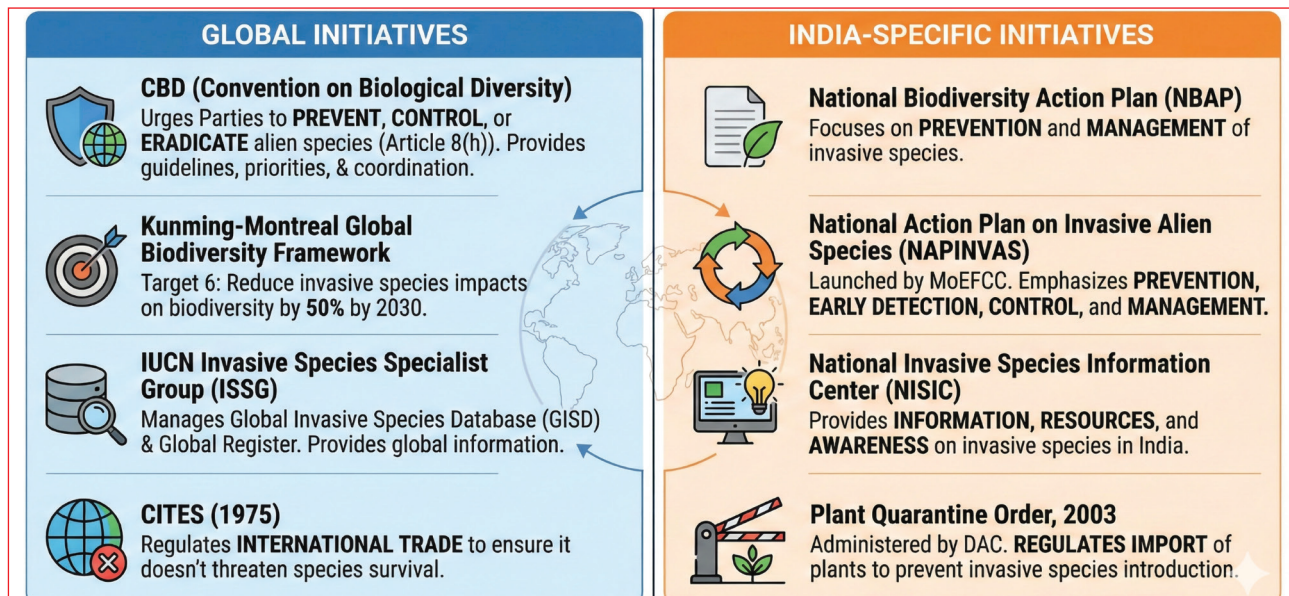
Invasive Alien Plant Species

- **About:** Invasive plant species are non-native plants introduced intentionally or unintentionally into an ecosystem, where they outcompete native species and cause economic, environmental, or human health impacts.
 - Invasions are being accelerated by **climate change, land-use change, altered fire regimes, soil moisture changes, livestock grazing patterns**, and biodiversity loss.
- **Invasive Plant Species in India:** Key invaders include ***Lantana camara*, *Chromolaena odorata* and *Prosopis juliflora***.
 - These invasions have spread across 266,954 sq km of natural habitats in India.
- **High-risk Regions:** Include the **Shivalik–Terai belt**, the **Duar region of the Northeast**, the **Aravallis**, the **Dandakaranya forests**, and the **Nilgiris in the Western Ghats**.
 - Open ecosystems such as **dry grasslands, savannas, shola grasslands**, and the **wet plains along the Ganga–Brahmaputra** are among the most vulnerable to rapid invasive plant expansion.
- **Invasive Alien Species Transforming Natural Ecosystems:**
 - **Biodiversity Erosion:** Invasive plants outcompete native vegetation, leading to **ecosystem homogenization**, soil degradation, and large-scale ecological disruption.

- ❖ As native plants decline, **herbivores** lose their natural food sources, which in turn displaces predators due to **shrinking prey availability**.
- **Humans and Livestock:** Invasive species reduce access to **fodder, fuelwood, and fertile land, directly harming** rural livelihoods. They also trigger health issues like

respiratory problems and deepen poverty by undermining income and resource security.

- ❖ By 2022, 144 million people, 2.79 million livestock, and 2 lakh sq km of smallholder farmland were exposed to invasive species, underscoring the scale of ecological and livelihood risks.



Challenges and Measures for Managing Invasive Plant Species in India

Challenges	Measures Required
India has no dedicated national mission or central authority to coordinate action on invasive plant species.	Establish a National Invasive Species Mission with clear leadership and mandates. Integrate invasive control into climate adaptation, watershed management, and restoration programmes
India lacks a unified national database or long-term monitoring system .	Develop a centralised GIS-based database , early-warning system, and nationwide monitoring network
Weak quarantine and biosecurity systems allowing new introductions	Strengthen quarantine screening, border biosecurity, and import regulations for plants, seeds, and soil.
There is limited scientific research on species-specific control methods and long-term ecosystem recovery.	Increase research funding for ecological modelling, biological control, and restoration science .
Manual removal is expensive, labour-intensive , and often ineffective without follow-up restoration.	Promote community-led removal, mechanical support , and sustainable utilisation options like biofuel production.
Post-removal areas are often not restored , allowing invasives to return quickly.	Ensure active restoration using native grasses and shrubs to prevent reinvasion.

Invasive alien plants are a symptom of systemic environmental mismanagement. Analyse the drivers, ecological impacts.

Drishti Mains Question

Global Environment Outlook 2025

The **United Nations Environment Programme (UNEP)** has released the **7th edition of Global Environment Outlook 2025 (GEO-7)** during the **7th session of the UNEP** in **Nairobi**.

Key Highlights of Global Environment Outlook Report 2025

- **Rising Greenhouse Gas:** Greenhouse gas (GHG) emissions have increased by **1.5% annually since 1990**, reaching **record highs (1.55°C) in 2024** and intensifying climate impacts.

- **Biodiversity Loss:** One million species out of an estimated **eight million** are threatened with extinction. **20–40%** of the global land area is degraded, affecting over **3 billion people**.
- **Economic Costs:** Climate-related **extreme weather events** cost approximately **USD 143 billion annually** over the last two decades; **air pollution** induced health damages alone cost **USD 8.1 trillion in 2019** (6.1% of global GDP).
 - **9 million deaths** occur annually from pollution-related causes. The report states that strategic investments in **climate stability, biodiversity, and pollution reduction** could yield **USD 20 trillion annually by 2070**, whereas **inaction** risks devastating both **economies and ecosystems**.
- **Plastic Crisis:** **8,000 million tonnes** of plastic waste pollute the planet, with **toxic chemical exposure** causing **USD 1.5 trillion** in annual health-related economic losses.

United Nations Environment Programme (UNEP)

- **About UNEP:** The UNEP, founded on **5th June, 1972**, is the foremost global environmental authority. It defines the international environmental agenda, advances sustainable development across the UN, and acts as a leading voice for **planetary protection**.
- **Notable Publications:** Emission Gap Report, Adaptation Gap Report, Global Environment Outlook, Frontiers, Invest into Healthy Planet.
- **Signature Initiatives:** Beat Pollution, UN75, World Environment Day, Wild for Life.
- **Head Office:** Nairobi, Kenya.

Various Impacts of Environmental Degradation

- **Crossing Tipping Points:** Likely to exceed **1.5°C** by early 2030s, **2°C** by 2040s, causing **ecosystem collapse** and mass displacement.
- **Global Economies Collapse:** Global GDP could fall **4% by 2050, 20% by 2100**, leading to **unemployment, poverty & instability**.
- **Fertile Land Loss:** Loss of land equivalent to **Colombia or Ethiopia** each year, threatening **agriculture, water & livelihoods**.
- **Nutritional Decline:** **3.4%** drop in food availability per person by **2050**, intensifying **hunger, malnutrition & social unrest**.

Actions Recommended by GEO-7 to Prevent Environmental Collapse

- **Economy and Finance:** Transition to **comprehensive wealth metrics** and **price externalities** to reflect the true value of GDP. Reform policies to incentivize **decarbonization, sustainable agriculture, and ecosystem restoration**.
 - Achieving **net-zero by 2050** and funding **biodiversity** needs approximately **USD 8 trillion** in annual

investment until 2050—a fraction of the cost of inaction.

- Global benefits could reach **USD 20 trillion per year by 2070**, booming thereafter to a potential **USD 100 trillion per year**.
- **Materials and Waste:** Implement **transparent, traceable circular design**, shift investments to **circular and regenerative models**, and reshape consumption through **circular mindsets**.
- **Energy:** Decarbonize the **energy supply**, improve **energy efficiency** across sectors, ensure sustainable **critical mineral value chains**, and address global energy access and **energy poverty**.
 - **9 million premature deaths** could be avoided by 2050 via measures like **cutting air pollution**.
- **Food Systems:** Promote **healthy, sustainable diets**, increase **agricultural circularity and efficiency**, and sharply cut **food loss and waste**.
 - Almost **200 million people** could be lifted out of **undernourishment**. Over **100 million people** could escape **extreme poverty**.
- **Environment:** Accelerate **ecosystem conservation and restoration**, enhance **climate adaptation** via **Nature-based Solutions**, and enforce strong **climate mitigation** strategies.
- **Collaboration:** Requires **co-development of solutions** by **governments, private sector, civil society, academia, and Indigenous Peoples**, whose knowledge is crucial.
- **Integrated Action:** Policies across the **five key areas** must be implemented in **parallel**, not in isolation, to ensure a **just transition** for all.

India's Strategic Priorities to Prevent Environmental Degradation

- **Green GDP Framework:** Implement an **"Inclusive Wealth Index"** or **"Green GDP"** to account for **natural capital depreciation**.
- **Transition to Circular Economy:** Launch **National Circular Economy Mission**, with sector-specific roadmaps and recycled content mandates.
- **Subsidy Reforms:** Phase out **fossil fuel subsidies** and redirect funds to **renewables, electric mobility, organic farming, and sustainable transport**.
- **Nature-Based Solutions:** Integrate **NbS** into infrastructure budgets (e.g., **mangrove restoration, wetland rejuvenation, urban green spaces**).

Mangroves as Ecological Buffers

A study published in **Current Biology** has revealed how **mangrove plants survive extreme saltwater conditions**, offering insights that could help develop **salt-tolerant crops** amid **climate change and rising sea levels**.

Mangroves Survive Saltwater

- **Unique Cellular Traits Identified:** Mangroves have **smaller epidermal pavement cells** and **thicker cell walls**, which provide the mechanical strength necessary to survive in **low osmotic potential conditions** caused by saltwater.
- **Different Salt Management Mechanisms:** Some species **exclude salt** using a **waxy root barrier** that filters salt and pulls freshwater into the plant.
 - Others **accumulate salt** and actively **excrete it** through specialised glands on their leaves.
- **Evolutionary Adaptability:** Mangroves have evolved **over 30 times** in the last 200 million years, showing a strong evolutionary capacity to adapt to saline environments.
- **Non-dependence on Stomatal Changes:** Contrary to expectations, mangroves **do not increase stomatal density** or reduce stomatal size—commonly seen in other drought-tolerant plants, to enhance photosynthesis or reduce water loss.

Key Facts About Mangroves

- **About:** Coastal ecosystems composed of salt-tolerant trees (halophytes) & shrubs thrive in intertidal tropical/subtropical zones
 - Thrive in 1,000–3,000 mm high-rainfall areas, 26–35°C temperature; common mangrove trees— red, grey & Rhizophora
- **Habitat:** Found in tidal flats, estuaries, river deltas with high silt & tidal flooding and bi-daily tidal flooding. Thrive in saline, anaerobic (low-oxygen), slow-moving waters, where fine sediments tend to accumulate
- **Characteristics:** Adaptations— Develop pneumatophores (Avicennia) for respiration, prop roots (Rhizophora) for stability, salt-secreting glands, lenticellated bark for water loss & salt secretion. Exhibit viviparity – seeds germinate on tree before falling
 - Stabilise coastlines by trapping silt & preventing erosion
- **Mangrove Distribution:** Found in tropical/subtropical latitudes near the equator; can't survive freezing temps
 - Largest mangrove areas: S & SE Asia, then S America, Africa, N & Central America, Oceania
- **India's Mangrove Cover (ISFR 2023):** 4,991.68 sq. km (0.15% of total geographical area); West Bengal: 42.45%; Gujarat: 23.32%; A&N Islands: 12.19%
- **Key Regulatory Measures:**
 - **Environment (Protection) Act, 1986:** Mangroves— Ecologically Sensitive Areas; 50m buffer zone for areas >1,000 sq. m; **Compensatory replantation: 3:1 ratio** if affected
 - Also protected under: **WPA 1972; Indian Forest Act 1927; Biological Diversity Act 2002**, among others

Implications

- **Mangrove traits** can aid **salt-tolerant crop development** (e.g., rice, wheat, pulses) esp. for regions facing **increased soil salinity** due to climate change.
- Supports **NMSA** and **SDG 13 (climate action)**, guiding **climate-resilient agriculture** research and policy.

Significance of Mangroves

- **Climate Change Mitigation:** Mangroves are major **blue carbon sinks**, storing **7.5–10 times more carbon per acre than tropical forests** and helping reduce greenhouse gas emissions.
- **Biodiversity Conservation:** They serve as **nursery grounds for fish and crustaceans** and provide habitat for **birds, reptiles, and threatened species**.
- **Livelihood Support:** Sustain **coastal and rural livelihoods** through **fisheries, honey collection, fuelwood, and eco-tourism**.
- **Disaster Risk Reduction:** Mangroves act as natural barriers against storm surges, tsunamis, and coastal erosion, reducing wave energy by 5-35%. They lower flood depths by 15-20% and up to 70% in certain areas, playing a crucial role in disaster risk reduction.

Examine the role of mangroves as both ecological buffers and knowledge systems for sustainable agriculture under climate change.

Drishti Mains Question

Methane Emissions

Methane, a crucial fuel for domestic and industrial applications, becomes a **major environmental hazard** when released uncontrolled from **landfills**, threatening **India's climate objectives** and urban ecological health.

Methane

- **About:** CH₄, simplest alkane, main component of **natural gas (80–95%)**
- **Physical Properties:** Odourless, colourless, tasteless, lighter than air. Under complete combustion, it burns with **blue flame**, produces CO₂ + H₂O in presence of oxygen
- **Applications:** Used for **heating, electricity generation, cooking**, and in making hydrogen, ammonia, methanol & other compounds
- **Emission:** India – **3rd-largest emitter** after China & US, **31 million tonnes/year** (9% of global total)
 - **Landfills & wastewater treatment** (anaerobic decomposition of organic waste): **~15% of India's methane emissions**.
- **Global Warming Potential (GWP):** It is a **highly potent GHG**, absorbing **infrared radiation** & intensifying the GHG

effect; **84 times more effective than CO₂** at trapping heat over a **20-year period**, and **28–34 times more potent** over a **100-year period**.

■ Initiatives to Reduce Methane:

- **India's Initiatives:** Harit Dhara, BS VI Emission Norms, National Action Plan on Climate Change (NAPCC).
- **Global Initiatives:**
 - ❖ **Global Methane Pledge (GMP):** Launched at UNFCCC COP26 in Glasgow (2021), the GMP targets a minimum **30% reduction** in methane emissions from **2020 levels by 2030**. India has **not** joined the GMP.
 - ❖ **International Energy Agency's Global Methane Tracker.**
 - ❖ **UNEP spearheads** initiatives like the **International Methane Emissions Observatory (IMEO)** and the **Oil and Gas Methane Partnership**.

Inhalable Microplastics

A **first-of-its-kind** comprehensive study published in *Environment International* has detected **inhalable microplastics** in the air of major Indian cities, revealing a **hidden and dangerous dimension of urban air pollution** that existing air quality frameworks largely overlook.

- The study monitored ambient air pollutant concentrations in **five densely populated markets** across **Delhi, Mumbai, Kolkata, and Chennai**.

Inhalable Microplastics

- **Inhalable Microplastics:** They are tiny airborne plastic particles smaller than **10 micrometres (µm)** that remain suspended in the air and can be inhaled deep into the **lungs**, unlike larger microplastics that settle quickly.
 - They are now **emerging as airborne contaminants, alongside Particulate Matter (PM_{2.5}) and PM₁₀**, and commonly originate from synthetic clothing (polyester fibres), tyre and brake wear, plastic packaging, paints, cosmetics, and waste burning.
- **Major Air Pollutants:** Particulate Matter (**PM_{2.5}** and **PM₁₀**), Sulphur Dioxide (**SO₂**), Nitrogen Dioxide (**NO₂**), Carbon Monoxide (**CO**), Ozone (**O₃**), Lead (**Pb**), and Ammonia (**NH₃**).

Bharat Stage Emission Norms

Amid worsening air quality, the **Delhi government** has tightened vehicular pollution controls by **barring non-Bharat Stage (BS) VI private vehicles registered outside Delhi** and vehicles **without a valid Pollution Under Control Certificate (PUCC)** from entering the Capital.

Bharat Stage (BS) Emission Norms

- **About:** Regulate air pollutants from vehicles to control pollution.
 - **Implementation:** Framed by MoEFCC & **implemented by CPCB**, aligned with European (Euro) emission standards.
 - **Standards:** Set stricter limits on **Carbon monoxide (CO), hydrocarbons (HC), nitrogen oxides (NOx) & PM**, requiring cleaner fuels, improved engine design, and advanced exhaust-treatment technologies.
 - **Mashelkar Committee (2002):** Recommended a phased roadmap for implementing Euro-equivalent BS norms nationwide.
- **Evolution of BS Emission Norms:** In 1999, SC mandated **Euro I/BS I (also known as India 2000 standard)** for vehicles. India progressed from BS I (2000) to BS IV (2017), skipping BS V to implement BS VI in 2020.
 - **BS VI Phase-II (April 2023):** Introduced **Real Driving Emissions (RDE)** testing for compliance under on-road conditions.
 - **Future Plans:** BS VII norms planned for 2026-27 to align with global standards.
 - **Delhi's Fleet:** Adopted stricter norms **earlier than the rest of India**, implementing BS II in 2001, BS III in 2005 & BS IV in 2010.
- **BS VI Norms:** Petrol vehicles must **reduce NOx emissions by 25%**. Diesel vehicles must cut **HC+NOx by 43%, NOx by 68% & PM by 82%**.
 - Sulphur content in fuel **reduced from 50 mg/kg to 10 mg/kg** under BS-VI for advanced emission-control technologies.

Reasons Older Vehicles Are More Polluting

- **Lack of Advanced Emission Controls:** Pre-BS IV vehicles lack modern exhaust after-treatment systems such as **Diesel Particulate Filters (DPF)** and **Selective Catalytic Reduction (SCR)**.
- **Inferior Exhaust Technology:** BS-IV vehicles rely mainly on **basic oxidation catalysts**, which offer limited control over fine particulate matter and NOx emissions.
- **Engine Ageing and Wear:** Ageing engines suffer from poor fuel–air mixing, ignition deterioration, and component wear, leading to **incomplete combustion**.
- **Higher Real-World Emissions:** Studies show **tailpipe emissions rise sharply with vehicle age**, especially carbon monoxide and particulate matter.
- **Maintenance Issues:** High mileage and weak maintenance practices make older vehicles **disproportionately more polluting** than newer BS-VI vehicles.

Science & Technology

Indigenous TnpB-Based Gene Editing Technology

Indian scientists at ICAR's Central Rice Research Institute (CRRI), Cuttack, have developed a **new indigenous genome-editing technology using TnpB proteins**, offering a compact, low-cost and IP-free alternative to the globally patented CRISPR-Cas systems.

- In another development, CSIR-Institute of Genomics & Integrative Biology (IGIB) has developed "**BIRSA 101**", India's first indigenous **CRISPR-based gene therapy for Sickle Cell Disease**, marking a major scientific breakthrough.

TnpB-Based Genome Editing Tool

- **About:** It uses TnpB (Transposon-associated proteins) instead of CRISPR-Cas9 or Cas12a, functioning as a **miniature molecular scissor** that enables **precise Deoxy-Ribonucleic Acid (DNA) cuts and edits in plants**.
 - Because TnpB is extremely small (about 408 amino acids compared with 1,000–1,400 for Cas9 and around 1,300 for Cas12a) it can be delivered into **plant cells far more easily**, often without the complex tissue-culture steps required for bulkier Cas proteins.
- **Significance:** **TnpB-Based Genome Editing Tool** reduces dependence on foreign **CRISPR patents** held by global institutions like Broad Institute and Corteva.
 - It enables **affordable, commercial genome-edited (GE) crops** without paying high licensing fees.
 - It supports **Atmanirbhar Bharat** in agri-biotechnology and boosts India's capacity for next-generation GE crops and addresses concerns that GE tools are controlled by foreign multinationals, giving India **full technological sovereignty**.

BIRSA 101

- **About:** BIRSA 101 works as a precise gene-editing therapy that **directly corrects the mutation responsible for Sickle Cell Disease**.
 - The therapy is named "**BIRSA 101**" in honour of **Bhagwan Birsa Munda**, the tribal freedom fighter. The name is a symbolic tribute to recognise the high **burden of Sickle Cell Disease among India's tribal communities**.
 - BIRSA 101 uses the engineered **enFnCas9 (enhanced Francisella novicida Cas9)** CRISPR platform developed by IGIB.
- **Significance:** It offers a low-cost alternative to global therapies such as **Casgevy**, priced at USD 2.2 million.

- The technology transferred to the **Serum Institute of India** to ensure large-scale, low-cost, and accessible deployment.
- **BIRSA 1010** represents a major step toward the goal of a **Sickle Cell-Free India by 2047**.
- It strengthens India's leadership in Atmanirbhar Bharat, genomic medicine, and affordable advanced therapeutics.

Genome Editing

- **About:** Genome editing is a set of techniques like **CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats)**, that allow scientists to precisely cut, alter, or replace specific DNA sequences within an organism's genome.
 - It creates targeted mutations in genes already present in the organism, without adding foreign DNA.

India Advances Quantum Technology

The Union Minister of Science & Technology visited the **Quantum Research Laboratories at IIT Bombay** and inaugurated the **Institute's new Liquid Helium Facility**, marking a major step in India's **quantum science, cryogenics, and advanced materials**.

Key Advancements in India's Quantum Research

- **Liquid Helium Facility:** It lays the foundation for indigenous **dilution refrigeration units** for **ultra-low temperature quantum computing** and boosts India's capabilities in **cryogenics, superconductivity, quantum computing, sensing, photonics, healthcare (e.g., MRI), and green energy**.
 - **Quantum computing** depends on **dilution refrigerators** at ultra-low temperatures (**below -272°C**), and the **Liquid Helium Facility** enables **indigenous units**, key to India's **technological self-reliance**.
 - **Helium** turns into **liquid helium** at its extremely low boiling point (-268.93°C), creating the **cryogenic conditions** needed for **superconductivity, superfluidity, and quantum computing**, crucial for **quantum research**.
- **QMagPI (Portable Magnetometer):** QMagPI is India's **1st portable magnetometer**, measuring ultra-low **nanotesla (nT) magnetic fields** for **defense, strategic sectors, mineral exploration, and research**, making India one of the few nations with this technology.
- **Quantum Diamond Microscope (QDM):** India's first indigenous **QDM**, developed by **IIT Bombay**, enables **nanoscale 3D magnetic field imaging**. With **AI/ML**

integration, it advances **neuroscience, materials research, and next-generation chip testing**, bolstering India's technological leadership.

- **Q-Confoal System:** The Q-Confoal system, a homegrown **confocal microscope**, detects **intracellular changes** like **Reactive Oxygen Species (ROS)**, aiding **early-stage cancer diagnostics**.
 - A **confocal microscope** is an advanced optical instrument that uses a **pinhole** to block out-of-focus light, producing **sharp, high-resolution images** with enhanced **clarity and contrast**.

Quantum Technology

- **About: Quantum Technology** refers to advanced technologies that utilize the principles of **quantum mechanics**—such as **superposition, entanglement, and tunneling**—to perform tasks that are impossible or highly inefficient with classical technologies.
- **Core Principles:**
 - **Superposition:** Quantum particles (e.g., electrons or photons) can occupy **multiple states at once** until measured.
 - **Entanglement:** Two or more quantum particles can become **strongly correlated**, so the state of one instantly influences the other, even across distances.
 - **Quantum Tunneling & Coherence:** Particles can **pass through energy barriers** and maintain a **stable quantum state**, allowing precise computation and sensing.
- **Conventional Vs Quantum Computing:** Conventional computers process information in **bits**, representing either **0 or 1** at a time, based on classical physics.
 - In contrast, **quantum computers** use **qubits (quantum bits)**, which follow atomic-scale quantum behavior and **probabilistic principles**, allowing them to perform tasks beyond the capabilities of classical, deterministic systems.
- **Applications:**
 - **Pharmaceuticals:** Quantum computers simulate **molecular behavior** and **protein folding**, accelerating drug development for diseases like **Alzheimer's** and **Parkinson's**.
 - **Disaster Management:** Quantum applications improve **prediction of tsunamis, droughts, earthquakes, and floods** and streamline **climate change data collection**.
 - **Secure Communication:** Quantum satellites like **China's Micius** enable **ultra-secure communication**, vital for military and cybersecurity.
 - **Quantum Cryptography:** Provides **unbreakable encryption**, protecting sensitive data against future quantum computing threats.

- **National Quantum Mission:** It is a flagship initiative by the Ministry of Science & Technology promoting **quantum research, development, and applications** from **2023–24 to 2030–31**.

India Plans to Allow Private Sector Participation in Nuclear Energy

The **Prime Minister of India** announced that the country will soon open its **civil nuclear power sector** to private players, ahead of the Parliament's winter session where the **Atomic Energy Bill, 2025**, will be introduced to expand **nuclear capacity** and attract private investment.

Role of Private Sector in Strengthening India's Nuclear Power Programme

- **India's Ambitious Capacity Expansion:** India plans to scale nuclear capacity from **8.8 GW to 22 GW by 2032 and 100 GW by 2047**, but the sector is still dominated by **Nuclear Power Corporation of India Limited (NPCIL)**, which lack the capital, manpower, and construction capacity needed to meet these ambitious targets.
 - Private players can augment capital, skilled workforce, and **Engineering, Procurement, and Construction (EPC)** capabilities, making large-scale expansion feasible.
- **Bridging the Massive Financing Gap:** Reaching 100 GW of nuclear capacity by 2047 needs about **Rs 15 lakh crore investment**, but the 2025–26 Budget allocates only Rs 20,000 crore.
 - Nuclear projects demand huge upfront costs, making limited **public funds a major challenge** and highlighting the need for private investment to **mobilise long-term capital, reduce the fiscal burden**, and diversify funding sources.
- **Accelerating Project Execution:** Many NPCIL projects, such as **Kudankulam Units 3–6**, have faced chronic delays due to procurement issues, slow construction, and administrative hurdles.
 - Private players can help speed up projects through better project management and stronger supply-chain efficiency.
- **Boosting Technology & Innovation:** Private sector involvement can support the adoption of **advanced reactor designs, small modular reactors (SMRs)**, and global collaborations, keys to scaling nuclear capacity and improving safety.
- **Strengthening Uranium Supply Chains:** Allowing private firms to **mine, import, and process uranium** can upgrade India's limited domestic capability, reduce dependence on **Government-to-Government (G2G) deals**, and **build strategic reserves for long-term nuclear fuel security**.

- **Enhancing India's Energy Security & Net-Zero Pathway:** Private participation helps accelerate low-carbon capacity growth, supporting India's **net-zero 2070** commitments.
 - Private sector entry can **deepen localisation of reactor components**, boost domestic manufacturing, and integrate India into global nuclear supply chains.

Major Barriers to Private Sector

Participation in India's Nuclear Power Sector

- **Nuclear Liability Concerns:** Section 17(b) of the **Civil Liability for Nuclear Damage Act (CLND), 2010** allows the operator a **"Right of Recourse"** against suppliers after a **nuclear accident**, unlike the CSC regime where liability rests solely with the operator.
 - This potential supplier liability **raises insurance costs and makes private participation financially risky**.
- **Financing and Cost Challenges:** According to the **Central Electricity Authority**, the capital cost of a Pressurised Heavy Water (PHW) nuclear plant in India is expected to rise to around Rs 14 crore per megawatts (MW) by 2026–27.
 - Despite its **low-carbon profile**, **nuclear energy is not classified as "renewable,"** making it ineligible for tax incentives and green financing, which further adds to its financial challenges.
- **Unclear Ownership & Revenue Model:** **Atomic Energy Act, 1962** has historically restricted private firms from co-owning or operating reactors or selling nuclear-generated electricity, creating **major uncertainty about their role** and deterring private participation in the sector.
- **Fuel Supply & Processing Restrictions:** Domestic **uranium** reserves (approx 76,000 tonnes) can fuel around 10,000 MW for 30 years, but meet only 25% of future needs, making imports essential.
 - Private players **cannot mine, import or process uranium** due to legal restrictions, limiting their ability to control a core project input.
 - With India relying heavily on long-term uranium contracts from **Kazakhstan, Canada and Uzbekistan**, private firms face uncertainty in **long-term fuel security if they enter the sector**.
- **Regulatory & Security Constraints:** Nuclear installations have strict security and inspection standards under **Atomic Energy Regulatory Board (AERB)** and **Department of Atomic Energy (DAE)**. Private firms can face compliance burdens far **higher than in power, coal, or renewables**.

Steps to Enhance India's Nuclear Power Sector

- **Legislative Reforms:** India needs to amend the **Atomic Energy Act (1962)** to **permit private participation in nuclear power generation and establish clear ownership models**.

- Revise the CLNDA (2010) to limit supplier liability, and align with **Convention on Supplementary Compensation (CSC, 1997)** to enhance investor confidence.
- The government is preparing to introduce the Atomic Energy Bill, 2025 in the upcoming Winter Session of Parliament, which is a significant step in the right direction.

- **Develop a Clear PPP Model:** Establish transparent frameworks for co-ownership, tariffs, risk-sharing, and long-term power purchase agreements to attract private investment.
- **Fuel Security:** Strengthen fuel security by securing **long-term uranium supplies from countries like Canada, Kazakhstan, and Australia**, while accelerating R&D on thorium reactors such as **BHAVINI's PFBR**.
 - At the same time, build indigenous supply chains and **develop nuclear industrial parks to localise critical technologies**.
- **Speed Up Project Execution:** Adopt **Engineering, Procurement, and Construction (EPC) -based contracts**, improve procurement systems, and involve private EPC firms to avoid delays seen in projects like **Kudankulam**.

Examine the need for legislative reforms in India's nuclear sector to enable private participation while safeguarding safety and liability?

Drishti Mains Question

India Adds 7 New Names to the Martian Map

The **International Astronomical Union (IAU)** has approved 7 new Indian names proposed by Kerala-based researchers for **Martian geological features**, including a 3.5-billion-year-old crater named after geologist **M. S. Krishnan**, along with nearby landforms named after Kerala locations such as **Valiamala, Thumba, Bekal, Varkala, and Periyar**.

Martian Landforms Named After Indian Places and Personalities

- **Periyar Vallis:** A Martian valley named after **Kerala's longest river**, Periyar, which flows from the Western Ghats to the Arabian Sea.
- **Varkala Crater:** Named after **Varkala beach**, known for its geologically unique cliffs rich in **jarosite**, a mineral also detected on Mars, making it an important Martian analogue site.
- **Bekal Crater:** Named after the historic **Bekal Fort** in Kasaragod, a 17th-century coastal stronghold overlooking the Arabian Sea.
 - The Bekal fort was in the hands of the **Keladi Nayaka dynasty, Hyder Ali of Mysore** and then the **British**.
- **Thumba Crater:** Named after **Thumba**, the birthplace of India's space programme and site of the **Thumba**

Equatorial Rocket Launching Centre (1962), where **Indian Space Research Organisation (ISRO)** began its early launches.

- **Valiamala Crater:** Named after **Valiamala**, home to the **Indian Institute of Space Science and Technology (IIST)**, India's premier institution for space education and research.
- **Krishnan Crater:** Named in honour of **M. S. Krishnan**, India's pioneering geologist and first Indian Director of the Geological Survey of India.
 - The crater, located in the **Xanthe Terra region of Mars**, is estimated to be about **3.5 billion years old**. It is scientifically significant for preserving evidence of ancient glacial and fluvial activity.
- **Krishnan Planus:** A plain located southeast of the Krishnan Crater, also named in honour of **M. S. Krishnan** and geologically linked to the larger crater.

NOTE: In 2024, three names proposed by the Ahmedabad-based Physical Research Laboratory (PRL) were approved by the IAU, including Lal Crater named after geophysicist Devendra Lal, and two smaller craters Mursan and Hilsa named after towns in Uttar Pradesh and Bihar, respectively.

- Apart from these, Mars also has features named after the **Ganga**, though it was not proposed by India.

Martian Surface Feature Naming: Process & Guidelines

- **Naming Proposal:** The International Astronomical Union invites naming proposals from scientists, institutions, and mission teams, requiring details such as the name's origin, images, coordinates, feature type, and scientific significance.
 - Each proposal must include a brief justification for why the feature deserves the name.
- **Guidelines for Naming Martian Features:**
 - **Large craters (>50 km):** Named after deceased scientists with foundational contributions.
 - **Smaller craters (<100,000 population towns):** Named after small towns/villages worldwide.
 - **Names must be:** Culturally or historically relevant, easy to pronounce, non-offensive, unique with no duplicates and non-political.
- **IAU:** The **International Astronomical Union (IAU)**, headquartered in Paris, is the global authority for naming celestial bodies and planetary features, promoting astronomy through research, education, and standardised nomenclature.
 - The naming decisions are handled by its **Working Group for Planetary System Nomenclature (WGPSN)**.

India's Policy Shift Toward Genome-Edited Crops

India's progress in **genetically modified (GM) crops** has stalled since 2006, with no new commercial approvals beyond **Bt cotton**. However, **genome-edited (GE) crops** are witnessing accelerated development and regulatory support.

- Recently, **two GE rice (Samba Mahsuri and MTU-1010)** were cleared for **release**, and a **GE mustard** is under **advanced trials**, signalling a major policy shift in India's agricultural biotechnology landscape.

Role of Recent Policy & Scientific

Developments in Advancing GE Crop Research

- **Streamlined Regulations:** GE plants are **exempt** from the Ministry of Environment, Forest & Climate Change's (MoEFCC) strict **biosafety rules** because they contain **no foreign (exogenous) DNA**, unlike **GM crops**, which require approval from the **Genetic Engineering Appraisal Committee** for field trials, seed production, or commercial release.
 - GE crops need clearance only from an **Institutional Biosafety Committee**, which must **simply confirm** that the edited plant has **no foreign DNA**.
- **Funding Boost to GE Crop Research:** The **government** has increased **funding support** (Rs 500 crore allocated in the 2023-24 Budget) for GE crop research and breeding and treating GE crops on par with conventional varieties.
- **Unveiling of Indigenous Gene-Editing Tool:** ICAR scientists unveiled a **native, indigenous genome-editing platform** to break dependency on **foreign, patent-heavy tools** like **CRISPR-Cas9**.
 - The system uses a **protein called TnpB**, which is significantly **smaller** (about one-third the size) than the **Cas9 protein** commonly used in **CRISPR**.
 - This **tool is patent-free** for Indian researchers, making **gene editing cheaper and more accessible**. Its **smaller size** also makes it easier to **deliver into plant cells** using **viral vectors**, bypassing **complex tissue culture processes**.
- **Human Resource Capacity Building:** The **Department of Biotechnology (DBT)** and Indo-US Science & Technology Forum (IUSSTF) have launched the **Genome Engineering/Editing Technologies Initiative (GETin)**.
 - This program provides **Overseas Fellowships** to **Indian scientists** to work in **premier US labs**, fostering **direct knowledge transfer**.

Two genome-edited (GE) rice lines—Samba Mahsuri with a 19% yield increase, and MTU-1010 with improved saline and alkaline soil tolerance—have completed trials in 2023–24.

- A **GE mustard line**, featuring **canola-quality traits**, low pungency, and resistance to major **fungal pathogens and pests**, is in its second year of trials.

Feature	Gene Editing (GE)	Genetic Modification (GM)
Core Process	Precise editing of the organism's own genes using molecular tools like CRISPR-Cas.	Inserting a foreign gene from an unrelated species (e.g., from a bacterium into a plant).
Genetic Material	No foreign DNA remains in the final product; it is transgene-free.	Introduces foreign DNA (transgenes) that remains in the final product.
Regulation in India	Exempt from GEAC ; only Institutional Biosafety Committee approval is needed to certify no foreign DNA.	Requires GEAC approval and extensive, multi-season biosafety trials.
Time to Approval/Release	Faster , due to lighter, streamlined regulations.	Slow , often taking over a decade due to strict, prolonged biosafety evaluations.
Examples in India	GE Samba Mahsuri Rice (19% higher yield), GE MTU-1010 Rice (salt-tolerant), GE Mustard (under trials).	Bt Cotton (contains a gene from <i>Bacillus thuringiensis</i> for insect resistance).

Growing Significance of Gene

Editing Over Genetic Modification in Crops

- **Wider Applicability:** GE enables precise **tuning of existing genes**—**knocking out, modifying**, or increasing their **activity**—to create complex traits like enhanced **nutrition**, longer **shelf-life**, and **climate resilience**, while GM has mainly been effective for adding simple traits such as **herbicide tolerance** or **insect resistance** (e.g., **Bt toxins**).
- **Ability to Improve Elite Local Varieties:** GE enables improvement of **existing local varieties**, like editing **Samba Mahsuri rice** to boost **yield** without changing its culinary traits, whereas GM produces **new transgenic lines** that may lack local **adaptation**.
- **Broader Social Acceptance:** GE mimics **natural mutation** without adding **foreign genes**, facing less **public opposition** and rarely labeled as **genetically modified organism (GMO)**, while GM faces global **controversy** and is often stigmatized as **"Frankenfood"**.
- **Speed and Efficiency:** GE allows faster development of new crop varieties by directly editing genes for specific traits (e.g., **drought tolerance**, **higher yield**) in a single generation, whereas GM is slower, relying on **trial-and-error** to insert and test **foreign genes**.
- **Faster Commercialization:** GE crops are **transgene-free** and face **lighter regulation**, enabling a faster transition from **lab to field**, while GM crops undergo **stringent, lengthy, and costly biosafety assessments** due to **foreign genes**, delaying commercialization.

Discuss the significance of genome editing (GE) in Indian agriculture and how it differs from genetically modified (GM) crops. Analyse the regulatory and scientific developments facilitating GE crop research in India.

Drishti Mains Question

World AIDS Day 2025

The Ministry of Health and Family Welfare organised the **World AIDS Day 2025** observance under the theme

"Overcoming disruption, transforming the AIDS response" and highlighted the **national progress** on AIDS control.

- In 1998, WHO marked the **first World AIDS Day** on **1st December** to recognize the crucial role of civil society in driving a global response to **HIV/AIDS**.

Human Immunodeficiency Virus (HIV)/AIDS

- **About:** HIV is a **virus** that attacks the **immune system**, primarily damaging **CD4 cells (white blood cells)**, weakening the body and making it vulnerable to **infections** and **cancers**.
- **Transmission:** Occurs via direct contact with infected **bodily fluids (blood, semen, breast milk, vaginal fluids)** like **unprotected sex, shared needles, or unsterilized tattooing**. It is not spread through **casual contact**.
- **Symptoms:** Early signs include **fever** and **rash**. Later stages may involve **swollen lymph nodes, weight loss, and diarrhea**. Severe HIV can lead to **opportunistic illnesses** such as **tuberculosis, meningitis, and cancers** like **lymphoma**.
- **Treatment:** There is no **cure**. However, lifelong daily **Antiretroviral Therapy (ART)** effectively controls the **virus**.
- **Global Response:** UN Sustainable Development Goal 3.3 aims to **end the HIV epidemic** as a **public health threat** by **2030**.

India's National AIDS Control Programme (NACP)

- **About NACP:** National AIDS Control Programme (NACP) is India's initiative for the **prevention, control, and management of HIV/AIDS**.
 - It is implemented by the **National AIDS Control Organisation (NACO)** under the Ministry of Health and Family Welfare.
 - AIDS stands for **Acquired Immunodeficiency Syndrome**. It is the **advanced, final stage** of infection caused by the **Human Immunodeficiency Virus (HIV)**.
- **Evolution of NACP:** Launched in **1992**, NACP has evolved through several **phases**, each with a **strategic focus**:

- **NACP I (1992–1999):** Launched India's first **comprehensive programme** to slow the spread of HIV.
- **NACP II (1999–2006):** Focused on reducing **transmission** and strengthening **national capacity**.
- **NACP III (2007–2012):** Aimed to **halt and reverse** the epidemic by scaling up **prevention** and integrating **services**. Established **District AIDS Prevention and Control Units (DAPCUs)**.
- **NACP IV (2012–2017 & extended to 2021):** Accelerated **reversal** and integrated **care**.
 - ❖ It aimed 50% reduction in new infections (compared to 2007 baseline) Key initiatives included:
 - ❖ The **HIV/AIDS (Prevention and Control) Act, 2017**, prohibiting **discrimination**.
 - ❖ **Mission Sampark** to re-engage **People Living with HIV (PLHIV)** lost to follow-up.
 - ❖ **'Test and Treat'** policy and universal **viral load monitoring**.
- **NACP V (2021–2026):** A **Central Sector Scheme** with an outlay of over **Rs 15,000 crore**, aligning with **SDG 3.3** to end **AIDS** as a public health threat by **2030**.
- **Achievement of NACP:** India's HIV prevalence dropped from **0.33% in 2010 to 0.20% in 2024**, far below the **global average of 0.70%**, showing India's strong control over the epidemic.
 - New HIV infections fell from **1.25 lakh in 2010 to 64,500 in 2024**—a **49% decline**, better than the **global reduction of 40%**.
 - India now accounts for only **5% of global new infections** (1.3 million in 2024), reflecting effective government efforts and wider **ART access**.
 - Under **NACP-V**, HIV testing increased from **4.13 crore** (2020-21) to **6.62 crore** (2024-25), People on **antiretroviral treatment** rose from **14.94 lakh to 18.60 lakh**.

Alaknanda Galaxy

Researchers at **National Centre for Radio Astrophysics - Tata Institute of Fundamental Research (NCRA–TIFR)**, Pune, have discovered a well-structured spiral galaxy named **Alaknanda**, dating back to just **1.5 billion years** after the Big Bang.

- Found using the **NASA's James Webb Space Telescope (JWST)**, this finding challenges current models, which state that well-structured galaxies do not form so early in the universe's history

Key Facts About Alaknanda Galaxy

- **About:** **Alaknanda** is located about **12 billion light-years away** and shows a **textbook spiral structure**. It formed

when the universe was only **about 10% of its current age**, roughly **1.5 billion years old**.

- It has **two clear spiral arms** and a bright central bulge, strikingly similar to the **Milky Way**.
- Named after the Himalayan **river Alaknanda**, considered the sister river of **Mandakini**, which is also the Hindi name for the **Milky Way**.
 - ❖ The name reflects its resemblance to a **distant sister of the Milky Way**.
- **Significance:** Early galaxies were expected to be **chaotic, clumpy, hot, and unstable**, but Alaknanda stands out as a **mature and well-ordered spiral system**.
 - Its structure adds to growing evidence that the early universe was far **more evolved than previously believed**.
 - The galaxy's unexpected maturity suggests that complex galactic structures began forming much earlier than current models predict.

Key Facts About the Galaxy

- **About:** Galaxies are immense systems made up of **stars, planets, and huge clouds of gas and dust**, all held together by gravity.
 - Their sizes vary widely from small galaxies with only a few thousand stars to giant ones containing trillions of stars and stretching over a million light-years.
 - Most large galaxies host **supermassive black holes** at their centers, some weighing billions of times the Sun's mass.
 - Galaxies are generally classified as **spiral, elliptical, or irregular**, based on their structure and appearance.
- **Galaxies in the Cosmic Web:** Galaxies gather into groups of up to 100 members, while **larger clusters** can contain thousands.
 - These clusters link together to form **superclusters**, which make up the vast **cosmic web of galaxies, voids, and large-scale structures**.
- **Key Processes in Galaxy Evolution:**
 - **Spiral Structures & Bars:** Many mature spiral galaxies develop **stellar bars**, temporary dense bands of stars that connect to spiral arms and influence star formation.
 - **Collisions:** When galaxies collide, gas clouds compress, triggering **new star formation**, and each galaxy deforms under gravitational forces.
 - **Mergers:** Colliding galaxies may merge into a single larger system, often transforming their shapes and sometimes forming **ring galaxies** or fueling central black holes.

- **Galactic Cannibalism:** Larger galaxies can gradually **absorb smaller ones**, stripping their gas, dust, and stars and adding them to their own structure.
- **Milky Way Galaxy:** The **Milky Way** is a **spiral galaxy** more than **100,000 light-years** across. Earth lies along one of its spiral arms, about halfway from the center.
 - The Milky Way belongs to the **Local Group**, a collection of over 50 galaxies that includes several dwarfs and the large Andromeda Galaxy.
 - ❖ This group sits near the **Virgo Cluster** and forms part of the vast **Laniakea Supercluster**, a major structure within the cosmic web.
 - Our solar system takes about **240 million years** to orbit the Milky Way just once.
- **Types:**
 - **In situ bioremediation:** Treatment takes place **at the contaminated site** itself.
 - ❖ Example: oil-eating bacteria sprayed on an ocean spill.
 - **Ex situ bioremediation:** Contaminated soil or water is **excavated or pumped out**, treated in a controlled facility, and returned after cleaning.
- **Advancements in Bioremediation:** Modern bioremediation combines **traditional microbiology** with **biotechnology** and **synthetic biology**.
 - **Genetically modified (GM) microbes** are now designed to break down stubborn chemicals like plastics and oil residues.
 - Synthetic biology enables **“biosensing”** organisms that **change colour when they detect toxins**, offering early contamination warnings.
 - New biotechnologies help **identify useful biomolecules and reproduce them under controlled conditions**, allowing their use in settings like sewage plants or agricultural fields.
 - Development of nanomaterials and microbes–nanocomposite systems are useful for faster pollutant capture.

Bioremediation in India

India is revisiting **bioremediation** as pollution from sewage, industrial waste, pesticides, plastics, and oil spills continues to strain the country’s soil, water, and air. With traditional clean-up technologies proving costly and unsustainable, **bioremediation is emerging as a promising, science-backed alternative.**

Bioremediation

- **About:** Bioremediation is the **use of living organisms** (bacteria, fungi, algae, or plants) to break down or neutralise toxic pollutants.
 - These organisms convert contaminants like **oil, pesticides, plastics, and heavy metals** into harmless end-products such as water, carbon dioxide, or organic acids.
 - It is a **cost-effective, eco-friendly** method compared to chemical or mechanical clean-up technologies.
- **Bioremediation Status in India:** Bioremediation is expanding in India but remains mostly in **pilot stages**.
 - The **Department of Biotechnology (DBT)** supports projects through its **Clean Technology Programme**.
 - IITs have developed **cotton-based nanocomposites for oil spills and identified pollutant-degrading bacteria**.
 - Startups such as Econirmal Biotech now supply microbial formulations for soil and wastewater treatment.

International Practices in Bioremediation

- **Japan:** Uses microbial and plant-based systems as part of its urban waste management strategy.
- **European Union:** Funds cross-country bioremediation projects to clean oil spills and rehabilitate mining-affected areas.
- **China:** Prioritises bioremediation under its soil pollution control laws, deploying genetically improved bacteria to restore contaminated industrial sites.

Opportunities and Risks of Bioremediation for India

Opportunities	Risks
Helps restore polluted rivers, lakes, and wetlands	Release of genetically modified organisms may cause unintended ecological impacts
Enables reclamation of contaminated land and industrial sites	Inadequate testing or poor containment can worsen pollution problems
Creates jobs in biotechnology, environmental consulting, and waste management	Lack of public awareness may lead to resistance or misuse of new technologies
Supports national missions like Swachh Bharat, Namami Gange and National Clean Air Programme , ensuring long-term ecological restoration.	Weak monitoring systems and absence of strong biosafety guidelines and certification systems can limit safety and effectiveness

Strategies for Scaling Bioremediation Effectively in India

- Develop **national guidelines** for **bioremediation and biomining protocols** and microbial applications with input from DBT, CPCB, and State Pollution Control Boards.
 - Biomining is the process of using microorganisms to extract metals of economic interest from rock ores or mine waste.
- Create **regional bioremediation hubs** linking universities, industries, and local bodies.
- Support **startups and community projects** through DBT–BIRAC.
- Strengthen **biosafety norms for GM organisms**, expand certification and training for field-level staff, and adopt **real-time monitoring** through biosensors and digital dashboards to track advances in bioremediation.
- Improve **public engagement** to build trust and awareness about microbial solutions.

Bioremediation can reduce remediation costs and environmental footprints compared to conventional methods. Discuss

Drishti Mains Question

ANEEL Fuel for Thorium-based Reactors

US-based Clean Core Thorium Energy (CCTE) aims to bring a new **thorium-based nuclear fuel** called **Advanced Nuclear Energy for Enriched Life (ANEEL)** to India's reactors as a next-generation **fuel** suitable for India's **Pressurized Heavy Water Reactors (PHWRs)**.

Advanced Nuclear Energy for Enriched Life (ANEEL)

- **About:** It is a unique blend of **thorium** and a small amount of **enriched uranium (High Assay Low Enriched Uranium)**. It is specifically designed to power India's fleet of **PHWRs** and currently in the advanced stages of testing in the US.
 - The fuel is named to honor **Dr. Anil Kakodkar**, one of India's foremost **nuclear scientists**.
- **Target Reactor:** Designed as a **drop-in fuel** for **PHWRs** (like India's indigenous reactors), it can operate within existing systems with only minimal adjustments.
 - India currently has **22 operating reactors**, **18 are PHWRs** and **4 are Light Water Reactors (LWRs)**. Additionally, India is constructing **10 new PHWRs**, each rated at **700 MW**.
- **Significance of ANEEL:** The **Levelized Cost of Electricity (LCOE)** from India's **natural uranium reactors** is about **Rs 6/kWh**, and **ANEEL fuel** could cut this by **20–30%**, boosting **nuclear power competitiveness**.
 - It offers **higher efficiency**, **better fuel performance**, **over 85% less nuclear waste**, and uses **thorium**, which is abundantly available.

Conditions Favouring ANEEL:

- **Government Push:** The **2024 budget** outlined plans to partner with the **private sector** to develop **Bharat Small Reactors (BSRs)** and new **nuclear technologies**.
- **Rising Demand:** **Nuclear capacity** is projected to grow from **8.2 GW to 22 GW by 2032**, creating huge demand for advanced fuel like **ANEEL**.
- **Industrial Decarbonization:** **BSRs** are envisioned to provide **clean power** for industries like **steel**, **cement**, and **fertilizers**.
- **Powering New-Age Infrastructure:** The boom in **data centers** and **AI** requires vast, reliable **clean power**, which **small nuclear reactors** can supply.
- **Renewed Indo-US nuclear cooperation:** A major obstacle in **Indo-US nuclear cooperation** was India's **Civil Liability for Nuclear Damage Act (2010)**, which held equipment suppliers responsible for accidents.
 - CCTE says this is not a problem because it only supplies **fuel technology**, not reactors, and the fuel will be managed by India's **Department of Atomic Energy**.

Thorium-based Nuclear Reactor

- **About:** It is a type of nuclear reactor that uses **thorium (Th-232)** as its primary **fertile fuel** material, as opposed to the conventional use of **uranium (U-235)** or **plutonium (Pu-239)**.
 - **Thorium** itself is **not fissile** (cannot sustain a chain reaction on its own), so it must be combined with a **fissile "driver" material** (like **U-235**, **U-233**, or **plutonium**) to initiate and sustain the **nuclear reaction**.
- **Advantages:**
 - **Abundance:** Thorium is **3–4 times more abundant** than uranium and widely available in **India**, **Australia**, and the **USA**.
 - **Energy Density:** **CERN** notes that **one ton of thorium** can yield energy equivalent to **200 tons of enriched uranium** while generating **100 times less nuclear waste**.
 - **Inherent Safety Features:** Thorium designs like **Molten Salt Reactors (MSRs)** operate at **atmospheric pressure** and use **passive safety systems**—e.g., a **frozen salt plug** melts during overheating, draining fuel into a cooling tank and stopping the reaction.
 - **Proliferation Resistance:** The **thorium cycle** produces less long-lived **weapon-grade transuranic waste**; **U-233** is contaminated with **U-232**, whose strong **gamma radiation** makes it detectable and hard to handle.
- **India's Special Interest:** India holds **around 25%** of the world's **thorium reserves** and has a **3-stage nuclear program** where **thorium is a key component**, aimed at achieving long-term **energy independence**.

India's 3-Stage Nuclear Power Program

- **About:** It is a strategy to develop nuclear energy by efficiently using India's limited **uranium** and abundant **thorium**.
 - Formulated by **Dr. Homi Bhabha** in the **1950s**, it aims to meet India's long-term energy needs and ensure **self-reliance**.
- **3-Stages:** The strategy uses different reactors to transition to **thorium-based power**.
 - **Stage I:** **PHWRs** use **natural uranium (U-238)** with **heavy water**; spent fuel is reprocessed to obtain **plutonium**.
 - **Stage II:** **Fast Breeder Reactors (FBRs)** use **plutonium** from Stage I and breed **U-233** from **thorium**.
 - **Stage III:** **Thorium-based reactors** use **U-233** and **thorium**, aiming to make **U-233** India's primary nuclear fuel.

The New Nuclear Frontier in Space

The **United States** has announced an ambitious plan under its **Lunar Fission Surface Power Project** to deploy a **small nuclear reactor on the Moon** by the early **2030s**.

- This initiative is part of **NASA's Artemis Base Camp** strategy and marks the beginning of **large-scale use of nuclear energy** for **off-Earth habitats**. If executed, it will become the **first permanent nuclear power source beyond Earth orbit**,

Role of Nuclear Technologies in Shaping the Future of Space Exploration

- **Evolving Radioisotope Thermoelectric Generators (RTGs):** They convert **heat** from decaying **plutonium-238** into **electricity** but produce only a **few hundred watts**—enough for **instruments**, not for **human bases**. It is currently in use (e.g., on **Voyager spacecraft**).
- **Compact Fission Reactors:** About the size of a **shipping container**, they can generate **10 to 100 kilowatts**, capable of powering **habitats** and initial **industrial units**.
- **Nuclear Thermal Propulsion (NTP):** **Nuclear Thermal Propulsion** (like the US **DRACO** programme, testing by **2026**) heats **propellant** for **thrust**, potentially shortening **Mars trips** by months.
- **Nuclear Electric Propulsion (NEP):** It uses **reactor electricity** to **ionise propellant** and provides **years of stable, efficient thrust**, ideal for deep-space probes and cargo transport.

Need for Nuclear Power For Space-based Operations

- **Solar Limitations:** A **lunar night** lasts about **14 Earth days**, with temperatures dropping below **-170°C**, making **solar power** unreliable due to the need for massive **battery arrays**.

- On **Mars**, month-long **dust storms** reduce **solar efficiency**. NASA's developing **KRUSTY system** can provide up to **10 kilowatts** of steady, reliable power.
- **Reliability Problem:** Human outposts must operate **24/7/365**, requiring reliable power for **life support, habitat heating, communication, and science & industry** tasks like **fuel production and manufacturing**.
 - A **nuclear reactor** offers a constant, predictable **base-load power** supply, unaffected by sunlight or weather.
- **Location Flexibility Problem:** With **nuclear power**, missions can operate **anywhere**, including **permanently shadowed craters** with **water ice**, explore **diverse regions** beyond sun-rich zones, and establish **bases or robotic stations** across the planet without dependence on sunlight.
- **Scalability Problem:** A small crew could manage with **solar plus batteries**, but larger **crews, in-situ resource utilization (ISRU) plants, agriculture, and industrial projects** require **megawatt-level power**. Only **nuclear fission** is a proven technology capable of scaling to meet these high energy demands in extraterrestrial environments.
- **Mission Architecture Problem:** Many Mars mission plans require **fuel production** on the surface, but processes like splitting **water ice** and reacting gases to make **methane** are highly **energy-intensive**. A reliable **nuclear reactor** can power this "**gas station on Mars**," making missions safer and reducing fuel launched from Earth.

Legal and Environmental Challenges in Using Nuclear Power in Space

- **Irreversible Environmental Contamination:** A **reactor malfunction** could cause **permanent pollution** of **pristine extraterrestrial environments** like the **Moon or Mars**, spreading **radioactive materials** that destroy **unique scientific records of solar system history** and compromise future habitability.
- **The Safety Zone Dilemma:** While logical for **safety**, establishing **exclusion zones** around **nuclear sites** creates a **legal conflict**. Unregulated zones could allow a single **nation de facto control** over **resource-rich areas**, violating the **Outer Space Treaty's** prohibition on **national appropriation** and blocking **access** for others.
- **Escalation to International Conflict:** A **nuclear incident in space** has **transboundary consequences**—such as **radioactive debris** or perceived **weaponization**—that could damage **diplomatic trust**, trigger **accusations**, and lead to **retaliatory measures**, turning **exploration cooperation** into **suspicion and conflict**.
- **Unregulated and Risky Testing:** Without universally accepted **safety standards**, **states or private entities** may

conduct **experimental tests** of **powerful reactors** or **propulsion systems**, leading to a “**race to the bottom**” in **safety protocols** and increasing the probability of **accidents** that endanger all **spacefaring nations**.

Building a Responsible Space Nuclear Framework

- **Strengthen the Core Legal Framework:** The **UN Committee on the Peaceful Uses of Outer Space (COPUOS)** must modernize the **1992 Principles** to expand scope to include **nuclear thermal** and **electric propulsion** and establish **binding safety standards** for design, operational safety, fuel integrity, and **end-of-life disposal**.
- **Multilateral Oversight and Transparency:** Form an **International Technical Advisory Body** (e.g., an **International Space Nuclear Safety Group** similar to the **IAEA**) to **certify designs**, **verify compliance** with **safety protocols**, for all nuclear systems in space.
- **Specific Protocols for Critical Scenarios:** Establish rules for **temporary, non-discriminatory** safety perimeters on celestial bodies that prevent **sovereignty claims**. Update **1972 Liability Convention** for nuclear incidents in space with a clear **responsibility** and **emergency response protocols** for **transboundary accidents**.
- **Foster Pre-emptive Norm-Setting:** Major space powers like the **US, Russia, China**, and **emerging actors like India** should lead negotiations, showing that **safety** is a shared priority.
 - Involve **commercial space companies** in rule-making to ensure **regulatory certainty** for key users.
- **Ethical and Legal Standards:** Ensure **technological advancements** are guided by **coherent legal and ethical frameworks** to prevent **accidents** with **long-lasting environmental** or **geopolitical consequences**.

Discuss the strategic and technological significance of deploying nuclear fission reactors on the Moon. What are the associated environmental and legal challenges?

Drishti Mains Question

Thalassemia Burden in India

Five children with **thalassemia** in **Jharkhand** tested positive for **Human Immunodeficiency Virus (HIV)** after receiving **HIV-contaminated blood transfusions**.

Thalassemia

- **Definition & Cause:** Thalassemia is an **inherited genetic disorder** where the body produces insufficient **hemoglobin**, the protein in **red blood cells** that carries oxygen, resulting in **anemia** and poorly functioning red blood cells.
- **Types of Thalassemia:**
 - **Based on the Part of Hemoglobin Affected:**
 - ❖ **Alpha Thalassemia:** Caused by reduced or absent production of the **alpha** chain of hemoglobin.

❖ **Beta Thalassemia:** Caused by reduced or absent production of the **beta** chain of hemoglobin.

- **Based on Severity:** Trait/Minor (Mild or no symptoms; person is a **carrier**), Intermedia (may sometimes require transfusions), Major (requires **regular blood transfusions**, e.g., **Cooley's Anemia**).
- **Special Named Types:** **Constant Spring** (type of alpha thalassemia), **Cooley's Anemia** (beta thalassemia major) and **Hemoglobin Bart Hydrops Fetalis** (most severe alpha thalassemia).
- **Symptoms & Effects:** Symptoms stem from **anemia** and include **fatigue, weakness, shortness of breath**, and **pale skin**.
 - Severe cases can lead to complications like **bone marrow expansion, skeletal deformities, enlarged spleen**, and a **compromised immune system**.
- **Risk Factors:** The primary risk factor is **family history**, as it is **genetically inherited**. It is more prevalent in individuals with ancestry from the **Mediterranean, Asia, Africa**, and the **Middle East**.
- **Thalassemia Burden in India:** India is often called the **thalassemia capital of the world**, with around **150,000 patients** and about **12,000 new cases** each year. **Thalassemia** is classified as a **disability** under the **RPwD Act, 2016**, reflecting its **serious and chronic impact**.
 - The **beta thalassemia carrier rate** is **3–4%**, meaning **35–45 million people** carry the gene that includes **8% tribal communities**.
- **Thalassemia Control Initiative:**
 - **Comprehensive Guidelines on Prevention and Control of Hemoglobinopathies (2016):** Provides a detailed **policy framework** for managing **Thalassemia Major** and **Non-Transfusion Dependent Thalassemia (NTDT)**, covering treatment protocols, monitoring, and psychological support.
 - **National Health Mission (NHM):** Provides **states** with **funding** for strengthening healthcare infrastructure, including **Blood Banks, Day Care Centres, medicines, lab services**, and **staff training**.
 - **Thalassemia Bal Sewa Yojana (TBSY):** A Coal India Limited (CIL) Corporate Social Responsibility (CSR) initiative offering **financial assistance** of up to **Rs 10 lakh** for **Bone Marrow Transplants (BMT)** to **eligible patients** at 17 empanelled hospitals.
 - ❖ **Phase II** of this scheme (since 2021) also covers **Aplastic Anemia**.
 - **e-RaktKosh:** It provides **information on blood availability** and **blood banks**, helping patients—like those with **thalassemia**—who need regular transfusions.

Google's Quantum Echoes Experiment

Google has achieved a **breakthrough** in **quantum computing** called **Quantum Echoes** marking a significant **advancement** in understanding **quantum behavior** and has revived global discussions on **Q-day**, **encryption security**, and the future of **quantum-safe systems**.

Google's Quantum Echoes Experiment

- **About:** It is a **fundamental physics experiment** run on Google's **65-qubit Willow quantum processor**, designed to observe and measure how **quantum information** scrambles and refocuses within a complex, **entangled system**—a phenomenon metaphorically called an **echo**.
 - Scientists used a tool called an **Out-of-Time-Order Correlator (OTOC)**, which works like giving the quantum system a **tiny push**, reversing its evolution, and then detecting the returning **echo**.
- **Q-Day Concept:** Refers to when **quantum computers** become powerful enough to break **public-key encryption**. It would not instantly expose all secrets, but any encrypted data stored today could be decoded later if intercepted now — a risk known as **"harvest now, decrypt later"**.
- **Encryption Vulnerability: RSA-2048 (Rivest–Shamir–Adleman) encryption**, which secures nearly all **online communication**, works by multiplying large **prime numbers**.
 - **Quantum computers** using **Shor's algorithm** (a quantum method that factors **large numbers efficiently**) could potentially break this by finding **prime factors** exponentially faster than classical computers.
- **Current Technology Gap:** Breaking **RSA-2048 encryption** would require approximately **20 million physical qubits** and **8 hours**. Current processors like **Google's Willow** and **IBM's Condor** have only a few hundred **noisy qubits**.
 - **Fault-tolerant** quantum computers needing millions of **logical qubits** remain **5–8 years** away.
- **Global Preparedness: US National Institute of Standards and Technology (NIST)** has standardized **post-quantum cryptography (PQC)** algorithms — **CRYSTALS-Kyber** for **encryption** and **Dilithium** for **digital signatures**.
 - Companies like **Google** and **Cloudflare** are adopting **hybrid encryption**.
- **India's Response: Reserve Bank of India (RBI)** is urging organizations to transition to **quantum-safe systems** before the end of the **decade**, though most **networks** remain **unprotected**.

National Supercomputing Mission

India is targeting complete **indigenisation** of its **high-performance computing (HPC)** systems by **2030**, with **indigenous content** already reaching **50%** and expected to exceed **70%** by the **decade's end**.

- The country aims to deploy **90 petaflops (PF)** of **computing capacity** under the **National Supercomputing Mission (NSM)** by **March 2026**.

National Supercomputing Mission (NSM)

- **About:** NSM was launched in **2015** as a flagship initiative by the **Government of India** to empower the country with **high-performance computing capabilities**.
 - Jointly steered by the **Department of Science and Technology (DST)** and **Ministry of Electronics and Information Technology (MeitY)**, implemented by **Centre for Development of Advanced Computing (C-DAC)**, **Pune** and **Indian Institute of Science (IISc)**, **Bengaluru**.
- **Objectives:**
 - **Self-Reliance:** Achieve **indigenous supercomputing** design, development, and manufacturing.
 - **Research & Accessibility:** Promote **supercomputing for R&D** and make it **accessible** to scientific and technology communities nationwide.
 - **National Relevance:** Develop **applications of national importance** through academic, R&D, and government institutions.
- **Three-Phase Strategic Implementation:**
 - **Phase I:** Focused on creating **basic supercomputing infrastructure** by installing **six supercomputers** across various institutions with significant **domestic assembly**; aimed to build an **ecosystem** for **component assembly** within the country.
 - **Phase II:** Moved towards **indigenous manufacturing** of supercomputers, including developing a local **software stack**; achieved **40% value addition** from India.
 - **Phase III:** Focuses on **complete indigenization** including **design, development, and manufacturing** of **key components** within India.
- **Indigenous Technology Development under NSM:**
 - **Trinetra Network:** C-DAC developed indigenous **high-speed communication network Trinetra** to enhance **data transfer** and **communication** between **computing nodes**.
 - ❖ **Trinetra-POC:** Proof-of-concept (POC) system to validate key concepts.
 - ❖ **Trinetra-A:** **100 Gigabits per second** network, successfully deployed and tested in **1 petaflop (PF)** **PARAM Rudra** at **C-DAC Pune**.
- **PF** means a computer can perform **one quadrillion (10^{15}) floating-point operations per second**.
 - ❖ **Trinetra-B:** **200 Gigabits per second** upgraded version, set for deployment in the **20PF PARAM Rudra** supercomputer at **C-DAC Bangalore**.

- **Rudra Server:** First **indigenously designed and manufactured HPC server Rudra** along with indigenously developed **system software stack** — first of its kind in India at par with globally available **HPC-class servers**.

■ **Major Installations:**
 - **PARAM Rudra (2024):** Prime Minister dedicated three **PARAM Rudra supercomputers** deployed in **Pune, Delhi, and Kolkata**, facilitating advanced studies in **physics, earth sciences, and cosmology**.
 - **PARAM Pravega (2022):** Installed at **Indian Institute of Science (IISc), Bengaluru** with **3.3 petaflops** computing power — the largest supercomputer in an **Indian academic institution**.
 - **PARAM Shivay (2019):** NSM’s first **indigenously built supercomputer** inaugurated by Prime Minister at Indian Institute of Technology (IIT) BHU, Varanasi.
- **Achievements:**
 - **Infrastructure Scale:** Total of **34 supercomputers** with combined compute capacity of **35 petaflops** deployed across **academic institutions, research organizations, and R&D labs** including **IISc, IITs, C-DAC**, and institutions from **Tier-II and Tier-III cities**.
 - **Utilization Efficiency:** **Supercomputing systems** achieved overall **utilization rate** of over **85%**, with many systems exceeding **95%**, demonstrating **high efficiency** in computational capacity.
 - **Human Resource Development:** **Five training centers** established at **Pune, Kharagpur, Chennai, Palakkad, and Goa** to expand **awareness and familiarization of supercomputing**. More than **22,000 individuals** trained in **HPC and AI skills**, developing highly professional **HPC-aware human resources**.

AIRAWAT AI Computing Platform

■ **About:** Government-initiated project **AIRAWAT** provides a **common compute platform** for **AI research and knowledge assimilation**.

■ **User Base:** Used by **Technology Innovation Hubs**, research labs, scientific community, industry, start-ups, and institutions under **NKN**.

■ **Technical Specifications:** **Proof of Concept** developed with **200 petaflops** mixed precision **AI machine**, scalable to peak compute of **790 AI petaflops**.

■ **Global Recognition:** Secured **75th position** in **Top 500 Global Supercomputing List** at **International Supercomputing Conference (ISC 2023)**, Germany, positioning India among **top AI supercomputing nations** worldwide.

Domain	Key Applications of HPC in India	Key Applications of High Performance Computing Systems in India
Weather Forecasting and Climate Modeling	HPC powers high-resolution models for accurate monsoon predictions , and cyclone tracking . Pratyush , and Mihir can deliver resolutions up to 1 km , supporting disaster management.	
Drug Discovery and Bioinformatics	Accelerates genome sequencing , protein folding , molecular dynamics, and virtual drug screening . e.g., Covid-19 modeling.	
Artificial Intelligence and Machine Learning	Facilities like PARAM Siddhi-AI handle massive datasets for precision medicine and predictive analytics .	
Material Science and Nanotechnology	Enable development of advanced materials, semiconductors , and nanomaterials , supporting self-reliance in electronics and manufacturing.	
Defense and National Security	Supports strategic simulations, cybersecurity, and high-energy physics research for national security.	
Other Emerging Areas	Supports renewable energy modeling, oil/gas exploration , and other large-scale system simulations.	

The National Supercomputing Mission (NSM) is pivotal to India’s strategic autonomy and technological advancement. Critically examine its progress in achieving indigenisation and its impact on scientific research and development.

Drishti Mains Question

Year End Review-2025: Department of Atomic Energy

The **Department of Atomic Energy (DAE)** released its **Year-End Review for 2025**, showcasing a remarkable progress in **nuclear power** generation, healthcare (e.g., **cancer care**), etc, contributing to **rare earth exploration**, and achievements in **high-tech national security systems**.

Key Achievements of the Department of Atomic Energy (DAE) in the Year 2025

- **Nuclear Power Expansion:** The foundation stone was laid for the **Mahi Banswara Nuclear Power Plant (NPP)** in

Rajasthan, executed by the **Nuclear Power Corporation of India Limited (NPCIL)-National Thermal Power Corporation (NTPC) Joint Venture ASHVINI**.

- **Atomic Energy Commission (AEC)** approved an additional **10 units of 700 MWe Pressurized Heavy Water Reactors (PHWRs)**, signalling expansion beyond the existing **22.5 GW** target for 2032.
 - **NPCIL** achieved its highest-ever electricity generation of **56,681 million units** in **FY 2024-25**, avoiding **~49 million tons of CO₂ emissions**.

■ Healthcare & Radiopharmaceuticals:

- The Homi Bhabha Cancer Hospital and Research Centre was inaugurated in Bihar, extending **advanced oncology services** to Eastern India.
- Tata Memorial Hospital recognized as an **International Atomic Energy Agency (IAEA) Rays of Hope Anchor Center**, affirming its **global leadership** in cancer treatment, research, and capacity building.

■ Strategic & High-Technology Autonomy:

- DAE developed India's first Certified Reference Material (CRM) for **Rare Earth Elements (REEs) – Ferrocarbonatite**, gaining a crucial tool for defence, electronics, and green technology.
- First **Electronics-grade (99.8% purity) Boron-11 Enrichment Facility**, commissioned at Talcher, Odisha, provides **ultra-high-purity material** for **semiconductor manufacturing**.

■ Contributions to National Security:

- DAE entities developed Weapon Control System for **Astra Missile**, and Integrated Power & Pyro Relay Units for **Agni missiles**.

■ Agricultural & Societal Applications:

- New **high-yield**, early-maturing mutant crop varieties like **TBM-9 banana** and **RTS-43 Sorghum** have been notified. This has taken the number of varieties released by BARC to 72.
- **Gamma radiation** processing facilities increased to 40 across the country enhancing **food preservation**, safety, and agricultural productivity.

■ Institutional Excellence:

- DAE hosted the **18th International Olympiad on Astronomy & Astrophysics (IOAA 2025)**. Homi Bhabha National Institute (HBNI) secured top rankings in **National Institutional Ranking Framework (NIRF) 2025** and **Nature Index 2024-25**, highlighting research excellence.

The Department of Atomic Energy's mandate extends far beyond nuclear power generation. In light of its 2025 achievements, analyse its role as a catalyst for strategic autonomy, healthcare innovation, and agricultural development in India.

Drishti Mains Question

Google's Project Suncatcher

Google has announced **Project Suncatcher**, a long-term research initiative to test **solar-powered data centres in space**, with the first experimental launches planned for 2027.

Google's Project Suncatcher

- **About:** The project aims to test solar-powered data centres in space by deploying small computing racks on satellites, with **Google planning to launch two prototype satellites** by early 2027 as part of a learning mission in partnership with Planet Labs, an Earth imaging company.
 - It will rely on **Tensor Processing Units (TPUs)**, Google's patented custom chips designed for high-volume, low-precision **Artificial Intelligence (AI) processing**, and use **laser-based optical links** to interconnect satellites into a **constellation capable of data centre-level computation**.
- **Functioning of Data Centres in Space:**
 - **Solar energy generation:** Satellites will use **continuous solar radiation** to power computing systems, reducing dependence on Earth-based electricity.
 - **Onboard AI computing:** Each satellite will carry **AI chips (such as TPUs/GPUs)** to process data directly in space rather than transmitting everything to Earth.
 - **Satellite Constellations:** Multiple satellites will work together as a **distributed data centre**, sharing workloads across nodes.
 - ❖ **Inter-satellite laser communication** will enable **high-speed, low-latency data transfer** within the constellation.
 - **Edge Processing in Space:** Data from satellites (e.g., Earth observation) will be **processed in orbit**, reducing bandwidth needs and response time.
 - **Radiation-hardened Systems:** Hardware will be designed to **withstand radiation, vacuum, and temperature extremes**.
 - **Downlink to Earth:** Processed data will be **selectively transmitted to ground stations**, minimising data load and latency challenges.

Data Centres

- **About:** Data centres are specialised facilities that **store, process, and manage large volumes of digital data** using servers, storage, networking, and supporting systems for power, cooling, and security.
 - They provide reliable and scalable infrastructure for cloud computing, AI, and other digital services.
- **Global Advancements Towards Data Centres in Space:**
 - **OpenAI (Sam Altman):** Proposed a **Dyson sphere-like network** of AI data centres powered by solar energy
 - **Nvidia:** Launched the **Starcloud satellite** carrying the **H100 GPU**, optimized for AI workloads
 - **Lonestar Data Holdings:** Sent a **1 kg mini data centre** with **8 TB SSD storage** to the Moon

History, Art & Culture

Mahatma Jyotiba Phule and His Major Social Reforms

Mahatma Jyotiba Phule's death anniversary was observed on **28th November**, honouring his legacy as a **pioneering social reformer** who championed **education** as the catalyst for enduring **social transformation**.

Contribution of Mahatma Jyotiba Phule in India's Social Reform Movement

- **About Jyotiba Phule:** A 19th-century social activist, thinker, and writer who dedicated his life to challenging the **caste system** and empowering the **downtrodden**, including **SCs, STs, OBCs, Shudras, and women**.
 - **Phule's perspective** transformed after reading **Thomas Paine's "Rights of Man,"** which inspired his lifelong commitment to **social justice and equality**.
- **Prominent Contributions:**
 - **Anti-Caste Movement:** Phule founded the **Satyashodhak Samaj (Society of Truth Seekers)** in 1873 to **combat caste-based discrimination**, and **challenge Brahminical dominance**. The organization spread its message through mediums like the newspaper **Deenbandhu** and folk dramas.
 - **Educational Revolution:** In 1848, **Phule** and his wife **Savitribai Phule** pioneered **women's education** by establishing **India's first school for girls** at Tatyasaheb Bhide's residence in **Pune**.
 - ❖ **Savitribai** became **India's first female teacher**. They also **started night schools in 1855** for **workers, farmers, and women**.
 - **Literary Contributions:** **Phule** articulated his revolutionary ideas through influential works:
 - ❖ **Tritiya Ratna:** A **conversation** between a **Kunbi (lower caste) woman**, a **Brahman**, and a **commentator**, exposing the **cunningness of the Brahman**.
 - ❖ **Gulamgiri:** Comparing **caste oppression** to **slavery**.
 - ❖ **Shetkaryacha Asud:** Exposing **peasant exploitation**.
 - ❖ **Sarvajanik Satya Dharma:** Promoting **rational religious thought**.
 - ❖ **Chhatrapati Shivaji Raje Bosale Yanche Powada:** Reinterpreted **Shivaji** as a **non-Brahmin leader**.
 - **Progressive Ideologies:** He championed **women's rights**, particularly **widow remarriage**, and established **shelters for widows and orphans**, while critiquing the **1857 Revolt** as an **upper-caste power struggle**.

- ❖ He organized a **strike of barbers** convincing them to **refuse to shave the heads of widowed women** (a humiliating **upper-caste tradition**).
- ❖ He also **supported British rule** for its potential to **dismantle traditional hierarchies** and advocated **economic empowerment** alongside **social reform**.
- ❖ **Jyotirao Phule** championed **Pandita Ramabai's conversion to Christianity** in his work, **Satsar**.

- **Legacy:** He was bestowed the **title of Mahatma in 1888** by social activist **Vithalrao Krishnaji Vandekar** for his **extraordinary contributions**, inspiring future leaders like **Dr BR Ambedkar** and laying the **foundation for anti-caste movements** in India.

Year End Review-2025: Ministry of Culture

The **Ministry of Culture** released its **Year-End Review for 2025**, showcasing a landmark year filled with **major cultural festivals, heritage preservation efforts**, and large-scale public participation.

Key Heritage Preservation

Measures Undertaken by India in 2025

- **Repatriation of Lord Buddha's Relics:** The sacred **Piprahwa relics (1898)** were stopped from being auctioned abroad and returned to India after 127 years through coordinated legal and diplomatic intervention.
- **Kashi Tamil Sangamam 3.0:** It is a cultural initiative that celebrates the **deep-rooted historical and cultural ties between Tamil Nadu and Kashi**, strengthening their ancient civilizational bond.
 - **Kashi Tamil Sangamam** aligns with the **Ek Bharat Shreshtha Bharat initiative**. The first two editions of the Kashi Tamil Sangamam were held in 2022 and 2023.
- **Revival of Kambh Ramayana Tradition:** The **Kamba Ramayana**, also known as **Ramavataram**, is a prominent 12th-century CE Tamil epic composed by the poet **Kambar**.
 - It is a reimagining of **Valmiki's Sanskrit Ramayana**, adapted to reflect the socio-cultural and religious values of the **Chola period**.
- **Kalagram at Mahakumbh 2025:** **Kalagram** is a cultural village established by the Ministry of Culture for the **Mahakumbh 2025** in Prayagraj.
 - It is designed to showcase India's rich spiritual and diverse heritage through a blend of crafts, cuisines, and cultural performances.

- **UNESCO Recognition for Maratha Military Landscapes:** India secured the inscription of the **Maratha Military Landscapes** as its 44th **UNESCO World Heritage Site**, raising India's global rank to 6th in number of World Heritage properties.
- **Project Mausam:** The **Archaeological Survey of India (ASI)** hosted a national workshop in New Delhi to strengthen research on maritime cultural routes and safeguard ocean-linked cultural landscapes in the **Indian Ocean region**.
- **Project Gaja-Lok:** It is a transnational initiative launched by **INTACH (Indian National Trust for Art & Cultural Heritage)**, documenting the cultural symbolism of Asian elephants through exhibitions and roundtable discussions, linking ecology with cultural heritage.
- **Gyan Bharatam:** A national initiative to preserve, digitise, and disseminate India's manuscript heritage, was launched at the first **Gyan Bharatam International Conference in New Delhi**.
 - The conference concluded with the **Delhi Declaration**, reaffirming India's commitment to revitalising its manuscript tradition under the **vision of Vikshit Bharat 2047**.
- **Tribal Business Conclave 2025:** The conclave showcased tribal arts, literature, and entrepreneurship, aligning with **Janjatiya Gaurav Varsh**.
- **Special Campaign 5.0:** The **Special Campaign 5.0 (officially, the Special Campaign for Disposal of Pending Matters 5.0 or SCDPM 5.0)** is an initiative focused on reducing pendency and institutionalizing cleanliness (Swachhata).
 - The campaign reached full cleanliness targets across **599 cultural sites**, and implemented a major push for scientific e-waste disposal.
- **Samvidhan Hatya Diwas:** Observed on 25th June 2025 to mark **50 years since the declaration of Emergency**, highlighting the importance of constitutional values, civil liberties, and democratic safeguards.
- **Sewa Parv 2025:** Showcased large-scale public participation through nationwide art workshops and cleanliness drives at heritage sites, linking community service with cultural expression and civic awareness.

Heritage conservation must reconcile conservation ethics and mass participation. Discuss.

Drishti Mains Question

Deepavali Inscribed on UNESCO ICH List

At the **20th session of the UNESCO Intergovernmental Committee for Safeguarding of the Intangible Cultural Heritage (ICH)** held at New Delhi's Red Fort, Deepavali, the festival of lights was officially added to **UNESCO's Representative List of the Intangible Cultural Heritage (ICH) of Humanity**.

UNESCO Intangible Cultural Heritage List

- **About:** The list was created under the **2003 UNESCO Convention for the Safeguarding of Intangible Cultural Heritage**.
- **Intangible Cultural Heritage:** UNESCO defines intangible heritage as living traditions **inherited across generations**, including oral traditions, performing arts, rituals, festive events, social practices, knowledge of nature and the universe, and traditional craftsmanship that communities continue to recreate and safeguard.
- **Nominations:** To add an element to UNESCO's ICH Representative List, states must submit a nomination file, with **one nomination allowed every two years**. India nominated the Deepavali festival for the 2024–25 cycle.

India's UNESCO Intangible Cultural Heritage list includes

Garba of Gujarat (2023), Durga Puja in Kolkata (2021), Kumbh Mela (2017), Yoga (2016), Nowruz (2016), Traditional brass and copper utensil-making by the Thatheras of Jandiala Guru, Punjab (2014), Sankirtana of Manipur (2013), Buddhist chanting of Ladakh (2012), Chhau dance, Kalbelia dance of Rajasthan, and Mudi yettu of Kerala (2010), Ramman festival of Garhwal Himalayas, India (2009) and Kutiyattam Sanskrit theatre, Ramlila, and Tradition of Vedic chanting (2008).

20th session of the UNESCO Intergovernmental Committee for Safeguarding of the ICH

- **About:** It is the **first time India is hosting the ICH Committee session**, organised by the Ministry of Culture and the **Sangeet Natak Akademi**.
 - The event marks a key moment in India's cultural diplomacy, coinciding with the 20th anniversary of India's ratification of the **2003 UNESCO Convention**.
- **Significance for India:** The session allows India to showcase its national ICH safeguarding model, which integrates documentation, community participation, and institutional support.
 - It enhances global visibility for **India's diverse intangible heritage while strengthening the country's soft power** and cultural leadership.

Role of Bengal in Indian National Movement

The **West Bengal Chief Minister** has criticised the **Central government**, alleging that it has undermined the contributions of **national icons from Bengal**, including **Rabindranath Tagore, Netaji Subhas Chandra Bose, and Bankim Chandra Chattopadhyay**.

- Her remarks have sparked debate over the **politics of national symbols, regional identity, and historical legacy**, especially over the national song **Vande Mataram**.

Role of Bengal in Indian National Movement

- **Intellectual and Cultural Awakening:** **Raja Rammohan Roy's Brahmo Samaj** ignited **rationalism** and social

reforms, while **Bankim Chandra Chattopadhyay's Vande Mataram** served as the **anthem** of the Indian national movement.

- **Swami Vivekananda** then galvanized this sentiment, fusing **national pride, self-respect, and service** into a **spiritual duty**.
- **Early Political Associations:** Early political organizations like the **British Indian Association (1851)**, and **Indian Association (1876)** emerged in **Calcutta**, paving the way for **organized political movements** that shaped India's struggle for independence.
 - Early Congress sessions were dominated by **Bengali leaders (Surendranath Banerjee, Ananda Mohan Bose, etc.)**.
- **Swadeshi Movement & Extremism:** The **Partition of Bengal (1905)** ignited the **Swadeshi Movement**, birthing modern **revolutionary nationalism** through **boycott, swadeshi enterprise, national education, and extremist leaders** like **Bipin Chandra Pal** and **Aurobindo Ghosh**.
 - This era saw the rise of revolutionary groups like the **Anushilan Samiti (1902)** and **Jugantar party (1906)**, marked by actions such as the **Alipur Bomb Case (1908)**.
- **Revolutionary Phase of Nationalism:** Iconic actions included the **Chittagong Armoury Raid (1930)** by **Master Da Surya Sen** and pioneering martyrdom by women revolutionaries like **Pritilata Waddedar (1932)** and **Bina Das (1932)**.
- **Cultural & Literary Contribution:** The fearless **Bengali press** (e.g., **Amrita Bazar Patrika**) and powerful **theatre** (e.g., **Neel Darpan**) exposed colonial exploitation, while **Rabindranath Tagore** (work **Ghare Baire** i.e., **The Home and the World**) and the **rebel poet Kazi Nazrul Islam** profoundly shaped **nationalist thought** through literature, music, and impassioned verse.
- **Role in Gandhian Movements:** Bengal actively participated in **Non-Cooperation (1920–22)** with leaders like **Chittaranjan Das** and **Basanti Devi**, in **Civil Disobedience (1930–34)** where thousands courted arrest, and in **Quit India (1942)**, which spurred the parallel **Tamralipta Jatiya Sarkar (1942–44)**.

Examine the role of Bengal as the 'crucible of Indian nationalism,' highlighting its intellectual, revolutionary, and cultural contributions to the freedom struggle.

Drishti Mains Question

Kakori Train Action

Union Home Minister paid tribute to **Pandit Ram Prasad Bismil, Ashfaqulla Khan, and Roshan Singh** on their Balidaan Diwas (19th December), honoring their sacrifice in the **Kakori Train Action** that shook the foundations of British rule.

Kakori Train Action

- **About:** The Kakori Train Action (9th August 1925) was a landmark **revolutionary act** carried out by members of the **Hindustan Republican Association (HRA)** to fund the freedom struggle and challenge **British colonial authority**, marking a shift towards **armed resistance** in India's national movement.
- **Historical Context:** Took place after the **Jallianwala Bagh Massacre (1919)** and the withdrawal of the **Non-Cooperation Movement (1922)**, which disillusioned many young nationalists.
 - This disillusionment led to the formation of the **HRA** in 1924 to pursue revolutionary methods.
- **Event and Execution:** Revolutionaries, led by **Ram Prasad Bismil** and including **Ashfaqulla Khan, Chandrashekhar Azad, and Rajendra Lahiri**, halted the **8-down train** travelling from **Shahjahanpur to Lucknow** near Kakori station, **looted** the official treasury, and deliberately avoided harming passengers.
 - Other members involved were **Sachindranath Bakshi, Mukundi Lal, Banwari Lal, and Manmathnath Gupta**.
- **British Crackdown & Trial:** A massive **crackdown** led to the **Kakori Conspiracy Case 1925**. After an **18-month trial**, four revolutionaries—**Ram Prasad Bismil, Ashfaqulla Khan, and Thakur Roshan Singh**—were hanged on **19th December 1927**, while others received **life imprisonment**.
- **Significance & Legacy:** It highlighted a strategic shift to **armed resistance**, showcased extraordinary **Hindu-Muslim unity** (Bismil & Khan), and inspired the reorganization of the HRA into the **Hindustan Socialist Republican Association (HSRA)**, influencing future revolutionaries like **Bhagat Singh**.

Hindustan Republican Association (HRA)

- **About:** The HRA, founded in **October 1924** in **Kanpur**, was a **revolutionary organization** that advocated for the violent overthrow of British rule (armed resistance).
- **Formation:** It was established by **Ram Prasad Bismil, Jogesh Chandra Chatterjee, Sachindra Nath Sanyal, Shiv Verma**, among others.
- **Ideology & Objective:** Its manifesto, **The Revolutionary (1925)** by **Sachindra Nath Sanyal**, outlined the goal of establishing a federal republic in India through an **organized armed revolution**, influenced by **socialist ideas** and international revolutionary movements.
- **Major Actions (HSRA):** Assassination of **JP Saunders (1928)** to avenge **Lala Lajpat Rai's** death.
 - **Central Legislative Assembly bombing (1929)** by **Bhagat Singh and Batukeshwar Dutt**. Attempted **Viceroy Irwin's train bombing (1929)**.

Social Issues

Supreme Court Guidelines on Child Trafficking

The **Supreme Court of India**, described **child trafficking and commercial sexual exploitation** as a “deeply disturbing reality” in the country.

- It laid down **guidelines directing courts** to treat trafficked children as injured witnesses and to assess their testimony sensitively, without rejecting it merely due to minor inconsistencies.

Guidelines of Supreme Court of India

- **Victim's Testimony as Credible Evidence:** Courts must treat a trafficked child's testimony as that of an **injured witness**, giving it due credence.
 - Minor inconsistencies in the testimony should not discredit the victim's account, and her sole testimony can be enough for conviction if credible.
 - Given the layered nature of trafficking operations, courts should not expect victims to provide precise details. The complexity of the crime makes it difficult for victims to recount events clearly.
- **Sensitivity to Vulnerabilities:** Courts must consider the **socio-economic and cultural vulnerabilities** of victims, especially those from marginalized communities. Judicial appreciation should be marked by sensitivity and realism.
 - SC also noted that child trafficking and sexual exploitation violate children's dignity and bodily integrity and undermine their fundamental rights to life, dignity and safety.
- **Minimising Secondary Victimisation:** The court emphasized protecting victims from further trauma during legal proceedings, ensuring their dignity is upheld and avoiding additional distress.
- **Avoiding Prejudicial Assumptions:** Courts should refrain from making assumptions based on a victim's behavior, such as a lack of immediate protest, which could undermine her credibility.

Child Trafficking

- **About:** Child trafficking refers to the **recruitment, transportation, transfer, harbouring, or receipt of a child** through coercion, deception, abuse of power, or exploitation of vulnerability for the purpose of exploitation.
 - Exploitation includes **sexual exploitation, forced labour, slavery or servitude, and removal of organs**, and constitutes a **grave violation of child rights, human dignity, and bodily integrity**.

- Regulation of Child Trafficking and Commercial Sexual Exploitation in India

- **Constitutional Framework: Article 23** prohibits trafficking in human beings and forced labour, making it a **fundamental rights violation**.

- **Legal Framework:**

- ❖ **Bharatiya Nyaya Sanhita (BNS), 2023: Sections 143 and 144** of BNS, 2023 provide for stringent punishment for human trafficking and sexual exploitation of trafficked children, including imprisonment up to life, with beggary recognised as a form of exploitation.
- ❖ **Immoral Traffic (Prevention) Act, 1956 (ITPA):** Core law against trafficking for commercial sexual exploitation; penalises brothel-keeping, procuring, and related offences.
- ❖ **Protection of Children from Sexual offences (POCSO) Act, 2012:** Special law to protect children from sexual abuse and exploitation; mandates child-friendly procedures.
- ❖ **Criminal Law Amendment Act, 2013:** Provide a **comprehensive definition of trafficking**, including sexual exploitation, slavery, servitude, forced labour, and organ removal; cover trafficking of **children irrespective of consent**.
- ❖ **Juvenile Justice (Care and Protection of Children) Act, 2015:** Mandates a safety net of institutional and non-institutional care and protection services for children in conflict with law and children in need of care and protection.
- ❖ **Allied legislations** addressing trafficking and exploitation include the **Bonded Labour System (Abolition) Act, 1976**, **Child Labour (Prohibition and Regulation) Act, 1986**, **Prohibition of Child Marriage Act, 2006**, and the **Transplantation of Human Organs and Tissues Act, 1994**, which collectively aim to prevent forced labour, child exploitation, early marriage, and illegal organ trade.

- **SC Judgements and Guidelines:**

- **Vishal Jeet v. Union of India (1990):** The SC held **trafficking and child prostitution to be a serious socio-economic problem and stressed a preventive, humanistic approach**.
 - ❖ SC directed States set up advisory committees to eradicate child prostitution and Devadasi/Jogin practices.

- **MC Mehta v. State of Tamil Nadu (1996):** The SC prohibited the employment of children in hazardous industries. It ordered the **creation of a Child Labour Rehabilitation Welfare Fund**.
- **Bachpan Bachao Andolan v. Union of India (2011):** The SC imposed a **total ban on the employment of children in Indian circuses** and issued key directions to the Central and State governments to address the

widespread exploitation and trafficking of children in circuses.

- **International obligations:** India has ratified the **UN Convention on Transnational Organized Crime (UNTOC)** and its Trafficking Protocol.
 - Also, ratified the **SAARC Convention on Preventing and Combating Trafficking in Women and Children for Prostitution**.

Challenges Related to Prevention of Child Trafficking	NCPCR's Recommendations
<ul style="list-style-type: none">■ Entrenched Socio-economic Distress: Poverty, unemployment, migration, and family breakdown make children vulnerable to trafficking, with demand for cheap labor, domestic servitude, begging, and commercial sex sustaining the market.■ Rise of Child Labor in Quick-Commerce: Delivery apps create hidden demand for child labor in unregulated dark stores and sorting hubs.■ Invisible & Organised Trafficking Chains: Trafficking networks are fragmented and operate across multiple states, using porous borders like India-Nepal, making detection & disruption difficult.■ Gaps in Data and Monitoring: Delays in updating National Crime Records Bureau (NCRB) data and fragmented databases on missing, rescued, and trafficked children limit effective early warning, tracking, and prevention efforts.■ Silence of Victims: Fear, stigma, trauma & threats prevent reporting, while insensitive questioning retraumatizes victims, discouraging cooperation.■ Misuse of Technology: Social media enables grooming, recruitment, and exploitation, such as traffickers using fake "talent hunt" profiles on Instagram to lure victims.■ Gaps in Data & Monitoring: Delays in updating NCRB data and fragmented databases on missing and trafficked children hinder effective prevention and tracking efforts.	<ul style="list-style-type: none">■ Source-area Recommendations: Identify trafficking-prone areas, map at-risk children & vulnerable families using indicators like school dropouts, poverty, migration, and family distress.<ul style="list-style-type: none">● Ensure convergence of welfare schemes (ration, MGNREGA, education, health) to prevent economic distress driving families to traffickers.● Strengthen vigilance at the Panchayat level with Village Child Protection Committees, Anganwadi workers, schools, and local police.● Maintain village-level registers & update TrackChild and GHAR portals.■ Transit-area Recommendations: Train GRP (Government Railway Police) & RPF (Railway Protection Force), transport staff, porters, vendors, and police to identify suspicious movements of children and adults.<ul style="list-style-type: none">● Display helpline numbers (1098, 112) and child rights information at transit points.● Destination-area Recommendations: Regularly inspect placement agencies, factories, hotels, and other work sites.<ul style="list-style-type: none">❖ Enforce zero tolerance for child labour, child marriage & domestic servitude.❖ Ensure availability of child care institutions, shelters, and rehabilitation facilities for rescued children under the JJ Act, 2015.

Elimination of Violence against Women

The **International Day for the Elimination of Violence against Women**, observed on **25th November**, is a United Nations (UN)-designated day that raises global awareness on **gender-based violence** and urges stronger action to protect women and girls. The 2025 theme is **“UNiTE to End Digital Violence against All Women and Girls.”**

Factors Contributing to Increased Risk of Violence Against Women

- **Individual-Level Factors:** Low education, childhood exposure to abuse, harmful alcohol use, and antisocial behaviour increase the likelihood of both perpetrating and experiencing violence.
- **Relationship-Level Factors:** Conflict-ridden relationships, poor communication, past exposure to violence, and male controlling behaviour heighten the risk of intimate partner violence.

- Power imbalances within households often **normalise coercion and abuse**.
- Over a fifth of women in India aged **15-49 were subjected to intimate partner violence in 2023**, while nearly 30% have been affected during their lifetime, according to **World Health Organisation (WHO)**.
- **Community-Level Factors:** Communities with entrenched **gender inequality, weak law enforcement, limited employment for women, and poor access to support services** see higher levels of violence.
- **Societal-Level Factors:** Patriarchal systems, discriminatory laws, and cultural beliefs around **honour, purity, and male entitlement encourage violence**.
 - Weak punishment and inadequate implementation of laws reduce deterrence.
- **Digital Media & Technology-Driven Factors:** According to the UN, **Artificial Intelligence (AI)**-driven anonymity and weak accountability have intensified online abuse.

- Globally, **1.8 billion women and girls** still lack legal protection against digital harassment.
- The rise of digital platforms has created new forms of abuse such as **cyberstalking, deepfakes, doxxing, and online harassment**.
- Deepfake misuse has surged, with up to **95% of online deepfakes being non-consensual pornographic content**, and **99% of those targeted are women**.
- Algorithm-driven amplification of **misogyny, anonymity of perpetrators, and gaps in cyberlaw enforcement** have made technology-facilitated gender-based violence a growing threat.

International Day for the Elimination of Violence against Women

- **Background:** Despite the UN adopting the **Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), 1979** (India ratified it), gender-based violence remains widespread across the world.
 - In **1993**, the UN General Assembly adopted **resolution 48/104**, establishing the **Declaration on the Elimination of Violence against Women** and laying the groundwork for global action.
 - In **2000**, the UN formally designated **25th November** as the International Day for the Elimination of Violence against Women and urged governments, international bodies, and civil society to **organise awareness campaigns annually**.
- **Significance of the Day:** The day is crucial because violence against women remains widespread as **globally, 30% of women have faced physical and/or sexual violence** and domestic violence isn't criminalised in many countries.
 - Violence against women is **one of humanity's oldest and most pervasive injustices**, yet still one of the least acted upon. More than 30 nations let rapists avoid punishment by marrying the victim, and over 40 nations **lack domestic violence laws**.
 - The day underscores the urgent need for stronger protections, better prevention, and survivor-centred support.

India's Measures to Address Violence Against Women

- **National Commission for Women (NCW):** Established in 1992, **NCW** is India's apex statutory body for safeguarding women's rights.
 - It reviews legal protections, recommends reforms, and handles complaints both offline and through its online portal. Most states have also constituted **State Commissions for Women (SCWs)** with parallel responsibilities.
 - The NCW also operates a 24x7 domestic violence helpline, which connects **women to police, hospitals, legal aid, and counsellors** through an **Interactive Voice Response (IVR)**-based system under Digital India.

- **Bharatiya Nyaya Sanhita, 2023:** It replaced the **Indian Penal Code (IPC)** and introduces **stringent penalties for sexual offenses**, including the life imprisonment for rape of minors under 18 years.
 - **BNS, 2023** expands definitions of sexual offenses, mandates **audio-video recording of victim statements**, and prioritises crimes against women and children in trial proceedings.
- **Protection of Women from Domestic Violence Act, 2005 (PWDVA):** Defines an **"aggrieved person"** as any woman in a domestic relationship who faces harm to **her physical or mental health**.
 - Under **PWDVA**, domestic violence includes **physical, sexual, emotional, and economic abuse, along with dowry-related harassment**, covering any behaviour that threatens a woman's safety or well-being within a shared household.
- **Sexual Harassment of Women at Workplace Act, 2013 (POSH):** It protects all women at every workplace and requires employers to form Internal Committees, with Local Committees set up by the government for smaller establishments.
 - The **MWCD** oversees implementation and operates the **SHE-Box portal** for online complaints, which must be resolved within 90 days.

Major Institutional Support Systems for Women's Safety

Scheme / Institution	Function
Mission Shakti	Umbrella scheme for women's safety, security, and empowerment across their life cycle with vision of "women-led development" .
Swadhar Greh Scheme	Provides shelter, food, counselling, legal aid, and rehabilitation for women in difficult circumstances.
One Stop Centres (OSC)	Offers integrated support—police facilitation, medical aid, legal help, counselling, and temporary shelter—for women facing violence.
Stree Manoraksha	Trains OSC staff on mental-health and psycho-social support for survivors.
Fast Track Special Courts (FTSCs)	Ensures speedy trial of rape and POCSO cases; dedicated courts funded under Nirbhaya Fund .
Women Help Desks (WHDs)	Special desks in police stations for sensitive reporting, FIR assistance, and counselling for women.

Preventing Violence Against Women

WHO and UN Women's "RESPECT" framework lays out **seven key strategies** to help countries fast-track progress toward **SDG 5.2**, the goal of eliminating violence against women and girls.

- **R - Relationship Skills Strengthened:** Programs targeting individuals, couples, or communities to enhance skills in **conflict management, communication, and decision-making**. These help in fostering **healthier, non-violent relationships**.
- **E - Empowerment of Women:** Focus on enhancing **women's social and economic status**, including asset ownership, microfinance programs, gender training, and mentoring.
 - Empowered women are **less vulnerable to violence and more likely to report abuse**.
- **S - Services Ensured:** Ensuring that survivors of violence have access to essential services, such as **police, legal, health, one-stop crisis centers, and social support services**. These services help **survivors recover and seek justice**.
- **P - Poverty Reduced:** Addressing the socio-economic factors that contribute to violence, especially poverty, which increases **stress and dependency in relationships**.
 - These interventions aim to provide financial stability and reduce violence triggered by economic stress.
- **E - Environments Made Safe:** Creating **safe spaces for women in schools, workplaces, public spaces, and homes**.
 - These interventions aim to reduce exposure to violence and ensure women's **physical security in their daily environments**.
- **C - Child and Adolescent Abuse Prevented:** Programs that focus on preventing child abuse, promoting **positive parenting, and nurturing family relationships**. Interventions should target **both boys and girls to reduce the risk of violence**.
- **T - Transformed Attitudes, Beliefs, and Norms:** Changing harmful gender norms, attitudes, and beliefs that **condone violence and reinforce male dominance**.
 - This includes campaigns and education that challenge stereotypes, promote gender equality, and reduce the stigma around violence survivors.

Technology has amplified both the reach and the harm of gender-based abuse. Discuss and suggest regulatory and policy measures India should adopt.

Drishti Mains Question

Manual Scavenging

The Calcutta High Court ordered Rs 30 lakh compensation for each of the four sewer workers who died in a 2021 **manual scavenging** incident in Kolkata's Kudghat area, condemning the authorities' "serious negligence" and directing governments to raise outdated compensation norms fixed at Rs 10 lakh since 1993.

Manual Scavenging

- **About:** According to the **Prohibition of Employment as Manual Scavengers and their Rehabilitation (PEMSR) Act,**

2013, Manual Scavenging is the practice of manually cleaning, carrying, disposing, or handling human excreta from insanitary latrines, open drains, pits, railway tracks or any other notified space.

- **Legal Framework:** It is officially banned in India since the **Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993**.
 - **Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013** bans employment of manual scavengers, ensures their rehabilitation, and makes every offence cognizable and non-bailable.
 - **The SCs and the STs (Prevention of Atrocities) Act, 1989** criminalizes the employment of Scheduled Castes in manual scavenging.
 - Manual scavenging violates fundamental rights, **particularly Article 17 (abolition of untouchability) and Article 21 (right to life with dignity)**.
- **Supreme Court (SC) Guidelines:** The Supreme Court in **Dr. Balram Singh vs Union of India (2023)** ordered for full mechanisation of sewer cleaning, and banned human entry except in rare cases with proper protective gear.
 - It declared rehabilitation and prompt compensation for sewer deaths a constitutional right, asked states to link support with **NAMASTE and social security schemes**, and sought a central portal to track deaths and benefits.
- **Current Status (as of 2024):** Out of 766 districts, 732 have declared themselves manual scavenging-free, yet as of 2024, around 58,000 manual scavengers remain identified in India.

Major Challenges Faced by Manual Scavengers

- **Intergenerational Entrapment:** Manual scavenging is not only a job—it is a system that destroys physical capacity, confidence, and future opportunities, **locking entire families into generational bondage**.
- **Health Risks:** Exposure to human waste and toxic gases like hydrogen sulphide makes manual scavengers highly vulnerable to diseases such as **Hepatitis, Tetanus, Cholera, and asphyxiation**.
- **Social Stigma:** Labeled as "**untouchables**," they face deep-rooted caste-based discrimination, reinforcing **social exclusion** and systemic marginalization.
 - The **ILO** notes that women manual scavengers face **double discrimination** (caste, gender), which creates a **triple burden** (caste, gender, and degrading occupation), trapping them in the most unsafe and stigmatised work and worsening their social and mental well-being that lead to anxiety, depression, and low self-esteem.
- **Economic Challenges:** Paid below minimum wage and often employed on **daily-wage or contractual terms**, they lack job security, social protection, and alternative livelihood options, keeping them trapped in poverty.

- **Substance Abuse:** Many resort to alcohol or drugs to cope with stress, humiliation, and physical hardship, further impacting their health and well-being.
- **Delayed or Denied Compensation:** Compensation for sewer deaths is often **delayed, disputed, or inconsistently disbursed**. Many victims receive far less than the mandated amount or nothing at all.
 - The issue is worsened by **outdated norms** like the Rs 10 lakh compensation fixed in 1993 has lost much of its real value, as highlighted by the Calcutta High Court.
- **Operational Challenge:** Lack of training for manual scavengers in operating modern sewer-cleaning machines, **leading to skill gaps, underuse or misuse of equipment**, and workers being **pushed back into unsafe manual cleaning**.

Measures to End Manual Scavenging in India

- **Shift to Full Mechanisation:** Ensure **100% machine-based cleaning of sewers**, septic tanks, drains, sludge, and waste through well-equipped Sanitation Response Units (SRUs) and trained operators.
- **Stronger Institutional Systems:** Create a **Responsible Sanitation Authority in every district**, set up SRUs in all municipalities, and run 24x7 helplines for reporting blockages and emergencies.
- **Strict Legal Enforcement:** Strictly enforce the PEMSR Act, 2013 by treating sewer deaths as culpable homicide, penalising violators, and ensuring timely compensation.
 - Move **beyond one-time payments by creating long-term pathways for dignity, secure livelihoods**, and social mobility for affected families.
- **Regulation and Oversight:** Maintain the legal distinction between **sanitation workers and manual scavengers**, regulate private de-sludging operators, and strengthen monitoring through NHRC recommendations.
- **Financial Support:** Provide concessional loans under **Swachhta Udyami Yojana** for procuring mechanised cleaning equipment and widen **Self-Employment Scheme for Rehabilitation of Manual Scavengers (SRMS)** coverage for rehabilitation and enterprise support.
 - Offer skill training under **PM-DAKSH** for waste management and machine operations, and prioritise employment in ULBs and relevant works under MGNREGA.

Examine the adequacy of the PEMSR Act, 2013 in eradicating manual scavenging in India. What implementation reforms are needed?

Drishti Mains Question

Towards Prohibition of Polygamy

The Chief Minister of Assam introduced the **Assam Prohibition of Polygamy Bill, 2025** in the Assam Legislative Assembly, aiming to **criminalize polygamy across the state**, with severe punishments for those violating the law.

Key Provisions of Assam's Anti-Polygamy Bill 2025

- **Criminalization of Polygamy:** The Bill makes polygamy a **criminal offence**, prescribing imprisonment of up to **7 years** and a **fine** for anyone entering into, or concealing, a second marriage while the first marriage remains valid.
- **Exemptions and Jurisdiction:** The law **excludes the Sixth Schedule areas** of Assam, where customary laws permit polygamy.
 - **Scheduled Tribes under Article 342 of the Constitution** are not covered by this law.
 - The law applies to **Assam residents** and extends its jurisdiction to those involved in polygamous marriages outside the state or who benefit from Assam's welfare schemes.
- **Accountability of Key Actors:** **Village heads, qazis (Muslim clerics), parents, and legal guardians** of individuals entering into polygamous marriages will be held accountable.
- **Compensation for Affected Women:** A **compensation mechanism** will be established for women who are adversely affected by polygamous marriages.
- **Impact on Convicts:** Individuals convicted under this law will be **ineligible for government jobs**, benefits, and government schemes. **Election eligibility** will be barred for such individuals.
- **Grandfather Clause:** Polygamous marriages **contracted before** the law's enactment will not be impacted as long as they comply with existing personal or customary laws and have valid proof.

Polygamy

- **About:** It refers to the **practice of having more than one spouse** simultaneously. In this context, polygamy involves a marriage where one person may have multiple partners at the same time.
 - ❖ In India, polygamy was widely practiced in the past, especially among men, but the **Hindu Marriage Act of 1955** formally prohibited it.
 - The **Special Marriage Act (SMA), 1954**, permits inter-religious marriages, but also explicitly bans polygamy. Many Muslim women have used this Act to prevent or challenge polygamous practices.
- **Polygamy in India:** The **National Family Health Survey(NFHS-5) (2019-2021)** reveals that in **Assam, 1.8% of Hindu women and 3.6% of Muslim women** experience polygamy, with an overall **prevalence rate of 2.4%**.
 - ❖ Notably, **Meghalaya** reports the highest polygamy rate in India at **6.1%**.

- Nationally, polygamy rates are **2.1% among Christians, 1.9% among Muslims, 1.3% among Hindus and Buddhists, 0.5% among Sikhs, and 2.5% among other religions or castes.**
- **Prevalence Among Communities:**
 - **Polygamy in Hindus:** The Hindu Marriage Act, 1955 **abolished and criminalized polygamy**, mandating monogamous marriages under **Section 11**, which declares polygamous marriages void.
 - **Polygamy in Parsis:** The **Parsi Marriage and Divorce Act, 1936** outlawed bigamy, making it illegal for Parsis to remarry during the lifetime of their spouse without legal divorce or invalidation of the previous marriage.
 - **Polygamy in Muslims:** Polygamy is **not prohibited in Muslim law (Muslim Personal Law Application Act (Shariat) of 1937)** however, if polygamy is found to violate **fundamental rights** under the Constitution, it could be challenged and overturned.

Judicial Pronouncement on Polygamy
<ul style="list-style-type: none">■ Parayankandiyal v. K. Devi & Others (1996): The Supreme Court (SC) concluded that monogamous relationships were the standard and ideology of Hindu society, which scorned and condemned a second marriage. Polygamy was not allowed to become a part of Hindu culture due to the influence of religion.■ State of Bombay v. Narasu Appa Mali (1951): The Bombay High Court ruled that the Bombay (Prevention of Hindu Bigamy Marriage) Act, 1946 was not discriminatory.<ul style="list-style-type: none">• The SC ruled that a state legislature has the authority to enact measures for public welfare and reforms, even if it violates the Hindu religion or custom.■ Javed & Others v. State of Haryana & Others (2003): The Supreme Court ruled that freedom of religion under Article 25 is subject to considerations of social harmony, dignity, and well-being.<ul style="list-style-type: none">• While Muslim law permits marrying up to four women, it is not mandatory, and choosing not to marry four women does not violate religious practice.

Polygamy in India raises complex issues related to religious freedom, gender equality, and constitutional rights. Comment.

Drishti Mains Question

India’s Roadmap for Empowering Divyangjans

- As the **International Day of Persons with Disabilities (PwDs) (3rd December)** reminds us of the need for an inclusive society, India is making strong progress toward **inclusivity** for PwDs, driven by major legal and **policy reforms, government initiatives** and landmark events like **Purple Fest 2025**.
- As per **Census 2011**, India has **2.68 crore PwDs**, accounting for **2.21%** of the population.

Challenges Related to PwDs	Suggestions
<ul style="list-style-type: none">■ Accessibility Challenges: Most spaces lack ramps, signage, tactile paths; digital platforms lack screen readers, captions, etc. Only 3% of buildings (2018 govt. report) were fully accessible.■ Inclusive Education Gap: Shortage of trained teachers, support systems, and inclusive infrastructure. Only 19.3% PwDs (15+) attain secondary education or higher.■ Employment & Economic Exclusion: Out of 1.3 crore employable PwDs, only 34 lakh employed; due to sectoral bias and lack of accommodations.■ High Healthcare Costs: High costs, poor insurance, shortage of professionals, and neglected mental health services.	<ul style="list-style-type: none">■ Bridge the Governance Deficit: Enforce RPwD Act, 2016 with strict deadlines; empower Chief Commissioner for PwDs with greater authority.■ Universalise Accessibility: Retrofit public assets via Accessible India Campaign with audits aligned to UNCRPD obligations.■ Economic Empowerment: Scale up & integrate PM-DAKSH under Skill India, boost placements via Rozgar Setu.■ Promote Tech Innovation: Invest in AI-based accessible tech, support through ALIMCO & startup incubation.

Key Legal Framework and Government Initiatives for Disability Rights in India

- **Legal Framework:**
 - **Rights of Persons with Disabilities Act, 2016:** The cornerstone legislation, it recognizes **21 categories of disability**, mandates **reservation** in education and employment, and legally obligates governments to ensure **accessibility** and **full participation**.
 - ❖ Also, India ratified the **UN Convention on the Rights of Persons with Disabilities (UNCRPD)** in 2007, making a commitment to align its laws and policies with these principles
 - **National Trust Act, 1999:** Focuses on welfare of individuals with **Autism, Cerebral Palsy, Mental Retardation, and Multiple Disabilities**.
 - **Rehabilitation Council of India (RCI) Act, 1992:** Regulates and monitors **rehabilitation training programmes**. Maintains **Central Rehabilitation Register** of qualified professionals.
 - **Scheme for Implementation of RPwD Act, 2016 (SIPDA):** Provides **financial and technical support** to implement RPwD Act projects. Promotes **accessibility, awareness, inclusion, and skill development**.
- **Government Initiatives:**
 - Sugamya Bharat Abhiyan (Accessible India Campaign)
 - Assistance to Disabled Persons (ADIP) Scheme
 - Unique ID for Persons with Disabilities (UDID)

- Deendayal Divyangjan Rehabilitation Scheme (DDRS)
 - ❖ PRASHAST App screens students for early disability identification.
- National Divyangjan Finance and Development Corporation (NDFDC)
- PM-DAKSH-DEPwD Portal
- Divya Kala Mela
- Artificial Limbs Manufacturing Corporation of India (ALIMCO)
- Promotion of Indian Sign Language (ISL)

How can a multi-pronged approach involving legal safeguards, technology, and public-private partnerships be harnessed to empower Persons with Disabilities effectively?

Drishti Mains Question

Poverty in India

A new research paper by **Arvind Panagariya, Chairman of the 16th Finance Commission**, finds that India has “**virtually eliminated**” extreme poverty between 2011–12 and 2023–24.

Key Highlights of the Study on Poverty

- **Extreme Poverty Nearly Eliminated:** Poverty fell from 21.9% to 2.3% between 2011–12 and 2023–24, indicating near-elimination of extreme poverty driven by rising consumption and better access to welfare, nutrition, and basic services.
- **Poverty Declined Across all Social Groups:** SCs, STs, OBCs and FCs all saw major reductions, with **ST poverty dropping to 8.7%**, though remaining higher than other groups.
 - Religious poverty gaps **have sharply narrowed**, with Muslims now recording slightly lower rural poverty than Hindus, reversing the common perception of higher Muslim poverty.
- **Faster Reduction in Rural Areas:** Rural poverty declined by 22.5 percentage points, outpacing urban reduction of 12.6 points due to stronger welfare and consumption growth.
- **Near-Zero Poverty:** Himachal Pradesh, Sikkim, Goa, Delhi, Chandigarh, and Daman & Diu recorded poverty levels close to zero.

Poverty Estimation in India:

- **Post-Independence:** The **Planning Commission (1962)** initiated an official poverty assessment.
 - Later committees like **Alagh Committee (1979)** and **Lakdawala Committee (1993)** refined the methodology, focusing on consumption expenditure and calorie norms.
- **Tendulkar Committee (2009):** Shifted from calorie-based norms, recommended a **uniform all-India Poverty Line**

Basket (PLB), and adopted **Mixed Reference Period (MRP)** consumption data.

- It estimated the 2011–12 poverty line at Rs 816 (rural) and Rs 1,000 (urban) per capita per month.
- **Rangarajan Committee (2014):** Formed after criticism of the Tendulkar method, it reverted to separate **rural and urban PLBs**, estimating Rs 972 (rural) and Rs 1,407 (urban) per capita per month. However, the government did not adopt its recommendations officially.
- **Multidimensional Poverty Index (MPI):** Launched in 2010 by **United Nations Development Programme** and **Oxford Poverty & Human Development Initiative (OPHI)**, the MPI measures poverty beyond income, considering deprivations in health, education, and living standards.
 - It reflects both the proportion of poor people and the average number of deprivations they experience simultaneously.
- **National Multidimensional Poverty Index (NMPI):** NITI Aayog uses **National Family Health Survey (NFHS)** to measure the NMPI.
 - The multidimensional poverty in India has declined from **29.17% in 2013-14 to 11.28% in 2022-23** with about 24.82 crore people escaping poverty.
 - The **Gini index** declined from **28.8 in 2011-12 to 25.5 in 2022-23**, showing reduced inequality.

Factors Contributing to Poverty in India

- **P – Persistent Inequality:** Income concentration remains high, the **top 10% hold 57%** of national income, leaving fewer resources and opportunities for low-income households to improve their living standards.
- **R – Rural Economic Dependence:** Agriculture employs **46%** of India’s workforce but contributes only **18%** to GDP, creating widespread underemployment and low earnings.
- **E – Education & Skill Deficits:** The ASER report 2024 notes that **50% of Class 5 students are not able to read Class 2 text**, limiting future income mobility.
- **S – Social Exclusion:** According to the **World Inequality Report 2022**, women earn only **18%** of labour income, and female labour force participation remains around **31%**, reflecting deep social and economic barriers.
- **S – Slum Expansion & Urban Vulnerability:** Around **17%** of India’s urban population lives in slums (Census 2011), with recent growth driven by migration and limited affordable housing.
- **U – Unemployment & Informal Work:** Youth unemployment stands at **10.2%** (PLFS 2023–24), rising to **29%** for graduates and over **80%** of the workforce remains in informal jobs without social security.
- **R – Regional Disparities:** States like Bihar continue to show over **25%** poverty, while Kerala reports zero extreme poverty, mirroring uneven development across India.

- **E – Environmental & Climate Stress:** About 51% of Indian children face the double burden of poverty and climate vulnerability; disasters like Cyclone Amphan displaced 2.4 million people in 2020 alone.

Measures Taken to Reduce Poverty in India

To ease the **PRESSURE** of persistent poverty, India needs to strengthen a **PROSPER** strategy that expands opportunities, strengthens safety nets, and drives inclusive, resilient growth.

- **P – Strengthen Public Services:** Expand access to quality health, nutrition, and education through **Ayushman Bharat**, and **POSHAN Abhiyan**, and **Samagra Shiksha** to build long-term human capital and resilience.
- **R – Diversify Rural Livelihoods:** Reduce overdependence on low-productivity agriculture by scaling **PM-KUSUM**, **Dairy/Fisheries Missions**, and **MGNREGA** asset creation to boost non-farm rural incomes.
- **O – Opportunities for Skilling and Jobs:** Address youth unemployment by upgrading **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)**, and promoting labour-intensive sectors under **Make in India**.
- **S – Strengthen Social Safety Nets:** Reinforce food security, housing, and direct support through **One Nation One Ration Card**, **Pradhan Mantri Awas Yojana – Urban (PMAY-U) 2.0**, and **Direct Benefit Transfer (DBT)** systems to protect vulnerable households from economic shocks.
- **P – Enhance Inclusion of Women & Marginalised Groups:** Deepen economic participation through **DAY-NRLM SHGs**, and targeted interventions in Aspirational Districts.
- **E – Build Climate-Resilient Systems:** Safeguard rural livelihoods through water conservation missions, and climate-adaptive practices under **Mission LiFE**.
- **R – Reduce Regional Disparities:** Focus on lagging states and tribal areas through **PM-Janman**, and the **Aspirational Blocks Programme** to ensure balanced development.

Poverty in India is now concentrated in tribal and lagging regions. Discuss and suggest policy measures.

Drishti Mains Question

PC&PNDT Act in the Digital Age

The fight against **sex-selective** abortion in India has moved **online**, where **influencers** and **self-styled doctors** circumvent the **Pre-Conception and Pre-Natal Diagnostic Techniques (Prohibition of Sex Selection) Act, 1994 (PC&PNDT Act)** by promoting **unscientific gender-prediction myths** to vast audiences.

- The internalised **bias for sons** has renewed focus on **gender bias**, **digital regulation**, and **reproductive rights**.

Pre-Conception and Pre-Natal Diagnostic Techniques (Prohibition of Sex Selection) Act, 1994 (PC&PNDT Act)

- **About:** It was enacted in 1994 to address the issue of **female foeticide** and the declining **child sex ratio** resulting from the misuse of **diagnostic technologies** for sex selection. (India's sex ratio as per 1991 Population Census - 929 females per 1,000 males).
 - The Act was significantly **amended in 2003** to strengthen its provisions, explicitly include **pre-conception techniques**, and **prohibit sex selection** more comprehensively.
- **Key Provisions:**
 - **Prohibition of Sex Selection:** Bans any **procedure, technique, or test** like ultrasound aimed at determining or selecting the sex of a foetus (Section 3A).
 - **Ultrasound is Allowed for Detecting:**
 - ❖ **Permitted Uses: Genetic Abnormalities:** Detecting genetic abnormalities through prenatal techniques.
 - ❖ **Metabolic Disorders:** Identifying metabolic disorders in the developing fetus.
 - ❖ **Chromosomal Abnormalities:** Screening for chromosomal abnormalities during pregnancy.
 - ❖ **Congenital Malformations:** Detecting congenital malformations using prenatal screening.
 - ❖ **Haemoglobinopathies:** Screening for haemoglobinopathies in the unborn child.
 - ❖ **Sex-linked Disorders:** Identifying sex-linked disorders through prenatal testing.
 - **Regulation of Facilities:**
 - ❖ Genetic counselling centres, laboratories, and clinics must **register under the Act**. **Unregistered facilities** are **prohibited** from conducting such procedures (Section 18).
 - **Advertisement Ban:**
 - ❖ Prohibits advertisements related to pre-conception or pre-natal **sex determination** (Section 22).
 - **Supervisory Bodies:**
 - ❖ Establishes the **Central Supervisory Board**, **State Supervisory Boards**, and **Appropriate Authorities** for implementation and monitoring.
- **2003 Amendment:** Extended coverage to **pre-conception** sex selection techniques.
 - Explicitly included **ultrasound and imaging technologies** within the **regulatory ambit**.
 - Empowered **supervisory boards and authorities** with greater enforcement powers, including **search and seizure**.
- **Offences and Penalties:** Every **offence** under this **Act** shall be **cognizable**, **non-bailable**, and **non-compoundable**.

- **Penalties** include up to **3–5 years imprisonment** and **fines** ranging from **Rs 10,000 to Rs 100,000 or more**, depending on the **offence** and whether it is a **repeat violation**.

Son Meta Preference and Skewed Sex Ratios

- **Son Meta Preference:** It refers to a subtle manifestation of **son preference** in which **parents continue having children** until they achieve their desired number of **sons** (typically at least one).
 - This behaviour follows **fertility-stopping rules**, where **families** are more likely to cease childbearing **once a son is born**, resulting in a **skewed sex ratio of the last child** (higher proportion of **males** as the **final birth**).
 - It led to **21 million "unwanted" girls** who may face resource neglect.
- **The Scale of Missing Women:** Using Amartya Sen's methodology, the estimated stock of **missing women in India** reached nearly **63 million by 2014**, with over **2 million women** going missing annually due to **sex-selective abortion, disease, and neglect**.
 - **Missing females** refers to the **shortfall of women and girls** in a population due to **sex-selective practices, female foeticide, infanticide, or neglect**, resulting in **fewer females than expected**. The term was popularized by economist **Amartya Sen** in 1990.
- **Skewed Sex Ratios Defying Development:** India's Sex Ratio at Birth (SRB) worsened from **1,060 to 1,108 males per 1,000 females** between **1970 and 2014**, moving opposite to **global trends** where **higher income** typically improves the ratio, indicating strong **human intervention** through **sex-selective abortion**.

India's Sex Ratio

- As per **India's 2011 Census**, the overall sex ratio was **943 females per 1,000 males**, up from **933** in 2001.
- According to government **Sample Registration System (SRS) 2023** data, India's sex ratio at birth (females per 1,000 males) improved from **904 in 2019 to 917 in 2023**.
- According to the **National Family Health Survey (NFHS-5, 2019-2021)**, India has **1,020 women per 1,000 men**.
- In 2020, the **UN Population Fund** reported that India accounted for **45.8 million** of the world's **142.6 million "missing females"**.

Reasons for Lax implementation of the PC&PNDT Act, 1994

- **Collusion and No-complainant Dynamics:**
 - **Sex selection** continues due to shared incentives—**families demand** it, and **providers supply** it—making **reporting rare** and enforcement difficult without proactive intelligence and strong enforcement systems.
- **Inadequate Infrastructure:** **District/State Appropriate Authorities** face staff shortages, limited budgets, and inadequate training, reducing **inspections, follow-up, and case-building**.
- **Low Conviction Rates:** **Conviction rates** remain **abysmally low** (e.g., only **617 convictions** in 25 years, as per a

Parliamentary Committee report), with many states registering few or no cases.

- **Digital and Online Challenges:** Conceived long ago, the **Act** is ill-equipped to tackle **modern challenges**, especially the indirect promotion of **son preference** via **social media**, where **influencers, self-styled experts, and religious figures** spread **unscientific claims, rituals, and narratives** to large **online audiences**.
- **Deep-Rooted Societal Demand:** Persistent son preference, driven by **patriarchal norms**, cultural expectations, and economic factors, sustains **demand for sex selection** and encourages illegal circumvention of the law.
- **Professional Misconduct:** **Sex determination** remains a **highly lucrative** illegal business, with practitioners using **coded language, odd-hour scans, and portable machines** to evade detection.

Measures to Strengthen the Implementation of the PC&PNDT Act, 1994

- **Strengthen Institutional Framework:** Appoint dedicated **Appropriate Authorities** (e.g., Civil Surgeons, Medical Superintendents) and **Appellate Authorities** at **state and district levels**, with **clear roles** to ensure **timely registrations, inspections, and appeals**.
- **Leverage Technology:** Mandate **online submission of Form F** (pre-test declarations) for **real-time tracking** and provide anonymous grievance redressal via **helplines** and **dedicated websites** to report **illegal practices**.
- **Addressing the Online Ecosystem:** Legally require **technology platforms** (Google, Meta, Amazon, etc.) to proactively **remove sex-selection content**, while supporting credible health influencers to **counter myths** and promote the **value of girls online**.
- **Legal and Procedural Reforms:** Establish **fast-track courts** for **PC&PNDT cases** to ensure **swift convictions** and deterrence, and expand the Act's **definition of advertisement** to cover all **indirect promotions** and online sex-prediction services.
- **Awareness and Behavioral Change:** Official reviews note that **enforcement alone** cannot stop **sex selection** without addressing **deep-rooted son preference**.
 - They emphasize the need for **sustained awareness, community engagement**, and regulation of **indirect promotion**, especially via **advertisements** and **digital/social media**, where **enforcement strategies** need urgent updating.

Discuss the socio-economic and cultural factors that sustain the demand for sex-selective technologies in India. How can a multi-pronged strategy address these determinants effectively?

Drishti Mains Question

World Inequality Report 2026

The 3rd World Inequality Report 2026 (WIR 2026), released by the World Inequality Lab, highlights unprecedented global inequality across income, wealth, gender, climate responsibility, and territorial divides, calling for urgent policy interventions.

Key Findings of the World Inequality Report 2026

- **Extreme Wealth Concentration:**
 - The top 10% own three-quarters of global wealth, while the bottom half holds only 2%.
 - The wealthiest 0.001% (around 60,000 multi-millionaires) control 3 times more wealth than half of humanity combined. Their share grew from 4% in 1995 to over 6% in 2025.
- **Human Capital Inequality:** Average education spending per child in Sub-Saharan Africa is Euros 220 (PPP), compared to Euros 7,430 in Europe and Euros 9,020 in North America & Oceania — over 40 times lower.
- **Climate Inequality:**
 - The wealthiest 10% account for 77% of global emissions associated with private capital ownership, while the poorest half accounts for only 3%.
 - Those who emit the least (populations in low-income countries) are most exposed to climate shocks, while high emitters have resources to adapt.
- **Gender Inequality:** Women work 53 hours per week on average vs 43 for men (including domestic and care work).

Excluding unpaid work, women earn 61% of men’s hourly income; including unpaid labor, this falls to just 32%.

- **Regional Income Inequality:**
 - Average daily income in North America & Oceania is Euros 125, compared to only Euros 10 in Sub-Saharan Africa — a 13-fold difference. The Top 10%/Bottom 50% income ratio reveals severe inequality within countries.
- **Global Financial System Inequality:**
 - Annually, a net financial transfer equal to 1% of global GDP—3 times total development aid—moves from poorer to wealthier nations due to demand for US and European sovereign bonds.

Findings Related to India

- **Income Inequality:**
 - The top 10% of earners capture a disproportionate 58% of the national income. In contrast, the bottom 50% of the population receives only 15%.
- **Wealth Concentration:** The richest 10% hold around 65% of the nation’s total wealth. The top 1% alone holds about 40% of total wealth.
- **Low Female Labor Force Participation:** The female labor force participation rate is only 15.7%, one of the lowest in the world.
- **Average Prosperity:** The average annual income per capita is approximately Euros 6,200 (PPP), and average wealth is about Euros 28,000 (PPP).

World Inequality Report

- **About:** The World Inequality Report is a major global publication that provides comprehensive data and analysis on the distribution of income and wealth across countries and over time.
 - It is produced by the World Inequality Lab, a research center based at the Paris School of Economics.
- **Key Features of the Report:** It provides a deeper assessment of global income and wealth distribution, moving beyond conventional metrics like GDP.
 - It uses a multidimensional lens, covering gender inequality, climate impact, and access to public services.

Policy Area	Core Objective	Recommendations Made in World Inequality Report 2026
Public Investment in Human Capital	Equalize life chances from the start and build an inclusive society.	Invest in free, high-quality education, universal healthcare, childcare, and nutrition programs.
Redistribution & Social Protection	Shift resources directly to lower-income groups and provide stability.	Implement cash transfers, pensions, and unemployment benefits for vulnerable households.
Advancing Gender Equality	Dismantle structural barriers and redistribute unpaid care work.	Provide affordable childcare, equitable parental leave, and enforce equal pay laws.
Progressive & Green Taxation	Mobilize public resources fairly and align fiscal policy with climate goals.	Enact progressive wealth/income taxes and use taxes/subsidies to promote low-carbon technologies.
Reforming Global Financial System	Correct systemic biases that transfer resources from poor to rich nations.	Explore new global currency arrangements systems to reduce unequal financial flows.

FACTS FOR PRELIMS

REPORTS & INDICES

Annual Survey of Unincorporated Sector Enterprises (ASUSE) 2026

MoSPI released the **Draft Establishment Schedule (ESU)** for **ASUSE 2026** for **public consultation**.

- **About:** Conducted annually by NSO since **2021–22**; covers **unincorporated non-agricultural sector**
- **Comprehensive Data Coverage:** Tracks **employment size, GVA, emoluments, asset ownership, ICT use, loan status**
 - Excludes **agriculture & construction sectors**; covers **manufacturing, trade, services**
- **Policy Targets:** Supports policymaking for **MSME, Textiles, Labour** ministries

Unincorporated Non-Agricultural Sector: Employs a major share of **workforce** (over **90%**) in the informal sector (previous NSSO surveys).

AWARDS & HONOURS

Ponduru Khadi Gets GI Tag

Ponduru Khadi, fabric from **Andhra Pradesh**, granted **GI tag** by Geographical Indications Registry.

- **Ponduru Khadi:** **Handspun, handwoven cotton fabric** from **Ponduru village of Srikakulam**; locally called **Patnulu**
 - Made from **hill, punasa, or red cotton** — all **indigenous to the Sruikakulam region**. **Manual production** preserves traditional skills
- **Unique Features:** **Cotton cleaned using Valuga fish jawbone** — globally unique
 - Ponduru is the only place using **single-spindle Gandhi Charkhas (24 spokes)**; **High yarn count: 100–120** (extremely fine)
- **Historical Significance:** Praised by **Mahatma Gandhi** in *Young India* (journal) for **swadeshi, self-reliance & freedom movement**.

National Energy Conservation Awards 2025

On **National Energy Conservation Day 2025** (14th Dec), the **President** presented the **National Energy Conservation Awards** in **New Delhi**.

National Energy Conservation Awards

- **About:** Initiative by **BEE**, instituted in **1991**, to honour **energy-saving achievements**
- **Sectors Covered:** Industry, commercial buildings, transport, institutions, energy-efficient appliances
- **Objectives:** Recognise efforts, promote **energy-saving tech**, raise **efficiency awareness**, support **climate goals & CO₂ emission**

Bureau of Energy Efficiency (BEE)

- **About:** **Statutory body**, formed on **1st March 2002** under **Energy Conservation Act, 2001**
- **Functions:** Promotes energy efficiency via **Standards and Labeling (S&L) Programme**; **Perform, Achieve & Trade** scheme (now **CCTS, 2023**); **Demand Side Management (DSM)** programmes; **Awareness campaigns**

IMPORTANT DAYS

350th Martyrdom Day of Guru Teg Bahadur

President paid tribute to **Guru Teg Bahadur** on his **350th Martyrdom Day** (24th Nov).

- **9th Sikh Guru**, revered for his **teachings, bravery & martyrdom**; Born on **21st April 1621**, Amritsar; son of **Guru Hargobind & Mata Nanki**; birth name **Tyag Mal**.
- Trained in scriptures by **Bhai Gurdas**, martial arts by **Baba Budha**; Contributed **116 hymns** to **Guru Granth Sahib**; founded **Chak-Nanki** (later **Shri Anandpur Sahib**).
- **Executed in 1675** by **Aurangzeb** in **Delhi** for defending **religious freedom** & his stand against **forced conversions**; Remembered as **“Hind di Chadar” (Shield of India)**.

Lachit Borphukan

On **Lachit Diwas**, the **PM** paid tribute to **Lachit Borphukan**, honouring him as a symbol of **courage, patriotism, and inspiring leadership**.

- **Early Life:** Born on **24th November 1622** in **Charaideo, Assam**. Son of **Momai Tamuli Borbarua**, a military administrator. Trained in **administration, military strategy, and scriptures**, growing up amid the **Mughal–Ahom wars**.
- **Battle of Saraighat (1671):** As **Borphukan** (Commander-in-Chief), he led **Assam's forces** to defeat the **Mughal army**

using guerrilla warfare and naval tactics, preserving Assam's sovereignty.

- **Legacy:** Died in 1672. Lachit Maidan near Jorhat commemorates his legacy. He is a symbol of courage and leadership, with 24th November celebrated as Lachit Divas. The Lachit Borphukan Gold Medal at the NDA honors military leadership excellence.

Constitution Day of India 2025

Constitution Day 2025 was observed on **26th November** with the launch of the **Constitution of India in 9 languages**.

- **Constitution Day:** Commemorates the adoption of the Indian Constitution on **26th November 1949**, marking India's transition to a **sovereign, democratic republic**.
- **Constitution in Force:** Came into effect on **26th January 1950**, aligning with the **Poorna Swaraj resolution** of 1930, celebrated as **Republic Day**.
- **Official Declaration:** Declared in **2015** by the Government of India, coinciding with **Dr. BR Ambedkar's** 125th birth anniversary, previously observed as **Law Day**.

Antarctica Day and 25 Years of NCPOR

India celebrated **Antarctica Day (1st December)** and **25 years of NCPOR**, Goa—its nodal agency for polar and ocean research under **MoES**.

- **Antarctica Day:** It marks the **1959 Antarctica Treaty**, which set aside **~10% of Earth** for **peaceful use and scientific research**, froze territorial claims, banned nuclear activity, and preserved the region **south of 60°S**.
 - India, a **Consultative Party** since **1983**, has **voting rights** and operates research stations, contributing to Antarctica's governance.
- **NCPOR:** NCPOR, established in **1998** under **MoES** and based in **Goa**, is the nodal agency for the **Indian Antarctic Programme**.
 - It maintains **Maitri (1989)** and **Bharati (2011)** stations, and has set up **Dakshin Gangotri, Himadri (Arctic)**, and **Himansh (Himalayas)** and leads **polar and Southern Ocean research**. It will establish **Maitri-II** in East Antarctica. It plays a key role in the **Deep Ocean Mission**.

International Cheetah Day

On **International Cheetah Day (4th Dec)**, PM highlighted India's progress under **Project Cheetah**.

- The day was designated by **Dr. Laurie Marker** (Founder of Cheetah Conservation Fund) in memory of cheetah **Khayam** to promote **global conservation efforts**.

Project Cheetah

- **About:** Launched in 2022 **under Project Tiger** to reintroduce cheetahs, extinct in India since 1952, as the **world's 1st intercontinental wild carnivore translocation**.

- **Objective:** Restore cheetah populations, **revive savanna ecosystems, promote ecotourism**, and livelihoods, reduce human-wildlife conflict.
- **Governance:** Implemented by NTCA, MP Forest Department, and WII, with a **Steering Committee formed in 2023**.
- **Achievements:** Relocated— 8 cheetahs from **Namibia**, 12 from **South Africa** to **Kuno National Park**; **Total Cheetahs in India**— As of Dec 2025, **32** (including **21 born in India**)

World Soil Day

World Soil Day (5th Dec), estd. by **FAO**, highlights soil's role as a life-sustaining resource; **2025 theme**— **Healthy Soils for Healthy Cities**.

- **Importance:** Mitigate **heat islands**, pollution, flooding, food insecurity; act as **filters, carbon sinks, water sponges**
- **Extent of Degradation:** Urban soils face **contamination**, compaction, sealing by concrete; **~1/3 of global soils degraded** (FAO)

- **World Soil Day: Proposed**— 2002 by International Union of Soil Sciences; **FAO Endorsement**— 2013; **First Observed**— 5th Dec 2014 (UNGA designated)
- **2025 Focus:** **Soil restoration** via composting, green infrastructure, soil management, urban agriculture

Mahaparinirvan Diwas

Mahaparinirvan Diwas (6th Dec) marks the **death anniversary of Dr. B.R. Ambedkar (1956)** and is symbolically linked to **Buddha's Mahaparinirvana**.

- **Dr. B.R. Ambedkar:** Born **14 April 1891, Mhow (MP)**; jurist, economist, social reformer, Chief Architect of the Constitution, founder of **Navayana Buddhism**; memorial at **Chaitya Bhoomi, Dadar (Mumbai)**.

Contributions

- **Constitution:** Led Drafting Committee; ensured **Fundamental Rights, federalism, minority safeguards, judicial independence**.
- **Social Reform:** Led **Mahad Satyagraha (1927)**, **Kalaram Temple Satyagraha (1930)**, **Poona Pact (1932)**; represented **Depressed Classes**.
- **Founded:** **Bahishkrit Hitkarini Sabha, Independent Labour Party, Scheduled Castes Federation**.
- **Labour Reforms:** Introduced **8-hour workday, maternity benefits, employment exchanges (1942–46)**.
- **Economic Role:** Shaped **RBI (1934)** and **Finance Commission** model.

Human Rights Day

Human Rights Day is observed every year on **10th Dec** to mark the adoption of the **Universal Declaration of Human Rights (UDHR)** in 1948, reaffirming global commitment to **dignity, equality & freedom**.

- **Human Rights Day:** Established in **1950** via **UNGA Resolution**; **2025 Theme:** “**Everyday Essentials**” – focuses on access to basic services
- **India and Human Rights:** Human rights protection is guided by **Constitution of India & Protection of Human Rights Act, 1993**; **NHRC** estd. under the Act in **1993**
 - **NHRC:** Independent statutory body, set up per **Paris Principles (1991)**; acts as **guardian of human rights** in India.
 - Registered **23.8+ lakh complaints**, recommended **Rs 264+ crore** in relief. Uses **suo motu**, investigations, camp sittings, policy advisories for rights protection.

54th Anniversary of Vijay Diwas

India observed the **54th Vijay Diwas** on **16th Dec** to mark its military victory in the **1971 Indo-Pakistan War**, a 13-day conflict that led to the creation of Bangladesh.

Indo-Pakistan War 1971	
<ul style="list-style-type: none"> ■ Cause & Intervention: Operation Searchlight, launched by the Pakistan Army on 25th March 1971 in East Pakistan to seize major cities, disarm Bengali forces, and target Awami League leaders & supporters. <ul style="list-style-type: none"> ● Led to mass atrocities, hundreds of thousands of deaths, and ~10 million refugees fleeing into India, triggering India's intervention. ■ Decisive Victory & Surrender: Conflict concluded with the surrender of ~93,000 Pakistani soldiers in Dhaka on 16th Dec 1971, among the largest military surrenders since WW II. 	<ul style="list-style-type: none"> ■ Strategic Leadership & Operations: Victory led by Field Marshal Sam Manekshaw; key ops: Operation Trident (naval, against Karachi port) & Battle of Longewala (1971). ■ Outcome & Sacrifice: Resulted in liberation & formation of Bangladesh and boosted India's regional standing. <ul style="list-style-type: none"> ● Shimla Agreement signed on 2nd July 1972 b/w India & Pakistan to end conflict & confrontation. ■ Significance: Vijay Diwas honors Indian Armed Forces and Mukti Bahini (Bengali guerrilla resistance movement), symbolizing bravery, unity, and the cost of freedom.

Genocide Convention, 1948

The **Convention on the Prevention and Punishment of the Crime of Genocide (Genocide Convention)**, adopted by the **UNGA** on **9th Dec 1948**, was the first global treaty to **criminalise genocide** under international law.

- **In force:** **12th Jan 1951**; **Legally binding** on ratifying states
- **Definition (Art. II):** Acts committed to destroy national, ethnic, racial, or religious group; applies in **peace or war**
- **Ratified by:** **153 States**; **India:** Signed 1949, ratified 1959, **no domestic law enacted**

- **State obligations:** Prevent, punish genocide; enact laws; prosecute perpetrators
- **Jurisdiction:** **ICJ** handles disputes on interpretation/application
- **Global impact:** Influenced national laws & International treaties (**Article 6 of Rome Statute ICC**)

Goa Liberation Day

The Union Home Minister wished on **Goa Liberation Day (19th Dec)** and paid tribute to key figures like **Prabhakar Vaidya**, **Bala Raya Mapari**, **Nanaji Deshmukh** & **Jagannath Rao Joshi** from the Goa liberation movement.

Goa Liberation Movement

- **Portuguese Rule (1510–1961):** Goa was a **Portuguese colony** for **451 years**, starting in 1510.
- **Early Nationalism:** Anti-colonial sentiment grew with India's independence movement, marked by the founding of **Goa National Congress (1928)** by **Tristão de Bragança Cunha** at the **Calcutta session** of **INC (1928)**.
- **Strategic Dichotomy:** The movement was split b/w non-violent resistance (**Satyagraha**) and armed struggle by groups like **Azad Gomantak Dal (AGD)**.
 - **1946 Rally:** **Ram Manohar Lohia** led a historic Goa rally advocating civil liberties & integration with India.
- **Goa Integration with India:** After independence, India hesitated due to a desire for peace & **Portugal's NATO membership**, but launched **Operation Vijay** in **1961**, annexing Goa, Daman, and Diu on **19th Dec** and ending Portuguese rule.
 - **1974 Treaty:** India & Portugal signed a treaty recognizing **India's sovereignty over Goa, Daman & Diu, Dadra & Nagar Haveli** & re-established diplomatic relations.
- **Goa Statehood:** Following its **annexation**, Goa (**full statehood** on **30th May, 1987**; **25th Indian state**), Daman, and Diu became **UTs**.

DEFENCE & SECURITY

Operation Pawan

Chief of the Army Staff (COAS) paid homage to soldiers who laid down their lives during **Operation Pawan** at the **National War Memorial**.

- **Operation Pawan:** A peacekeeping mission by the Indian Peace Keeping Force (IPKF) in Sri Lanka, under the 1987 Indo-Sri Lanka Accord, aimed at addressing the Sri Lankan Civil War.
- **Objective:** To curb the conflict between the Sinhalese-majority government and the LTTE by removing LTTE control over the Jaffna Peninsula and enforcing disarmament.

- **Timeline:** The operation ran from December 1987 to March 1990, preventing LTTE from retaking Jaffna. It marked India's first major post-Independence international peacekeeping deployment.

SURYAKIRAN XIX – 2025

The 19th edition of the **India–Nepal joint military exercise, SURYAKIRAN XIX – 2025**, was held at Pithoragarh, Uttarakhand.

- **SURYAKIRAN Exercise (since 2011):** Focuses on Sub-Conventional Operations under UN Chapter VII, vital for peacekeeping and conflict management.
- **India-Nepal Defence Relations:**
 - **Treaty of Sugauli (1816):** Ended the Anglo-Nepalese War, allowing Nepali recruitment into the British Indian Army.
 - **Treaty of Peace and Friendship (1950):** Granted national treatment to citizens for economic participation, property, trade, residence, and movement.

HAMMER Precision-Guided Weapon

India and France have signed an agreement to produce the **Highly Agile Modular Munition Extended Range (HAMMER)** system in India.

- **HAMMER:** Developed by French Safran Electronics & Defence, it converts unguided bombs into precision-strike weapons.
- **Key Features:** Stand-off range up to 70 km, allowing attacks from outside hostile air defence zones.
 - High accuracy in GPS-denied or electronic warfare conditions.
 - Effective against stationary and moving targets.
- **Operational Use:** Used by India in Operation Sindoor, compatible with Rafale and Tejas aircraft.
- **Importance for India:** Enhances precision strike and deep offensive capabilities, enabling stand-off strikes without aircraft exposure. Indigenisation is expected to rise to 60%, strengthening India-France defence ties.

3rd India-Indonesia Defence Ministers' Dialogue

India co-chaired the **3rd India-Indonesia Defence Ministers' Dialogue** in New Delhi.

Key Outcomes

- **Indo-Pacific Cooperation:** Reaffirmed commitment to free, open Indo-Pacific.
 - Alignment between **ASEAN Outlook** and **India's Indo-Pacific Oceans Initiative**.
 - Agreed to deepen cooperation in **maritime awareness, cyber resilience**, and via **IORA**.

- **Defence Industry Collaboration:** Joint Defence Industry Cooperation Committee, focus on **tech transfer, joint R&D, certification harmonisation**.
- **Military-to-Military Engagements:** **Super Garuda Shield, Ex Garuda Shakti, Ex Samudra Shakti, MILAN, Air Manoeuvre Exercises**.

India-Indonesia Strategic Ties

- **Geo-strategic Importance:** Indonesia controls **Malacca, Sunda & Lombok Straits** – vital for **maritime security** and **trade flow**.
- **Economic Ties:** Bilateral trade at **USD 38.8 billion (2022–23)**. Potential deal: **USD 450 million BrahMos missile**.

MH60R Helicopter

India has signed **Letters of Offer & Acceptance worth Rs. 7,995 cr** with US for **5-year sustainment support** of the Indian Navy's MH60R helicopters.

- Sustainment includes spares, product support, training, technical assistance, repair, replenishment, and **intermediate-level maintenance facilities** in India.
- India signed a deal in 2020 to **procure 24 MH-60R Seahawk helicopters from US**; the Navy commissioned its **1st MH60R squadron in 2024** at **INS Garuda, Kochi**.

The MH60R Seahawk, a maritime version of the Blackhawk, is an all-weather, multirole helicopter with key anti-submarine warfare capability.

Taragiri

The Indian Navy received **Taragiri (Yard 12653)**, the **4th Nilgiri-class (Project 17A) frigate** and the **3rd P17A ship** built by **Mazagon Dock Shipbuilders Ltd (MDL)**.

- **Taragiri:** Carries forward legacy of former **INS Taragiri** (Leander-class frigate, **1980–2013**). **Designed by–** Warship Design Bureau (WDB); **Built using–** integrated Construction approach.
- Earlier **P-17A ships received–** **INS Nilgiri, INS Udaygiri, INS Himgiri**.

Project 17A

- **About:** **7 Nilgiri-class stealth frigates**, upgraded from **Shivalik-class**; **Indigenous content: ~75%**
- **Builders:** **MDL–** Nilgiri, Udaygiri, Taragiri, Mahendragiri; **GRSE–** Himgiri, Dunagiri, Vindhyagiri; **Construction:** **Integrated construction method** (pre-outfitting reduces build time)
- **Roles:** Blue-water missions; **anti-surface, anti-air, anti-submarine warfare**
- **Propulsion:** **CODOG** (diesel engines + gas turbines, each with **Controllable Pitch Propeller**); also features **Integrated Platform Management System (IPMS)**

- **Carry**— LRSAM, BrahMos, Barak-8, Anti-Sub Torpedo, IRL;
- **Sensors**— Multi-mission radar, Shakti EW Suite, AEW radar, surface-surveillance radar, Humsa-NG sonar

Exercise Ekuverin

The 14th edition of India–Maldives Joint Military Exercise **EKUVERIN (friends in Dhivehi)** began in **Thiruvananthapuram, Kerala**.

- Held **alternately in India & Maldives** since **2009**. Enhances **interoperability** and ensures **Indian Ocean security & stability**.

India-Maldives Defence Relations

- Key exercises— **Ekuverin, Ekatha & Dosti** (India-Sri Lanka-Maldives).
- India is Maldives' **key defence partner & first responder** (e.g., **Operation Cactus 1988**, post-2004 tsunami assistance).
- Guided by **Neighbourhood First & SAGAR vision**. **Annual Defence Cooperation Dialogue (DCD)**, since **2016**, is the main review platform

Exercise Harimau Shakti 2025

India- Malaysia bilateral military Exercise **Harimau Shakti 2025** began in **Rajasthan** to boost **interoperability** in **counter-terrorism & peacekeeping**. Participants— **Indian Dogra Regiment & Malaysia's 25th Battalion Royal Malaysian Army**.



- **Background:** Started in **2012** under **Act East Policy**.
- **Objective:** Joint **Sub-Conventional Operations** under **UN Chapter VII mandate** (authorizes **military/non-military** actions for **peace enforcement**).
- **Other Military Exercises b/w India & Malaysia:** **Samudra Laksamana** (bilateral maritime exercise), and **Udara Shakti** (bilateral air force exercise).

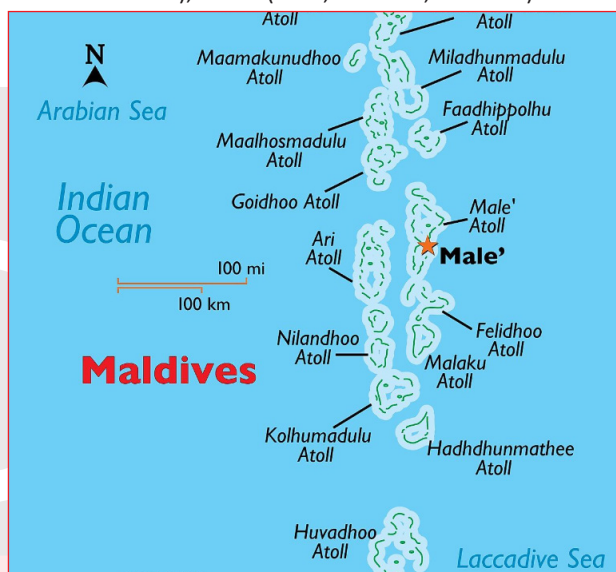
Exercise Ekatha 2025

India's Deputy Chief of the Naval Staff (DCNS) visited **Maldives** for the closing ceremony of the **8th edition of Exercise Ekatha 2025**.

- **Exercise Ekatha: Started**— 2017; annual **India–Maldives maritime military exercise**
- **Significance:** Aligned with **MAHASAGAR** and **Neighbourhood First policy**

Maldives

- **About:** Capital— **Male**, an archipelagic nation in the Indian Ocean; ~1,200 coral islands in **26 natural atolls**; **7th-largest coral reef system**, **5th most diverse reef ecosystem**
 - **Eight Degree Channel** separates **Minicoy Island of India (Lakshadweep)** from the **Maldives**
- **Topography:** **Flattest country in the world**, avg. **1.5 m** above sea level
- **Military Exercises:** **EKUVERIN** (bilateral); **MILAN** (multilateral naval exercise); **DOSTI** (India, Sri Lanka, Maldives)



AH-64E Apache Induction

Strengthens India-US Defence Cooperation

The Indian Army has received the final **3 AH-64E Apache attack helicopters**, completing its 6-helicopter fleet under the 451 Army Aviation Squadron, Jodhpur. This marks full operationalisation of its **first dedicated Apache squadron**, procured under a **\$600 million deal with the US in Feb 2020**.

- **AH-64E Apache: Among the Advanced multi-role attack helicopter** globally with cutting-edge avionics, sensor suites, and precision-guided weapons & and robust network-centric warfare capabilities
 - Capable of **day/night, all-weather operations** across **deserts to high-altitude terrains**. Enhances **precision strike, anti-armour warfare, and close air support capabilities**
 - Deployed along **western front (Pakistan)** to reinforce **deterrence posture in highlt-conflict-prone zone**

Diving Support Craft A20

The Indian Navy commissioned its **first indigenous Diving Support Craft, DSC A20**, at **Naval Base Kochi**, boosting **underwater operational capabilities**.

- **Diving Support Craft (DSC):** Specialised vessel for **underwater diving operations** in **coastal & harbour areas**.
- **Primary Role:** Equipped for underwater repairs, harbour clearance, inspections & coastal diving operations.
- **Technical Features:** Built as per **Indian Register of Shipping (IRS) classification** rules. **Catamaran-hull ship**, displacement of **~390-tonnes**, optimized for **stability**.
- **Recent Inductions:** INS Nistar, INSV Kaundinya, Frigate Himgiri, INS Surat, INS Udaygiri.

ICG Ship Sarthak at Chabahar Port

ICG offshore patrol vessel **ICGS Sarthak** made its **1st-ever port call** at **Iran's Chabahar Port** to strengthen **maritime security & regional cooperation**.

Chabahar Port

- **About:** A **deep-water port** in **Sistan-Baluchistan, Iran**, on the **Makran coast** near the **Gulf of Oman**, outside the **Strait of Hormuz**.
 - Iran's only **deep-sea port** with **direct open-ocean access**, providing **India** secure & direct maritime gateway to Iran, Afghanistan and Central Asia.
 - Two main terminals—**Shahid Beheshti & Shahid Kalantari**—with India actively involved in developing the **Shahid Beheshti Terminal**.
- **Development:** Under the **2016 Chabahar Agreement** b/w **India, Iran, & Afghanistan** & part of **International North-South Transport Corridor (INSTC)**.
- **Management:** Since Dec 2018, India Ports Global Limited (IPGL) operates Chabahar Port via its subsidiary **India Ports Global Chabahar Free Zone (IPGCFZ)**.

SUMMITS & CONFERENCES

Asian and Pacific Centre for Development of Disaster Information Management (APDIM)

10th Session of APDIM was held at **Vigyan Bhawan, New Delhi**, highlighting **India's leadership** in disaster preparedness & resilience in the **Asia-Pacific region**.

- India reaffirmed cooperation with **APDIM, UN ESCAP**, and regional partners on **disaster & climate risk reduction**.
 - Under India's leadership—focus on **capacity building, early warning systems, geospatial tools, and climate-resilient planning**, aligned with **PM's Ten Point Agenda on Disaster Risk Reduction**.
 - Reviewed progress & initiated **APDIM's 2026 Action Plan** and **2026–30 roadmap** in line with global disaster frameworks.

- Supports **Sendai Framework (2015–30) & 2030 Agenda for Sustainable Development**.

APDIM

- **Regional institution** of **UN ESCAP**, headquartered in **Tehran, Iran**.
- Vision—Use **disaster risk information** to support **sustainable development** in **Asia-Pacific**; Acts as a regional **knowledge hub** for disaster data, transboundary hazard cooperation, and info systems.
- **2021–30 strategy**—improve **risk info systems, data usage capacity & promote regional collaboration**.

Sujalam Bharat Summit 2025

Ministry of Jal Shakti to **host Vision for Sujalam Bharat Summit 2025 in New Delhi** to build a unified & practical water security framework.

- **Origin:** Conceived under the PM's vision to **bring together Central, State & junior officials** through Summits.
- **Objective:** Accelerate water sustainability via evidence-based policy, sectoral reforms, and **cooperative federalism**.
- **Scope:** River & spring rejuvenation; Greywater reuse; Tech-driven water management; Water conservation; Sustainable drinking water and Community engagement.

EARTH Summit 2025

Union Cooperation Minister inaugurated **EARTH Summit 2025** and launched **13+ digital services** under **Sahakar Sarathi**, including **Digi KCC, Cooperative Governance Index**, and the **World's Largest Grain Storage Application**.

- **EARTH Summit** series aims to develop a **national rural development policy**, integrating lessons from **Hyderabad, Gandhinagar, and Delhi** editions.
 - Jointly organized by **NABARD** and **IAMAI**, it promotes **Gandhian Gram Swaraj** as the core of India's development.
 - Focus on **strengthening cooperatives** in **agriculture, dairy, animal husbandry, and fisheries** to drive inclusive rural growth.
- **Sahakar Sarathi** is a **NABARD-developed digital initiative** under the **Ministry of Cooperation** to modernize cooperative banking.
 - Brings all **district, central, state, agricultural, and urban cooperative banks** onto a **single tech platform**.
 - Reduces tech costs for small cooperatives and enables **e-KCC holders** to access **digital banking on par with global credit cards**.

India–Italy Business Forum 2025

India–Italy Business Forum 2025 in **Mumbai** boosted **trade, innovation, supply chain resilience, and tech collaboration** under the **Strategic Partnership**.

- **Outcomes of the India–Italy Business Forum 2025:** Signing of the Agreed Minutes of the **22nd India–Italy Joint Commission for Economic Cooperation (JCEC)**, outlining a structured roadmap for bilateral cooperation.
- **Italy–India Joint Strategic Action Plan 2025–29** (Announced in 2024): Targets collaboration in **AI, cybersecurity, renewables, telecom, biotechnology, and mobility**.

India - Italy Economic Relations

- **4th largest EU trading partner; bilateral trade:** USD 13.76 bn (2024–25); **India's exports:** USD 7.73 bn
- **FDI inflows (2000–2025):** USD 3.61 bn; **rank: 19th**; key sectors: **automobiles, trading, machinery, services, electrical equipment**

DGLL Hosts 3rd IALA Council Meeting

Directorate General of Lighthouses and Lightships (DGLL) hosted the **3rd International Organization for Marine Aids to Navigation (IALA) Council Meeting** in Mumbai, underscoring its role in global maritime standards & navigation safety.

- **Outcomes of the Meeting:** India launched a **Digital Ticketing Portal** for **75 lighthouse tourism sites** to improve access, transparency & visitor convenience.

IALA	<ul style="list-style-type: none"> ■ Established: 1957; became Intergovernmental Organization in 2024; Motto: "Successful voyages, Sustainable Planet"; HQ: Saint-Germain-en-Laye, France ■ Focus: Harmonise marine aids to navigation, enhance maritime safety, protect marine environment ■ Members: ~200; IALA Council is the main decision-making body ■ India's Role: India has been a member since 1957, represented by DGLL, a Council Member since 1982, and will host IALA Conference in 2027.
DGLL	<ul style="list-style-type: none"> ■ Under Ministry of Ports, Shipping & Waterways; governed by Marine Aids to Navigation Act, 2021; manages marine navigation aids along 11,098 km coastline ■ HQ: Noida; 9 regional directorates; designated authority for Aids to Navigation & Vessel Traffic Services (VTS) training ■ As a member, India fulfils Safety of Life at Sea (SOLAS), 1974 Convention obligations ■ Manages lighthouses, Racons, Navtex, buoys, VTS; promotes lighthouse tourism and is developing the world's tallest Lighthouse Museum at Lothal, Gujarat.

PLACES IN NEWS

Mekedatu Dam

Karnataka will submit a revised report for the Mekedatu dam across the Cauvery river, following Tamil Nadu's concerns over water disputes, excessive storage, and irregular water release.

Mekedatu Dam

- **About:** Proposed reservoir near Kanakapura, Karnataka (confluence of the Cauvery and Arkavathi rivers) to provide drinking water to Bengaluru and generate 400 MW of hydroelectric power.
- **Controversy:** Tamil Nadu opposes the project, fearing reduced downstream water flow, amid the ongoing Cauvery water sharing dispute.

Cauvery River Water Dispute

- **About the Dispute:** Involves Karnataka, Tamil Nadu, Kerala, and Puducherry. The Cauvery river originates in Karnataka and flows through Tamil Nadu, with tributaries from Kerala.
- **Resolution Mechanism:** The Cauvery Water Disputes Tribunal (CWDT), set up in 1990, issued its final order in 2007, detailing water-sharing. The SC's 2018 verdict upheld the CWDT's award, declaring the river a national asset and establishing the Cauvery Water Management Authority for implementation.

Water is a State subject under Entry 17 of the State List, but the regulation and development of inter-state rivers come under Entry 56 of the Union List.

Punjab Declares Three Historic Sikh Sites as Holy Cities

Punjab has declared **Amritsar Walled City, Anandpur Sahib, and Talwandi Sabo as holy cities**, a decision aligned with the **350th martyrdom anniversary of Guru Tegh Bahadur**.

- The decision bans the sale and consumption of liquor, meat, tobacco, and intoxicants in the holy areas, which house three of the five Takhts.
- **Takhts (Throne):** It is a seat of **temporal authority for Sikhs**. There are five Sikh Takhts, three in Punjab and one each in Maharashtra and Bihar.
 - **Akal Takht in Amritsar, Punjab:** Established in **1606 by Guru Hargobind**, is the highest seat of Sikh authority and represents the union of **miri (temporal power)** and **piri (spiritual authority)**.
 - **Takht Sri Keshgarh Sahib (Anandpur Sahib, Punjab):** Site where the **Khalsa was created in 1699**.
 - **Takht Sri Damdama Sahib (Talwandi Sabo, Punjab):** Where **Guru Gobind Singh finalised Sikh scripture**.
 - **Takht Sri Harimandir Ji Patna Sahib (Patna, Bihar):** Birthplace of **Guru Gobind Singh**.
 - **Takht Sachkhand Sri Hazoor Sahib (Nanded, Maharashtra):** Site of **Guru Gobind Singh final days and cremation in 1708**.

Hayli Gubbi Volcano

Ethiopia's dormant Hayli Gubbi volcano erupted after **12,000 years**, sending a massive ash cloud across the Red Sea and South Asia, reaching India and causing flight diversions.

- **Type & Location:** A shield volcano in Afar, Ethiopia, part of the Erta Ale Range at the East African Rift, where the African and Arabian plates diverge.
- **Characteristics:** Broad, gently sloping with less explosive eruptions; formed by thin, fluid lava flows. Composed mainly of dark basaltic lavas, with some silica-rich rocks.
- **Cause of Eruption:** Tectonic divergence at the East African Rift causes mantle rock to rise, partially melt, and feed magma chambers, which can accumulate pressure and trigger eruptions.



Operation Sagar Bandhu

India has initiated Operation Sagar Bandhu to deliver humanitarian assistance to Sri Lanka after Cyclone Ditwah caused severe floods & landslides.

- Cyclone Ditwah (tropical storm) formed over the southwest Bay of Bengal; name contributed by Yemen, following the regional naming system for North Indian Ocean Cyclones.
- **Operation Sagar Bandhu:** India sent relief via INS Vikrant, INS Udaigiri & IAF C-130J.
 - India has consistently acted as first responder in the Indian Ocean Region, including MV XPress Pearl ship-fire disaster (2021) & Cyclone Roanu (2016).

India is a global first responder in HADR, with missions like Operation Maitri (Nepal), Samudra Maitri (Indonesia), and Dost (Türkiye & Syria). It conducts HADR exercises like PANEX-21 (BIMSTEC) & Samanvay-22 (ASEAN).

Italy Recognises Femicide as a Crime

Italy criminalises femicide, making life imprisonment mandatory for gender-motivated killing of women.

- **Femicide** refers to killing women because of their gender; UN categorizes it as killings by intimate partners, family members, or other perpetrators.
- Italy joins countries like Mexico, Cyprus, Morocco, North Macedonia, Türkiye, Gabon, and Chile with dedicated femicide laws.
 - India has no separate femicide category but uses laws such as: Protection of Women from Domestic Violence Act, 2005; Dowry Prohibition Act, 1961; National Commission for Women Act, 1990; Prohibition of Child Marriage Act, 2006

25 November: International Day for the Elimination of Violence Against Women (UNGA-designated, 1999).

Durand Line

Border tensions resurfaced after Taliban accused Pakistan of air strikes near the Durand Line.

- **Origin (1893):** Drawn by Sir Henry Mortimer Durand (British India) and Emir Abdur Rahman Khan (Afghanistan).
- **Length & Span:** 2,600 km from Iran to China, crossing the Karakoram & Registan desert.



- **Anglo-Afghan Wars Background:**
 - British invaded Afghanistan in 1839 (1st war – failed).
 - 1878: 2nd war – British victory; Treaty of Gandamak (1879) gave Britain control of Afghan foreign policy.

- Durand Line created in 1893—split Pashtun areas, put Balochistan under British India, carved out the Wakhan Corridor.
- **1919:** 3rd war ended with **Treaty of Rawalpindi**, restoring Afghan foreign policy and reaffirming the line.
- **After 1947:** Pakistan inherited the border; Afghanistan refused recognition, calling it colonial.
- **Pashtunistan Factor:** Pashtun tribes sought a separate homeland, worsening tensions.
- **Taliban Stand:** Continues to reject the Durand Line and claims Pashtun regions across the border.

Shyok Tunnel

India's Defence Minister inaugurated **125 BRO** infrastructure projects, including **Shyok Tunnel** in eastern Ladakh.

Shyok Tunnel

- **Type & Location:** **920m cut-and-cover tunnel** on **DS-DBO Road**, eastern **Ladakh**, at **12,000+ ft altitude**, near **LAC with China**.
- **Purpose:** Ensures **all-weather connectivity**, bypassing areas prone to **snowfall, avalanches, landslides**.
- **Strategic Significance:** Vital for access to **DBO** (India's northernmost post) and **Siachen route**. Ensures **uninterrupted supply** to forward troops.
 - Crucial post-**2020 Galwan clashes** and ongoing standoff with **China**.

Preah Vihear Temple

Thailand launched airstrikes on Cambodia and reignited long-standing conflict centred on the historic **Preah Vihear Temple**.

- **Preah Vihear Temple:**
 - **Location:** **Shrine of Lord Shiva** in **Cambodia**, near the **Thailand border** (Dangrek Mountains).
 - **Built:** 11th century by **Khmer kings Suryavarman I & II**; **UNESCO World Heritage Site**.
- **Border Dispute:** **1904 Franco-Siamese Treaty** (placed area in **Thailand**), **1907 French Map** (showed temple in **Cambodia**), **1962 and 2013 ICJ Ruling** – Temple **belongs to Cambodia** – **Thailand rejects ICJ jurisdiction**.
 - **2008:** Tensions rose after Cambodia sought **UNESCO status**.

Benin

Benin saw a **failed coup** by soldiers of the **Military Committee for Refoundation (CMR)** who briefly claimed to oust **President Patrice Talon from office**, amid a wave of military takeovers in **West Africa** (Niger, Burkina Faso, Mali, Guinea, Guinea-Bissau).



- **Benin and its Borders:** Togo (W), Nigeria (E), Burkina Faso (NW), Niger (N)
- **Coastline:** Along the **Bight of Benin**, part of the **Gulf of Guinea** in the **Atlantic Ocean**
- **River:** **Niger River** (northern boundary)
- **Mountains:** Dominated by **Atakora Mountains** (NW), continuation of **Togo Mountains**
- **Political Structure:** **Presidential Republic**, multi-party democracy

Nahargarh Biological Park

A **bus caught fire** during a **lion safari** at **Nahargarh Biological Park** (part of **Nahargarh Wildlife Sanctuary**), **Jaipur**, raising concerns over **safety, vehicle maintenance**, and **environmental protection** in **ecotourism zones**.

- **Nahargarh Biological Park:** Located **~12 km from Jaipur** and is nestled in the **Aravalli range**. Home to **285+ bird species**; key species—**white-naped tit** (exclusive to region); **Ram Sagar Lake** is a key spot for **ornithologists & bird watchers**

Nahargarh Wildlife Sanctuary (WLS)

- Located in **Aravalli range**, named after 18th century **Nahargarh Fort** built by **Maharaja Sawai Jai Singh II**. Includes **Nahargarh Biological Park**, known for **lion safaris**
- **Flora**— Dry deciduous forests, scrublands, grasslands; **Fauna**— Asiatic lions, Royal Bengal tigers, crocodiles, sloth bears, Himalayan black bears, wild boars

Aravalli Range: One of the **oldest mountain systems**, stretches **800+ km** (Gujarat to Delhi through Rajasthan & Haryana); highest peak— **Guru Shikhar**, **Mount Abu**; gives rise to **Banas, Sahibi, Luni rivers**. Natural barrier to **western desert**.

Pamir-Karakoram Anomaly

Scientists are analyzing deep ice cores from the **Kon-Chukurbashi ice cap in Tajikistan** to **scientifically explain the Pamir–Karakoram anomaly**, where glaciers have remained stable or grown despite global warming.

- **Pamir–Karakoram Anomaly:** Glaciers in the Karakoram and parts of the Pamir ranges have remained stable or grown since the late 1900s, unlike glaciers in the **Himalayas, Alps, Andes & Rocky Mountains**
- **Geographic Scope:** Mainly the Karakoram Range (esp. **Gilgit-Baltistan, parts of Ladakh**), extending into the western Pamir Mountains (Tajikistan, Afghanistan).
- **Recent Findings:** Satellite altimetry (**ICESat-2**) & gravity data (**GRACE**) show the anomaly has weakened, though field-based **ice-core evidence** analysis continues.
- **Significance for India:** Karakoram glaciers feed the Indus River & its tributaries, ensuring more reliable river flows into Ladakh and J&K.
- **Proposed Causes:**
 - **Increased winter precipitation:** Heavier snowfall replenishes glaciers, offsetting summer melt.
 - **High, steep topography:** Mountains shade ice & provide **high-altitude** accumulation zones.
 - **Climate patterns:** Moisture from Western Disturbances (not the Indian Monsoon) dominates.
 - **Summer cloud cover:** Reduces solar radiation & melting.
 - **Protective debris cover:** Insulates lower glacier ice from melt.

Karakoram Ranges
■ About: The Karakoram Range is central to Asia , part of a mountain system with the Hindu Kush (W), Pamirs (NW), Kunlun (NE), and Himalayas (SE).
■ Geographic Spread: Extends across Afghanistan, China, India, Pakistan & Tajikistan.
■ Highest Peak: K2 (8,611 meters, known as Mount Godwin-Austen), the 2nd-highest mountain on Earth after Mount Everest (8,849 meters) .

Nathula Pass

A Sikkim MP has urged the Centre to **resume border trade through Nathula Pass**, citing severe livelihood impacts from its **suspension since 2020**.

- **Nathu La:** A high-altitude Himalayan pass at **4,302 meters on the India–China border** in East Sikkim; strategic border trade point & one of the highest motorable roads. **One of the two ancient passes connecting Sikkim & Tibet**, the other being **Jelep La**
- **Historical Link:** Part of an **ancient Silk Road offshoot**, facilitating trans-Himalayan trade.
- **Cultural Link:** The **Mansarovar route via Nathu La** is fully motorable, with only 35–40 km requiring trekking for Mount Kailash parikrama.

- **Trade Post Status:** Closed after the **1962 Sino-Indian War**, reopened in 2006, but disrupted again in 2020 due to the Covid-19 pandemic.

Passes located in Sikkim – **Jelep La Pass, Donkia Pass, Chiabhanjang Pass.**

Adichanallur

The Madras HC barred all sand mining in & around **Adichanallur, a major Iron Age–Megalithic urn burial site on the Thamirabarani river** in Thoothukudi district, Tamil Nadu.

- **Material Culture:** Identified in **1876 by F. Jagor & later excavated by ASI**, yielding urn burials with pottery, iron tools, bronze vessels, gold ornaments, beads & skeletal remains.
- **Cultural Significance:** Closely **matches Sangam literature descriptions** of urn burials (*tali*), grave goods and Iron Age funerary customs.
- **Urn Burial System:** Dead placed in large urns (funerary pots) and buried in cut pits with grave goods.

PORTALS & APPS

Sanchar Saathi App

DoT’s directive mandating **Sanchar Saathi app** pre-installation on all new phones has raised concerns over **user consent, privacy, and constitutional validity**.

- **About:** A citizen-centric platform launched by **DoT in Jan 2025** to boost **mobile security**.
- **Features:** Track, block, trace **lost/stolen phones** via **IMEI services**. Verify **mobile connections in their name**, report **forged KYC entries**.
 - **Chakshu feature**– Report **fraud calls, SMS, WhatsApp messages, digital arrest scams**. Verifies mobile handset **authenticity**, blocks **counterfeit devices**. Allows reporting of **international spoofed calls (+91 disguise)**.
- **Impact:** Blocked **42 lakh+** stolen/lost devices, traced **26 lakh**, returned **7.23 lakh**.
- **Privacy & User Control:** App is **voluntary**, works with **user consent**, can be **activated/deleted anytime**. Follows **IT Act 2000, DPDP Act 2023**; collects **minimal data**, shared only **legally**. Promotes **Jan Bhagidari** via user reporting/verification.
- **Concerns:** Tied to **KS Puttaswamy (2017)** ruling—upheld the **right to privacy** & laid down the **three-fold test** (legality, necessity, and proportionality)
 - Experts caution on **passive surveillance, function creep**, and weakened **informed consent** due to **default pre-installation**.

Sujalam Bharat App

The Ministry of Jal Shakti **launched the Sujalam Bharat App under Jal Jeevan Mission** for efficient management of rural drinking water supply systems.

- **Objective:** Create a **unified digital identity (Sujal Gaon ID)** for rural water schemes, enabling real-time monitoring & management of infra from source to household under JJM; the app aims to be the **“Aadhaar for rural water systems”**.
- **Technological Backbone:** Developed with **Bhaskaracharya National Institute for Space Applications and Geoinformatics (BISAG-N)** support, integrated with PM Gati Shakti GIS for geospatial mapping, asset inventory, water quality & feedback.
- **Governance Transformation:** Empowers citizens & Gram Panchayats with information, promoting community ownership and accountability.

UMEED Portal

The Ministry of Minority Affairs launched the **Unified Waqf Management, Empowerment, Efficiency and Development (UMEED) Portal** on 6th June, 2025, to upload authenticated data of existing Waqf properties. The **six-month upload window ended on 6th Dec, 2025**.

- **UMEED Portal:** A centralized digital platform for **registering & regulating Waqf properties** across India.
- **Features:** Properties include **precise measurements & geolocation data** during registration; Unregistered properties after the deadline will be flagged as disputed and sent to the Waqf Tribunal; **Legal awareness tools** on beneficiaries' rights under the amended law; **Properties in women's names can't be designated as Waqf**, but women, children, and EWS remain eligible beneficiaries.
- **WAMSI (Old System):** The previous Waqf property digitization system, **known for errors, duplicate entries & inconsistent data**, was disabled on 8th May 2025.

SPECIES IN NEWS

Humboldt Penguin

Chile has reclassified the **Humboldt penguin (*Spheniscus humboldti*)** as **endangered** due to a sharp **population decline** along its **Pacific coastline**.

- **Habitat:** Coastal regions of **Peru & Chile**, mainly along the **Humboldt Current**; **~80%** of global population in **Chile's coastline**. **Features**– White **C-shaped head band**, **black breast band**, **pink fleshy patch around eyes**.
- **Diet:** **Carnivorous** – anchovies, sardines, herring, small marine organisms; **Behaviour:** Nests in **burrows, caves, guano**; no chick crèches.
- **Protection Status:** **IUCN**– Vulnerable; **CITES**– Appendix I

MISCELLANEOUS

Jallikattu

The Tamil Nadu government has **released a SOP for Jallikattu 2026** to ensure public safety, animal welfare & legal compliance.

- **About:** Jallikattu (eruthazhuvuthal), is a traditional bull-taming sport of Tamil Nadu, held during the Pongal harvest festival, especially on Mattu Pongal. Uses **indigenous breeds like Pulikulam & Kangayam**.
- **Cultural Significance:** A 2,000-year-old tradition linked to the **Ayar community**, celebrating cattle worship & rural agrarian life; historically used to select bridegrooms. Depicted in a **1,500-year-old cave painting near Madurai and an Indus Valley seal (at National Museum, New Delhi)**.
- **Regions:** **Jallikattu belt**– Practiced in Madurai, Tiruchirappalli, Theni, Pudukkottai & Dindigul districts.
- **Controversy:** Contested due to concerns over animal cruelty and human safety, drawing scrutiny from courts and animal rights groups.
- **Legal Status:** In 2023, SC upheld amendments made by **Tamil Nadu, Maharashtra, and Karnataka to the Prevention of Cruelty to Animals Act, 1960**, permitting traditional bull-taming sports– Jallikattu & kambala.

Risk-Based Deposit Insurance Framework for Banks

RBI has approved a **risk-based deposit insurance premium framework**, shifting from the long-standing flat-rate system to a **soundness-linked model**, which will be **effective from the next financial year (FY 2026-27)**.

- **Policy Shift:** Replaces the decades-old **flat-rate premium system** with a **Risk-Based Premium (RBP) model**, linking premiums to a bank's **financial soundness and risk profile**.
- **Existing Arrangement:** Since 1962, the **Deposit Insurance and Credit Guarantee Corporation** has operated a flat-rate premium-based deposit insurance scheme, with banks currently charged 12 paise per Rs 100 of assessable deposits.
- **Rationale:** The **existing flat-rate premium system** charges all banks the same insurance rate, **irrespective of their financial soundness**, leading to safer banks subsidising riskier ones.
 - A **risk-based premium model** aligns insurance costs with a bank's **risk profile**, creating incentives for **better governance, and prudent risk management**.
- **Expected Impact:** It strengthens **financial stability** by discouraging excessive risk-taking and improving **market discipline** without reducing depositor protection.

Bureau of Port Security

Govt. will establish a **dedicated statutory body, the Bureau of Port Security (BoPS)** to ensure comprehensive, risk-based security for ports & vessels nationwide.

- **BoPS:** A statutory body under **Section 13 of Merchant Shipping Act, 2025**, functioning under the Ministry of Ports, Shipping and Waterways (MoPSW) to oversee port & ship security.
 - Will be **led by a Director General (IPS officer, Pay Level-15)**, with the Director General of Shipping acting as DG during the 1-year transition period. **Modeled on the Bureau of Civil Aviation Security (BCAS)**, it will include a dedicated cybersecurity division to protect port IT & digital infrastructure.
- **Central Industrial Security Force (CISF):** Designated as a Recognised Security Organisation (RSO) for ports, responsible for security assessments and port security plans. Under the new arrangement, **CISF will train & certify Private Security Agencies (PSAs)**, ensuring only licensed agencies operate.
- **Broader Significance:** Best practices from **BoPS-led maritime security will be applied to the aviation security domain**, enhancing integrated internal security governance.

Womaniya Initiative

Government e-Marketplace (GeM) & UN Women signed an **MoU under the Womaniya initiative** to boost **women entrepreneurs' participation in public procurement & advance SDG 5 (Gender Equality)**.

- **About:** Launched in **2019** on **GeM** to support **women-led MSEs, SHGs, artisans, & marginalized women** in selling directly to the govt.
- **Objective:** Addresses challenges in **access to market, finance & value-addition**; supports goal of reserving **3% of govt. procurement for women-owned businesses**.
- **Scale & Impact:** As per **Udyam Portal**, **20.5% of MSMEs are women-owned— contribute 18.73% to employment and account for 11.15% of total investment**.

GeM introduced **GeMAI – India's first generative AI-powered public sector chatbot** with voice/text support in **10 Indian languages**.

EB-1A & EB2-NIW Visa Program

The increased H-1B visa fee is prompting Indian professionals to explore alternatives like the EB-1A and EB2-NIW visas, amid stricter U.S. immigration policies.

- **EB-1A Visa:** For individuals with extraordinary abilities in science, arts, business, or education. No employer sponsorship required; applicants must meet at least three of ten criteria. Leads to permanent residency (Green Card).
- **EB2-NIW Visa:** Allows self-petition for professionals in sectors critical to U.S. national interests (e.g., tech, healthcare). No employer sponsorship needed. Leads to permanent residency with no time limit.
- Both visas offer faster processing, long-term stability, and green card opportunities, making them popular alternatives to the H-1B, especially among Indian professionals in high-skill sectors.

India to Host 2030 Commonwealth Games

The PM congratulated India on winning the bid to host the 2030 Commonwealth Games (CWG), with Ahmedabad set to be the host city.

- **CWG:** The world's second-largest multi-sport event, featuring athletes from 71 nations, mostly former British colonies.
- **Origin:** Created by Canadian sportswriter Melville Marks Robinson, stemming from the 1911 Inter-Empire Championships.
- **First CWG:** Held in 1930 in Hamilton, Canada.
- **Renaming:** Became the Commonwealth Games in 1978.
- **Governing Body:** Commonwealth Games Federation (CGF).
- **India at CWG:** Hosted in 2010 (New Delhi), with its best performance of 101 medals, including 38 golds.

India's CEC to Assume Chairpersonship of International IDEA

India's CEC is set to assume the role of the **Chairperson of the International IDEA** for the year **2026**.

- **International IDEA (1995):** An inter-governmental organization (secretariat in Stockholm) focused on supporting sustainable democracy globally, with UN observer status.
- **Mission & Vision:** Promotes and protects sustainable democracy, aiming for inclusive and resilient democracies worldwide.
- **Core Functions:** Knowledge production, capacity development, advocacy, and convening dialogues.
- **Membership:** 35 member states, including India as a founding member, with the US and Japan as observers.

IMF Classifies India's Exchange Rate Regime to a Crawl-Like Arrangement

The **IMF** has reclassified India's de facto exchange rate regime from a **"stabilised" system to a crawl-like arrangement**.

- **Crawl-like Arrangement:** Exchange rate remains within a **±2% band** around a trend for **≥6 months**. Not fully floating; implies some level of management.
 - **IMF classifies** this based on **actual exchange rate behavior**, not policy declarations.
- **Crawling Peg vs Crawl-like:**
 - **Crawling Peg:** Pre-announced, gradual adjustments based on indicators (e.g., inflation).
 - **Crawl-like:** Behavior-based classification without formal policy.
- **Managed Float (India's System):** **RBI intervenes** to curb extreme volatility but allows market-driven trends.

- **IMF Classification Criteria:** Based on IMF's Articles of Agreement and Article IV Surveillance. Assesses actual currency movement and policy commitment to rate path.
- **IMF's Articles of Agreement:** Adopted in 1944, ratified by 190 members including India.
 - Define IMF's purpose, governance, obligations, and rules on SDRs.
 - **Mandate functions:** Monetary surveillance, lending, technical assistance.

Central Empowered Committee (CEC)

SC halted any move to **dissolve the CEC**, stating it can only be done with its approval, amid concerns over **overlap with NGT**; Cabinet Secretariat asked **Environment Ministry** to refer the issue to the **Law Commission**.

- **CEC (2002):** Created as per *T.N. Godavarman case (1995)*, given **statutory status (2023)** through a MoEFCC notification.
 - It monitors **SC orders** on environmental matters, conducts **field inspections**, handles **non-compliance cases**; consists of a **Chairperson**, **3 experts** (env., forest, wildlife), and **Member Secretary** from MoEFCC.
 - Its reports aided SC in key cases (e.g., **Mhadei Tiger Reserve**, **Aravalli mining**).
- **NGT (NGT Act, 2010)** – a **quasi-judicial body**, adjudicates disputes under various environmental laws. **CEC supports SC** with technical and compliance-based inputs.

Tewary Commission Report on Nellie Massacre

The **1983 Nellie Massacre**, during **Assam Agitation (1979-85)**, is back in focus after the Assam govt. released the **Tewary Commission Report**, which found the tragedy was avoidable but occurred due to delayed action, ignored intelligence & poor coordination.

- **About:** Assam Agitation focused on protecting Assamese identity by expelling illegal immigrants, mainly from Bangladesh. Led by **All Assam Students' Union (AASU)**, it aimed to **detect** immigrants who arrived **post-1951**, **deleting** their names from voter rolls, and **deporting** them from India (**3Ds**).
- **Outcome:** Led to the **Assam Accord (1985)**, which set **25th March 1971** as the cut-off for detecting foreigners.
 - Entries b/w **1st Jan 1966 – 24th Mar 1971**: Detected as foreigners; names deleted from voter list for 10 years, after which their **citizenship rights** would be restored.
 - Entries on/after **25th Mar 1971**: To be detected & deported.

WHO Guideline on the Use of GLP-1

WHO has classified **obesity** as a **chronic disease** requiring **lifelong, comprehensive care**, and issued its **first guidelines** on using **GLP-1 weight-loss therapies**.

- **GLP-1:** **GLP-1 drugs** can cause **15–20% weight loss**, comparable to **bariatric surgery**, with added **cardio-renal, liver, and sleep apnea benefits**.
- **WHO GLP-1 Guidelines:** **WHO allows conditional long-term use** in adults with obesity (not in pregnant women), citing limited long-term safety data.
 - Use must be paired with **behavioural support**: diet planning, physical activity, and structured lifestyle changes.
 - GLP-1 must be part of a **lifelong, comprehensive obesity-care plan**.
 - By **2030**, global production may meet only **<10% of demand** (WHO).
- **Obesity:** BMI ≥ 30 ; in **India**, obesity is BMI ≥ 25 , **morbid obesity** is BMI ≥ 35 (WHO).
 - **Over 1 billion** people globally live with obesity; **3.7 million deaths in 2024**. Obesity is projected to **double by 2030**. **24% of Indian women, 23% of men** are overweight (NFHS-5).

IMF Flags Concerns over India's GDP Data

The **IMF** has retained its '**C**' grade for India's **national accounts** and **government finance data** for 2025.

- **IMF's Data Adequacy Assessment** rates data quality from **A (adequate)** to **D (serious shortcomings)**. India's '**C**' grade indicates data with shortcomings that "somewhat hamper surveillance".
- **National Accounts (GDP) Weaknesses**
 - **Outdated Base Year:** Current **2011–12** base year fails to reflect the **modern economy**.
 - **Deflation Errors:** Use of **WPI** and **single deflation** instead of **PPI** and **double deflation** introduces **bias**.
 - **Data Gaps:** Discrepancies exist between **production and expenditure GDP** figures.
 - **Lack of Granularity:** Missing **sector-wise, high-frequency, and seasonally adjusted data**.
- **IMF Recommendations:**
 - **Update Census** and improve **state-level data systems**.
 - Adopt **digital, high-frequency data collection**.
 - Regularly revise **GDP/CPI**, set up a **Statistical Audit Authority**, and strengthen **NSO capacity**.
- **Government's Corrective Action:** Major overhaul underway; new GDP series (2022–23 base) and CPI series (2024 base) to launch by Feb 2026.

Centre's Power to Scrutinise Citizenship is Limited: EC tells SC

ECI has clarified its **authority** in matters of **electoral roll registration (Special Intensive Revision (SIR))**, particularly refuting **opposition claims** that only the **Union Government** has the exclusive right to scrutinise **citizenship**.

Key Legal Provisions & Controversy Regarding ECI's Role

- **Section 9, Citizenship Act, 1955:** Grants the Centre power to terminate citizenship only in cases where Indian citizens voluntarily acquire foreign citizenship.
 - **ECI's Clarification:** This power is narrow and does not prevent other authorities, including the ECI, from verifying citizenship for purposes such as electoral enrolment.
- **Constitutional and Statutory Basis for EC's Role:**
 - **Article 324:** Grants ECI supervisory powers over elections.
 - **Article 326:** Makes Indian citizenship a constitutional requirement to vote.
 - **Article 327:** Allows Parliament to make laws on elections, which must align with ECI's constitutional authority.
- **Representation of the People Act (RPA), 1950:**
 - **Section 16:** Non-citizens are disqualified from voter lists.
 - **Section 19:** Voters must be ordinarily resident in their constituency.
 - **Section 21(3):** Empowers ECI to conduct SIR when necessary.
- **ECI's Jurisdictional Limits:** The ECI's role is confined to verifying citizenship for the purpose of including or excluding names in electoral rolls under Sections 16 and 19 of the RPA, 1950.

SIR

- The SIR, under Section 21(3) of the Representation of the People Act, 1950 (RPA), is an intensive revision of electoral rolls prompted by "felt necessities" to maintain accuracy.
- It ensures the purity of rolls, essential for free and fair elections. SIR does not determine citizenship, only verifies voter registration eligibility.
- **Controversy:** Opposition parties in several states allege SIR of electoral rolls is a covert citizenship test.

India Re-elected to IMO Council

- India re-elected to IMO Council in Category B (countries with major seaborne trade interest) for 2026–27 with 154/169 votes.
- The 40-member Council (across categories A, B & C) acts as the executive body shaping global maritime policies.

International Maritime Organization (IMO)

- **About:** UN specialized agency for global shipping regulation.
- **Genesis:** Formed in 1948 as Inter-Governmental Maritime Consultative Organization, renamed IMO in 1982.

- **Members:** 176 Member States, 3 Associate Members; India member since 1959.
- **Mandate:** Ensure shipping safety, security, and prevent marine/air pollution. Policy enforcement lies with member states, not IMO itself.

'Seva Teerth'

- The Union Home Minister referred to the upcoming new Prime Minister's Office (PMO) in the Central Vista complex as "Seva Teerth", calling it a landmark in India's administrative evolution.
- **Spiritual-Administrative Fusion:** 'Teerth' (traditionally denoting pilgrimage sites) reflects Gandhian ideal of public office as service, not privilege. Shifts view from bureaucratic enclave to service-oriented administration.
 - **Symbolic Governance:** Aligns with "Minimum Government, Maximum Governance"; emphasizes accountability, transparency & citizen responsiveness.

Central Vista Project

- Revamped PMO is part of Central Vista redevelopment project.
- Inaugurated in 1931, included Rashtrapati Bhavan, North & South Blocks, new Parliament, National Archives, India Gate, and civic gardens along Kartavya Path.

8th Economic Census (EC) in 2027

- India will conduct its 8th EC in 2027, following the two-phase Population Census (2026–27).
- **Complete count of establishments** (i.e. units engaged in production and/or distribution of goods & services not for sole consumption)
 - **First EC– 1977;** conducted by MOSPI, NSO, with Directorates of Economics and Statistics (DES) of all States & UTs
 - **8th EC data** to create Statistical Business Register (SBR) to track active/closed enterprises; improves economic data accuracy.

Population Census: Conducted under Census Act, 1948 & Census Rules, 1990; Headed by Registrar General & Census Commissioner of India; 2027 will be 16th decennial Census since 1872.

Tariff Cover Hits One-Fifth of Imports: WTO

- WTO reported that imports worth \$2,640 billion (11.1% of global imports) faced tariffs & trade restrictions b/w mid-Oct 2024 and mid-2025.
- **Factors Driving the Surge in Tariffs:**
 - **Rising Protectionism:** Major economies increasing tariff coverage.
 - **Trade Tensions & Unilateral Tariffs:** Some tariffs up to 50%, disrupting global trade.

- **Supply-Chain Disruptions & Security Restrictions:** Import barriers on **strategic materials** raised **tariff levels** across sectors.
- **Impact on India:**
 - **Exports:** Affected due to **higher costs** in **textiles, engineering, chemicals**.
 - **Trade Balance:** Slower export growth may **widen trade deficit**.
 - **Supply Chains:** Costlier raw materials/tech impact **electronics, pharma, machinery**.

Samagra Shiksha

Centre to release **pending Samagra Shiksha funds** only after **States meet all conditions:** utilisation certificates, audit reports, progress updates, State share, and **NEP 2020 compliance**.

- **About:** Announced in **2018–19 Union budget**, covers **pre-school to Class 12**; implemented by Department of School Education and Literacy (DoSEL) as a **Centrally Sponsored Scheme**.
 - Merges **Schemes of Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA) and Teacher Education (TE)** into one scheme.
- **Funding:** 90:10 (NE & Himalayan States), 60:40 (other states with legislatures), 100% (UTs without legislature).
- **Focus:** Quality education, equity, inclusion, vocational education & **RTE Act, 2009 implementation**.
- **Vision & Alignment with SDGs:** Treats **school as a continuum from pre-school to higher secondary**. Aligns with **SDG 4.1** (free, equitable, quality primary & secondary education) and **SDG 4.5** (removing gender disparities & ensuring access for vulnerable groups).

Centre Declines Reclassification of Denotified and Nomadic Communities

The Centre has **decided not to reclassify 268 denotified, nomadic & semi-nomadic communities** into **SC/ST/OBC**, despite **Anthropological Survey of India** study recommendation, raising concerns over exclusion from benefits like the **SEED scheme**.

- **Denotified Tribes (DNTs):** Branded as “**born criminals**” by British colonial govt. under **1871 Criminal Tribes Act**; **denotified** (decriminalised) in **1952**
- **Nomadic Tribes (NTs):** No fixed home; **move constantly for livelihood**; carried out occupations like salt trading, fortune-telling, performing arts, or pastoralism
- **Semi-Nomadic Tribes (SNTs):** Partially nomadic; have a seasonal fixed base/home
 - **Development Welfare Board for Denotified, Nomadic, and Semi-Nomadic Communities (DWBDNC)** –Formed in **2019** after **Idate Commission (2017)** recommendations

SEED Scheme: Administered by– **DWBDNC**; provide financial aid, education, skill development, self-employment, health; aims to uplift **DNT & NT communities**. Issue– Slow uptake due to unclear classification, lack of certificates

Gaganyaan: ISRO's Parachute Test Boosts Human-Rating Standards

ISRO has successfully conducted the **Integrated Main Parachute Airdrop Test (IMAT)** — a crucial milestone in preparing India's first human spaceflight mission, **Gaganyaan**, scheduled for **Q1 2027**. The test reinforces ISRO's **human-rating protocols & astronaut safety preparedness**.

- **About IMAT:** Test for **Gaganyaan** to verify parachute performance during re-entry & landing. Involves **full-scale parachute system** dropped from high altitude.
- **Features:** Simulates **extreme descent** and **delayed parachute opening**; Tests **structural strength, load-bearing & stability**; Part of **human-rating certification** for astronaut safety.

Gaganyaan Mission

- **About:** Send **3 astronauts** to **Low Earth Orbit (LEO)** at **400 km** for **3 days**, followed by safe return. Includes **unmanned tests**; **first manned mission** expected in **early 2027**.
- **Significance:** Places India among **US, Russia, China** with human spaceflight capability.
- **Key Technologies for Crew Safety:**
 - **Human-Rated Launch Vehicle (HLVM3):** Modified version of **LVM3** with solid, liquid, cryogenic stages; modified for **human rating**. Launches **Orbital Module to LEO (400 km)**; equipped with **Crew Escape System (CES)** for safe abort during launch/ascent.
 - **Orbital Module (OM) Contains:** **Crew Module (CM)** – habitable space with Earth-like environment; pressurized inner structure & unpressurized external structure; **Service Module (SM)** –Unpressurized; provides **propulsion, thermal, power & avionics support**.

India-US Tax Treaty Tussle

A proposed change in **US interpretation of the India-US Double Taxation Avoidance Agreement (DTAA)** may end key **tax benefits** for **returning Indian professionals, retirees, & remote workers**.

- **Current Benefit:** **RNORs** taxed only on **Indian income**; **foreign income** remains untaxed in India.
- **Eligibility:** Spent **120–182 days** in India, or **NRI** in **9 of 10** previous years, or Spent **≤729 days** in 7 preceding years.
- **Impending Change:** US may stop recognizing **RNORs** as Indian **tax residents** under **DTAA**, citing **OECD Commentary**, as India doesn't tax global income during **RNOR status**.

- **Impacts: Loss of Treaty Benefits**— Higher US withholding taxes — e.g., **dividends at 30%** (vs. 15–25%), **interest at 30%** (vs. 15%).
 - Affects **cross-border investment structures**, demands **financial re-evaluation** for affected **individuals**, despite no change in **India's domestic tax law**.
- **Legal Weight: OECD Commentary** is non-binding but **persuasive**, making the shift a **credible threat**.

Right to Disconnect Bill, 2025

Right to Disconnect Bill 2025, a **Private Member's Bill**, was introduced in **Lok Sabha**, seeks legal protection for employees from **after-hour work demands** to ensure **work–life balance**.

- **Key Provisions: Employees' Welfare Authority** to enforce rights to disconnect, conduct studies, and negotiate after-hour terms (for firms with **>10 workers**).
 - **No disciplinary action** for refusing after-hours communication; **overtime pay** mandatory for extra work. Proposes **counselling services**, **digital detox centres** for mental health (telepressure, stress, info-obesity).
- **Global Parallel: France, Portugal, Australia** have enacted similar laws.

- **Private Member's Bill:** Introduced by **MP** who is not a Minister; from ruling or opposition parties. Taken up on **Fridays** when Parliament is in session.
 - Rarely passed — only **14 PMBs** have been passed by both Houses & received Presidential assent since **Independence**; none since **1970**.

GIFT City as Reinsurance Hub

India aims to develop **GIFT City** as a **global reinsurance hub**, with **10+ international insurers already operational** and more expected to join.

GIFT City

- **India's first IFSC**, located in **Gandhinagar** on the **Sabarmati River**.
- Established under the **SEZ Act, 2005**; divided into **GIFT SEZ (non-resident)** and **DTA (domestic)** zones.
- Treated as **non-resident under FEMA, 1999**; provides **onshore & offshore financial services** in foreign currency.
- Regulated by **IFSCA (Act, 2019)** — a unified regulator consolidating **RBI, SEBI, IRDAI & PFRDA** powers.
- Aims to attract **global capital** and rival hubs like **Singapore & Dubai**.
- Offers **10-year tax holiday**, **no additional capital requirement**, and **light compliance** to boost global financial and fintech presence.

India International Science Festival (IISF), 2025

11th IISF 2025 began in **Panchkula, Haryana** with the theme "**Vigyan Se Samruddhi: for Aatmanirbhar Bharat**"; organized by **MoES** in coordination with **IITM Pune**.

- Launched in **2015**, **IISF** has become a major platform for **scientific collaboration**, **innovation**, **outreach**, and **public engagement**.
- It aims to position India as a **global S&T leader**, promote **science culture**, enhance **public participation**, and align with national goals in **research**, **innovation**, and **talent development**.

Crypto Transactions Surge in India

Crypto transactions in India reached **₹51,180 crore in 2024–25**, a **41% increase** from the previous year, based on **₹511 crore collected as 1% TDS**.

- **Finance Act 2022** introduced **1% TDS** on all **VDA transfers** under **Income Tax Act, 1961**.
- **Cryptocurrency** enables **peer-to-peer digital payments** using **blockchain** and **cryptographic verification**.
- **First decentralized cryptocurrency:** Bitcoin (2009).

PM Dhan-Dhaanya Krishi Yojana

The **PM-DDKY– FPO Sangam**, organized by the Ministry of Agriculture & Farmers' Welfare, saw participation from **72+ Farmers Producer Organisations (FPOs)** across **15 states**.

- **FPO Sangam connects FPOs with buyers, processors & retail chains** for long-term sourcing partnerships and market expansion.
- **About:** A comprehensive farm program to enhance productivity, promote sustainable practices, and improve livelihoods by **converging 36 schemes from 11 departments**.
- **Fund Allocation:** 40% for subsidies, 30% for infrastructure, 20% for loans, 10% for training and market support.
- **District Selection Criteria:** Low crop productivity, moderate cropping intensity (below 1.55 cycles/year), low credit access (below 30% farmer coverage).
- **Implementation Structure:** Each district will form a **District DDKY Samiti**, chaired by the District Collector, to implement the District Agriculture Development Plan (DADP), with **oversight from 100 Central Nodal Officers**.

INTERPOL Issues Blue Corner Notice

After the Goa nightclub fire that killed 25, **INTERPOL issued a Blue Corner Notice** to trace the absconding nightclub owners.

- **INTERPOL issues notices upon request from a country's NCB**, ensuring legal standards and data protection rules are met for quality & privacy.
- **Blue Corner notice collects information on a person's identity, location, or activities related to a criminal**

investigation. It is not an arrest warrant, but it helps track suspects internationally.

Type of Notice	Purpose
Red	To seek the location & arrest of persons wanted for prosecution/to serve a sentence
Yellow	To locate missing persons , esp. minors, or identify persons unable to identify themselves
Black	To seek information on unidentified bodies
Green	To warn about a person's criminal activities posing a threat to public safety.
Orange	To warn of an event, person, object, or process posing a serious & imminent public safety threat
Purple	To share information on modus operandi, tools, devices, & concealment methods used by criminals
Silver (Pilot)	To identify & trace criminal assets
INTERPOL–UNSC Special	Issued for individuals & entities under UNSC sanctions

India's PLI Scheme for Advanced Chemistry Cell (ACC) Battery Storage

Ola is **currently the only beneficiary** under the **PLI Scheme for ACC Battery Storage** with an established manufacturing capacity of 1 GWh.

- **PLI ACC Scheme: National Programme on ACC Battery Storage approved in May 2021** with an Rs 18,100 Crore outlay for 50 GWh ACC capacity. It is technology-agnostic, allowing firms to choose suitable technologies.
- **Objective:** Boost domestic value addition, ensure competitive battery costs, **strengthen the EV & stationary storage ecosystem**, attract FDI, and build a domestic supply chain.
 - Along with **FAME and the Automobile PLI scheme**, it supports India's shift to a clean, sustainable, and self-reliant EV ecosystem **under Atmanirbhar Bharat**.

ACCs: Energy storage technologies that **store energy in electrochemical/chemical form** & **reconvert it into electricity** when needed.

India's First Indigenous Hydrogen Fuel Cell Vessel

The Union Minister for Ports, Shipping and Waterways launched **India's first indigenous hydrogen fuel-cell vessel in Varanasi**, marking a milestone in sustainable inland water transport.

- **Technical & Design Features:** Developed by Cochin Shipyard Ltd (CSL) with IWA. Uses a **Low Temperature Proton Exchange Membrane (LT-PEM) fuel cell system**, producing electricity from stored hydrogen with **only water vapour as a byproduct**.

- Integrated hybrid system **with hydrogen fuel cells, batteries & solar power**.

- **Strategic Frameworks:** Aligned with **Maritime India Vision 2030 & Maritime Amrit Kaal Vision 2047**, focusing on sustainable transport, smart infrastructure, and alternative fuels in inland waterways.

One Nation–One Port Process (ONOP)

The ONOP framework will **reduce 33% of documentation** at ports, **enhancing efficiency** and **cutting costs & time**.

- **Initiative by:** Ministry of Ports, Shipping and Waterways (MoPSW)
- **Aim:** Standardise **documentation, approvals, workflows** across all major & selected minor ports
- **Features:** Removes **port-wise procedural variations**
 - **Upgrades National Logistics Portal – Marine (NLP-Marine/Sagar Setu)** for electronic submission & processing of all ship-related information
 - Ensures **uniformity** in port (**all major and selected minor ports**) processes, reducing **delays & logistics costs**

Global Capability Centres (GCCs)

India hosts **1,700+ GCCs**, with projected revenues of **USD 105 billion by 2030**, emerging as a key pillar of **service-led growth**.

- **About:** Formerly **Global In-house Centres (GICs)**; offshore units by MNCs
 - Play strategic roles in **aerospace, defence, semiconductors, R&D**, innovation centres and global operations; support Atmanirbhar Bharat
- **Major Hubs:** Bengaluru, Hyderabad, Pune, Chennai, NCR, Mumbai
- **Significance:** **~1,700 GCCs**, over **1.9 million** employed; projected **2,400 centres**, **2.8 million** employees by 2030; India has **28% global STEM workforce**, **23% global software engineering talent**; **Leadership roles** in GCCs to rise from **6,500 to 30,000** by 2030; **Engineering R&D GCCs** growing **1.3x faster** than the overall sector
- **Targeted Policies & Reforms:**
 - **GENESIS (Gen-Next Support for Innovative Startups):** ₹490 cr scheme to build **GCC feeder hubs** in Tier II & III cities
 - **EMC 2.0 (MeitY):** Plug-and-play infrastructure for GCCs
 - **Skill India, Digital India, FutureSkills Prime:** Building digital workforce
 - **100% FDI** allowed in most sectors, especially **IT & R&D**, aiding GCC inflow

Pax Silica Initiative

At the **Pax Silica Summit 2025**, India was excluded from the **US-led 'Pax Silica' initiative**, drawing political criticism.

- **Pax Silica Initiative:** Aims to build a **secure, resilient & innovation-driven silicon supply chain** and reduce **China's dominance**
 - Focus on **joint ventures/co-investments, tech protection, and trusted ecosystems**
- **Members (Dec 2025):** US, Japan, South Korea, Singapore, Netherlands, UK, Israel, UAE, Australia.
- **India's Position:** May join **Pax Silica** later, similar to **Minerals Security Partnership (MSP)**, US-led initiative launched in 2022, while India joined in **2023**
 - **MSP** focuses on **lithium, cobalt, nickel, 17 rare earth elements**; aims to counter **China's dominance** in rare earths & mining in Africa

Illicit Cannabis Cultivation in Kandhamal

The verdant hills of Kandhamal, Odisha, have become a hotspot for illicit cannabis cultivation, with record seizures in 2025 drawing national attention.

- **Policy Irony:** Despite **GI-tagged Kandhamal turmeric**, economic distress drives villagers to **illicit cannabis farming**
- **Favourable Geography:** Remote, hilly, forested, hilly terrain with suitable climate enables **clandestine cultivation & hampers surveillance**; 20–30°C, 40–70% humidity, depending on growth stage
- **Cannabis:** WHO term for psychoactive products from **Cannabis sativa**; **Key compound— delta-9 tetrahydrocannabinol (THC)**; related compounds called **cannabinoids**.
- **Growth in India:** Indo-Gangetic plains & Deccan region
- **Regulation of Cannabis:** Governed by **NDPS Act, 1985**; criminalises **cultivation, possession, purchase, sale, transport, consumption**, esp. its **flowering tops (ganja)/resin (charas)**
 - **Seeds & leaves (without tops)** excluded; states regulate products like **bhang**; Centre can permit cultivation for **industrial use** (fibre, seeds, oil); **Uttarakhand— 1st state to legalise industrial cannabis cultivation (hemp)**
 - **UN (2020)** – removed cannabis from **Schedule IV of 1961 Single Convention on Narcotic Drugs**; retained in **Schedule I** for regulated medical use

India Nears 100% Rail Electrification

Indian Railways has electrified over 99% of its **broad-gauge network**, advancing towards sustainable, low-emission transport systems.

- **Emission Reduction & Energy Efficiency:** **Reduced diesel use, lower emissions**; target: **net-zero by 2030**, one of the earliest targets globally for a national railway system.

- Enables shift to **renewables**; railways among top electricity consumers in India
- **Economic & Operational Benefits:** **Lower operational costs, improved speed & reliability of services**
 - Boosts **logistics & freight operations**, aiding **USD 5 trillion economy goal**
- **Global Significance:** India's **99.2% electrified broad-gauge network across 25 states** outpaces many advanced economies
- **Electrified route kilometres (RKM) added (2019–25)** equals **Germany's total rail network**, highlighting India's **green transport leadership**

ADB Development Financing to Support India

ADB signed **5 loan agreements** with India for projects in **skilling, renewable energy, healthcare, urban transport & livelihoods**. Includes **USD 650 million** for **PM Surya Ghar: Muft Bijli Yojana** to support **1 crore rooftop solar households by 2027**.

Asian Development Bank (ADB)

- **Founded:** 1966; **HQ:** Manila, Philippines; **Official observer status at UN**
- **Members:** 69 (50 from Asia-Pacific, 19 outside)
- **Top Shareholders (Dec 2024):** **Japan, US:** 15.6% each; **China:** 6.4%; **India:** 6.3% (4th-largest, founding member; bank's support aligns with India's goals of **robust, climate-resilient & inclusive growth**); **Australia:** 5.8%
- **Functions:** ADB provides **loans, grants, technical assistance, and equity investments** to promote development, including **direct aid to private sector projects and funds**.

Bharat Taxi

India will launch **Bharat Taxi**, its **1st cooperative-run taxi service operated by Sahakar Taxi Cooperative Limited**, in Delhi in 2027 - a homegrown alternative to Uber & Rapido.

- **Commission Model:** Zero-commission model initially, with **100% ride payments to drivers**; ~20% cooperative fee later redistributed as incentives.
- **Collaboration:** Bharat Taxi is a joint effort by NeGD, Digital India Corporation, MeitY, and Sahakar Taxi Cooperative Limited; **integrated with DigiLocker, UMANG & API Setu**
- **Pricing Policy:** No surge pricing, dynamic pricing only in specific situations.
- **Safety Features:** Driver verification, **integration with Delhi Police**, real-time tracking, 24x7 customer care.

India-Russia RELOS Agreement

India & Russia will operationalise the **Reciprocal Exchange of Logistics Support (RELOS) agreement**, enhancing military cooperation with mutual access to bases and logistical support in the Arctic & Indo-Pacific.

- **India–Russia RELOS:** To come into force after the formal exchange of instruments of ratification.
 - **Agreement Scope:** Governs movement of troops, warships & military aircraft; mutual use of airspace; port calls by naval vessels.
 - **Logistical Support:** Covers refuelling, repairs, maintenance, and supplies; applies during joint military exercises, **training & HADR operations**, with scope for extension by mutual consent.
- **Strategic Significance**
 - **For India:** Access to Russian air & naval bases from **Vladivostok (Pacific Ocean) to Murmansk (Arctic Ocean)**; strengthens Indo-Pacific strategy by enabling long-range deployments using **Russia's network of 40+ military bases**; enhances Navy and Air Force reach, esp. for Russian-origin platforms.
 - **For Russia:** Access to Indian ports & airfields; strengthens presence in the **Indian Ocean Region (IOR)**; reinforces Russia's role in a multipolar global order.

RELOS Like Pacts with US: LEMOA (Logistics Exchange Memorandum of Agreement), COMCASA (Communications Compatibility and Security Agreement) & BECA (Basic Exchange and Cooperation Agreement). However, it has been tailored to the India-Russia dynamic.

Superkilonova

A study by scientists from IIT Bombay & Indian Institute of Astrophysics, Bengaluru, reports the possible discovery of a superkilonova, a **rare and powerful cosmic explosion**.

- **Kilonova:** Collision of 2 neutron stars ejects heavy radioactive elements (gold, platinum, neodymium), whose decay produces optical and infrared emissions.
- **Superkilonova:** Has an **additional energy source**. It begins with a supernova forming two neutron stars, which later merge to produce a kilonova, resulting in a stronger event with both supernova and kilonova signatures.
 - A superkilonova produces **intense gravitational waves and a powerful electromagnetic blast**, appearing brighter and longer-lasting than a normal kilonova.
 - Superkilonovae remain a proposed/observationally **emerging class of events, not yet as firmly established as kilonovae**.

India–Netherlands Joint Trade and Investment Committee (JTIC)

India and Netherlands have established the **JTIC** to deepen bilateral trade, investment and economic cooperation.

- It aims to identify and remove trade barriers & promote 2-way investments, especially for **MSMEs**.
- Seeks cooperation in sectors such as transfer of technical know-how & technological innovation.

India–Netherlands Relations

- **Trade and Economic Partnership:** The Netherlands is India's **11th largest global trading partner** and **largest in EU**, with bilateral trade of **USD 27.34 bn (FY 2023–24)** & **USD 17.39 bn surplus** for India.
- India's **largest export destination in Europe** and **3rd globally** (after USA & UAE), led by petroleum products, pharmaceuticals and telecom instruments.
- **Core Priority Sectors:** **Water, Agriculture & Health (WAH)**, along with technology and innovation.
- **Renewable Energy & Climate Action:** Cooperation in **Green Hydrogen**, Maritime Cooperation and **Green Digital Sea Corridor**, **International Solar Alliance**, **Global Commission on Adaptation (GCA)** and **CDRI**.
- **Indo-Pacific Convergence:** Netherlands' **Indo-Pacific Guidelines (2020)** identify India as a key partner.
- **Netherlands** is located in **Western Europe**, bordered by **Belgium & Germany**; **most densely populated EU country**.

US Operation Hawkeye Strike in Syria

US launched **Operation Hawkeye Strike** in Syria, targeting **Islamic State (IS)** infrastructure and weapons sites in response to an attack on US forces in **Palmyra**, signalling a strong counter-terror response.

- **Islamic State (IS/ISIS):** A **Sunni extremist terrorist organisation** that self-declared a pan-Islamic Caliphate, emerging from **al-Qaeda in Iraq**, with historic bases in **northern Iraq and Syria**.
 - It has committed **crimes against humanity**, including genocide, mass executions, sexual slavery and terrorism. In India, **IS & all its manifestations are banned under the UAPA, 1967**.
- **Syria:** Located in **West Asia**, bordered by **Turkey (N)**, **Iraq (E)**, **Jordan (S)**, and **Israel and Lebanon (W)**, with a **Mediterranean coastline**.
 - Its geography includes the **Syrian Desert**, **Euphrates River valley**, and **Anti-Lebanon Mountains**, with **Mount Hermon** as the highest point.
 - Key conflict-affected areas include **Aleppo**, **Homs**, **Idlib**, and the **Golan Heights** (disputed with Israel).

