

SARAANSH



Monthly Current Affairs

September 2025

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✧ **Environment & Ecology**

✧ **Science & Technology**

✧ **History, Art & Culture**

✧ **Social Issues**

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(Coverage from 24th August 2025 to 23rd September 2025)

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Polity & Governance

Building a Resilient Cybersecurity Framework for India

The **Parliamentary Standing Committee on Home Affairs** underscored the escalating **cyber threats** in India, calling for **greater public awareness**, enhanced **cyber safety**, and stronger **digital security** as internet penetration and online transactions rapidly expand.

Key Cyberthreats Faced by India

- **Cyber-enabled Financial Frauds:** India is witnessing a surge in phishing, ransomware, identity theft, UPI and online banking frauds.
 - In 2024, the nation recorded **1.91 million cybercrime complaints**, reflecting the scale of digital financial vulnerability.
- **Ransomware & Malware Attacks:** Hospitals, government databases, and critical private enterprises are prime targets of ransomware and malware.
 - The **AIIMS Delhi cyberattack (2022)** exposed the fragility of health and public service systems.
- **Critical Infrastructure Vulnerability:** Strategic assets such as power grids, telecom networks, nuclear facilities, and ports face persistent cyber sabotage threats.
 - The **Kudankulam Nuclear Power Plant attack (2019)** underscored risks to national security.
- **Data Breaches & Privacy Risks:** Frequent cyber intrusions into government and private sector databases have led to large-scale personal data leaks.
 - The **Air India breach (2021)** compromised information of nearly **4.5 million passengers**.
- **Deepfakes & Misinformation:** AI-driven deepfake content and fake news campaigns threaten social cohesion, democratic institutions, and electoral integrity.
 - The **2024 election campaign** saw deepfake videos of political leaders circulating widely.
- **Dark Web & Cyber Terrorism:** The dark web is increasingly exploited for radicalization, illegal arms/narcotics trade, and terror financing via cryptocurrencies. Such covert networks intensify organized crime and cyber terrorism in India.

Factors Undermining the Effectiveness of India's Cybersecurity Framework

- **Inadequate Legal and Regulatory Framework:** Existing laws like the **IT Act, 2000**, and the **Digital Personal Data Protection Act, 2023**, lack specific provisions for emerging threats such as **AI-enabled attacks and deepfakes**.

- **Shortage of Skilled Cybersecurity Professionals:** India faces a **massive gap in trained cybersecurity experts** to monitor and respond to threats in real-time.
 - A report by **NASSCOM** states that India needs **at least one million cybersecurity professionals**, but currently has **less than half that number**.
- **Rapid Digitalization and Low Cyber Awareness:** As India's digital ecosystem expands rapidly, the scale and sophistication of cyber threats have also risen in tandem
 - Also, India faces weak cyber hygiene among citizens, with many users failing to identify **phishing attacks**, **fraudulent websites**, and **scam calls**, while limited **digital literacy programs** in rural areas further increase vulnerability to cyber fraud.
- **Weak Protection of Critical Infrastructure:** Power grids, telecom networks, and nuclear plants remain vulnerable due to outdated security protocols.
 - At the same time, **SMEs and critical sectors in India lack robust defenses**, and reliance on **imported IT/telecom equipment increases risks of embedded vulnerabilities**.
- **Fragmented Coordination Among Agencies:** Multiple agencies like **CERT-In**, **National Critical Information Infrastructure Protection Centre**, and private stakeholders operate with **limited coordination**, causing **delays in threat detection and response**.

Key Initiatives to Enhance Cybersecurity

- **Legislative Measures:**
 - Information Technology Act, 2000 (IT Act)
 - Digital Personal Data Protection Act, 2023
- **Institutional Framework:**
 - Indian Computer Emergency Response Team (CERT-In)
 - National Critical Information Infrastructure Protection Centre (NCIIPC)
 - Indian Cyber Crime Coordination Centre (I4C)
 - Cyber Swachhta Kendra
 - Citizen Financial Cyber Fraud Reporting and Management System
- **Strategic Initiatives:**
 - **Bharat National Cybersecurity Exercise 2024**
 - **National Cyber Security Policy, 2013**
 - **Chakshu, & Digital Intelligence Platform**
 - **Telecommunications (Critical Telecommunication Infrastructure) Rules, 2024**

Measures to Strengthen Cybersecurity Framework in India

- **Strengthen Legal & Regulatory Framework:** The IT Act, 2000 needs urgent updates to cover AI, deepfakes, and ransomware threats. Strong enforcement of the Digital Personal Data Protection Act, 2023 with clear accountability is essential.
- **Institutional & Audit Reforms:** Mandate cybersecurity audits and stress tests in critical sectors like banking, healthcare, and utilities.
 - Establish district-level cybersecurity units for localized threat management and strengthen coordination with CERT-In.
- **Strengthen Critical Infrastructure:** Enforce two-factor authentication (2FA), data encryption, and real-time monitoring systems in critical sectors like banks.
 - India should promote Zero-Trust Architecture in critical sectors (continuous verification instead of perimeter-only defense).
- **Promote Indigenous Cybersecurity Solutions:** India should push for Make in India cybersecurity tools to reduce foreign dependence. Startups developing AI-based threat detection must be supported through funding and incubation.
- **Improve Cyber Hygiene & Awareness:** Launch nationwide cyber literacy campaigns in regional languages, targeting rural communities, youth, and senior citizens.
 - Integrate cybersecurity education in schools and universities, supported by secure infrastructure and staff training, to build digital resilience from an early stage.

SC Calls for Regulating Social Media

The Supreme Court (SC), while hearing a case against comedians for derogatory remarks, observed that social media influencers commercialise free speech, cautioning that such content can harm the dignity of vulnerable groups and urging the government to frame effective guidelines to balance free speech with societal sensitivities.

Regulations Governing Social Media Usage in India

- **Key Legislations:**
 - **Information Technology Act, 2000** is the principal legislation governing electronic communication and social media.
 - ❖ **Section 79(1)** provides “safe harbour” protection to intermediaries (e.g., Facebook, X, Instagram) against liability for third-party content, provided they act as neutral platforms and do not control or modify content.

- ❖ **Section 69A of the IT Act, 2000** allows the Government to block online content for protecting sovereignty, security, defense, foreign relations, public order, and preventing incitement to offences.

- **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021** mandates social-media platforms to ensure user safety, removal of unlawful content, and awareness on issues such as privacy, copyright, defamation, and national security.

- ❖ The **2023 Amendment** to these rules obligated intermediaries to take down false or misleading content related to the Government of India. However, its enforcement has been stayed by the Supreme Court (SC), citing concerns of misuse.

- **Key Judicial Pronouncements:** In *Shreya Singhal v. Union of India (2015)*, SC struck down Section 66A of the IT Act, 2000 for vagueness, reaffirming that criticism, satire, and dissent are protected under Article 19(1)(a), unless falling within reasonable restrictions under Article 19(2).

- ❖ **Section 66A** criminalized sending offensive, false, or objectionable information via computers or electronic devices, prescribing up to 3 years' imprisonment.

- ❖ In *K.S. Puttaswamy v. Union of India (2017)*, SC recognised privacy as a fundamental right under Article 21. It shaped later data protection measures, including the Digital Personal Data Protection Act, 2023, and influenced regulation of WhatsApp privacy policies and Aadhaar data norms.

Need for Regulating Social Media

- **Protection of Vulnerable Groups** Unregulated platforms enable derogatory content, cyberbullying, trolling, and exploitation, particularly of women, children, senior citizens, minorities, and persons with disabilities.
- **Curbing Misinformation & Hate Speech:** The rapid spread of fake news, deepfakes, hate campaigns, and extremist propaganda undermines social harmony, democratic discourse, and national security.
- **Effective regulation** can check disinformation ecosystems and maintain public order.
- **Safeguarding Mental Health & Ethical Values:** Features like endless scrolling, Fear of Missing Out (FOMO), and curated identities drive addiction, anxiety, and depression among youth.
 - Regulations can promote digital well-being, responsible design, and ethical communication standards.

- **Ensuring Accountability of Influencers:** With the rise of **influencer marketing**, users are misled into financial risks by **undisclosed paid promotions** and **illegitimate products** (e.g., betting apps). Regulation ensures **transparency, disclosure norms, and consumer protection**.
- **Data Privacy & Security:** Social media platforms collect vast user data, often without informed consent, leading to **privacy violations, surveillance, and misuse for profit or political influence**. Regulation is essential to uphold **constitutional rights to privacy** under **Article 21**.
- **Balancing Free Speech with Responsibility:** While **Article 19(1)(a)** protects free speech, it is subject to **reasonable restrictions under Article 19(2)** (public order, morality, decency, security of the State). Regulation helps draw the line between **legitimate free expression** and **harmful/derogatory content**.

Key Observations & Recommendations of SC

■ Key Observations:

- **Commercialisation & Accountability:** Social media influencers **monetise free speech**, often creating an overlap with **prohibited speech**. The Court cautioned that such expression cannot be used as a **shield** to target **vulnerable groups** (disabled, women, children, minorities, senior citizens).
- **Humour vs. Dignity:** While **humour is vital**, **derogatory jokes and insensitive remarks** perpetuate **stigma, discrimination**, and undermine the **constitutional mandate of inclusivity** by "smashing" the goal of mainstreaming disadvantaged sections.
- **Clear Boundaries in Digital Space:** The Court emphasised the need to delineate **free speech, commercial speech, and prohibited speech**, as irresponsible online remarks erode **dignity, social harmony, and community trust**.

■ Recommendations:

- **Guidelines with Consequences:** Directed the Union Government (in consultation with the **National Broadcasters and Digital Association**) to frame **regulatory guidelines** for influencers/podcasters with **proportionate and enforceable consequences**, avoiding "empty formalities."
- **Sensitisation & Responsibility:** Stressed the importance of **awareness, sensitisation, and digital ethics** among social media users, while ensuring **accountability** of violators for societal harm.
- **Apology & Balance of Rights:** Ordered influencers to issue **unconditional apologies** via their platforms, clarifying that the Court does not seek to **curtail free speech** but to **balance liberty with dignity, protecting community rights** in a diverse society.

anonymity of users emboldens hate speech, misinformation, and harmful content, straining regulatory capacity.

- **Transparency & Accountability Gaps:** Social media platforms lack **transparency in decision-making** and **accountability in content moderation policies**. The **absence of independent oversight** raises concerns about opaque practices and arbitrariness.
- **Defining Harmful Content:** There is **subjectivity in defining harmful content**, as differing social, political, and cultural views complicate consensus. This ambiguity creates **grey zones** between legitimate expression and prohibited speech.
- **Free Speech vs. Censorship:** Any attempt to regulate risks being seen as **censorship** or a **curtailment of free speech**, especially when criteria are not **clear, objective, and proportionate**.
- **Cross-Border Jurisdictional Issues:** A large share of harmful content originates from **outside India's jurisdiction**, making enforcement and regulation difficult under domestic law.
- **Political Neutrality Concerns:** Content moderation decisions are often accused of **political bias**, raising questions about **platform neutrality** and undermining trust in regulatory mechanisms.

Way Forward

- **Robust Legal-Policy Framework:** Update the IT Act, 2000 through the **Digital India Act**, ensuring platform accountability, **data protection**, and **freedom of expression**, backed by **judicial oversight** to avoid overreach.
- **Algorithmic Transparency & Accountability:** Mandate **algorithm audits, transparency reports**, and independent oversight bodies; encourage the use of **AI-driven moderation tools** to ensure neutrality and quick redressal.
- **Technological & Institutional Capacity:** Expand **cyber forensic labs**, enhance agency capacity, and integrate **AI-enabled monitoring systems** while safeguarding **privacy and encryption standards**.
- **Digital Literacy & Ethical Usage:** Launch nationwide **digital literacy campaigns** against misinformation, deepfakes, and cyberbullying; promote **responsible online behavior** and **ethical design practices** prioritizing user well-being.
- **Global & Multi-Stakeholder Cooperation:** Strengthen **international collaboration** on cross-border regulation and involve **civil society, academia, and industry** to create an inclusive, **future-ready digital ecosystem**.

Collegium System of Judicial Appointments in India

The **Supreme Court** returned to its full sanctioned strength of 34 judges, with the appointment of two new judges recommended by the **Collegium system**.

Challenges in Regulating Social Media in India

- **Volume & Anonymity:** The **sheer volume of online content** makes continuous monitoring difficult. Added to this,

Collegium System

- **About:** It is India's judicial mechanism for **appointing and transferring judges to the Supreme Court and High Courts**.
 - It is not a **direct constitutional provision** but evolved from landmark **Supreme Court judgments**, most notably the **"Three Judges Cases"**.

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.

Evolution of the Collegium System

- **First Judges Case (1981):** SC held that in the appointment of a judge of the SC or the HC, the word **"consultation"** in **Article 124(2)** and in **Article 217** of the Constitution does not mean **"concurrence"**.
 - It gave the executive primacy over the judiciary in judicial appointments.
- **Second Judges Case (1993):** The SC overruled the First Judges Case and held that **"consultation" in judicial appointments actually meant concurrence**.
 - The SC ruled that the CJI's advice on appointing judges is **binding on the President**. Before giving this advice, the CJI must consult their two senior-most colleagues.
 - This judgment led to the creation of the **Collegium System**, giving primacy to the judiciary in the appointment of judges.

- **Third Judges Case (1998):** The SC expanded the Collegium to include the CJI and the 4 most senior judges of the court after the CJI.
- **Collegium Composition:**
 - **SC Collegium:** CJI and four senior-most SC judges.
 - **HC Collegium:** Chief Justice of the HC and two senior-most HC judges.
 - **Government Role:** Can raise objections, but if Collegium reiterates, appointments are binding.

Arguments for and Against the Collegium System of Appointment

Arguments for

- **Separation of Powers:** Keeps the judiciary independent from the executive and legislature. Judges can perform their duties without fear, influence, or interference, upholding the **principle of separation of powers (Article 50)**.
- **Preservation of Judicial Integrity** Senior judges are best placed to assess the legal acumen, integrity, and suitability of potential judges.
 - Judges choosing judges preserves the **dignity and autonomy of the judiciary as an institution**.
 - The Collegium System reduces risks of corruption in appointments.

Arguments Against

- **Lack of Transparency:** The system operates largely in secrecy and lacks transparency, with no published procedure or objective criteria. It can encourage **nepotism and favouritism (often called the "uncle judge syndrome")**.
- **Misuse of Power:** The collegium concentrates power within a few judges, raising concerns of unchecked authority in judicial appointments.
- **Inequitable Representation of Communities:** Data reveals significant skew in judicial appointments, with **79% of High Court judges (2018–2022)** from upper-caste backgrounds, while marginalized communities remain underrepresented.
 - Women make up only **4% of Supreme Court judges**. Additionally, 331 judicial vacancies existed in High Courts in 2024, highlighting delays in appointments under the collegium system.
- **National Judicial Appointments Commission (NJAC):** It was a proposed constitutional body in India established by the **99th Constitutional Amendment Act, 2014**, intended to replace the collegium system to create a more transparent process based on merit.
 - However, the Supreme Court, in **Supreme Court Advocates-on-Record Association vs Union of India (commonly known as the Fourth Judges Case, 2015)**, struck down the 99th Constitutional Amendment and the NJAC, deeming them **unconstitutional and a threat**

to **judicial independence** as they allowed greater executive involvement in judicial appointments.

Bail Conditions in India

The US President Donald Trump signed an executive order cutting federal funds to jurisdictions that allow **cashless bail**. The move has sparked renewed discussions on **bail reforms** in India.

- Cashless bail allows release in **minor offences without monetary deposit**, subject to conditions for court appearance, unlike traditional bail which **requires cash or property surety**.

Bail Conditions in India

- **Bail in India:** Bail is the conditional **release of an accused before trial, based on the presumption of innocence**. It ensures the person does not abscond, tamper with evidence, or influence witnesses.
 - Chapter 35 of the **Bhartiya Nagarik Suraksha Sanhita (BNSS), 2023**, which replaced the Code of Criminal Procedure (CrPC) 1973, lays down the bail process.
- **Bond:** A written promise by the accused to appear for trial and follow bail conditions. It usually requires a **cash deposit** (amount based on crime and economic condition).
 - Cash deposit can be **forfeited** if bail conditions are broken. It is refundable at the end of the trial, regardless of the outcome.
 - If the accused cannot pay immediately, the court may allow release on a **Personal Recognisance (PR) Bond**, with time given to arrange the cash.
- **Bail Bond:** A bail bond is a **guarantee from a third party (family, friend, or employer)** ensuring the accused complies with bail conditions and appears for trial.
 - The surety may deposit a **sum forfeitable if the accused absconds**. Courts verify the surety's documents, finances, and residence, with some requiring a solvency certificate.

Need for Bail Reforms in India

- **Financial Inequality and Discrimination:** Cash and surety-based bail disproportionately affects poor and marginalized groups. Many undertrials cannot arrange **money, property, or local sureties**, even for minor offences.
 - **Law Commission (268th report)** notes this **violates constitutional principles** of equality and fair trial.
 - Flawed assumptions that all accused have access to financial or social resources render the **"bail, not jail" principle ineffective**.
- **Weak Procedural Safeguards:** Courts often **fail to follow guidelines for timely bail** or to record reasons for denial.

Lack of standardized procedures creates **arbitrariness in granting or denying bail**.

- **Delays in Judicial Processes:** Backlog of cases and overburdened courts cause prolonged pre-trial detention. Delays result in undertrials being jailed longer than the potential sentence for their alleged offence.
 - Nearly 70% of India's prison population are undertrials, many of whom remain incarcerated for months or years before trial.
- **Constitutional and Human Rights Violation:** Bail practices must align with **Articles 21 (Right to Life and Liberty) and 14 (Equality before Law)**.
 - Excessive pre-trial detention **violates the principle of presumption of innocence**.

Measures to Strengthen India's Bail System

- **Timely Disposal of Bail Applications:** Implement strict **timelines for granting bail** to prevent unnecessary pre-trial detention.
 - In the case of **Satender Kumar Antil v. CBI (2022)** SC emphasized that **"bail not jail"** should be the norm and highlighted the need for timely processing.
 - Incentivize **non-custodial measures** such as reporting conditions or monitoring mechanisms. It helps decongest prisons and prevents repeat criminalization.
- **Financial Assistance for Underprivileged Accused:** Expand schemes like **Support to Poor Prisoners (2023)** to provide funds for those unable to furnish bail.
 - Reduces **disproportionate incarceration of the poor**, aligning with Article 21.
- **Expand Use of Personal Recognisance:** Encourage **PR bonds** or non-monetary conditions for minor and non-violent offences. It ensures liberty without financial barriers while maintaining accountability.
- **Strengthening Legal Aid and Procedural Safeguards:** Streamlined bail processes can reduce overcrowding, uphold constitutional rights, and **prevent the criminalization of poverty**.
 - Deploy para-legal volunteers and lawyers to assist undertrials in navigating bail processes.
 - In **Madhav Hayawadanrao Hoskot v. State of Maharashtra (1978)**, the SC held that the right to counsel is a fundamental right under Article 21. **Providing legal aid is the State's duty, not an act of charity**.
- **Digital and Administrative Reforms:** Maintain **centralized digital records** of bail, sureties, and undertrials. Facilitate **quick verification of bonds or sureties** to avoid delays like those in Mumbai courts due to solvency certificates.

BAIL AND RELATED PROVISIONS IN INDIA

"The issue of bail is one of liberty, justice, public safety, and burden of the public treasury, all of which insist that a developed jurisprudence of bail is integral to a socially sensitised judicial process."

—Justice V.R. Krishna Iyer

Constitutional Provision for Arrest - Article 22:

Grants protection to individuals arrested or detained, with detention classified into two **types**:

- ➡ **Punitive detention:** To punish a person for an offence committed by him after trial and conviction in a court
- ➡ **Preventive detention:** Detention of a person without trial and conviction by a court

Criminal Procedure Code, 1973: Doesn't define bail, but defines bailable and non-bailable offences:

Type of Offence	Bailable	Non-Bailable
■ Defined under CrPC as:	An offence mentioned in Schedule 1, or An offence made bailable by any other law	Any offence other than bailable
■ Power to Grant Bail	Bail as a right	Court/Police discretion based on the facts

Bail vs Parole vs Probation

Bail	Parole	Probation
■ Temporary release of defendant awaiting trial or appeal, secured by deposit to guarantee their appearance in court	When person gets some time off from jail sentence , for instance, to fulfil some requirements	Suspension of sentence of an offender, allowing to stay in community under supervision of an officer
■ Granted by Judge	By Parole Board	By Judge

Types of Bails in India

- **Regular Bail:** Court's order to release person under arrest in police custody
- **Interim Bail:** Court grants temporary relief until application for Anticipatory Bail or Regular Bail is decided
- **Anticipatory Bail:** Bail granted preemptively to prevent arrest
- **Default Bail:** When police fail to complete investigation within specified period
- **Medical Bail:** Solely on medical grounds

Cancellation of Bail - Certain Grounds

- Misuses his liberty by indulging in criminal activity
- Interferes with course of investigation
- Tampering of evidence
- Threatens witnesses, etc



India's Suspect Registry and Cybersecurity Initiatives

India's **online suspect registry** has saved around Rs 5,100 crore by blocking 13 lakh fraudulent transactions, and it has quickly become a key tool in **India's fight against cybercrime**.

Suspect Registry

- **About:** Launched in 2024, the suspect registry was created based on the **National Cybercrime Reporting**

Portal (NCRP) and developed by the **Indian Cyber Crime Coordination Centre (I4C)**.

- It contains data on **1.4 million cybercriminals** linked to financial fraud and other cybercrimes, which has been shared with all banks.
- The data has been shared with all banks and is accessible to States, UTs, and central investigation and intelligence agencies.

- **Objective:** The registry **helps** banks and financial institutions **verify customer credentials and monitor transactions** to suspected accounts in real time.
 - Using data from the NCRP, it strengthens **fraud risk management** and flags potential cybercriminals.
- **Need for Suspect Registry:** India loses over **Rs 1,000 crore every month to cyber fraud. More than 80% of cybercrime cases involve financial fraud.**
 - The rising scale of digital transactions demands stronger fraud risk management and real-time monitoring.
- **Impact:** As of December 2024, over 6.1 lakh fraudulent transactions worth around Rs 1,800 crore were blocked.
 - Banks froze 8.67 lakh mule accounts, 7 lakh SIMs, and 1.4 lakh devices. Since 2021, around Rs 3,850 crore in frauds have been intercepted, and suspicious online contents were blocked under the **Information Technology Act, 2000.**

Cybercrime Trends in India

- **Rising Cybercrime Losses:** According to the **NCRP** India witnessed a massive surge in cyber fraud, with total losses of around Rs 33,165 crore (2021-24).
- **Emergence of Tier 2 & 3 Cybercrime Hotspots:** Cities like Deoghar, Jaipur, Nuh, Mathura, Kolkata, Surat, Bengaluru Urban, and Kozhikode have been identified as hotspots, reflecting that cybercriminals are increasingly targeting smaller cities.

India's Cybersecurity Initiatives

- **Constitutional Context:** Police and public order are state subjects. States/UTs handle crimes, including cybercrime, while the Centre provides guidance, coordination, and funding.
- **Policy Mechanisms:**
 - **Information Technology Act, 2000:** Covers cybercrime offences like phishing, smishing, and vishing with fines and imprisonment.
 - **New Criminal Laws: Bharatiya Nagarik Suraksha Sanhita (BNSS), 2023, the Bharatiya Nyaya Sanhita, 2023, and the Bharatiya Sakshya Adhiniyam, 2023,** address modern cyber threats.
 - **National Cyber Security Policy, 2013:** Aimed at protecting cyberspace, building cyber defense capabilities, reducing vulnerabilities, and strengthening national digital security.
- **Institutional Mechanisms**
 - **Indian Cyber Crime Coordination Centre (I4C):** Attached office under MHA for coordinated response to cybercrime.
 - ❖ The **National Cyber Crime Reporting Portal (NCRP)** under I4C enables the public to report all types of cybercrimes, with a major focus on crimes against women and children.
 - ❖ **Cyber Fraud Mitigation Centre (CFMC)** under I4C brings banks, financial intermediaries, telecom service providers, IT intermediaries and law enforcement agencies (LEAs) under one roof for real-time action.
 - ❖ **Samanvay Platform** a web-based portal for cybercrime data, analytics, mapping, and coordination among Law Enforcement Agencies nationwide.
 - ❖ **Citizen Financial Cyber Fraud Reporting and Management System (CFCFRMS)** platform for immediate action on financial cyber fraud complaints via helpline 1930.
 - **CERT-In (Indian Computer Emergency Response Team):** National agency under IT Act, 2000 for handling cybersecurity incidents, vulnerabilities, and coordinated response.
 - ❖ CERT-In runs the **National Cyber Coordination Centre (NCCC)** for situational awareness of cyber threats and the **Cyber Swachhta Kendra** to detect and remove malware, offering free tools and cybersecurity guidance for citizens and organizations.
- **International Cooperation: Central Bureau of Investigation (CBI)** participates in Interpol-led cybercrime cooperation initiatives.
 - The CBI is the nodal agency for **G-7 24/7 network**, which is a secure channel for making data preservation requests in cases related to cyber crime.
- **Digital Mechanisms**
 - **'bank.in' Domain for Banks:** Exclusive internet domain for Indian banks to reduce cyber fraud and strengthen digital trust.
 - **e-Zero FIR:** Converts cyber financial crime complaints above Rs 10 lakh into **First Information Report (FIR)** automatically.
 - **MuleHunter.AI:** AI tool developed by RBI to detect **"mule accounts"** used for transferring stolen funds.
 - **ASTR:** Developed by Department of Telecommunications (DoT) **Artificial Intelligence and Facial Recognition powered Solution for Telecom SIM Subscriber Verification (ASTR)** is used to identify suspected mobile connections taken by the same person in different names.

TYPES OF CYBERCRIMES

Personal Threats to Individuals

- ➔ **Phishing** 📧 : Scams via email/texts to steal personal or financial info.
- ➔ **Smishing** 📱 : SMS-based scams targeting mobile users.
- ➔ **Vishing** 📞 : Fraudulent calls asking for OTPs or account info.
- ➔ **Identity Theft** 🆔 : Misusing personal data for fraud.
- ➔ **Digital Arrest Scams** 🗣️ : Fake threats of arrest via video calls.
- ➔ **Cyber Stalking** 👁️ : Persistent online harassment.
- ➔ **Deepfakes & AI Content** 🗣️ : Fake videos/audio for social engineering.

Targeted Attacks on High-Value Individuals

- ➔ **Whale Phishing** 🐋 : Fraudulent emails or messages designed to trick senior executives into sharing sensitive data.
- ➔ **Spear Phishing** 🎯 : Personalized scams targeting a specific person, group, or department to steal information.
- ➔ **Trojan Horse** 🐎 : Malicious software hidden inside seemingly safe files or apps to gain access to systems.

Financial & System-Level Threats

- ➔ **Ransomware** 🗂️ : Locks files until a ransom is paid.
- ➔ **Ponzi & Investment Schemes** 💰 : Websites promising unrealistic returns.
- ➔ **Botnet** : It is a network of malware-infected devices, remotely controlled by a cybercriminal (bot herder), used for large-scale attacks like data theft, and spam.

Promotion and Regulation of Online Gaming Act, 2025

The Act, passed by Parliament, encourages **e-sports and online social games** while **prohibiting harmful online money gaming services**, advertisements, and financial transactions related to them.

- The act was introduced in Parliament as a **Finance Bill under Articles 117(1) and 117(3) of the Constitution**, with the President's recommendation.

Promotion and Regulation of Online Gaming Act, 2025

- **About:** The Act seeks to create a **comprehensive legal framework to regulate, promote, and support the online gaming sector**, fostering a responsible digital environment for citizens.
- **Ban on Online Money Games:** The act **completely prohibits offering, advertising, or facilitating financial transactions for real money games**.
 - Banks and financial institutions are barred from processing payments for such platforms.

- Authorities empowered under the **IT Act, 2000** to block unlawful platforms.

- **Key Provisions of the Act:** Online games are **classified in the following manner:**

- **E-Sports:** Recognized as a legitimate sport, competitive digital sports played through organized tournaments, requiring skill.
- **Online Social Games:** Primarily skill-based games designed for entertainment, or social interaction. **Examples: Wordle.**
- **Online Money Games:** Games involving financial stakes, whether based on chance, skill, or both. Players pay fees or deposit money with the expectation of monetary or other gains. **Examples: Dream11, Poker, Rummy.**

- **Applicability of the Act:** Across India and includes online money gaming services offered within India or operated from outside but accessible in India.

- **Promotion of Positive Gaming:**

- **E-Sports:** Ministry of Youth Affairs & Sports to frame guidelines, establish training academies, and research centres.
- **Social/Educational Games:** Union Government can recognize, register, and promote safe, age-appropriate platforms for learning and recreation.

- **Regulatory Body:** A national-level regulator to:

- Categorize and register games.
- Determine if a game qualifies as a **money game**.
- Handle complaints and grievances.
- The Central Government is authorized to appoint officers with powers of investigation, search, seizure, and arrest (in certain cases even without a warrant).

- **Offences and Penalties:** Offering online money games: **Up to 3 years imprisonment and ₹1 crore fine.**

- Advertising banned games: **Up to 2 years imprisonment and ₹50 lakh fine.**
- Offences are **cognisable and non-bailable**.

- **Liability Clause:** The Act makes **companies and their officers accountable**, while independent and non-executive directors are exempt if they can demonstrate due diligence.

Key Growth Drivers of India's Gaming Industry

- **Economic Drivers:** India's **vibrant start-up ecosystem, supported by Start-up India and Atmanirbhar Bharat framework**, has fostered the growth of numerous gaming companies and platforms.
 - These startups are driving innovation and catering to the diverse gaming preferences of Indian consumers, contributing to the expansion and evolution of the gaming industry in the country.

Initiatives to Counter Online Gaming Risks



Information Technology Act, 2000

The IT Act and related rules address online gaming risks. Intermediaries must register with self-regulatory bodies. Section 69A allows blocking illegal websites.



Bharatiya Nyaya Sanhita, 2023

Sections 111 and 112 penalise unlawful economic activities, cybercrimes, unauthorised betting, and gambling.



Integrated Goods and Services Tax Act, 2017

The IGST Act regulates illegal and offshore gaming platforms. Online money gaming suppliers must register under the Simplified Registration Scheme.



Consumer Protection Act, 2019

This act prohibits misleading advertisements. The CCPA can investigate, penalise, and take criminal action against offenders.

- India has produced numerous gaming unicorns, including **Games24x7**, **Dream11** and **Mobile Premier League**.
- In the last few years, gaming companies raised **USD 2.8 billion from domestic and global investors**, amounting to 3% of total startup funding in India.
- NVIDIA** has announced the launch of its cloud gaming service in India in November 2025.
- **Technological Enablers:**
 - Initiatives such as **BharatNet** and the **National Broadband Mission (NBM)** are focused on providing **high-speed internet to rural and remote regions**.
 - The 5G rollout has further boosted internet speeds and lowered latency, crucial for a smooth gaming experience.
 - A recent survey by MoSPI reveals that over 85% of Indian households now own smartphones, with internet access available within the premises for 86.3%.
 - Mobile phones contribute to 90% of the gaming market in India as compared to about 37% and 62% in the US and China, respectively.
- **Policy & Cultural Shifts:**
 - IT Rules 2021, self-regulatory bodies, and the **AVGC Task Force** created a framework for safe growth.
 - Gamers honored in the **Content Creators Award**; **Create in India Campaign** promotes content creators.
- Covid-19 lockdown drove **50% industry growth**, with average gaming time rising from **2.5 to 4.1 hrs/day**, turning gaming into a **legitimate career path**.

Online Gambling

- **About:** Online games are defined as those played on **electronic or digital devices and operated through software using the internet or other electronic communication technologies**.
 - It facilitates real-time interaction and competition between players, regardless of their location.
- **Classification:**
 - **Skill-Based Games:** They prioritize skill over chance and are legal in India. E.g., **Game 24X7**, **Dream11**, and **Mobile Premier League (MPL)**.
 - **Games of Chance:** Their outcome depends mainly on luck rather than skill and are illegal in India. E.g., **Roulette**, which attracts players primarily for monetary rewards.
- **Market Size:** In 2023, India became the world's largest gaming market with **568 million gamers** and **9.5 billion app downloads**.
 - The market, valued at USD 2.2 billion in 2023, is projected to reach **USD 8.6 billion by 2028**.

Gaming Industry Regulations in India

- **Information Technology Act, 2000 & Rules**
 - The **IT (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021**, amended in April 2023, set standards for online gaming platforms.

- Intermediaries must prevent the circulation of unlawful/illegal content.
 - Platforms offering money games must register with **Self-Regulatory Bodies (SRBs)**, which determine if a game is permissible.
 - Section 69A** empowers the government to block illegal sites/apps — **1,524 betting and gambling platforms blocked (2022–June 2025)**.
- **Bharatiya Nyaya Sanhita, 2023:**
- Section 111:** Penalises unlawful economic activities and cybercrimes.
 - Section 112:** Punishes unauthorised betting/gambling with **1–7 years imprisonment and fines**.
- **Integrated Goods and Services Tax (IGST) Act, 2017:**
- Extends to illegal/offshore gaming platforms.
 - Online money gaming suppliers must register under the **Simplified Registration Scheme**.
 - The **DG of GST Intelligence** can direct blocking of unregistered/non-compliant platforms.
 - Ensures digital gaming entities follow the same taxation norms as physical businesses.
- **Consumer Protection Act, 2019**
- Prohibits **misleading/surrogate advertisements**.
 - The **CCPA** can investigate, penalise, and initiate criminal proceedings. Advisories issued to restrict **celebrities/influencers from endorsing betting platforms**.

Concerns Related to Gaming Industry	Measures
Regulatory Ambiguity – Fragmented state laws; no clear distinction between skill-based gaming and gambling.	Establishment of a national regulatory body; strengthen self-regulatory bodies (SRBs) for clarity.
Illegal Gambling & Money Laundering – Offshore sites thriving; risks of terror financing, misuse of remittance routes.	Collaborate with banks & payment gateways to block illegal transactions; real-time monitoring; global anti-money laundering cooperation.
Addictive Behaviour – Excessive play leads to stress, financial ruin, suicidal tendencies (23% youth affected).	Introduce age-gating, spending limits, self-exclusion tools; integrate mental health support; run public awareness campaigns.
Cyberattacks – Data breaches (11 mn accounts in 2024); risks from VPN/geo-blocker bypass.	Strengthen cybersecurity with audits, encryption, intrusion detection; comply with data protection norms.
Financial Risks – Vulnerable users overspend (₹17 lakh PUBG case); Indians lose ₹20,000 cr annually.	Promote responsible gaming practices; enforce parental controls; ensure consumer protection mechanisms.
Lack of Innovation Support – Limited infrastructure and mentorship for developers.	Develop dedicated gaming hubs & incubators (models: Montreal, Singapore, South Korea) for innovation and talent growth.

Rising Judicial Pendency in India

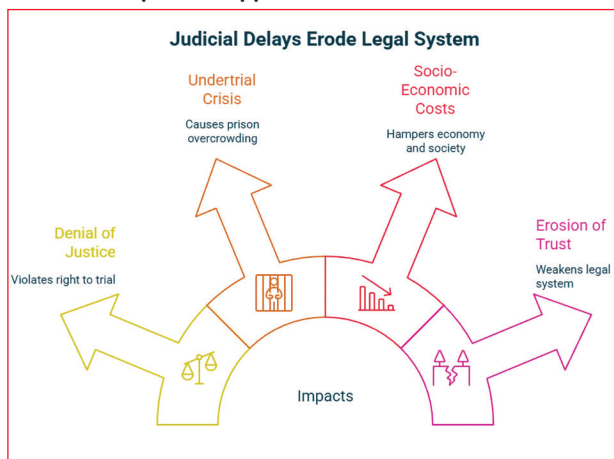
Despite functioning at its full strength of **34 judges**, the **Supreme Court's (SC)** case pendency reached a record high of 88,417 in August 2025, with a disposal rate of 80.04%.

- About **63.3 lakh cases** are pending in the **High Courts (HCs)**, and nearly **4.6 crore** in **district and subordinate courts**, bringing India's total **case pendency** to over **5 crore**.

Reasons for High Case Pendency in Indian Courts (L-A-C-K)

- **L- Low Judge-to-Population Ratio:** India has just **15 judges per million people**, far below the **1987 Law Commission's recommendation of 50**. In comparison, the **US has 150 judges per million**, while **Europe averaged 220 per million in 2022**.
- **A- Absence of Effective ADR:** **Alternative Dispute Resolution (ADR)** mechanisms such as **mediation, arbitration, and conciliation** remain largely untapped, despite their potential to **ease judicial backlog**.
- **C- Court Vacancies & Infrastructural Laps:** The **India Justice Report 2025** notes that the judiciary has over **5,600 vacancies** across all levels, with **High Courts recording a 33% vacancy rate** in 2025.

- Limited **courtrooms**, shortage of **staff**, weak **ICT systems**, absence of proper **case management** hinder timely justice.
- **K- Keen Government Litigation:** Nearly **50% of pending cases** involve **government departments**.
- In **2018**, the **SC** criticised the **Centre** for filing **frivolous and repetitive appeals**.



Measures to Reduce Judicial Pendency in India (J-U-S-T-I-C-E)

- **J - Judge strength & Appointments:** As per the **120th Law Commission Report (1987)**, raise **judge-to-population ratio** to 50/million, fast-track **appointments** in High and District Courts, and establish **All India Judicial Service (AIJS)** for full-capacity courts.
- **U - Upgrade Infrastructure & Technology:** Expand **e-Courts Mission Mode Project** with AI-based case management.
- **S - Simplify Procedures & Laws:** Limit **adjournments**, adopt **summary trials**, **pre-trial conferences**, **fast-track procedures**, and **simplify laws** as per **Second ARC recommendations** for quicker justice.
- **T - Training & Tech Tools:** Implement AI-based case management Tools like **FASTER** and provide **staff Training**.
- **I - Institutional Reforms:** Set up **National Judicial Infrastructure Authority (NJIA)** to standardize court infrastructure.
- **C - Channel cases to ADR:** Channel suitable cases away from courts by promoting **Conciliation, mediation, and arbitration**.
- **E - Expand Access & Outreach:** Strengthen **Tele-Law, mobile clinics, and NALSA outreach** for wider access to justice.

Exemptions for Mineral Exploration in Forests

The **Forest Advisory Committee (FAC)** has approved enhanced **exemptions** for **mineral exploration drilling** in forest areas, following requests from the **Ministries of Coal and Mines**.

- These exemptions for exploratory drilling were introduced through the **2023 amendment to the Forest Conservation Act, 1980**.

Reasons to Provide Mineral Exploration Drilling in Forest Regions

- **Borehole Limit and Push for Critical Minerals:** The Environment Ministry now **permits 62 to 80 boreholes per 10 sq km**, each up to 6 inches in diameter, for mineral exploration.
- Earlier rules allowed only **25 boreholes per 10 sq km**, along with **80 shot holes and felling of up to 100 trees**, without requiring forest clearance.
- This expansion aims to tap **critical minerals** like **lithium, cobalt, and nickel**, vital for clean energy and defence.
- **Ease of Doing Business:** Reduces delays from repeated central clearances for temporary exploration.
- **Private Sector Participation:** Encourages greater investment and involvement in mineral exploration.
- **Economic Growth Support:** Minerals are crucial for infrastructure, manufacturing, defence, and green technologies.

- Enables quicker project development, cost efficiency, and higher investment inflows.

Concerns Related to Increased Mineral Exploration Drilling	Suggestions
■ Environmental & Ecological Impact – Cumulative effects on flora, fauna, and precipitation patterns. ■ Local Communities & Tribal Rights – Conflicts with FRA, 2006 rights, impact on cultural/religious sites, and forest-dependent livelihoods. ■ Bypassing FCA 1980 Scrutiny – Exploration reclassified as "forest activity," reducing central oversight.	■ Cluster mining approach with shared eco-friendly infrastructure; adopt eco-friendly techniques (conveying systems, bucket steering, landfill control). ■ Strict SoPs – no drilling in wetlands, breeding/nesting areas, or critical ecosystems; time-specific restrictions. ■ Use non-intrusive technologies (geophysical surveys, satellite images, AI-based forecasting, drone mapping); reduce powered drilling.

Critical Minerals

- **About:** Minerals that are essential for a nation's **economic growth & national security**, whose limited availability or concentration of reserves/extraction in specific regions creates **supply chain vulnerabilities**.
- **India's Position:** Released a list of **30 critical minerals** (e.g., Bismuth, Cobalt, Copper, RREs, Silicon, Tin, Titanium); high import dependency.
- **Initiatives for Critical Minerals:**

Category	Initiatives
Policy & Regulatory Framework	NCMM (1,200 deposits by 2030); MMDR Amendment Act, 2023; National Mineral Policy, 2019
Exploration & Domestic Production	GSI exploration; Lithium discovery (2023, Reasi, J&K); plans for strategic reserves (lithium, cobalt, etc.)
International Collaborations & Trade	KABIL (2019); Minerals Security Partnership (MSP)

SC Issues DNA Evidence Guidelines in Criminal Cases

In the **Kattavellai@Devakar v. State of Tamil Nadu case 2025**, the **Supreme Court (SC)** issued guidelines to ensure the integrity of **DNA evidence** in criminal investigations.

SC Guidelines on DNA Evidence Handling

- **Proper Documentation at Collection Stage:** The document must record important information like **FIR number, investigating officer details**, signatures of the **medical professional, and independent witnesses**.

- Samples must not be opened, altered, or resealed without **trial court authorization**.
- **Timely Transportation:** The **investigating officer** must transport **DNA samples** to the **Forensic Science Laboratory (FSL)** within **48 hours**.
- **Chain of Custody Maintenance:** A **Chain of Custody Register** must be maintained from **sample collection** to **case closure** and included in the **trial court record**.

Issues Involved in DNA Evidence Management

- **Collection and Preservation Issues:** DNA evidence is prone to **contamination, degradation** from heat or moisture, and may have **insufficient quantity** for analysis or retesting.
- **Analysis Issues:** DNA evidence faces **human error, bias,** and **lack of standardized lab protocols**, affecting reliability.
- **Privacy Issues:** DNA databases raise **privacy concerns, function creep, surveillance risks,** and potential **genetic discrimination**.
- **Interpretative Issues:** **Overreliance on DNA** and challenges with **complex mixtures or trace DNA** can lead to **misinterpretation and wrongful convictions**.

Judicial Stand on DNA Evidence Admissibility

- **Kunhiraman v. Manoj Case (1991):** DNA technology was first used in India to resolve a paternity dispute.
- **Sharda v. Dharmpal Case (2003):** SC endorsed the use of DNA technology in civil and matrimonial disputes, ruling it does not violate **Article 21 (right to personal liberty)** or **Article 20(3) (right against self-incrimination)**.
- **Bharatiya Nagarik Surakhsha Sanhita, 2023 (Section 51):** Authorizes the medical examination of apprehended individuals, including DNA profiling and other necessary tests by a registered medical practitioner.
- **Rahul v. State of Delhi, MHA (2022):** DNA evidence was rejected as the sample remained in police custody for two months, raising **tampering concerns**.
- **Devakar case (2025):** DNA evidence is classified as **opinion evidence** under **Section 39 of the Bharatiya Sakshya Adhiniyam, 2023**, and its probative value differs by case, requiring **scientific and legal validation**.

Supreme Court’s Interim Order on the Waqf (Amendment) Act, 2025

The **Supreme Court (SC)** has stayed certain provisions of the **Waqf (Amendment) Act 2025**, amid concerns that it violates **Article 26**, undermines community autonomy through excessive administrative powers and non-Muslim representation on **Waqf Boards**, and may impact existing Waqf properties and philanthropy.

Waqf Act, 1995

- The **Waqf Act, 1995**, is a central act in India that provides for the better administration, management, and protection of Waqf properties, endowments of property made for religious or charitable purposes under Muslim law.
 - It establishes **Waqf Boards** at both the state and national levels to oversee these properties, ensuring they are used for their intended purposes and managed transparently and legally.
- The **Waqf (Amendment) Act, 2025 (UMEED (Unified Waqf Management, Empowerment, Efficiency, and Development) Act)**, amended the **Waqf Act, 1995**.
 - **Key Provisions:**
 - ❖ **Trusts Excluded:** Muslim-created trusts are legally separate from Waqfs if governed by other charity laws.
 - ❖ **Protection of Inheritance Rights:** Women and children must receive their rightful inheritance before property becomes Waqf.
 - ❖ **Protection of Tribal Lands:** It prohibits the establishment of Waqf on lands belonging to tribal communities under the Fifth and Sixth Schedules of the Constitution.
 - ❖ **Appeal Mechanism:** High Court can hear appeals against Waqf Tribunal decisions.
 - ❖ **Financial Reforms:** Mandatory contribution to Waqf boards reduced from 7% to 5%.
 - ❖ **Income Audit:** Waqf institutions earning over Rs 1 lakh annually are subject to government-mandated audits.
- **Waqf Board:** A Waqf Board is a legal entity that can acquire, hold, transfer property, and sue or be sued.
 - It manages **Waqf properties** (assets dedicated for religious or charitable purposes), recovers lost assets, and approves transfers (sale, gift, mortgage, exchange, lease) with at least two-thirds board approval.
 - The **Central Waqf Council (CWC)**, a statutory body under the Ministry of Minority Affairs, oversees and advises State Waqf Boards.

Provisions Upheld by SC

- **Applicability of the Limitation Act:** The **Waqf Act, 1995** specifically excluded the application of the **Limitation Act 1963**, which allowed Waqfs to act against encroachments on their properties without any time limit.
 - The **Waqf Amendment Act, 2025** removes this exemption, requiring legal claims to be filed within a specified period.
 - ❖ The Court upheld this provision, noting it corrects earlier discrimination.
- **Abolition of “Waqf by Use”:** Earlier, land used for Muslim religious/charitable purposes for long **could be deemed**

Waqf even without registration. The 2025 Amendment Act removed the “Waqf by Use” concept, citing misuse.

- SC upheld this noting misuse for encroaching government lands and finding no prima facie reason to stay it.

Provisions Stayed by SC

- **Five-Year Rule for Practising Muslims:** The Amended Act mandated that a waqf can only be created by a person who has practised Islam for at least 5 years.
 - SC has stayed this provision, since there is **no mechanism to verify religious practice** until the government frames clear rules.
- **Powers of District Collectors (Section 3C):** The Amended Act stipulates that District Collectors can declare a waqf property as government property during their inquiry (property will not be treated as a waqf property during the period of the inquiry).
 - SC has stayed this provision, calling it **arbitrary and a violation of separation of powers**, as property disputes must be **decided by tribunals or courts**.
 - ❖ As per Supreme Court, during the inquiry, **Waqf properties will retain their status**, cannot be dispossessed, and no third-party rights shall be created until a final decision is rendered by a **Waqf Tribunal**.
- **Non-Muslim Representation in Waqf Boards:** The Act allowed large numbers of non-Muslims, even a majority, in Waqf Boards and the Central Waqf Council.
 - **SC capped non-Muslim representation:**
 - ❖ **Central Waqf Council (22 members)** shall not have **more than 4 non-Muslims**.
 - ❖ **State Waqf Boards (11 members)** shall not have **more than 3 non-Muslims**.

Judicial Pronouncements Regarding Religious Freedom in India

- **Bijoe Emmanuel v. State of Kerala, 1987:** SC held that students cannot be compelled to sing the **National Anthem if it violates their religious beliefs**. It established that individuals have the **right to refuse** to participate in activities that go against their religious beliefs, as long as they do not disrupt public order.
- **Shayara Bano v. Union of India, 2017:** SC struck down instant triple talaq (Talaq-e-Biddat) citing it as **unconstitutional**, violating Article 14 (Right to Equality) and gender **justice principles**, holding it is not an essential religious practice under Article 25.
- **Dr. Mahesh Vijay Bedekar v. Maharashtra, 2016:** SC held that using loudspeakers is not an essential religious practice and cannot be claimed as a fundamental right under **Article 25 (freedom of religion) or Article 19(1)(a) (freedom of speech and expression)**.

Quality Control Orders

The rapid increase in **Quality Control Orders (QCOs)** issued by the **Bureau of Indian Standards (BIS)** over the past three years has drawn criticism from **MSMEs**, which view these mandatory QCOs regulations as costly and restrictive to their operations.

Quality Control Orders (QCOs)

- **About:** **BIS certification is voluntary** by default but **becomes mandatory for certain products when required in the public interest**, such as for health, environment, national security, or to prevent unfair trade practices.
 - For these products, **mandatory compliance with Indian Standards is enforced through Quality Control Orders (QCOs)**, which direct the use of the **BIS Standard Mark under a valid BIS licence**.
 - **Objective:** Aligned with **Technical Barriers to Trade (TBT) Agreement of WTO**, QCOs aim to **ensure product safety, curb substandard goods, attract investment**, and protect consumers, while helping manufacturers detect defects early and improve quality.
 - **Legal Provisions:** Based on **BIS Act, 2016**, QCOs are issued by the **relevant Line Ministries or Regulators of the Central Government** for specific products or categories after consultation with **BIS**.
 - Products under QCOs are governed by **BIS (Conformity Assessment) Regulations, 2018**.
 - Violating a QCO is punishable under BIS Act, 2016 with imprisonment, fine, or both.
 - QCOs cannot be challenged at the **WTO** if they are imposed on the grounds of health, safety, environment and deceptive trade practices, or national security.
 - **Prohibition Orders:** After a QCO comes into effect, no one can manufacture, import, sell, or handle the covered products without a **BIS Standard Mark under a valid Licence**.
 - **Applicability to Imported Goods:** Domestic rules apply equally to imports. Foreign manufacturers must obtain Licence/Certificate of Conformity (CoC) under **Foreign Manufacturers Certification Scheme (FMCS)**.
- #### Challenges Related to QCOs
- **High Compliance Costs:** QCOs make BIS certification compulsory, with penalties for non-compliance. Producers of intermediate goods generally support them, but downstream industries worry that the added **certification costs will push up production expenses** and eventually increase consumer prices, leading to disputes.
 - Smaller enterprises often struggle to comply compared to larger companies, affecting competitiveness.
 - **Non-Tariff Barrier Effect:** QCOs can restrict imports of certain goods, limiting access to cheaper raw materials.

- QCOs can complicate India's trade negotiations, as **mandatory compliance requirements may be perceived as non-tariff barriers** by partner countries, potentially affecting agreements with the **US, EU, and other trade partners**.
- **Limited Coverage and Industry Pushback:** Of over 23,000 BIS standards, only 187 have QCOs, mostly in steel and electronics, showing **narrow reach and challenges in wider enforcement**.
- **Implementation Challenges:** Delays or difficulties in obtaining **BIS certification** can disrupt production and sales.

Steps Taken by BIS to Address Current Challenges Regarding QCOs

- **Digitisation of Certification:** BIS has **digitised the certification process** and provides **time-bound certification** within 30 days to domestic industries, including MSMEs, covering over 750 products.
- **Open Interaction Platforms:**
 - **Jan Sunwai:** A portal where anyone can log queries.
 - **Manak Manthan:** Field-level engagement to provide handholding support to MSMEs.

Measures to Ensure Effective Implementation of QCOs

- **Recognition of Cluster-Based Testing Facilities:** Promoting **industry clusters with shared testing infrastructure** helps small enterprises access quality certification at lower cost without duplicating resources.
- **Technical Assistance and Training:** Providing **hands-on training programs** on Indian Standards, product testing, and documentation ensures smoother certification compliance.
- **Market Linkages and Export Support:** Linking certified MSME products with **government procurement schemes, e-commerce platforms, and export promotion programs** incentivizes compliance and enhances market reach.
- **Leveraging Certification Bodies and Trade Agreements:** Utilizing accredited certification bodies for low- and medium-risk products to reduce BIS workload and improve processing times.
 - Pursuing **mutual recognition agreements (MRAs)** in trade negotiations can streamline compliance for exports and foster international market access.
- **Feedback Mechanism for Continuous Improvement:** Creating a **real-time grievance redressal and suggestion system** allows MSMEs to report bottlenecks and helps regulators refine QCO procedures dynamically.

Curbing Fake News in India

The **Standing Committee on Communications and Information Technology** in the Parliament has proposed several measures aimed at **curbing the spread of 'fake news'**

and **misinformation**, highlighting the potential harm such content can cause to public order and democratic processes.

Recommendations to Curb Fake News

- **Fact-checking Mechanisms:** The committee favors making it mandatory for all media organizations to have a **fact-checking mechanism** and an internal **ombudsman** to oversee editorial content.
- **Penal Provisions:** It suggests amendments to **laws to increase fines and hold media accountable for editorial content** and discourage the spread of misinformation.
 - The panel supports a clear definition of 'fake news' and incorporates it into existing media regulations while ensuring that such efforts do not infringe on freedom of speech or individual rights.
- **Strengthening the Press Council of India:** Create a complaint portal and an independent monitoring body for better oversight
- **Regulation of AI-generated Content:** Licensing for AI content creators and mandatory labeling of AI-generated material, such as videos, to enhance transparency and reduce the spread of deceptive material.

Need to Curb Fake News

- **Threat to Democracy:** Fake news can manipulate public opinion, especially during elections, undermining the democratic process.
 - Fake news undermines **citizens' right to information**, which is protected under Article 19 as upheld by the **Supreme Court of India in *Raj Narayan vs. Uttar Pradesh Government (1975)***.
- **Disruption of Public Order:** Misinformation can lead to violence and unrest, threatening social stability.
 - In 2018, WhatsApp rumors about child kidnappers in India led to mob lynchings across several states, causing deaths and public disorder.
- **Erosion of Trust:** Fake news reduces **trust in media and institutions, making it harder for society to make informed decisions**.
 - During the Covid-19 pandemic, misinformation regarding vaccines and treatments circulated widely, causing people to **question government health guidelines and delaying vaccination efforts**.
- **National Security Risks:** Misinformation can destabilize nations and create divisions, posing a security threat.
 - In the aftermath of the **2020 anti-Citizenship Amendment Act (CAA) protests**, fake news related to the CAA spread, leading to violence and protests in multiple cities, increasing tensions and security concerns.

- **Health and Safety Risks:** False health information can lead to **dangerous behaviors**, negatively affecting public health by causing panic, fear, depression, and fatigue.

Challenges in Regulating Fake News

- **Defining Fake News:** Defining what constitutes “fake news” is subjective, there is **no universally accepted definition** making it difficult to distinguish **fake news from opinions, satire, or commentary**.
- **Freedom of Speech:** Excessive regulation risks curbing the **fundamental right to free speech under Article 19** of the Constitution. Balancing regulation with democratic freedoms is complex.
- **Rapid Spread on Digital Platforms:** Social media enables instant sharing of content, allowing **fake news to go viral before fact-checking can occur**. This rapid dissemination makes timely intervention difficult.
 - Many social media platforms are based outside India, creating legal and jurisdictional challenges in enforcement and accountability.
- **Technological Complexity:** AI-generated content, deepfakes, and automated bots can **create highly realistic misinformation that is hard to detect**. Laws often lag behind these fast-evolving technologies.
 - The **anonymity provided by the internet** allows people to spread false information without accountability. This makes it difficult to trace the originators of fake news and hold them responsible.
- **Low Digital Literacy:** A significant portion of the **population lacks the skills to critically evaluate information online**, making them more vulnerable to misleading content.
- **Risk of Government Overreach:** Heavy-handed regulation may be perceived as censorship, potentially undermining trust in authorities and media institutions.
- **Political and Social Polarization:** In politically or socially polarized environments, people may be more likely to accept fake news that aligns with their beliefs, making it harder to regulate and challenge misinformation effectively.

India's Initiatives to Prevent Spread of Fake News

- **Press Council of India (PCI):** Provides guidelines for ethical journalism.
- **IT Act, 2000:** Empowers the government to regulate intermediaries and online content.
 - Under the **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021**, intermediaries must not host, publish, or share unlawful content.
 - ❖ Failure to comply with these due diligence obligations results in the loss of safe-harbour immunity under Section 79 of the IT Act

- **Press Information Bureau (PIB) Fact-Check Unit:** Counters government-related misinformation.
- **Election Commission of India (ECI):** ECI introduced ‘**Myth vs Reality Register**’ to proactively combat mis-information in General Elections 2024. ECI also conducts campaigns to counter fake news during polls.
- **Ministry of Information & Broadcasting Advisory (2024):** Prohibits promotion of online betting and surrogate ads targeting Indian users.
- **Indian Cyber Crime Coordination Centre (I4C):** Framework for law enforcement to tackle cybercrimes.
- **National Cyber Crime Reporting Portal:** Allows citizens to report cybercrimes; routed to State/UT police for action.

Mechanism to Strengthen Fake News Regulation in India

- **Strengthen Legal and Regulatory Frameworks:** Legislation should precisely **distinguish fake news from opinions, satire, or dissent** to avoid misuse.
 - Singapore’s criminal laws on misinformation and EU’s self-regulatory code provide insights on balancing regulation and enforcement.
- **Empower and Institutionalize Fact-Checking:** Fact-checking organizations should be **certified by a central body**, with regular audits to ensure adherence to quality standards.
 - The European Fact-Checking Standards Network offers models for transparency and reliability.
- **Platform Accountability and Regulation:** They must ensure transparency by **disclosing recommendation and amplification algorithms** to prevent the viral spread of false information, as exemplified by the EU Digital Services Act, which mandates platform accountability and swift removal of illegal content.
 - Additionally, platforms **should clearly label synthetic or AI-generated content to keep users informed** and aware of manipulated or automated material.
- **Leverage Technology and AI Responsibly:** AI tools can amplify fake news, but with **purpose-built AI tools and human oversight**, it can also mitigate it at scale.
 - **Community Notes programme** and AI tools can integrate **BHASHINI** for India’s **linguistic diversity to detect context-specific misinformation**.
- **Promote Media Literacy and Public Awareness:** Integrate digital literacy into school curricula and encourage critical thinking and responsible sharing behavior on social media.
 - Use local influencers, fact-checkers, and NGOs to reach linguistically and culturally diverse populations.
- **Inter-Ministerial Coordination:** Align efforts of MeitY, MIB, MHA, and Consumer Affairs for unified action. Ensure content removal or penalties are subject to review to prevent misuse.

President's Rule in India

The extension of **President's Rule** in Manipur has drawn attention to the **historical use of Article 356 across India**, showing how its imposition not only suspends state democracy but also reshapes political power dynamics.

President's Rule

- **About: President's Rule** refers to the suspension of a state government and its legislative assembly, placing the state under the direct control of the central government.
 - It is imposed under **Article 356 of the Constitution** in case of **failure of constitutional machinery** in States. President's Rule is also called **State Emergency or Constitutional Emergency**.
 - The **Constitution** does not clearly define "**failure of constitutional machinery**," leading to **subjective interpretations** by the Centre, which can result in misuse.
- **Constitutional Basis:**
 - **Article 355:** Mandates the central government to ensure that states function according to the Constitution.
 - **Article 356:** Allows the President to impose President's Rule if the state government fails to function constitutionally, either on the **Governor's recommendation** or at the **President's discretion**.
 - **Article 365:** If a state does not comply with the Centre's directions, the President can declare that its government cannot function constitutionally.
- **Grounds for Proclamation:** The President can impose President's Rule under **Article 356 of the Indian Constitution** if they are satisfied that the state's governance cannot continue constitutionally, acting either on the Governor's report or on other information or their own discretion
 - Also, if a state fails to comply with the Centre's directions, President's Rule may be declared.
- **Parliamentary Approval:** The proclamation must be approved by both Houses of **Parliament** within two months.
 - If President's Rule is declared when the **Lok Sabha** is dissolved, or if it dissolves within two months without approving the proclamation, it remains valid until 30 days after the Lok Sabha reconvenes, provided the **Rajya Sabha** approves it.
 - Approval or extension requires a **simple majority** in Parliament (majority of members present and voting).
- **Duration:** Initially lasts for **six months** and can be extended up to **three years** with Parliament's approval every six months.
 - The **44th Amendment Act, 1978** permits extension beyond one year if a **National Emergency** is in force,

or if **Election Commission of India** certifies that elections cannot be held.

- For extension beyond three years, a **constitutional amendment** is required (e.g., **67th** and **68th Amendments** for Punjab during insurgency).
- **Revocation:** The President can revoke President's Rule anytime without parliamentary approval.
- **Impacts of President's Rule:**
 - **Executive Powers:** The President assumes control over state functions, with the **Governor acting on their behalf**, supported by the **Chief Secretary and appointed advisors**.
 - **Legislative Powers:** The State Legislature is **suspended or dissolved**, with **Parliament** exercising law-making authority (**as outlined in Article 357**) or delegating it to the President or a designated body.
 - ❖ Laws made during this period remain effective unless repealed by the state legislature.
 - **Financial Control:** The President can authorize expenditure from the State Consolidated Fund, but this expenditure must be subsequently approved by the Parliament.
 - **Fundamental Rights:** President's Rule **does not curb citizens' fundamental rights**, unlike a National Emergency where Article 19 freedoms are suspended and other rights (**except 20 and 21**) may be curtailed.

Judicial Pronouncements Regarding the President's Rule in India

- **S. R. Bommai Case (1994):** The Supreme Court ruled that **Article 356** is subject to **judicial review**, and the dismissal of a state government must be based on a **floor test**, not merely the **Governor's opinion**.
- **Sarbananda Sonowal Case (2005):** The Supreme Court reinforced the Union's duty under Article 355 to **protect states from external aggression and internal disturbance**.
- **Rameshwar Prasad Case (2006):** The SC condemned the **Bihar Assembly's dissolution** without a floor test and criticized the **political misuse of Article 356**, stating it cannot be used to combat **social evils** like defection.

Positive Functions of President's Rule in India's Federal Structure

- **Restoration of Constitutional Machinery:** When a state government fails to function as per constitutional provisions, due to breakdown of law and order or failure of governance, **President's Rule ensures continuity of administration**.
 - It acts as a **constitutional safety valve**, preventing **anarchy** and safeguarding the larger federal framework.
 - **Example:** Imposition of President's Rule in states during communal riots or severe political crises helps prevent a total collapse of governance.

- **Protection of National Integrity and Security:** In situations of **secessionist movements, insurgency, or external threats**, President's Rule allows the Union to directly step in and maintain sovereignty.
 - The Union government, with **wider resources** (Army, CAPF, intelligence agencies), can act decisively, something state governments may not manage effectively.
 - **Example:** Use of **President's Rule in Punjab** during the 1980s helped combat militancy and restore stability.
- **Neutral Administration During Political Deadlock:** In cases of hung assemblies or **mass defections** where no party can prove a majority, President's Rule prevents horse-trading and unstable coalitions.
 - It creates **space for a fresh electoral mandate**, ensuring that governance is not held hostage to political opportunism.
- **Ensuring Uniform Implementation of National Policies:** During emergencies like **natural disasters, pandemics, or economic crises**, President's Rule enables seamless coordination between Union and State.
 - Central control ensures efficient allocation of resources and faster decision-making, bypassing local political tussles.
- **Safeguard Against Corruption and Maladministration:** President's Rule acts as a safeguard against **corruption, abuse of power, and rights violations in states**.
 - It upholds **rule of law, ensures accountability**, and reinforces public faith in the Constitution by showing checks and balances against misuse of power.

Concerns Surrounding the

Imposition of the President's Rule

- **Risk to Federalism and State Independence:** President's Rule temporarily places a state under central control, which **can disturb the balance of power between the Union and the states**. Frequent impositions may weaken the spirit of cooperative federalism envisaged in the Constitution.
 - It weakens **elected state governments**, allowing the **Centre** to take over **executive and legislative** control, diminishing state powers.
- **Potential of Political Misuse for Power:** There is a risk that President's Rule may be **invoked for political advantage rather than genuine governance** crises as reflected in historical examples.
 - State governments are vulnerable to arbitrary intervention when facing internal instability. This political misuse often consolidates **Centre's power** at the expense of regional political entities.
- **Risk of Governance Paralysis: President's Rule** delays **policy execution** and weakens administration, as state officials now report directly to the **Centre**, leading to **governance paralysis**.
 - Central authorities may lack familiarity with the local socio-economic and cultural context of a state.
 - Policies and programs may not be tailored to regional needs, reducing effectiveness.
- **Governor's Role and the Risk of Partisanship:** The role of the **Governor** in recommending **President's Rule** has been controversial, as evidenced by the **Arunachal Pradesh case (2016)**. The **Punchhi Commission** suggested that Governors should act **independently** and not as **"agents of the Centre"**.

Reforms to Ensure

Responsible Application of President's Rule

- **Sparing Use of Article 356:** As recommended by the **Sarkaria Commission (1983)**, **Article 356** should be used only as a **last resort** after exhausting all alternatives for resolving a state's **constitutional breakdown**.
 - The definition of **"failure of constitutional machinery"** should be precisely defined to prevent misuse.
- **Localized Emergency Provisions:** The **Punchhi Commission (2010)** suggests **localizing emergency provisions** under **Articles 355 and 356**, allowing **Governor's rule** in specific areas (e.g., districts) for up to **three months**.
- **Detailed Governor's Report:** The **Inter-State Council** suggests that the **Governor's report** should be **detailed and explanatory**, and the state should receive a **warning** before **President's Rule** is imposed.
 - A **mandatory floor test** should be conducted to prove the loss of majority before President's Rule is invoked. This ensures democratic accountability and prevents misuse for political purposes.
- **Special Majority for Ratification:** A **special majority** in **Parliament** should be required to ratify the proposal to impose **President's Rule**, ensuring broader **political consensus**.
- **Strengthening Judicial Scrutiny:** The **judiciary's role in reviewing President's Rule must be strengthened**. A mandatory judicial review mechanism should ensure that President's Rule is invoked only when necessary and based on a genuine constitutional breakdown.
- **Encouraging Decentralized Administration:** **Local governance mechanisms** should be strengthened to ensure a balance between **central intervention** and **state autonomy** during **President's Rule**.
- **Timely Elections and Accountability:** Elections should be **held promptly after President's Rule** to restore democratic governance and reinstate the people's mandate.

- Prolonged President’s Rule should be avoided unless genuine circumstances like national security concerns or disasters prevent timely elections.

Begging in India

The **Supreme Court (SC)** in *M.S. Patter v. State of NCT of Delhi* held that state-run beggars’ homes are neither “quasi-penal facilities” nor acts of “discretionary charity” but are constitutional trusts.

- The SC emphasized the state’s duty under **Article 21** to protect life with dignity, and issued directions to ensure institutions uphold these rights.

Directives Issued by the SC on Begging in India

- **Safety and Security:** Separate and safe facilities for women and children with childcare, counselling, and education.
 - SC clarified that children must not be kept in beggars’ homes but should be referred to child welfare institutions under the **Juvenile Justice (Care and Protection of Children) Act, 2015**.
 - This aligns with India’s obligations under the **UN Convention on the Rights of the Child**.
- **Health and Wellness:** Mandatory health check-ups within 24 hours of admission. Appointment of dieticians to monitor nutrition levels in food.
- **Infrastructure and Maintenance:** Independent third-party infrastructure audits every two years.
 - Strict occupancy limits to prevent overcrowding.
 - Vocational training for reintegration into society.

Legal Framework Concerning Begging in India

- **Current Legal Framework:** The Constitution of India allows both the Union and state governments to enact laws on vagrancy (includes beggary), nomadic, and migratory tribes under the **Concurrent List (List III, Entry 15)**.
 - There is **no central law on beggary**; instead, many states and Union Territories follow the **Bombay Prevention of Begging Act, 1959**, which defines a beggar as **anyone soliciting alms, offering goods for sale, or appearing destitute**.
- **Judicial Stand:** In *Harsh Mander v. Union of India (2018)*, the Delhi High Court ruled that the **Bombay Act** violated the right to live with dignity, underscoring the importance of addressing poverty without criminalizing it.
 - In **2021**, the **SC** rejected a **Public Interest Litigation** to remove beggars from public spaces, emphasizing that begging is a socio-economic issue, not a criminal one.
- **Government Efforts:**
 - **SMILE:** Launched in 2022, **Support for Marginalised Individuals for Livelihood and Enterprise (SMILE)** by Ministry of Social Justice and Empowerment, aims to

rehabilitate beggars by providing medical care, education, and skills training, working toward a “**beggar-free**” India by 2026.

- 970 individuals have been rehabilitated under SMILE, including 352 children(As of 2024).
- As per **Census 2011**, India has around **413670 beggars and vagrants**. West Bengal leads with the highest number of beggars, followed by Uttar Pradesh and Bihar.

Factors Contributing to Begging and their Impact on Society	
Factors Contributing to Begging	Impacts on Society
○ Economic Hardship: Poverty, unemployment, and migration force people into begging. ○ Social and Cultural Factors: The caste system and hereditary occupations in certain communities contribute to begging. ○ Physical and Mental Disabilities: Disabled individuals often resort to begging due to lack of rehabilitation and healthcare. ○ Natural Disasters: Displacement caused by floods, droughts, and earthquakes increases poverty and leads to begging. ○ Organized Begging Rings: Human traffickers and criminal syndicates exploit vulnerable individuals, including drugging babies for sympathy-driven donations.	○ Public Health Risks: Lack of sanitation in begging hotspots leads to the spread of diseases. ○ Crime and Exploitation: Organized begging rings exploit individuals, including child trafficking and forced labor. ○ Tourism and Urban Impact: Aggressive begging affects tourism, security, and public perception of urban spaces. ○ Human Rights Violations: Beggars are often arrested under anti-begging laws without alternative rehabilitation, targeting the poor and marginalized. ○ Burden on Public Services: Malnourished beggars cause strain on healthcare systems and public welfare resources.

Approach to Address Begging in India

- **Strengthen rehabilitation** through shelters, skill development, and integration with welfare schemes like **MGNREGA**, and **PMAY**.
- **Strict enforcement of anti-trafficking laws** to dismantle **begging cartels** under the **Bharatiya Nyaya Sanhita (BNS), 2023** through better coordination between police, **Non-governmental Organizations (NGOs)**, and child welfare organizations.
- **Improve healthcare and sanitation** access for beggars through mobile clinics and inclusion in public health programs.
- **Promote social awareness and integration** to reduce stigma and encourage civil society participation in rehabilitation.

Nation & States

India's Federal Design and J&K Statehood

The **Supreme Court of India** has sought a detailed response from the Centre on **restoring statehood to Jammu and Kashmir (J&K)** in the plea **Zahoor Ahmed Bhat vs UT of J&K**.

- It is argued that delaying the restoration of J&K's statehood infringes **citizens' rights and undermines federalism**, a part of the **Constitution's basic structure**.

Creation of States in India

- **Admission:** A new State may be admitted into India if it has an organized political unit, guided by international law.
 - **Example:** J&K's accession in 1947 via the Instrument of Accession.
- **Establishment:** Territory acquired under international law can be established as a State. **Example: Goa and Sikkim.**
- **Formation/Reorganisation:** Existing States can be reorganized under **Article 3 of the Constitution**, which empowers Parliament to form a new State by separating or merging territories, increasing or diminishing a State's area, and altering the boundaries or names of States. **Example: Formation of Telangana from Andhra Pradesh.**
- **Limitation:** While the **Union can diminish a State's area**, converting it into a Union Territory is **not specifically mentioned in the Constitution** of India, which underscores the **need to restore J&K's statehood in line with the principle of federalism**.
 - But there are certain considerations that brought about the scope for the creation of Union Territories.

Considerations for Formation of UTs

- **Constitutional Framework**
 - **Article 1:** India as a "Union of States," (explicitly including UTs).
 - **The 7th Constitutional Amendment Act and the Section 6 of States Reorganisation Act (1956):** Institutionalized the concept of UTs.
- **Other Considerations**
 - **Political & Administrative:** Direct governance in sensitive regions (Delhi, Chandigarh).
 - **Cultural:** Preservation of unique cultural identities (Puducherry).
 - **Strategic:** Security in Strategic locations (Andaman & Nicobar, Lakshadweep).
 - **Developmental:** Focused growth in backward/tribal areas before statehood (Mizoram, Tripura).

India's Federal Design and Its Impact on J&K Statehood

- **India's Federal Design:** India is a **Union of States**, indivisible and **without a right to secede (Article 1)**.

- The Constitution uses the term **'Union'** instead of **'Federation'** to balance unitary strength with federal character.
- Federalism ensures equitable resource distribution and representation of States at the Union level. Rajya Sabha as a **permanent House ensures States' representation at the Union level, safeguarding federal interests**.
- Federalism is part of the Constitution's basic structure, meaning it cannot be abrogated.
- **J&K Context:** The 2019 Jammu and Kashmir Reorganisation Act transformed the region into two Union Territories: Jammu & Kashmir and Ladakh.
 - Although the constitutional validity of this act was upheld by the Supreme Court in 2023, it mandated the **eventual restoration of J&K's statehood**.
 - Critics contend that the **prolonged delay undermines federalism by extending Union dominance through the Lieutenant Governor**, thereby limiting the powers of elected representatives.
 - Conversely, proponents argue that due to **J&K's sensitive security context, maintaining Union control is crucial until stability is firmly established**.
- **Importance of Restoring Statehood:** It reaffirms India's commitment to **federal integrity by promoting shared governance between the Union and States**.
 - It empowers the elected Assembly, and enhances democratic rights through better representation and accountability.

Process for Restoring Statehood

- Restoring statehood to Jammu and Kashmir would require repealing the J&K Reorganisation Act and introducing a new bill in Parliament.
 - Under Article 3, Parliament can form a new state from existing territories with the President's recommendation, who acts on the advice of the Council of Ministers, making it a decision of the Union government.
- Precedents of granting statehood to Union Territories in India include Himachal Pradesh in 1971, Manipur and Tripura in 1972, and Arunachal Pradesh and Mizoram in 1987.
 - Additionally, Goa was formed as a state in 1987 by converting the Union Territory of Goa, Daman, and Diu.

Immigration and Foreigners Act, 2025

The **Immigration and Foreigners Act, 2025** came into effect on 1st September 2025, consolidating India's **immigration laws**, imposing stricter penalties for forged documents, and strengthening reporting and monitoring of foreigners.

- It repeals four outdated laws: the **Passport (Entry into India) Act, 1920**, the **Registration of Foreigners Act, 1939**, the **Foreigners Act, 1946**, and the **Immigration (Carriers' Liability) Act, 2000**.

Key Provisions of the

Immigration and Foreigners Act, 2025

- **Tougher Penalties for Forged Travel Documents:** 2–7 years imprisonment and a fine of Rs 1–10 lakh for using or supplying forged passports, visas, or other travel documents.
 - Up to 5 years imprisonment or Rs 5 lakh fine for foreigners entering restricted areas without valid authorization.
- **Mandatory Reporting of Foreigners' Details:** Hotels, universities, educational institutions, hospitals, and nursing homes must report information about foreign nationals staying or visiting.
 - International airlines and shipping companies are required to share advance passenger and **crew data before arrival**.
- **Government Control Over Premises:** Central government empowered to regulate or shut down premises frequently visited by foreigners if deemed necessary for security reasons.
- **Bureau of Immigration:** It grants statutory backing to the **Bureau of Immigration** (established in 1971 under the Intelligence Bureau) to identify, detain, and deport illegal foreigners.

Did You Know?

- **US:** Launched "Catch and Revoke" using AI tools to identify and revoke visas of individuals linked to terrorist groups.
- **Australia:** Allows detention of non-citizens considered a security risk, but prohibits indefinite detention of stateless persons unless deportation is possible.
- **Gulf Countries:** Saudi Arabia, Bahrain, and Kuwait have deported thousands of migrant workers on security grounds, often with limited avenues of appeal.

Recurring Flood in Punjab

Punjab (land of five rivers) is facing **one of its worst floods** in 40 years, with **all 23 districts affected**, 3.8 lakh people impacted, and over **11.7 lakh hectares of farmland destroyed**.

- This has raised debates on the continuous and large-scale flooding in Punjab and related issues.

Causes of Flooding in Punjab

- **Natural Causes**
 - **Heavy Monsoon Rains:** Intense rainfall in catchment areas (Himachal, J&K, Punjab), amplified by **cloudbursts**, leads to sudden river swelling.

- **Geographical Vulnerability:** Punjab is drained by **three perennial rivers—Ravi, Beas, and Sutlej**—along with the seasonal Ghaggar and smaller tributaries (choes).

❖ These rivers make the state fertile (producing ~20% of India's wheat and 12% of rice from 1.5% of landmass), earning it the title "**food bowl of India**", but also prone to floods.

❖ **Past major floods occurred in 1955, 1988, 1993, 2019, and 2023.**

- **Climate Change:** Altered weather patterns, with intense and erratic rainfall, have transformed the monsoon from an **agricultural ally to a destructive force**, as per **IPCC AR6** findings.

Human-Induced Factors

- **Dam Management Issues:** Bhakra (Sutlej), Pong (Beas), and Thein/Ranjit Sagar (Ravi) dams release water during heavy rains (45% excess rainfall in 2025), often without timely coordination and timely warnings.

❖ In 2025, **unprecedented inflows (20% higher than 2023 at Pong)** led to sudden releases, flooding downstream areas.

- **Inadequate Flood Cushion:** The **Bhakra Beas Management Board (BBMB)** is criticized for **maintaining high reservoir levels** in July–August for irrigation and power, **leaving little buffer for heavy rains in August–September**.

- **Barrage Failures:** In August 2025, two gates of Madhopur Barrage on Ravi failed after sudden dam releases.

- **Weak Embankments (Dhussi Bundhs):** Poor maintenance and illegal mining have weakened flood protection structures.

❖ **Failure to implement a 2024 flood-preparedness guidebook** led to unmaintained canals, and clogged drainage systems obstructing natural water flow.

- **Governance Gaps: Lack of coordination between Centre-controlled BBMB, Punjab's irrigation authorities, and disaster response agencies.**

❖ Poor drainage systems in southern Punjab's Malwa region, coupled with incessant local rainfall, have caused severe waterlogging.

- **Unregulated Development:** Illegal construction on floodplains and riverbanks, coupled with deforestation, has reduced natural flood buffers.

❖ The **Supreme Court and National Green Tribunal** noted illegal tree felling as a contributor to floods and landslides.

Challenges in Punjab's Flood Management

■ Governance Issues

- **Centralized Control:** The major centrally controlled dams prioritizes irrigation and power over flood management, leaving Punjab with limited influence.
 - ❖ The **2022 amendment allowing non-Punjab/Haryana officers in top BBMB** posts has further strained state-Centre relations.
- **Reactive Approach:** Governments often **respond post-flood rather than investing in preventive measures** like embankment strengthening or desilting.

■ Infrastructure Deficiencies

- **Weak Embankments:** Illegal sand mining and poorly maintained drainage systems exacerbate waterlogging, particularly in southern Punjab.
- **Underinvestment:** Strengthening **embankments and desilting rivers require Rs 4,000–5,000 crore**, which remains unaddressed due to funding constraints.
- **Climate Variability:** Increasingly erratic monsoons and extreme rainfall events, driven by climate change, challenge existing flood management strategies.

Impacts of the Floods in Punjab

- **Agricultural Devastation:** Over 4 lakh acres of farmland submerged with crops like paddy and basmati rice are facing quality issues, potentially fetching prices below MSP.
 - Post-flood challenges include land erosion, silt deposition, and difficulties in sowing new crops, threatening Punjab's role as India's food bowl.
- **Economic Fallout:** Farmers face financial hardship due to crop losses and degraded land, exacerbating existing agricultural debt.
 - Infrastructure damage, including roads and irrigation systems, requires significant repair costs, straining state resources.
- **Public Health Crisis:** Floodwaters, particularly from polluted rivers like Buddha Dariya in Ludhiana, have caused "black floods," carrying industrial pollutants and untreated waste, risking outbreaks of cholera, typhoid, hepatitis A, dengue, and malaria.
 - Long-term groundwater contamination and soil degradation pose environmental threats.
- **Social and Humanitarian Impact:** Several people were evacuated, but displaced families face challenges in accessing food, shelter, and safety, with particular risks for women and children.

Way Forward

- **Scientific Dam Management:** Revise BBMB "rule curves" (storage and release policies) **to include climate forecasts** and ensure adequate flood cushion.
- **Strengthening Embankments:** Invest in **dhussi bundhs** (earthen embankments), prevent illegal mining (through satellite monitoring), and modernise drainage networks.

- **Integrated Flood Management:** Improve **Centre–State coordination on dam releases**; establish transparent communication channels.

- Adopt the **C-FLOOD system for village-level forecasting** and integrate it with meteorological and hydrological data via **NRSC's BHUVAN platform**.

- **Community-Centric Preparedness:** Expand flood forecasting, digital alerts, and village-level disaster plans and **adoptive capacity building through Krishi Vigyan Kendras**.

- Implement **Zero Casualty Approach** through local monitoring, early warning, and mock drills.

- **Climate-Resilient Infrastructure:** Build urban drainage systems, **restore wetlands**, and **undertake river desilting** to absorb excess flows.

- Integrate climate models into flood forecasting to anticipate extreme rainfall events.

- Promote **flood-resistant crops** and diversify agriculture to **reduce dependency on flood-prone Kharif crops**.

Mapping India's Education Landscape

The **Ministry of Statistics and Programme Implementation** has released the data of **Comprehensive Modular Survey: Education (CMS:E), 2025**, conducted as part of the **80th Round of the National Sample Survey (NSS)**, conducted by NSO.

Highlights of the CMS:E Survey 2025

- **School Enrolment Patterns:** Government schools continue to play a pivotal role, accounting for **55.9% of total enrolments**, with a significantly higher share in **rural areas (66%)** compared to **urban areas (30.1%)**.
- **Education Spending:** The **average per-student expenditure** on school education was estimated at **Rs 8,382 in rural India** and **Rs 23,470 in urban India**, covering all levels of enrolment across both government and non-government schools.
- **Private Coaching:** Around **27% of students** availed private coaching during the current academic year, with the trend more prevalent in **urban areas (30.7%)** than in **rural areas (25.5%)**.
- **Sources of Educational Finance:** About **95% of students' educational expenses** were met by **household/family members**, while only **1.2% reported government scholarships** as their primary source of funding.

Key Developments Shaping the Indian Education Landscape

- **Digital, Online, & STEM Education:** Online and hybrid learning have **increased access to education**, especially in remote areas, supported by initiatives like **PM eVidya** and **edtech investments** of USD 3.94 billion (FY22).

- The sector is expected to **grow by USD 2.28 billion by 2025** at a **20% CAGR**. **STEM education** is strengthened through over **8,000 Atal Tinkering Labs (ATL)** nationwide, fostering creativity and innovation.
- **Vocational & Skill-Based Education:** NEP 2020 includes **skill development in school and higher education** to enhance employability. The **Skill India Mission** has trained millions, and the **Union Budget 2025-26** allocated **Rs. 500 crore for a Centre of Excellence in AI for Education** to promote advanced technology skills.
- **Rising Private Investment & FDI in Education:** The government allows **100% FDI** to attract foreign players and improve infrastructure.
 - The Indian school market is projected to reach **USD 125.8 billion by 2032**, with total **FDI inflows of Rs. 83,550 crore** (Apr 2000–Sep 2024), promoting competition and innovation.
- **Expansion of Higher Education & Research:** India has **1,362 universities and 52,538 colleges (FY25)**, a **10% growth between 2020-25**, with the **Gross Enrollment Ratio (GER) rising to 28.4%**.
 - **Research and innovation** are promoted through initiatives like **Atal Innovation Mission (AIM)**, **Research and Innovation in Higher Education (RISE)** program and **Anusandhan National Research Foundation (ANRF)**.
- **Regional Language & Inclusive Education:** NEP 2020 promotes **multilingual education to reduce disparities** and preserve cultural identity.
 - The government has allocated **Rs. 500 crore under PM e-Vidya** to create **digital learning materials** in multiple languages, improving **access for rural and regional students**.

Challenges in Indian Education Sector	Reforms to Strengthen Indian Education Sector
■ Infrastructure Challenges: In rural & remote areas, many schools still lack basic amenities. Government data from 2023 shows that only 47% of schools have drinking water, 53% have separate toilets for girls.	■ Enhanced Investment in infrastructure: To provide clean water, electricity, toilets, safe classrooms, playgrounds, and digital learning resources in rural and remote schools.
■ Teacher Shortage & Quality of Educators: Sanctioned teaching positions decreased by 6% (2021-22 to 2023-24), over 4,500 secondary teachers lack proper education. Less than 25% receive training.	■ Enhanced Teacher Training: Systematic pre-service and continuous professional development with modern pedagogy, subject expertise, and technology integration
■ Inadequate Funding: India spends only about 3–4% of its GDP on education, far below global benchmarks, despite the NEP 2020 recommending an increase to 6%.	■ Boosting Investment in Education: Increase public investment in education as per NEP 2020 and leverage PPP models and targeted grants to enhance quality and equity.
■ Socio-economic Disparities: Tribal and economically disadvantaged children still face barriers. Eg: Eklavya Model Residential Schools students struggle with language issues.	■ Inclusive Education Policies: Strengthen support for tribal and disadvantaged children through multilingual education, bridging courses, and expansion of schemes like EMRS with trained local teachers
■ Focus on Rote learning: 75% of Class 3 students cannot read Grade 2-level text. Competency-based learning not widely implemented.	■ Curriculum Reform & Assessment Change: Promote critical thinking, problem-solving, project-based learning; implement formative and continuous assessments (PARAKH under NEP 2020).
■ Technological Barriers: In 2024, internet access was available in only 18.47% of rural schools against 47.29% in urban schools.	■ Bridge Digital Divide: Expand broadband connectivity, provide affordable devices, and improve digital literacy among students and teachers.
■ Gender-Based Barriers: Girls' dropout remains high; 33% of girls drop out due to domestic work (UNICEF).	■ Promote Gender Inclusivity: Provide scholarships, safety measures, awareness campaigns, and support for girls' education, especially in rural areas.

Keywords for Mains

- **"From Rote to Reason":** Shifting focus from memorization to critical thinking and problem-solving.
- **"Equity in Education, Equity in India":** Addressing socio-economic and gender disparities.
- **"Vocational Vision":** Integrating skill-based and industry-aligned learning.
- **"Research: The New Reformer":** Promoting innovation and research in higher education.
- **"Every Child, Every Classroom":** Striving for inclusive access across regions and communities.

Economic Scenario

Ensuring Balanced Industrial Distribution in India

The **Standing Committee on Finance (SCoF)** has urged the **Government** to develop an **action plan** to **evenly distribute industries** across all **States** to ensure **balanced and equitable economic development**.

- The Committee observed that while **industry is a State subject**, the Central Government's role remains vital in shaping **national industrial policy**.

Key Observations & Recommendations of SCoF

■ Key Observations:

- **Stalled Disinvestment & PSE Policy:** Despite the Dec 2021 policy to privatise/close loss-making CPSEs in non-strategic sectors for fiscal prudence, no proposals have been approved; disinvestment plans remain stagnant.
- **Low Investment Rate vs Growth Needs:** India's investment rate is **around 31% of GDP** over the next decade.
- **Weak State Incentives:** While industry is a State subject, central initiatives are crucial, however, **incentives for States to reform their PSUs** have been **underutilised** and largely ineffective.
- **Fiscal Stress of States:** High indebtedness of many States constrains their ability to **invest in infrastructure, industrial development, and balanced growth**.

■ Key Recommendations:

- **Structural & Industrial Reforms:** Fast-track **disinvestment/closure** of non-strategic, loss-making CPSEs, strengthen central incentive packages for State PSU reforms.
- Also, prepare a **national action plan** to ensure **balanced industrial growth**, reducing **regional disparities** and promoting **equitable development**.
- **Fiscal & Investment Strategy:** Mobilise **public & private investment** to raise the investment rate to **35% of GDP** (for sustaining **8% GDP growth**) while introducing **tailored fiscal reforms** for highly indebted States that balance **debt reduction** with continued **infrastructure & social sector investment**.

Factors Responsible for Uneven Industrial Growth

- **Historical Factors:** **Uneven industrial growth** in India traces back to the **British colonial era**, which concentrated industries in **select regions** for **strategic trade and port access**.
 - **Eg:** **Jute** was centred in **Bengal (Kolkata)** and **cotton textiles** in **Maharashtra (Mumbai)**. Post-independence, this **regional industrial imbalance** persisted, leaving many areas **underdeveloped**.

- **Geographical & Infrastructure Factors:** Industrial growth is influenced by **geography** and **infrastructure**. **Difficult terrains** like the **Himalayan states** and **North-East** face **poor connectivity, power shortages, and high setup costs**, limiting large-scale industries.

- In contrast, **coastal and plain regions** like **Tamil Nadu, Gujarat, and Maharashtra** benefit from **better infrastructure**, such as **major ports** (Mumbai, Kandla), **highways**, and **industrial corridors**, creating **favourable conditions** for industrial expansion and supporting their **industrial leadership**.

- **Skilled Manpower Availability:** Industrial clusters like **Bengaluru (IT sector)** and **Chennai (automobiles)** attract skilled workers supported by **universities** and **technical institutes**.

- States like **Jharkhand** and **Chhattisgarh**, with limited **educational infrastructure** and **vocational training**, struggle to grow **skill-intensive industries**.

- **Policy & Planning Disparities:** Industrial growth is influenced by **targeted policy support**. The **Green Revolution** benefited **Punjab, Haryana, and western UP**, fostering **agro-industrial expansion**, while **eastern and central regions** lagged.

- States with **proactive industrial policies**, like **Tamil Nadu**, attract industries, unlike those with **less supportive frameworks**.

- **Agglomeration Effects:** Industries tend to **cluster** to leverage **scale economies, skilled suppliers, and logistics advantages**, reinforcing **regional disparities**.

- **Eg:** **Tamil Nadu's automobile and electronics industries** and **Gujarat's textile clusters**. **Peripheral states** like **Odisha** and **Assam**, lacking these advantages, struggle to develop **industrial hubs** and attract investment.

Implications of Industrial Imbalance in India

- **Regional Inequality & Developmental Gaps:** States with higher industrial concentration, like **Maharashtra, Gujarat, and Tamil Nadu** generally, have **higher income, employment, infrastructure, and GDP** (Maharashtra (Rs 45.3 lakh cr, 2024-25), UP (Rs 25.5 lakh cr, 2023-24), and Tamil Nadu (Rs 17.3 lakh cr, 2024-25))
 - In contrast, states like **Bihar (GDP 8.5 lakh cr, 2023-24), Jharkhand (Rs 2.9 lakh cr, 2023-24)**, and most **North-Eastern regions**, having **fewer industries** and **lower industrial output**, result in **uneven economic development** and **wider gaps in living standards**.

■ Migration & Urban Stress:

- Industrial hubs attract workers from **underdeveloped regions** for **jobs, higher wages, and better amenities**, causing **inter-state migration**.
- Cities like **Mumbai, Bengaluru, and Delhi** face **overcrowding, housing shortages, traffic congestion, pollution, and slum expansion**, leading to **social and environmental pressures**.
- As per **EAC-PM (2023)**, India had **40.2 crore domestic migrants**, with major **migration hubs** including Mumbai, Bengaluru Urban, Howrah, Central Delhi, and Hyderabad.

■ Fiscal Disparities & Resource Imbalances: States with concentrated industries earn higher tax revenues, royalties, and investment inflows, boosting their ability to fund infrastructure, healthcare, and education.

- **Less-industrial states** mostly depend on **central transfers**, face **budget deficits**, and have limited **public investment**, widening **inter-state developmental gaps**.
 - ❖ Eg: Top 5 industrial states- **Maharashtra, Karnataka, Delhi, Tamil Nadu, Gujarat** contributed **72% of direct taxes** in FY24, while **UP, Bihar, MP** contributed just **5%**, revealing **severe fiscal imbalances**.

■ Federal Friction & Policy Challenges: Uneven industrial growth can cause tensions between the Centre and States over resources, investment policies, and financial incentives.

- Advanced states may seek **greater autonomy**, while lagging states demand **special packages**, challenging **cooperative federalism** and **coordinated economic governance**.

■ Socio-Political & Economic Implications: Persistent industrial imbalance can cause regional discontent, political marginalisation, and social unrest.

- It also shapes **investment patterns**, as businesses prefer areas with **better infrastructure, skilled labour, and industrial ecosystems**, creating a **cycle of underdevelopment** in lagging regions.

Government Initiatives for Boosting Industrial Growth in India

- Production-Linked Incentive (PLI)
- PM Gati Shakti- National Master Plan
- Bharatmala & Sagarmala Project
- Start-up India
- Make in India 2.0
- Atmanirbhar Bharat Campaign
- Special Economic Zones (SEZs)
- MSME Innovative Scheme

Measures that Should be Taken to Ensure Balanced Industrial Growth in India

■ Industrial Location Policy & Incentives: Formulate a comprehensive industrial location policy to guide investments toward underdeveloped and lagging regions, including priority zones and strategic sector allocation.

- Offer **tax breaks, capital subsidies, concessional loans, reduced GST, and investment-linked deductions** to make **less-industrial states** competitive with industrially advanced hubs like **Maharashtra, Gujarat, and Tamil Nadu**.

■ Targeted Infrastructure Development: Invest in transport corridors, industrial parks, logistics hubs, reliable power, and digital infrastructure in industrially-backward states.

- Initiatives such as **Industrial Corridors, SEZs, and Dedicated Freight Corridors** can reduce industrial setup costs and attract industries to **remote regions**, including the **North-East and Eastern India**.

■ Skill Development & Human Capital: Set up technical institutes, vocational centres, and reskilling programs in less-developed regions.

- Schemes like **Skill India** and **PM Kaushal Vikas Yojana** can provide a **ready workforce** for industrial clusters, supporting **skill-aligned growth**.

■ Cluster-Based & Ecosystem Development: Promote sector-specific industrial clusters for economies of scale, supply chain integration, and innovation.

- Eg: **Textile clusters** in Bihar, **electronics** in the North-East, and **agro-industrial hubs** in Eastern India, boosting **local entrepreneurship, employment, and sustainable development**.

■ Policy Coordination & Centre-State Collaboration: Strengthen cooperative federalism by aligning central policies with state industrial plans, ensuring resources, regulatory support, and investments.

- Provide **incentive packages and reforms** as per state capacities to promote **equitable industrialisation**.

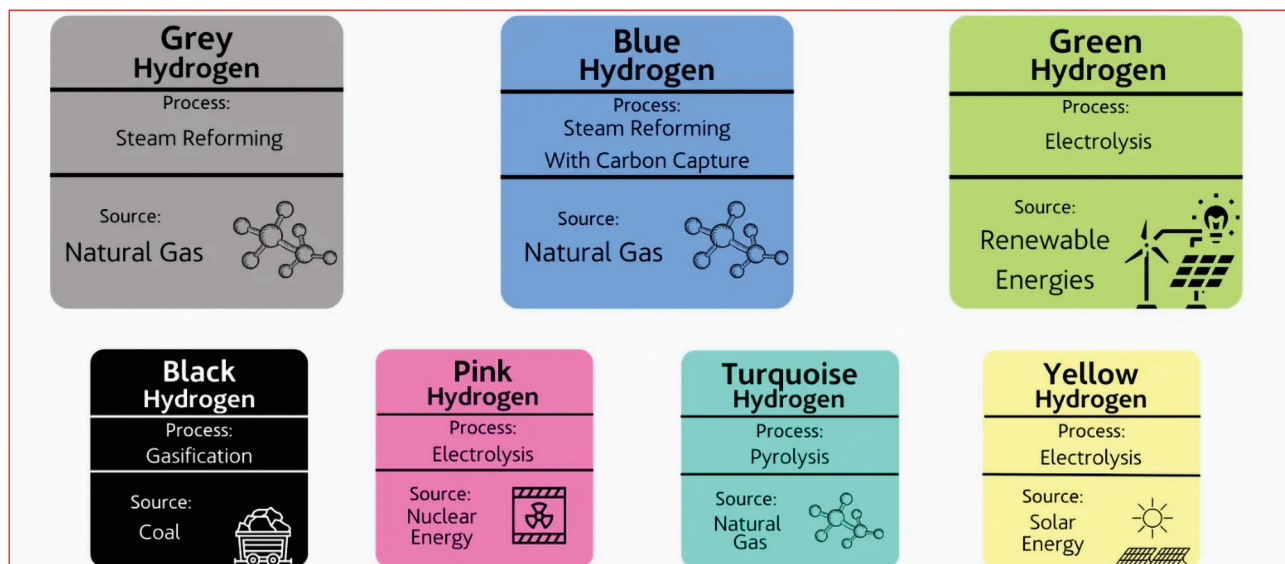
Green Hydrogen

A new report has positioned **India as a potential global leader in the green hydrogen economy**, with the capacity to capture **10% of the worldwide market** and export **10 million tonnes annually by 2030**.

Green Hydrogen (GH₂)

■ About: Green Hydrogen refers to hydrogen produced through electrolysis, where **renewable energy sources** like **solar, wind, or hydro** are used to split **water molecules (H₂O)** into **hydrogen (H₂)** and **oxygen (O₂)**.

- It can also be produced via **biomass gasification**, a process that converts biomass into hydrogen-rich gas.



- **Applications:** Its uses include a wide range of applications such as **Fuel Cell Electric Vehicles (FCEVs)**, **aviation and maritime transport**, and various **industrial sectors** like **fertilizers, refineries, and steel**.

- It also holds potential in **road and rail transport, shipping, and power generation**.

- **India's Green Hydrogen Ambitions:** Through policies like the **National Green Hydrogen Mission**, **Green Hydrogen Certification Scheme**, and development of **Green Hydrogen Hubs at Kandla, Paradip, and Tuticorin**, India **MAPS** its Green Hydrogen Ambitions as follows:

- **M – Market Leadership:** Capture **10% of the global GH2 market by 2030**, projected to cross 100 MMT.
- **A – Abatement of Emissions:** Enable **~50 MMT CO₂ reduction** annually, aligning with India's NDC and net-zero goals.
- **P – Powering Production:** Develop **5 MMT per annum of GH2 production capacity by 2030**.
- **E – Employment Creation:** Generate **6 lakh+ green jobs across the GH2 value chain**, from R&D to production, storage, and export.

Challenges in India's Green Hydrogen Ecosystem (C-A-G-E)

India's Green Hydrogen journey is hindered by a **CAGE** that restricts its scaling potential:

- **C – Cost Barrier:** Early-stage Green Hydrogen costs nearly **\$4–4.5/kg**, much higher than grey hydrogen, limiting competitiveness.
- **A – Access to Capital:** High upfront investments in electrolyzers and renewable capacity deter private players.

- **G – Gaps in Infrastructure:** Lack of **transport pipelines, storage, and refuelling networks** slows adoption.

- **E – Economic Viability Issues:** Delayed **carbon pricing mechanism** makes fossil fuel-based hydrogen artificially cheaper, undercutting Green Hydrogen.

Measures that India can Adopt to Boost Green Hydrogen Adoption (P-O-W-E-R)

To break free from the CAGE, India must step on the **POWER** pedal:

- **P – Pricing Carbon:** Accelerating the introduction of a **carbon tax/market mechanism** to level the field with fossil fuels.
- **O – Obligation Mandates:** Enforce **Green Hydrogen Purchase Obligations** in hard-to-abate sectors (steel, fertilizers, refining).
- **W – Widen Infrastructure Base:** Build **electrolyser capacity, storage, transport pipelines, and export corridors** with partners like **EU, Japan, S. Korea**.
- **E – Economic Reallocation:** Shift subsidies from fossil fuels to GH2, and provide **tax incentives & viability gap funding**.
- **R – Risk Pooling through Demand Aggregation:** Create pooled procurement platforms with **payment security mechanisms** to ensure bankable contracts and competitive pricing.

Keywords for Mains

- "Hydrogen is the New Oil" – Fuel of the future.
- "Act Green, Trade Clean" – Export corridors for sustainable growth.
- "Sustainability is the Truest Dharma" – Green energy as ethical responsibility.
- "Green Hydrogen is India's Tryst with Clean Destiny."

Fertilizer Sector in India

A **parliamentary committee** has urged the government to **reclassify the fertilizer sector as ‘strategic’**, criticizing its current **‘non-strategic’ status** as inconsistent with **India’s self-reliance goals** under **Atmanirbhar Bharat**, especially in light of growing import dependency and food security concerns.

Sole Fertilizer (only one primary nutrient)	Mixed Fertilizer (two or more primary nutrients)	Micronutrients Fertilizer (Supply elements needed in small amounts)
■ Nitrogenous: Urea, Ammonium Sulphate, Calcium Ammonium Nitrate ■ Phosphatic: Single Super Phosphate, Triple Super Phosphate ■ Potassic: Muriate of Potash, Potassium Sulphate	■ Di-Ammonium Phosphate ■ Nitro-Phosphate ■ NPK ■ Ammonium Phosphate Sulphate ■ Calcium Ammonium Nitrate (CAN)	■ Chelated Compounds: Zn-EDTA, Fe-EDTA ■ Inorganic Salts: Zinc Sulphate, Copper Sulphate, Ferrous Sulphate, Manganese Sulphate

Observations & Recommendations of Parliamentary Committee
Observations ■ Link to Food Security: Fertilizers are crucial for agricultural productivity and food sovereignty. The panel noted that India’s high import dependence (25% for urea, 90% for phosphates, and 100% for potash) makes strengthening fertilizer PSUs essential for domestic production, price stability, disaster resilience, and long-term food security. ● The Department of Investment and Public Asset Management (DIPAM) denied strategic status to the fertilizer sector despite the sector’s critical role in food security. ■ Low PSU Market Share: Public Sector Undertakings (PSUs) contribute only ~25% of urea and ~11% of non-urea fertilizer production. ● The private sector dominates the industry, contributing over 57% of total production (2023–24). ● The panel noted that PSUs serve as price stabilizers, particularly for small and marginal farmers through government-subsidized distribution, underscoring the need to treat the fertilizer sector as strategic. Recommendations ■ Policy Support: Classify the sector as ‘strategic’ to attract sustained investment and ensure alignment with Atmanirbhar Bharat goals. ■ Revitalizing Fertilizer PSUs: Launch a dedicated mission to upgrade technology, diversify products, and adopt sustainable practices in public sector units. ● The committee noted that revived fertilizer PSUs have achieved a successful turnaround, with the reopening of closed units contributing 7.62 MT to annual urea production.

**Importance of Fertilizers
in India’s Agriculture and Economy**

- **Agriculture’s Economic Footprint:** Agriculture and allied sectors contribute nearly **16% to GDP** and support over **46% of India’s population**, forming a foundational pillar for economic livelihood.
- **Fertilizer Production and Consumption Trends:** India is the **second-largest user** and **third-largest producer** of fertilizers globally.
 - The total Fertilizer production has increased from 385.39 **Lakh Metric Tonnes (LMT)** in 2014–15 to 503.35 LMT in 2023–24.
 - In 2023–24, fertilizer production was led by the **private sector (57.77%)**, followed by cooperatives (24.81%) and the public sector (17.43%).
- **Import Dependency:** In 2023–24, India consumed 601 LMT of fertilizers, producing 503 LMT domestically and importing 177 LMT.

- Self-sufficiency reached **87% for urea, 90% for NPK (nitrogen, phosphorus, and potassium)**, but only **40% for DAP (Di-Ammonium Phosphate)**, while **Muriate of Potash (MOP)** remains **100% imported**.

**Evolution of India’s Fertilizer Sector
Towards Sustainability and Self-Reliance**

- **Brand Unification under ONOF:** The **One Nation One Fertilizer (ONOF)** initiative standardizes branding across subsidized fertilizers like **‘Bharat Urea’, ‘Bharat DAP’,** etc. to eliminate confusion and ensure uniform quality and government support.
- **Sustainable Fertilizer Practices:**
 - **Nano-fertilizers (nano urea, nano DAP):** Nutrients encapsulated in tiny particles, releasing slowly into the soil for better plant absorption and minimal wastage.
 - **Neem-Coated Urea (NCU):** Improves nitrogen efficiency, requiring **~10% less urea to achieve comparable results**, minimizing losses and enhancing soil health.

- **PM-PRANAM Scheme:** Encourages reduced **chemical fertilizer use, promoting organic alternatives**, with state incentives linked to performance.
- **Bio-fertilizers & Soil Health Card Scheme:** Emphasize balanced nutrient input and tailored **soil management** through diagnostics and farmer guidance.
- **Technological & Digital Infrastructure:**
 - **iFMS (Integrated Fertilizer Management System):** Enables real-time tracking of fertilizer movement from production to retail.
 - **mFMS (Mobile FMS):** Facilitates dealer registration, stock monitoring, and supports DBT through MIS dashboards accessible via mobile.

Measures to Achieve

Self-Reliance in India's Fertilizer Sector

- **Boost Domestic Production:** Under the **New Investment Policy (NIP) 2012**, ensure existing units operate profitably and revive closed plants to reduce import dependence.
- **Innovation & Sustainability:** Invest in research and development for new fertilizer formulations, eco-friendly production, and efficient resource use.
 - Promote use of bio-fertilizers and nano-fertilizers through **PM-PRANAM Scheme and Pradhan Mantri Kisan Samridhi Kendras (PMKSKs)**.
- **Promote Public-Private Collaboration:** Encourage partnerships for innovation, investment, and increased production capacity.
- **Regional Manufacturing Hubs:**
 - Establish **fertilizer clusters** near key agricultural zones to cut logistics costs and ensure quicker distribution.
- **Financial Incentives:**
 - Introduce a **PLI scheme** for **nano-fertilizer production** to incentivize manufacturers and accelerate adoption.
 - Integrate **nano-fertilizers into national nutrient management programs** to complement conventional fertilizers and reduce import dependence.

Flexible Inflation Targeting Framework

RBI has affirmed the successful performance of the **Flexible Inflation Targeting (FIT) framework** in maintaining price stability. A recent discussion paper from RBI indicated that, since its introduction, inflation remained low and stable, averaging around 4% until the end of 2019.

RBI's Flexible Inflation Targeting (FIT) Framework

- **Context:** Post the Global Financial Crisis, India experienced a mix of persistently **high inflation and sluggish growth**, prompting debate on improving monetary policy credibility.

- **Urjit Patel Committee Report (2014)** recommended adopting Inflation Targeting with inflation as the nominal anchor for monetary policy.
- **Adoption of FIT:** India formally adopted FIT in 2016 through amendments to the **RBI Act, 1934**.
 - The adoption followed a **Monetary Policy Framework Agreement** signed between the Government of India and the RBI in 2015.
- **Need for Flexibility:** Unlike strict inflation targeting, FIT allows short-term deviations from the target to accommodate supply-side shocks (e.g., food price spikes, fuel volatility), and economic crises (e.g., pandemic, war).
 - It provides room to prioritize growth during downturns while returning to the inflation target path over the medium term.
- **Target & Tolerance Band:** The **4% inflation target with a tolerance band of $\pm 2\%$ balances price stability and growth**, aligning with global norms for emerging economies. Since adopting FIT in 2016, inflation volatility has decreased.
 - **The current band** provides flexibility to absorb shocks from food, fuel, and global volatility, with 94% of inflation staying within this range. Given India's high food share and potential future volatility, a wider band remains essential for stability.

Performance of the FIT Framework in India

- **Successes**
 - **Disinflation Achieved:** Average inflation under FIT (2016–2025) was **4.9%**, down from **6.8%** in the pre-FIT period.
 - **Anchoring Expectations:** FIT helped stabilize **long-term inflation expectations** among consumers and investors, reducing uncertainty.
 - **Institutional Transparency:** MPC voting, and communication improved RBI's policy credibility.
 - **Policy Flexibility:** During Covid-19 and the **Russia-Ukraine war**, RBI shifted focus between inflation and growth based on macroeconomic needs.
 - **Public Accountability:** In 2022, RBI formally reported to the Government after breaching the upper band for 5 consecutive quarters.
- **Challenges**
 - **Exogenous Shocks:** Pandemic and global conflicts led to breaches of the upper threshold despite domestic policy prudence.
 - **CPI Base Outdated:** **Current base year (2012)** does not reflect recent consumption patterns; food weight may be overestimated.

- **Periodic Dissent in MPC:** Within MPC members, significant voting differences and occasional government interference highlight challenges in reaching a consensus, which impacts the effectiveness of the FIT framework.

Key Features of FIT Framework:	
Component	Details
Target Metric	Consumer Price Index (CPI) (headline inflation) based inflation.
Mandate	Maintain CPI-based inflation target at 4% with a tolerance band of $\pm 2\%$ (i.e., 2%–6%).
Review Period	Every five years
Accountability Mechanism	Breach of the target band for 3 consecutive quarters triggers a formal report to the government.
Decision-Making Body	Monetary Policy Committee (MPC)
First Review Outcome (2021)	Target of 4%, with tolerance band of $\pm 2\%$ retained for 2021–2026.

Debates Regarding RBI's FIT Framework

Headline Inflation vs Core Inflation as Target

- **Debate:** Should the RBI continue to target **headline inflation (including food & fuel)** or switch to **core inflation (excluding food & fuel)**.
- **Arguments for Headline Inflation:** Food and fuel account for over **50% of CPI**; excluding them would make the target unrepresentative.
 - Persistent **food inflation** can spill into core prices through wages and markups. It aligns with global practice, converges with **core inflation over time**, and provides clear communication for households and businesses, making it a more representative and effective guide for monetary policy.
- **Arguments for Core Inflation:** It is more **stable and less volatile** as it reflects demand-side pressures. Food and energy prices are largely driven by supply shocks and don't respond well to interest rate changes.
 - Targeting core inflation helps avoid overreaction to temporary spikes and ensures better resource allocation by reducing policy distortions.

Point Target vs Range-Only System

- **Debate:** Should RBI continue with a **point target (4%) within a band**, or adopt a **range-only target** (e.g., 3%–6%)?
- **Arguments for Point Target:** Acts as a **clear anchor** for inflation expectations. Promotes **policy clarity** and accountability. Global trend supports **point target with tolerance band**.
 - Switching to a range could be interpreted as a weakening of commitment to price stability. Global investors and markets may view it as signaling RBI's loss of control or political interference.
- **Arguments for Range-Only:** Provides **greater flexibility** in uncertain conditions. Explicit ranges acknowledge forecasting limitations and high global economic volatility.

- It avoids unnecessary **policy tightening** in short-term overshoots. Can better integrate goals like employment or output growth in times of economic stress.

Way Forward for Enhancing the FIT Framework

- **Revise CPI Base Year:** Update CPI Base Year to reflect structural changes in consumption and improve measurement accuracy.
- **Retain Core Tenets:** Using the inbuilt adaptability of FIT to respond to shocks without diluting the anchor.
- **Strengthen Policy Credibility:** Ensuring consistency and avoiding frequent changes to maintain public and market trust.
- **Address Food-Energy Shocks:** Focusing on better supply-side management since food and fuel dominate India's CPI basket. Government supply-side actions should complement RBI's tightening to control spillover effects.

Women-Led Economic Growth for Viksit Bharat 2047

India's growth story is shifting, with **women driving economic rise** through higher workforce participation, entrepreneurship, and access to finance. Empowering them is now central to the **vision of Viksit Bharat 2047**.

Women's Role in Driving India's Economic Transformation

- **Workforce Participation:** India's female workforce participation rose from **22% in 2017-18 to 40.3% in 2023-24**, while **unemployment fell from 5.6% to 3.2%**.
 - **Rural female employment grew by 96%, and urban by 43%**, showing strong gains in opportunities for women.
 - Female graduate employability rose from **42% in 2013 to 47.53% in 2024**, while women with postgraduate and above saw Worker Population Ratio (WPR) increase from **34.5% in 2017-18 to 40% in 2023-24**.
 - In the past seven years, **1.56 crore women joined the formal workforce**, while **16.69 crore women unorganized workers registered on e-Shram**, gaining access to government welfare schemes.

- **Women Development to Women – Led Development:** Gender budgets rose 429% over a decade, from Rs 0.85 lakh crore (2013-14) to Rs 4.49 lakh crore (2025-26), signaling a shift to women-led development.
 - Programs like **Startup India** have boosted women's entrepreneurship, with 50% of **Department for Promotion of Industry and Internal Trade (DPIIT)** startups having at least one woman director. Around two crore women are now **Lakhpati Didis**, supported by initiatives like **Namo Drone Didi**.
 - Women-led **MSMEs** nearly doubled from **1 crore (2010-11) to 1.92 crore (2023-24)** and generating **89 lakh additional jobs for women (FY21–FY23)**.
 - ❖ This marks a decisive move from development for women to development by women.
 - Financial inclusion schemes are pivotal, with **women receiving 68% of MUDRA loans** (worth Rs 14.72 lakh crore) and accounting for **44% of PM SVANidhi beneficiaries among street vendors**.

Significance of Women-Led Development

- **Leaders, Not Welfare Recipients:** Shifting women from dependence to driving change.
- **Economic Growth:** Bridging gender gaps could increase GDP by 30%.
- **Gender Equality:** Reduces stereotypes; India ranks **131st** in **Global Gender Gap Report 2025**.
- **Inclusive Growth:** Women's inclusion boosts productivity, innovation, and decision-making.

Challenges Related to

Women-Led Development in India

- **Social and Safety Constraints:** Deep-rooted patriarchy limits decision-making and increases unpaid domestic work.
 - Early marriage, domestic responsibilities, and threats to **personal security** (as India records 51 cases of crime against women every hour). **curtail mobility, career progression**, and active participation in society.
- **Education and Skill Gaps:** Female literacy is **65.4% (2011 census)**, below the global average, restricting opportunities.
- **Underrepresentation in Governance & Leadership:** Women remain **underrepresented in political, corporate, and institutional decision-making**, reducing their influence on policies affecting them.
 - India's women's representation in the **Parliament remains well below the global average of 25%**.
- **Digital and Technological Exclusion:** Limited access to technology, internet, and digital literacy prevents women from participating fully in the modern economy.

- **Workforce Participation Barriers:** Women face **unequal pay, glass ceiling effects, occupational segregation, safety at workplace** and limited representation in formal and high-skilled sectors.

Way Forward

- **Childcare & Care Economy:** Establish a **National Crèche Grid**, workplace crèches, professionalise care workers, and extend paid maternity leave to informal sectors to enable workforce retention.
- **Infrastructure & Digital Inclusion:** Mandate **gender-responsive budgeting** in sanitation, transport, water and housing. Embed **Digital Saksharta and PMGDISHA** into national infrastructure and rural internet projects to boost women's digital empowerment.
- **Representation & Governance:** Enforce gender quotas in boards, panchayats, MSME councils; build capacity in **gender budgeting**; link incentives to women's inclusion.
- **Decentralised Gender Planning:** Institutionalize **Gender Action Plans at the Gram Panchayat, block, and district levels**, incorporating input from Mahila Sabhas and SHG networks. Ensure these plans are co-created with women and integrated into annual development planning and financing.
- **Workplace Safety and Empowering Women's Mobility:** Create **women-friendly infrastructure** with accessible spaces and establish **Internal Complaint Committees (ICCs)** under the **Sexual Harassment of Women at Workplace Act, 2013** to address harassment.
 - **Foster a zero-tolerance culture** and address cultural and structural violence through education, empowerment, and policy reforms for an equitable and safe environment.

National Biofoundry Network and Bioeconomy

Marking one year of the **BioE3 (Biotechnology for Economy, Environment and Employment) Policy**, the Ministry of Science & Technology launched the **country's first National Biofoundry Network**, calling it a step towards making **biotechnology a key driver of India's bioeconomy**.

- National Biofoundry Network comprises **six institutions** that **aim to strengthen biomanufacturing** by scaling up proofs of concept and moving innovations from labs to industry.

BioE3 Policy

- **About:** The **BioE3 Policy**, approved in 2024, is India's blueprint for strengthening **biomanufacturing** through advanced technologies and innovation-driven research.
 - It is aligned with India's vision of **Green Growth** (announced in the **Union Budget 2023-24**) promoting

the bioeconomy while supporting **Lifestyle for Environment (LiFE)**, and **Net-Zero emissions**.

- **Implementation: Department of Biotechnology (DBT)**, Ministry of Science and Technology.
- **Objectives:** Create a framework for adopting **cutting-edge biomanufacturing technologies**.
 - Promote **high-performance biomanufacturing** across diverse sectors.
 - Ensure efficiency, sustainability, and quality in production of **bio-based high-value products**.
 - Establish **BioEnablers** (Bio-AI hubs, Biofoundries, Biomanufacturing hubs) to fast-track biotech commercialization.
 - Train and skill manpower in **interdisciplinary technical fields** to support industry needs.
- **Implementation Framework:**
 - **Bio-Artificial Intelligence (AI) Hubs:** Power research with **data-driven analytics and AI models** for innovation in bio-based products.
 - **Biofoundries & Biomanufacturing Hubs:** These will provide infrastructure to scale up technologies and bridge the **lab-to-industry gap**, offering shared pilot and pre-commercial facilities to support early-stage manufacturing for researchers, startups, and SMEs.

Bioeconomy

- **About:** Bioeconomy refers to the **production, utilization, and conservation of biological resources** using scientific knowledge, technology, and innovation to provide products, processes, and services across all economic sectors, aiming for a **sustainable and inclusive economy**.
 - India's bioeconomy has grown from **USD 10 billion in 2014 to USD 165.7 billion in 2024**, and now working towards a target of **USD 300 billion by 2030**.
- **Biotechnology Sectors:**
 - **Biopharma/Medical:** Vaccines, Biosimilars, and Bio-based medicines for healthcare.
 - **BioAgri:** Climate-smart crops, gene-edited seeds, and bio-based fertilizers for food production.
 - **BioIndustrial:** Biomass, Biofuels, Bioplastics, and Bio-based chemicals for industries.
 - **BioResearch:** Genetics, Genomics, and Bioinformatics for scientific advances.
- **Significance of Bioeconomy:**
 - **Energy Security:** Ethanol blending target reached to **20% (2025)**, reducing crude imports and CO₂ emissions. India saved Rs 1.36 lakh crore in forex by cutting crude oil imports.
 - **Entrepreneurship:** Biotech startups grew from 50 to over 10,000 in just a decade, boosting innovation.

BioE3 Policy Targets

Strategic Sectors for Sustainable Growth

- High-value bio-based chemicals
- Biopolymers & enzymes
- Smart proteins & functional foods
- Precision biotherapeutics
- Climate-resilient agriculture
- Carbon capture & utilization
- Marine and space research

India's Bioeconomic Initiatives: Sectoral Impact

- **Biopharma:** BioE3 Policy fosters regenerative biomanufacturing, **circular bioeconomy**, and net-zero aligned growth.
 - **National Biopharma Mission** co-funded by the World Bank boosts vaccines, biopharma, and diagnostics.
 - **India ranks 3rd in pharmaceutical production** by volume and 14th by value, manufacturing every third tablet consumed globally.
 - ❖ India developed the **world's first DNA Covid-19 vaccine** and produces 65% of the world's vaccines, benefiting low- and middle-income countries.
- **Bio-Agriculture:** Development of **climate-smart crops** (drought-tolerant chickpea, genome-edited rice), and Genomic tools (**Amaranth Genomic Resource Database (AGRDB)**) improve crop identification, yield, and nutrition.
 - **Biotech-KISAN (Biotech-Krishi Innovation Science Application Network)** enables **farmer-scientist partnerships**, benefiting rural, tribal, and women farmers, increasing productivity and incomes.
- **Bioenergy:** Ethanol blending **National Policy on Biofuels (2018)** increased from **1.53% (2014)** to 20% (2025).
 - It reduced crude oil imports, CO₂ emissions, and generated significant rural incomes through agro-industrial linkages.
- **Innovation & Startups: Biotechnology Industry Research Assistance Council (BIRAC)** set up by the DBT in 2012, nurtures India's biotech startups through 95 bio-incubation centres offering funding, infrastructure, and mentorship.
 - **Biotechnology Research Innovation and Entrepreneurship Development (Bio-RIDE) Scheme** encourages innovation and academia-industry collaboration.
- **Socio-Economic Impact:** Bioeconomic initiatives create **employment in tier-II & III cities**, support MSMEs, and strengthen rural development. Policies foster **inclusive, knowledge-driven growth**, supporting India's vision of a bio-enabled economy by 2047.

Challenges Hindering the Growth of a Robust Bioeconomy in India

- **Insufficient Funding:** DBT budget allocation is less than **1% of GDP**, limiting research and innovation.
- **High Initial Investment & Financial Risks:** Establishing biomanufacturing hubs, biofoundries, and Bio-AI centres requires substantial upfront investment.
 - Returns are long-term and uncertain, which may deter private investment and strain public finances.
- **Regulatory and Ethical Concerns:** Precision **biotherapeutics**, **synthetic biology**, and **genetic modifications** raise biosafety, biosecurity, and ethical issues.
- **Skill Gaps & Workforce Challenges:** India faces shortages in **bioinformatics**, **synthetic biology**, and **biomanufacturing expertise**.
- **Potential Environmental Impact:** Large-scale bio-based production may cause deforestation, water stress, monocultures, or improper biowaste disposal.
- **Societal and Environmental Concerns:** Public skepticism towards **Genetically Modified Organism (GMO)** and biotherapeutics, and risks of large-scale biomanufacturing affecting ecosystems.
- **Challenges in Scaling & Commercialisation:** Translating lab research into mass-market products requires infrastructure, capital, and expertise; failure to do so may undermine policy goals.

Measures Needed to Fortify India's Bioeconomy

- **Streamline Regulatory Framework:** Establish a single-window approval system for biotech products, including GM crops and gene-edited organisms.
 - Harmonize laws like the **Patents Act, 1970** and the **Protection of Plant Varieties & Farmers' Rights Act, 2001** to balance innovation and farmers' interests.
 - Define clear regulatory guidance for emerging technologies, e.g., genetically engineered crops, to reduce uncertainty for researchers and funders.
- **Enhance Innovation and Commercialization:** Expand support to startups through BIRAC initiatives. Promote translational research in sectors like **cell and gene therapy**, functional foods, and climate-smart agriculture.
- **Boost Investment and Funding:** Increase DBT's budget to support frontier research. Provide targeted tax incentives and outcome-linked **funding for high-risk biotech innovations**. Encourage private sector participation through corporate innovation funds and public-private partnerships.
- **Strengthen Human Capital and Skills:** Create Centers of Excellence for biotechnology, synthetic biology, and biomanufacturing. Expand training and bio-hubs to produce skilled manpower for startups and SMEs.

Gig Workers: The Invisible Workforce

India's **gig and platform economy** is rapidly expanding, projected to grow from 1 crore workers in 2024–25 to 2.35 crore by 2029–30. While it offers flexibility and new opportunities, gig workers perform a **significant amount of invisible labor**, yet face low wages, job insecurity, and pressures from algorithm-driven management.

Gig Economy

- **About:** The gig economy, as defined by the **World Economic Forum (WEF)**, involves the **exchange of labour for money** between individuals or companies via **digital platforms that actively connect providers with customers on a short-term and payment-by-task basis**.
 - According to the **Code on Social Security, 2020**, a gig worker is "a person who performs work or participates in a work arrangement and earns from such activities outside the traditional employer-employee relationship."
- **Types of Gig Workers:**
 - **Platform-Based Workers:** Work via digital apps or online platforms. Food delivery (Zomato, Swiggy), ridesharing (Ola, Uber), e-commerce delivery (Amazon, Dunzo).
 - **Non-Platform Workers:** Casual or self-employed workers in traditional sectors, part- or full-time. Examples include part-time tutors, freelance designers, self-employed domestic helpers, casual construction labor.

Growth Drivers of Gig Economy

Expanding Digital Access	Internet connections grew from 25.15 cr in 2014 to 96.96 cr in 2024 , with 85.5% of households owning a smartphone.
E-Commerce and Startup Boom	Online businesses and startups create demand for gig workers in logistics, delivery, etc.
Urban Demand for Convenience	Consumers expect fast services , ridesharing & customer support.
Availability of Low-Cost Labor	Rising unemployment & surplus semi-skilled workers push many to accept gig work.
Changing Work Preferences	Younger generations value flexibility, remote work & project-based engagements .

Challenges Related to Gig Economy

- **Low Wages and Income Instability:** Gig workers **face low, unpredictable pay, earning per task rather than a fixed salary**, often working long hours, and face pressure to meet targets that blur the line between "flexible" and full-time employment.
- **Limited Legal and Social Protections:** Minimal legal support and inadequate recognition in labour laws leave gig workers vulnerable.
 - The **Code on Social Security, 2020** acknowledges **gig workers** but fails to **provide full labor rights, such as**

minimum wage guarantees and regulated working hours. Vulnerabilities are heightened during crises like **heatwaves, illness, or accidents, with no formal safety net.**

- Gig workers are treated as “**independent contractors**,” not employees, leaving them without regulated hours, paid leave, despite often working full-time.
- **Algorithmic Control and Surveillance:** Digital platforms track workers’ location, monitor performance, and sometimes even require scanning of every product used during service.
 - Algorithms assign **rigid schedules, penalise cancellations or delays, and can block worker accounts** without human oversight. This creates constant pressure, forcing workers to comply or risk losing income.
- **Lack of Social Security and Benefits:** Gig workers are generally excluded from benefits such as **health insurance, accident cover, maternity benefits**, provident fund, and pensions. Vulnerabilities are heightened during crises like heatwaves, illness, or accidents, with no formal safety net.
- **Gender-Specific Vulnerabilities:** Women, especially in roles like cleaning or beauty services, face harassment from customers and domestic violence at home. Entering private homes for work increases exposure to unsafe conditions. Platforms’ rating and penalty systems often leave women vulnerable, with little legal recourse.
- **Physical Strain:** Gig work has no fixed hours; “flexibility” often means being on-call round-the-clock, leading to long hours, strict deadlines, and constant target pressure, causing physical and mental strain.

Way Forward

- **Comprehensive Legal Framework:** Clearly define rights and responsibilities of gig workers. Include minimum wages, regulated working hours, protection against unfair termination, and provisions for collective bargaining.
- **Women-Centric Measures:** Ensure women can avail maternity benefits under **Code on Social Security, 2020**. Promote remote, and project-based roles to accommodate caregiving and household responsibilities.
 - Introduce panic buttons on apps, background verification of clients and delivery points, and dedicated helplines for women gig workers.
- **Ensuring Algorithmic Fairness and Transparency:** Regulate platform algorithms that determine task allocation, ratings, and penalties to prevent arbitrary income loss.
 - Mandate grievance redressal, human oversight, and appeal mechanisms for workers affected by automated decisions.

- **Promoting Digital Literacy and Empowerment:** Expand digital access in rural and semi-urban areas to enable participation in the gig economy.
 - **Educate workers about rights**, social security schemes, and safe platform practices to reduce dependence on **opaque corporate policies**.
- **Incentivizing Platform Compliance:**
 - Link incentives like tax breaks, subsidies, or preferential government contracts to adherence to welfare laws and fair payment practices.
 - Encourage platforms to voluntarily comply and promote a sustainable gig ecosystem.
- **Formalization via e-Shram Portal:** Expand e-Shram portal integration to provide gig workers with digital identities and access to welfare schemes, employment insurance, and health coverage.
 - Track gig workers formally to ensure inclusion in social security programs.

India's Approach to Addressing the Challenges of the Gig Economy

- **Code on Social Security, 2020:** It legally defines gig and platform workers and provides them with **social security benefits**. The Code also has a provision to constitute a **National Social Security Board** to look after the welfare of gig and platform workers.
 - The **RAISE Framework** by NITI Aayog ensures gig and platform workers’ social security by focusing on **Recognise work diversity, Augment financing, Incorporate platform and worker interests, Support awareness, and Ensure benefit access**.
- **e-Shram Portal:** Launched in 2021, It builds a **national database of unorganised and gig workers**, providing them a **Universal Account Number (UAN)** and access to government welfare schemes. The portal aims to formalise the workforce and improve access to social security.
 - As of August 2025, more than 3.37 lakh platform and gig workers have registered on **e-Shram Portal**.
- **State-Level Measures:** Rajasthan’s Platform-Based Gig Workers Act (2023) requires employers to deposit a welfare cess.
 - Karnataka proposed a **Gig Workers’ Welfare Board (2024)**, and Telangana has drafted a bill for registration, social security, and welfare of gig workers.

GST 2.0 with Next-generation Reforms

The 56th **Goods and Services Tax (GST) Council** unveiled **GST 2.0 with next-generation reforms** to make the tax regime citizen-centric, boost agriculture, health, manufacturing, and improve ease of doing business.

- The changes in GST rates on services will be implemented with effect from 22nd September 2025.

Tax Reforms Under GST 2.0	Details
Simplified GST Structure	Replaces 4 GST slabs (5%, 12%, 18%, 28%) with 2 slabs: 5% (merit rate) for essential items and 18% (standard rate) for others; a 40% demerit rate for luxury, sin & demerit goods (tobacco, etc.).
Tax Relief for Essential Goods	Full GST exemption on individual life & health insurance policies; Nil GST on essential goods like UHT milk, paneer & Indian breads.
Consumer Goods	GST reduced from 28% to 18% on small cars, TVs, air conditioners, cement, and auto parts; GST on renewable energy devices reduced from 12% to 5%.
Medical and Health Devices	GST on 33 lifesaving drugs reduced from 12% to nil. GST on 3 critical drugs for cancer & rare diseases reduced from 5% to nil.
Support for Agriculture and Rural Sectors	GST reduced from 12% to 5% on machinery like tractors, harvesters, composters & labor-intensive goods like handicrafts, marble, and leather. GST on fertilizer inputs reduced from 18% to 5%.
Trade Facilitation and Dispute Resolution	Goods and Services Tax Appellate Tribunal (GSTAT) to be operational by December 2025.

Goods and Services Tax (GST)

- **About:** Introduced by the **101st Constitutional Amendment Act, 2017**, is a comprehensive **indirect tax levied on the supply of goods and services in India**.
 - It is a **value-added tax (VAT)** that replaced multiple indirect taxes previously levied by the Centre and States.
- **Key Features:**
 - **Dual GST Structure:** Includes **Central GST (CGST)** and **State GST (SGST)**; **Integrated GST (IGST)** is applicable for inter-state transactions.
 - **GST Council:** It is the primary body for GST policymaking and rate decisions. The GST Council, established under **Article 279A of the Constitution**, is a joint forum of the Centre and States.
 - ❖ It is chaired by the **Union Finance Minister**, the Union Minister of State in charge of Revenue or Finance as a Member, and the Minister in charge of Finance, Taxation, or any other Minister nominated by each State Government as Members.
 - **Goods and Services Tax Network (GSTN):** help taxpayers in India to prepare, file returns, make payments of indirect tax liabilities and do other compliances.
 - **Threshold Exemption:** Small businesses with turnover below a **certain limit are exempt from GST**. This makes

compliance easier and protects micro enterprises from excessive paperwork.

■ Benefits of GST:

- **Destination-Based Tax:** Collected where goods/services are consumed, benefiting businesses with better cash flow and working capital.
 - **Ease of Doing Business:** Technology-driven, minimal human interface, simplifies compliance, refunds, and registration.
 - **Boost to Make in India:** Makes domestic goods competitive nationally and internationally.
 - **Exports:** Supplies of goods or services, or both, to a **Special Economic Zone (SEZ)** are treated as **zero-rated under GST**, with quick refunds, thereby promoting international trade and improving the balance of payments.
 - **Revenue & Compliance:** Expands tax base, increases government revenue, improves transparency, and enhances GDP by 1.5–2%.
- **Achievement of GST:** In 2024–25, GST recorded its highest-ever gross collection of Rs 22.08 lakh crore, reflecting a year-on-year growth of 9.4 percent. The average monthly collection stood at Rs 1.84 lakh crore.

Banking Sector: A Pillar of India's Economic Growth

President Droupadi Murmu highlighted **India's banking sector** role in fostering economic growth, supporting **Micro, Small, and Medium Enterprises**, boosting the rural economy, and driving financial inclusion.

Contribution of India's Banking System to its Economic Growth

- **Credit Growth & Economic Activity:** Bank credit disbursal by **Scheduled Commercial Banks (SCBs)** reached **Rs 164.3 lakh crore** by March 2024, up **20.2% YoY** (compared to 15% in FY23).
 - Agricultural credit grew from **Rs 13.3 lakh crore in FY21** to **Rs 20.7 lakh crore in FY24**, supported by over **7.4 crore operative Kisan Credit Card accounts**.
 - Banks channel credit strategically to sectors driving economic growth and job creation.
- **Financial Stability & Asset Quality:** Gross **Non-Performing Assets (GNPA)** of SCBs fell to a **12-year low of 2.8%** in March 2024 from **11.2% in FY18**, reflecting improved borrower selection and recovery mechanisms.
 - Top 10 Indian banks have **loans constituting over 50% of total assets**, ensuring resilience to rising interest rates.
- **MSMEs & Entrepreneurship Support:** Banks act as enablers of entrepreneurship and inclusive development.

- Banks facilitated low-cost credit to MSMEs** and industrial sectors, boosting employment, innovation, and industrial growth. India has the second-largest market globally, after China, in terms of borrowing customers.
- Industrial credit growth accelerated to **8.5% in FY24** from **5.2% (FY23)**.
- **Digital Transformation & Financial Inclusion:** Over **77% of adults** now have accounts in formal financial institutions, reducing the income and gender access gap.
- **UPI transactions** surged from **Rs 0.07 lakh crore in FY17** to **Rs 200 lakh crore in FY24**.
 - India has **116.5 crore smartphone subscribers** as of March 2024, facilitating digital banking access.
- **Capital Market Development:** Primary market fund mobilisation reached **Rs 10.9 lakh crore in FY24**. **Initial Public Offerings (IPOs)** increased from **164 in FY23** to **272 in FY24**. **Corporate bond** issuances rose to **Rs 8.6 lakh crore in FY24**, the highest so far.
- Banks link capital markets and investors, supporting corporate funding and long-term growth.
- **Social & Welfare Programs Implementation:** **Pradhan Mantri Jan-Dhan Yojana (PMJDY)** accounts exceed **56 crore**, with **67% in rural/semi-urban areas** and **56% held by women**.
- **Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana** generated **34.2 crore health cards**, **49.3% held by females**.
 - **National Pension System and Atal Pension Yojana** saw **735.6 lakh total subscribers**, up **18% YoY**, with female participation rising to **48.5%**.

Challenges Facing India's Banking Sector

- **Credit-Deposit Balance and Liquidity Risks:** Credit growth has **outpaced deposit mobilisation**, creating potential structural liquidity pressures.
- Households are increasingly moving **savings to mutual funds, insurance, and pension schemes**, reducing banks' traditional low-cost deposit base.
 - Banks are bridging this **gap via short-term borrowings and Certificates of Deposit**, increasing sensitivity to interest rate fluctuations.
- **Cybersecurity and Third-Party Risks:** Growing digitalisation has increased exposure to **cyber attacks, system failures, and risks** from outsourced operations.
- Weak management in these areas can lead to operational disruption, financial losses, and reputational damage.
 - Rise in **social engineering attacks** and use of mule accounts exposes banks to financial and reputational risks.

- **Retail Credit and Unsecured Lending:** Rapid expansion of **retail, unsecured, and private credit** increases exposure to **defaults**, leverage risks, and systemic vulnerabilities, requiring banks to strengthen risk assessment, monitoring, and governance frameworks.

Narasimham Committee

- Dr Manmohan Singh set up the **Narasimham Committee in 1991** to analyse India's banking sector and recommend reforms. It was followed by the **1998 Committee which is known as the Narasimham Committee II**.
- **Narasimham Committee- I Recommendations:** A 4-tier hierarchy for the Indian banking system with 3 or 4 major public sector banks at the top and rural development banks for agricultural activities at the bottom.
- A quasi-autonomous body under RBI for supervising banks and financial institutions.
 - Reduction in **statutory liquidity ratio**
 - Reaching of **8% capital adequacy ratio**
 - Setting up **Asset Reconstruction fund**
- **Narasimham Committee- II Recommendations:** The Committee recommended the **merger of major public sector banks** to boost international trade. However, the Committee warned against merging stronger banks with weaker banks.
- The Committee also recommended **reforms in the role of the RBI** in the banking sector. The Committee felt that RBI being the regulator, should not have ownership in any bank.
 - It also recommended the formation of **Asset Reconstruction Funds or Asset Reconstruction Companies**.

Measures that can Strengthen India's Banking Sector to Drive Economic Growth

- **Strengthening Capital and Risk Management:** India must align with **Basel III guidelines** and **Narasimham Committee recommendations (1991)** by ensuring adequate **capital buffers** and strengthening **risk management**.
- Banks should adopt **advanced risk-based assessment models** for **retail and unsecured lending** to enhance **capital adequacy** and reduce delinquencies. These measures will foster a more resilient and sustainable banking sector.
- **Digital Transformation and Cybersecurity:** In line with **RBI Framework for Responsible and Ethical Enablement of Artificial Intelligence (FREE-AI)**, banks should encourage fintech partnerships and AI-driven risk analytics to boost reach and efficiency.
- Initiatives like the **MuleHunter AI**, and **Account Aggregator framework** foster innovation while ensuring security and compliance.

- **Governance and Fair Conduct:** Enforcing **consumer protection norms**, transparent loan contracts, and fair pricing mechanisms especially in microfinance can build trust.
- **Promoting Financial Inclusion and Deepening Credit:** Expansion of **priority sector lending**, **co-lending models**, and **innovative digital credit platforms** can bring underserved populations into the formal financial system.
 - Schemes like **PMJDY**, **PM-Surya Ghar**, and **PM-KUSUM** integrate banking with social and infrastructure development, boosting inclusive growth.
- **Climate and Transition Financing:** Integrating **sustainability and climate risk assessment** into lending is crucial for long-term financial stability.
 - Initiatives like **Sovereign Green Bonds**, **green deposits**, and the **RBI draft climate disclosure framework** encourage banks to provide transition financing while mitigating greenwashing risks.
- **Regulatory and Policy Measures:** Strengthening regulatory frameworks through **prompt corrective action (PCA)**, enhanced supervision, and risk-based audits improves resilience.

Cotton Cultivation in India

Apart from extending the **11% import duty waiver on cotton**, the Union government has **raised the MSP for cotton for the 2025–26 season** and **expanded procurement efforts** to support farmers facing price pressures and **stabilize the textile industry**.

- The move addresses both the challenges of rising imports and the need to safeguard farmer **welfare amid a 15-year low in domestic cotton production**.

State of Cotton Cultivation in India

- **About:** Cotton, popularly called “**White Gold**”, is India’s most important **commercial crop**, contributing about **one-fourth of global output**.
 - Nearly **two-thirds (67%) of the area is rain-fed**, making cultivation highly dependent on monsoons, while **only a third (33%) is irrigated**.
 - Cotton cultivation in India dates back to the **Indus Valley Civilization**, with **textiles** famed worldwide for their **quality and craftsmanship**, but under **colonial rule** India was reduced to a **raw cotton supplier** for British mills.
- **Growing Conditions:** It is a **subtropical crop** that **requires a warm, sunny, frost-free climate** with adequate humidity.
 - It grows well in **deep alluvial soils (north India)**, **black clayey soils (central India)**, and **red-black mixed soils (southern India)**.

- While it can withstand some **salinity**, the crop is **extremely vulnerable to waterlogging**, making **proper drainage** crucial.
- Cotton is primarily a **Kharif crop**, with its sowing season starting in **early April-May in northern India** and during the **monsoon season in the southern zone**.
- **Hybrid and Bt Cotton:** **Hybrid Cotton** is produced by crossing two parent varieties with different traits, often occurring naturally through cross-pollination.
 - **Bt Cotton** is a **genetically modified variety** that resists common pests, especially bollworms.
- **India’s Scenario:** India is the **second-largest producer and consumer of cotton** in the world, after China
 - Cotton contributes **24% of global output**; India has the **largest acreage** but ranks **36th in productivity**.
- **Significance:** Cotton contributes significantly to **foreign exchange**, with exports of **30 lakh bales (6% of global share) in 2022–23**, sustains **6 million farmers** and **40–50 million workers** in processing and trade.
 - The **cotton textiles industry** is the **second-largest employer** in India, after agriculture.

Challenges to the Cotton Sector in India

- **Weather Variability & Climate Risks:** Cotton is highly **climate-sensitive**, with yields impacted by erratic **rainfall**, **droughts**, **floods**, declining soil fertility, and limited irrigation.
 - **Rising temperatures and shifting rainfall patterns** add long-term risks to sustainable cotton production.
- **Low Yield & Outdated Practices:** Many farmers still rely on **traditional methods**, leading to **low productivity** (480 kg/ha in India vs world avg. 800 kg/ha) and inferior fibre quality.
 - Lack of access to modern techniques, certified seeds, and weed management further widens the gap, especially for **small and new farmers in rural areas**.
- **Pest & Disease Infestations:** The **Pink Bollworm (PBW)** and **other pests**, along with **fungal infections**, are reducing cotton output.
 - India’s **cotton production has dropped to a 15-year low of 25 million bales** due to these issues and declining GM cotton effectiveness.
- **High Cost of Cultivation:** Rising **input costs** for seeds, fertilizers, pesticides, and **cheaper imports** make cotton **farming economically unsustainable**, particularly for small and marginal farmers.
- **Market-Related Challenges:** Farmers face **restricted market access** and are often forced to **sell at below-MSP rates**, while **global market fluctuations**, such as **tariffs and duties**, affect their profitability and export competitiveness.

Government Initiatives to Support the Cotton Industry

- **Cotton Corporation of India (CCI):** Ensure fair prices for farmers, stabilize market fluctuations and enforce MSP operations.
- **Technology Mission on Cotton (2000):** Aimed at enhancing productivity, quality, and competitiveness through improved seeds, irrigation, and modern technology.
- **Bt Cotton (2002):** India's first GM crop
- **Cotton Development Programme under NFSM (2014–15):** Implemented in 15 major cotton-growing states to increase productivity and output.
- **National Technical Textiles Mission (2020):** Promotes research, innovation, and value addition in cotton-based technical textiles.
- **Mega Investment Textile Parks (MITRA):** Establishes 7 textile parks in 3 years to boost investment, infrastructure, and global competitiveness.
- **Cott-ALLY Mobile App:** Offers farmers real-time information on MSP, procurement centres, payments, and best practices.
- **Textile Advisory Group (TAG):** Constituted by the Ministry of Textiles to coordinate stakeholders on productivity, prices, branding, and policy issues.
- **Committee on Cotton Promotion and Consumption (COCPC):** Ensures the availability of cotton to the textile industry.

Measures to Boost the Cotton Industry in India

- **Integrated Pest & Crop Management:** Adopt Integrated Pest Management (IPM) using natural controls, trap crops, and beneficial insects while expediting approval of pest-resistant GM hybrids (whitefly- and pink bollworm-resistant varieties) to reduce pesticide dependency.
- **Bridging the Yield Gap:** Boost productivity through NFSM-led large-scale demonstrations, adoption of High-Density Planting Systems (HDPS), and the 5-year Mission for Cotton Productivity (focused on extra-long staple varieties), aiming at improved yield, sustainability, and reduced import dependence.
- **Modernisation & Infrastructure:** Utilise Technology Upgradation Fund Scheme (TUFS) and MITRA to modernise ginning, spinning, and weaving units, while encouraging investment in cotton-linked clusters for global competitiveness.
- **Extension & Farmer-Centric Services:** Enhance agricultural extension via Krishi Vigyan Kendras and CCI, and scale digital platforms like the Cott-ALLY App to deliver real-time updates on MSP, weather, pest alerts, and procurement logistics.
- **Branding & Global Competitiveness:** Expand “Kasturi Cotton” branding with QR-code traceability to assure quality, build a distinct identity for Indian cotton, attract premium prices, and enhance trust among global buyers.

21st Annual Global Investor Conference 2025

The Union Minister of Commerce and Industry addressed the **21st Annual Global Investor Conference 2025**, emphasizing India's **strong economic performance** and its vision of becoming a developed nation by **2047 under Viksit Bharat**.

Key Highlights of the Conference

- **Impressive Economic Growth:** India's economy grew by **7.8% in the Q1 of FY 2025**, the highest since 2020.
 - **Private investment went up by 66%, FDI increased by 14%, and inflation (CPI) was the lowest in many years.**
- **Manufacturing and Make in India:** The **Manufacturing PMI reached a 17.5-year high**, showing strong growth in production. The government is using **infrastructure as a growth driver** to boost demand. Focus is also on making **drones, semiconductors, and CRGO steel** in India to cut imports and build local industries.
- **Ease of Doing Business and Reforms:** The **GST 2.0** has made taxation simpler and is expected to increase demand.
 - Along with this, **lower corporate and personal taxes** and **RBI's easy monetary policy** have boosted business activity, while keeping inflation at just **1.5%**.
- **Banking and Financial Confidence:** The **banking sector is performing at its best in years**, giving confidence to depositors and borrowers.
 - Also, **millions of new demat accounts are being opened each month**, showing **growing participation in stock markets** and more domestic investment.
- **Trade and International Engagements:** India has signed **trade agreements with Mauritius, UAE, and Australia**, and is negotiating with the **EFTA bloc, EU, and UK**.
- **Sustainability:** The government is promoting **renewable energy and energy-efficient products** like **LED bulbs and 5-star appliances**.
 - It is also stressing **Zero Defect, Zero Effect (ZED) manufacturing**, which means making high-quality goods that do not harm the environment.

Principles of Viksit Bharat

- **Agricultural Excellence:** Farmers making our country the "food basket of the world."
- **Zero-Poverty:** Ensuring no one lives below the poverty line.
- **Women's Economic Participation:** 70% women in economic activities.
- **Quality Education:** Providing access to high-quality education for all.
- **Healthcare Access:** Ensuring high-quality, affordable, and comprehensive healthcare.
- **Skilled Labor:** Hundred percent skilled labor with meaningful employment.

Challenges to the Indian economy and Measures to enhance its Resilience

Challenges	Measures
Rising global protectionism and geopolitical conflicts are straining India's trade.	Develop multi-aligned trade strategies, reduce oil dependence , diversify energy partners, and accelerate renewable transition .
Imported inflation surged from 1.3% (June 2024) to 31.1% (Feb 2025) due to rising prices of precious metals, oils, and fats.	Strengthen financial norms, deepen domestic capital markets , promote rupee internationalisation , and manage currency sovereignty.
Conflicts in the Red Sea and Indo-Pacific , along with protectionist trade policies , have raised transport costs and disrupted supply chains .	Invest in climate-smart agriculture , resilient seeds, cold chains, and maintain transparent food reserves to ensure price stability and rural income .
Negotiations on the India-EU FTA and India-Canada trade talks remain stalled due to disputes over data protection, IPR, tariffs , limiting India's trade diversification	Focus on indigenous R&D in tech (AI, 5G) , build digital infrastructure , and enhance skill development and public health systems.

Foreign Capital Flows and India's Balance of Payments

India has emerged as the **world's fastest-growing major economy**, recording an average annual GDP growth of **8.2% from 2021 to 2024**, outpacing countries like **Vietnam, China, and the United States**.

- Despite strong growth, India faces **low net foreign capital inflows**, reflecting a gap between GDP expansion and investor sentiment in its **Balance of Payments**.

Balance of Payments (BoP)

- **About:** The BoP serves as a crucial economic indicator, detailing all financial transactions between India and the rest of the world.
 - This comprehensive ledger **tracks the inflow and outflow of money where inflows are marked positive and outflows negative**, reflecting the country's economic interactions globally.
 - It measures the relative demand for the rupee against foreign currencies, crucially influencing exchange rates and economic stability.
- **Component of BoP:**
 - **Current Account:**
 - ❖ **Trade of Goods:** Tracks physical imports and exports, indicating the balance of trade. A deficit suggests higher imports than exports.
 - ❖ **Trade of Services (Invisibles):** Includes sectors like IT, tourism, and remittances, contributing positively

to India's current account surplus despite trade deficits. The net of these two components determines the current account balance.

- **Capital Account:** Captures investments such as Foreign Direct Investment (FDI) and Foreign Institutional Investments (FII), essential for economic growth and stability.
 - ❖ The capital account flow reflects factors such as commercial borrowings, banking, investments, loans, and capital.

Current State of India's Balance of Payments (BoP)

- **Trade Deficit and Invisibles Account:** India's **trade deficit continues** to widen, reaching **USD 287.2 billion in 2024-25**.
 - However, this has been offset by surpluses in the **"invisibles" account**, primarily due to **services exports and remittances from the Indian diaspora**.
 - These surpluses have helped maintain a manageable **Current Account Deficit (CAD)**, even as merchandise trade deficits balloon.
- **Growth & Investment Paradox:** Despite robust growth, India has faced challenges in attracting foreign investments. In the financial year 2023-24, **foreign portfolio investments (FPIs)** amounted to USD 25.3 billion.
 - However, India experienced **significant net outflows in previous years**, with USD 5.1 billion in 2022-23, USD 14.6 billion in 2024-25, and USD 2.9 billion in 2025-26 (as of September 5). This trend highlights a paradox where India's economic expansion does not align with foreign capital influx.
- **Private Equity and Venture Capital Exits:** The increase in exits from **private equity (PE)** and **venture capital (VC)** investments reflects **profit-booking and matured investments**, rather than new capital creation.
 - The total value of PE/VC exits was **USD 24 billion in 2022, USD 29 billion in 2023, and USD 33 billion in 2024**.
 - Foreign investors prioritize **corporate earnings**, the **overall business climate**, and **market valuations** over the headline **GDP growth** figures.

Indigenous Solar Value Chain

The **Ministry of New and Renewable Energy** is formulating a plan to create a fully **indigenous solar manufacturing ecosystem** by 2028, encompassing **modules, cells, wafers, and ingots**.

Solar Manufacturing Value Chain

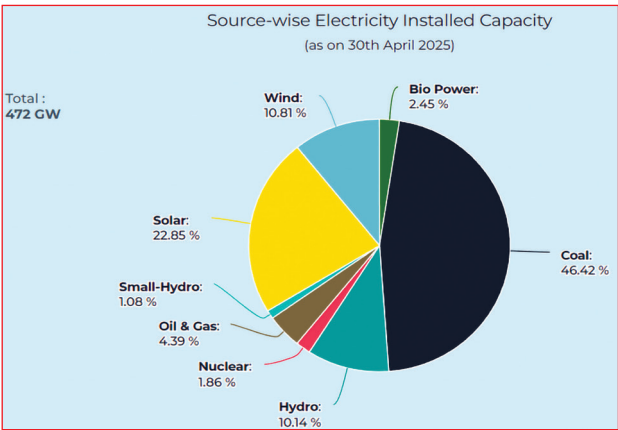
- **About:** The **solar manufacturing value chain** encompasses the complete process of converting **raw materials** into a fully functional **solar photovoltaic (PV) module**.

- It is a sequential workflow and the chain is generally divided into **Upstream** (high-tech, capital-intensive) and **Downstream** (labor-intensive) segments.
- Current Status:** India's **solar module capacity** has already touched **100 GW**, but **solar cell capacity** is only **27 GW**, while **ingot and wafer capacity** is just **2.2 GW**, making it heavily reliant on imports, particularly from China.
- India aims to finalize a **roadmap for Swadeshi polysilicon production** in the coming years.

- Proposed Reforms:** A key step is the proposed expansion of the **Approved List of Models and Manufacturers (ALMM)**, currently for modules, to include **solar cells, wafers, and ingots**.
- ALMM mandates that solar project developers purchase equipment from approved models and manufacturers, promoting **domestic manufacturing** and acting as a **non-tariff barrier** to low-quality or import-dependent products.

Challenges in Developing Indigenous Solar Value Chain (H-U-R-D-L-E)	Suggestions (S-H-I-N-E)
H – High Costs & Scale Issues: Indian components are costlier due to dis-economies of scale. U – Upstream Infra Gaps: Limited domestic capacity in tech- and capital-intensive polysilicon and wafer production. R – RoW & Land Bottlenecks: Land acquisition and Right of Way (RoW) issues block projects. D – Delayed Power Purchase Agreements (PPAs): Procurement delays by States/Discoms hurt project viability. L – Lack of Experience: Limited experience in advanced solar manufacturing. E – Export/Import Dependence: Reliance on imports increases vulnerability.	S – Sustained Policy Support: Expand ALMM, ensure stable PLI, phased customs duties; clear technology acquisition plans. H – Harness Investment: Build Greenfield manufacturing, provide capital support, & resolve land/RoW issues. I – Innovation & R&D: Promote technologies like Perovskite and strengthen ancillary industries. N – Navigate Coordination: Streamline state-level execution, ensure Discom financial stability; align with PM Suryaghar Yojana & PM-KUSUM. E – Expand Demand: Drive domestic solar manufacturing demand through policy & deployment programs.

Achievements in Solar Energy
Renewable Energy: - India surpasses 251.5 GW non-fossil energy capacity, achieving over half of its 2030 target of 500 GW. PM Suryaghar Yojana: - India has already installed 20 lakh rooftop solar projects under the PM Suryaghar Yojana, with expectations to cross 50 lakh installations soon. PM-KUSUM scheme: - Under the PM-KUSUM scheme, over 1.6 million solar pumps have been installed or solarised, reducing diesel use by 1.3 billion litres annually and cutting CO₂ emissions by 40 million tonnes.



Annual Licensing Policy for Opium Cultivation for 2025-26

The Union Government has announced the **annual licensing policy for opium poppy cultivation in Madhya Pradesh, Rajasthan, and Uttar Pradesh for 2025-26**, increasing eligible farmers to 1.21 lakh.

Opium Poppy

- About:** The **opium poppy** (*Papaver somniferum* L.) is an **annual medicinal herb** belonging to the **Papaveraceae family**.
- It is the primary source of **opium gum**, which contains **alkaloids** like **morphine, codeine, and thebaine**, widely used in modern medicine as **painkillers, cough suppressants, and antispasmodics**.
- Apart from medicinal use, it is also grown for **edible seeds and seed oil**.
- Favourable Conditions:** Grows best in temperate climate and winter cultivation possible in sub-tropical regions.
 - Cultivation needs well-drained, fertile light **black or loamy soil with pH around 7.0**.
 - Frost, desiccating conditions, cloudy or rainy weather lower both quantity and quality of opium.
- Opium Cultivation in India:** India is the only country authorized by the **United Nations Single Convention on**

Narcotic Drugs (1961) to produce gum opium. 11 other countries cultivate opium poppy, but they do not extract gum.

- **Opium poppy** has been cultivated in India since the **10th century**. It became a federal monopoly during the Mughal period in the 16th century, came under British control from 1773, and is now regulated by the Indian government.
- **Regulation:** Under the **Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985**, cultivation of opium poppy is **strictly prohibited except under a license issued by the Central Bureau of Narcotics (CBN)** (Gwalior, Madhya Pradesh).
 - Cultivators are required to **sell their entire opium production to CBN**, with the **price fixed by the government**.
 - Currently, licit cultivation is permitted only in **selected tracts of the three traditional opium-growing states of Madhya Pradesh, Uttar Pradesh, and Rajasthan**.
 - As a signatory to the **United Nations Single Convention on Narcotic Drugs, 1961**, India is required to strictly adhere to the provisions and regulations outlined in the Convention while managing its opium production.

CAG Report on the Fiscal Health of States

The **Comptroller and Auditor General of India (CAG)** released its first decadal analysis on the **fiscal health of 28 Indian states**, showing that their **public debt** (internal borrowings plus loans from the Centre) has tripled in 10 years, reaching **Rs 59.6 lakh crore in FY 2022-23**, raising concerns about fiscal sustainability.

Key Findings of the CAG Report

- **Debt Growth in a Decade:** States' total public debt increased **3.39 times** from Rs 17.57 lakh crore in 2013-14 to Rs 59.60 lakh crore in 2022-23.
 - Debt as a share of **Gross State Domestic Product (GSDP)** (value of all finished goods and services produced within a state's geographical boundaries) rose from **16.66% to 22.96%**, showing a heavier fiscal burden.
 - States' debt stood at **22.17% of India's country's Gross Domestic Product (GDP)** in 2022-23.
- **State-wise Variations:** Punjab (40.35%), Nagaland (37.15%), and West Bengal (33.70%) had the highest debt ratios, while Odisha (8.45%), Maharashtra (14.64%), and Gujarat (16.37%) had the lowest.
- **Debt vs revenue capacity:** On average, states' debt has been about **150% of their revenue receipts**, peaking at **191% in 2020-21** during Covid-19.
- **Sources of borrowing:** Loans raised from open market through securities, treasury bills, bonds, banks, **Reserve Bank of India (RBI's) Ways and Means Advances**, and institutions like **Life Insurance Corporation of India (LIC)** and **National Bank for Agriculture and Rural Development (NABARD)**.
- **Centre's Role:** Loans from the Union government increased due to **GST compensation shortfall** and special assistance for capital expenditure.
- **Golden rule violations:** The **Golden Rule of Fiscal Policy** states governments should borrow only for capital investment, not for current spending.
 - However, at least **11 states** used borrowings to cover day-to-day expenditure rather than capital investment, in Andhra Pradesh and Punjab, less than 25% of borrowings went into capital projects.

Reasons for High State Debt in India

- **Reduced Fiscal Autonomy Post-GST:** The introduction of **Goods and Services Tax (GST)** in 2017 centralized tax collection, leaving states with fewer avenues to generate revenue independently.
 - Moreover, the **decline in their share of tax revenue** due to new central cesses and surcharges further curtails their fiscal space.
- **Fiscal Imbalance:** States collect less than a third of the total revenues but are responsible for **nearly two-thirds of the public expenditure**.
 - This significant **revenue-expenditure mismatch** forces states to borrow to meet their spending needs.
- **High Reliance on Market Borrowings:** Over time, states have increasingly turned to **market borrowings**, which account for a larger portion of state debt.
 - Market borrowings come at a **higher cost** compared to other debt instruments, leading to an increased financial burden on states.
- **Contingent Liabilities:** State governments often undertake projects that involve **financial guarantees** (e.g., infrastructure projects), creating potential future financial obligations, known as **contingent liabilities**. These liabilities pose risks to fiscal health.
- **Higher Interest Rates:** States face relatively **higher borrowing costs** compared to the central government, which increases the total debt servicing burden.
- **Historical Debt Accumulation:** States with a history of **high debt levels** are forced to borrow more to service existing debt, creating a **debt trap** that's difficult to escape.

Implications of Rising State Public Debt

- **Threat to Fiscal Federalism:** Rising debt limits **fiscal autonomy of States** and increases **central control** over state finances, undermining the federal structure.

- **Fiscal Sustainability Risks:** High debt servicing costs limit funds for developmental spending, potentially leading to a **debt trap** where states borrow more to repay existing debt.
- **Impact on Economic Growth:** States may have reduced capacity for investment in critical sectors like infrastructure, slowing **long-term growth**.
- **Inflation and Interest Rate Risks:** Higher borrowing costs and inflationary pressure can destabilize the economy and increase fiscal stress.
- **Regional Disparities:** States with higher debt-to-GDP ratios may face increased fiscal distress, creating greater **regional inequalities** in fiscal health.
- **Impact on Social Welfare:** States may cut back on welfare programs and public services, negatively affecting vulnerable populations.

Way Forward

- **Enhancing Revenue Generation:** Enhance tax collection efficiency by expanding the tax base, and broadening tax scopes through **economic formalization**.
 - States can explore innovative revenue sources like mining royalties, tourism, and public asset monetization.
- **Rationalizing Expenditures:** States should **prioritize capital expenditure for long-term investments**, control discretionary spending, and rationalize inefficient welfare programs.
- **Debt Restructuring:** States should refinance high-interest debt, seek lower-cost debt sources (e.g., **National Small Savings Fund (NSSF)**, **Green Bonds** or **Infrastructure Bonds**), and set **debt ceilings** to keep **debt-to-GDP** ratios within limits, as per the **Fiscal Responsibility and Budget Management (FRBM) Act, 2003**.
- **Promoting Investment:** Focus on **Public-Private Partnerships (PPPs)** and **foreign direct investment (FDI)** in key sectors such as infrastructure, technology, and renewable energy.
 - This can reduce the burden on state finances while leveraging private sector expertise.
- **Create Contingency Funds:**
 - Set up **rainy day funds** or **contingency funds** to cover unforeseen fiscal needs, helping to avoid excessive borrowing during times of economic shocks or natural disasters.
- **Enhancing Central-State Fiscal Cooperation:**
 - Increase states' share of central revenues as per the Finance Commission, and ensure timely **GST compensation** to reduce short-term borrowing needs.
- **Improving Public Financial Management:** Implement **performance-based budgeting** with the aid of **Fiscal Health Index (FHI)** and link expenditure to outcomes, and use technology to streamline procurement and reduce inefficiencies.
- **Social Safety Nets:** Strengthen **social safety nets** that protect the most vulnerable without placing excessive strain on state budgets.

Startup India Revolution

The **Startup India initiative** has been instrumental in transforming **India's innovation ecosystem**, fostering the growth of numerous startups.

- According to the **Future Unicorn Report 2025**, 11 new startups have joined India's unicorn club in 2025.

Role of Startup India in Transforming India's Innovation Ecosystem

- **Building the Innovation Stack:** Digital India, Aadhaar, UPI, and BharatNet have built a **digital public infrastructure** that **lowers startup barriers**, **expands access**, **cuts costs**, and drives an **inclusive innovation ecosystem**.
 - **Fund of Funds for Startups** and **credit guarantee schemes** provided critical **capital support** for early-stage startups e.g., **Fashinza** (B2B marketplace streamlining the **apparel and fashion supply chain**).
 - **Ease of Doing Business reforms** like **single-window clearances** and **online systems** have **streamlined approvals**, significantly **reducing the time and cost of starting a business**. These reforms created a **layered innovation ecosystem**, or **innovation stack**.
- **Unicorn Surge:** By mid-2025, India had **118 unicorns (4 in 2014)**, with firms like **Zomato**, **PhonePe**, **Razorpay**, **Ola**, **Meesho**, and **Delhivery** solving local challenges and going global.
 - A **unicorn** is a **privately held startup company** with a **valuation of over USD 1 billion**.
- **Diversified Startup Ecosystem:**
 - **FinTech:** UPI established India as a **global leader in digital payments**.
 - **SpaceTech:** Post-2020 reforms enabled private players like **Skyroot Aerospace** and **Agnikul Cosmos**; India now has **300+ startups** in space.
 - **DefenceTech:** Over **600 startups** under **iDEX** and schemes like **ADITI** are driving **indigenisation** in defence manufacturing.
- **Startup Dividend:** Startups have generated over **12 lakh direct jobs** and millions of **indirect roles**, while reducing

import dependence and boosting exports, strengthening India's global economic standing.

Challenges Facing India's Startup Ecosystem

- **Funding Constraints:** Startups in Tier-II and Tier-III cities struggle with funding, which dropped from Rs 2,202 crore in July 2024 to Rs 630 crore in August 2024.
- **Regulatory Complexity:** India's complex regulatory environment poses challenges for startups, with debates under the Motor Vehicles Act, 1988 on app-based cab classification and compliance under the Digital Personal Data Protection Act, 2023 increasing legal and administrative burdens.
- **Growth Challenges:** Despite strong initial growth, about 90% of startups fail within five years due to scaling difficulties, operational inefficiencies, and obstacles in entering new markets.
- **Market Saturation:**
 - Intense edtech competition has caused market saturation, shrinking margins, and unsustainable cash burn, with the post-pandemic downturn highlighting consolidation risks.

Measures to Strengthen India's Startup Ecosystem

- **Enhanced Tax Benefits:** Extend tax incentives from 3 to 5 years, with additional breaks for deep-tech startups and

those addressing national priorities, following global examples like Israel's 12% corporate tax for tech firms.

- **Boosting Market Access:**
 - Require a fixed percentage of government procurement to come from startups, creating substantial market opportunities for them.
- **Decentralized Startup Ecosystem:**
 - Develop tier-2 and tier-3 cities as startup hubs by improving infrastructure and offering incentives, using a hub-and-spoke model where larger cities support surrounding smaller cities.
- **Skill Development:**
 - Expand sector-specific skill programs under Skill India, focusing on emerging technologies like AI, blockchain, and IoT to create a future-ready startup workforce.

Promoting Global Capability Centres in India

The Confederation of Indian Industries (CII) suggested a framework for a National Global Capability Centres (GCCs) Policy, which can position India as the global headquarters for innovation-driven GCCs.

- The policy structure is anchored in three pillars—national direction, enabling ecosystem, and measurable outcomes—supported by four critical success factors: talent, infrastructure, regional inclusion, and innovation.

GCCs	Growth Drivers of GCCs
■ About: Offshore units of MNCs that centralize functions like IT, finance, engineering, R&D, etc. in cost-efficient global locations. ■ GCCs in India: India hosts nearly half of the world's GCCs, with numbers expected to rise from 1,800 to 5,000 by 2030. ■ Economic Contribution: Contributes ~1.8% to India's GDP and could add USD 470–600 Bn by FY2030. ■ Employment Generation: Supports 10.4 Mn jobs in FY25, with potential to create 20–25 Mn jobs by 2030.	■ India has 1.9 Mn professionals in GCCs & millions of STEM graduates, offering diverse skills & perspectives. ■ India's location provides access to Asian markets, local consumer insights & a growing domestic market. ■ Geographically diverse operations and resilience during Covid-19 make Indian GCCs reliable. ■ India's mature GCC ecosystem & infra allow rapid scaling of operations. ■ Strong data protection, privacy laws & governance frameworks ensure regulatory compliance.

Challenges	Way Forward
■ India's digital skills gap is projected to rise from 25% in 2023 to 29% by 2028, with only 43% of graduates industry-ready, forcing companies to invest heavily in reskilling. ■ Policymakers worry that GCCs overlap with domestic IT firms, may weaken IT exports, and produce limited high-end projects in India. ■ Most GCC work remains routine and outsourceable, with limited Intellectual Property (IP) creation, restricting India's rise in the global value chain. ■ High attrition in the GCC sector, particularly in AI, analytics, and digital roles, makes it hard to retain talent and sustain growth.	■ Standardized Reskilling Platforms should offer certifications in AI, cloud, and data analytics, while incentives like tax benefits or subsidies should promote large-scale graduate upskilling. ■ A Clear Differentiation Strategy should position GCCs for strategic innovation and R&D. ■ Create special innovation zones with strong IP protection to attract GCCs and mandate IP leadership for greater ownership of product development. ■ Promote global assignments and high-impact projects, offer a competitive work culture.

International Relations

India - Eurasian Economic Union FTA Negotiations

India and the **Eurasian Economic Union (EAEU)** have signed the **Terms of Reference (ToR)** to launch negotiations on a **Free Trade Agreement (FTA)**, a move that comes after stalled trade talks with the United States and rising US tariff threats.

Eurasian Economic Union

- **Nature:** EAEU is an international organization for regional economic integration with international legal personality.
- **Establishment:** EAEU was established via the Treaty on the Eurasian Economic Union (entered into force in 2015).
- **Member States:** Republic of Armenia, the Republic of Belarus, the Republic of Kazakhstan, the Kyrgyz Republic and the Russian Federation.
- **Headquarters:** Moscow, Russia.
- **Objectives:** The EAEU ensures free movement of goods, services, capital, and labor; promotes coordinated policies, modernizes member economies, enhances competitiveness, and supports stable development to raise living standards.

Significance of EAEU to India

- **Market Access:** An EAEU FTA gives India access to a **USD 6.5 trillion market**, expands exports in textiles, pharmaceuticals, engineering goods, and electronics, enhances competitiveness against non-market economies, and creates new opportunities for India's **MSMEs**.
- **Trade Diversification:** Partnership with the EAEU helps India **reduce dependence on the US and EU markets**, especially amid **tariff disputes**.
 - It will strengthen the India-EAEU economic partnership, with **bilateral trade reaching USD 69 billion in 2024, up 7% from 2023**.
- **Energy Security:** The EAEU offers abundant natural resources and energy vital for India's growth.
 - Through the EAEU, India can secure **long-term energy cooperation**, with Russia already supplying **35–40% of India's crude oil imports**.
- **Connectivity Boost:** Cooperation with the EAEU complements **International North-South Transport Corridor (INSTC)** and **Chennai-Vladivostok Corridor**, reducing logistics costs and transit time.

Challenges in India- EAEU Engagement

- **High Trade Deficit with Russia:** India's trade deficit with Russia (the largest member of the EAEU) has surged from

USD 6.6 billion in 2021 to USD 58.9 billion in 2024–25, driven largely by **hydrocarbon imports**.

- **Geopolitical Sensitivity:** A Russia-led trade deal may alarm **NATO and Western allies**, requiring careful **strategic balancing**.
 - Deepening trade with Russia carries geopolitical risks due to **US and EU sanctions over Ukraine**, while rising imports could further escalate pressure from US tariffs, which are currently at **50% on Indian goods**.
- **Domestic Industry Concerns:** Cheap imports from Russia and other EAEU countries (oil, metals, etc.) may **threaten Indian producers**, requiring safeguards or quotas.
- **Low FTA Utilization:** India's **FTA utilization is low at around 25%**, far below the 70–80% seen in developed countries, reflecting underuse of its trade agreements.
- **Non-Tariff Barriers:** These include **bureaucratic delays, complex customs procedures**, and regulatory issues that can hinder the free flow of goods and services.
- **Sanitary and Phytosanitary Standards:** Indian agricultural exports often face difficulties due to the **strict sanitary and phytosanitary (SPS)** standards imposed by the EAEU countries, making it harder for Indian products to meet market entry requirements.
- **Dependency on Dollar:** Trade between India and the EAEU still relies heavily on the US dollar, creating uncertainty due to currency fluctuations. Efforts to use the **rupee-ruble mechanism are still limited and lack liquidity**.
 - The absence of **efficient cross-border payment systems**, especially with Russia under sanctions, increases financial complexities and transaction costs.

Measures to Strengthen India-EAEU Engagement

- **Programme of Economic Cooperation:** Finalize and implement the **2025–2030 Programme of Economic Cooperation with Russia** and extend it to all EAEU members to strengthen ties in energy, agriculture, industry, education, and culture.
- **Diversify Export Mix:** Expand into pharmaceuticals, agriculture, textiles, machinery, and services to reduce dependence on hydrocarbons.
- **Financial Mechanism Innovations:** Scale up use of local currencies (rupee, ruble). Develop and standardize **Local Currency Settlement (LCS) frameworks** supported by sufficient liquidity, to reduce dependency on USD.
- **Multilateral Economic Outreach:** Engage with **BRICS**, and revive **RIC (Russia-India-China)**, and other regional blocs to broaden trade alliances and diversify supply chains.

- **Boost Connectivity:** Enhance logistics via the INSTC, Northern Sea Route, and Chennai–Vladivostok Corridor.

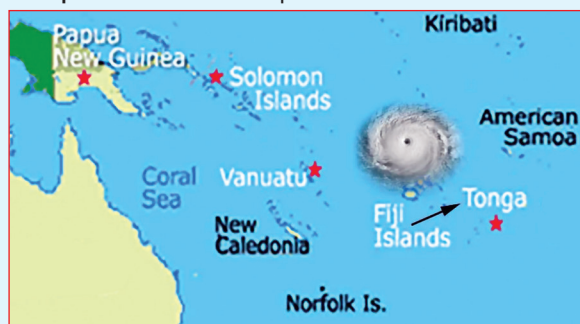
India- Fiji Relations

The **Prime Minister of Fiji**, in his visit to India, held talks with the **Indian Prime Minister** to **strengthen bilateral cooperation between the two nations**.

- India agreed to provide **training, equipment, and capacity building** for Fiji's military; collaborate on **UN Peacekeeping Operations, military medicine, White Shipping Information Exchange and cybersecurity**.
- Agreements include **100-bedded Super-Specialty Hospital, Jan Aushadhi, Heal in India, telemedicine under e-Sanjeevani**.
 - Focus was made on **Hindi-Sanskrit studies, Girmitiyas (Indian indentured labourers) recognition, sports, professional/student mobility**.
- Joint vision for **Indo-Pacific peace, support India's UNSC membership**, counter-terrorism, climate action, sustainable development, South-South cooperation, reinforces **India's Act East Policy and Indo-Pacific Oceans Initiative (IPOI)** counterbalancing **Chinese influence in the Pacific Island Countries (PICs)**.
- The PM of India **lauded the Fijian PM** for championing the '**Ocean of Peace**' initiative, which seeks a **stable, secure, and sustainable Indo-Pacific**.

Fiji

- Fiji is a country and archipelago in the **South Pacific Ocean** & part of **Pacific Island Countries (PICs)**, located north of Auckland, New Zealand, comprising over **300 islands**, of which around **100 are inhabited**.
- Known as the "**soft coral capital of the world**," it has over **4,000 sq km of coral reefs**.
- Historically, **sugarcane** has been a major economic driver.
- A **parliamentary democracy** with a diverse population including **Indigenous Fijians, Indians, and Europeans**.
- Home to the **Sri Siva Subramaniya Swami Temple**, the largest **Hindu temple** in the Southern Hemisphere.



25th Shanghai Cooperation Organisation (SCO) Summit

The Prime Minister of India participated in the 25th Meeting of the Council of Heads of State of the **SCO**, held in **Tianjin, China**.

SCO

- **Established:** 2001, in Shanghai, China
- **Charter Signed:** 2002; came into force on 19th September 2003
- **Official Languages:** Russian & Chinese
- **Headquarters:** Beijing, China
- **Members:** China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, India, Pakistan, Iran, and Belarus.

Key Outcomes of 2025 SCO Summit

- **Counter-Terrorism:** **Tianjin Declaration** strongly **condemned terrorism**, including the **Pahalgam attack**, and called to end **cross-border movement of terrorists**, and opposed use of extremist groups for mercenary purposes.
- **Membership & Partnerships:** **Laos accepted as a partner country**, taking SCO's total strength to 27 (10 members (including India) + 17 partners).
- **Global Governance:** The **Global Governance Initiative (GGI)** was proposed to promote sovereign equality, multilateralism, and a just global order. GGI reflects India's vision of "**One Earth, One Family, One Future**".
 - Additionally, member states opposed **unilateral coercive measures**, including economic sanctions, that contravene **United Nations and World Trade Organization (WTO) principles**.
- **Promotion of Cultural and Social Values:** It welcomed UNGA resolution against glorification of Nazism, neo-Nazism, racism, and xenophobia.
 - Reaffirmed people-to-people engagement and the importance of mutual respect and collaboration among member states.
 - The summit condemned military actions in **Gaza and Iran** and emphasized inclusive governance in Afghanistan for lasting peace.
- **Economic & Development Cooperation:** The summit emphasized stabilizing global trade, expanding bilateral trade and investment, and setting up an **SCO Development Bank**.

Role of SCO in Global Multilateralism

- **Expanding Geopolitical Reach:** SCO has grown beyond its Central Asian origins, now representing about **23% of global GDP and 42% of the world's population**.
 - Its widening membership and partnerships (e.g., Turkey, a North Atlantic Treaty Organization (NATO)

member, as dialogue partner of SCO) showcase its ability to challenge traditional Western alliances.

- It provides space for **Global South** voices to resist being confined to outdated global frameworks.
- **Security and Counter-Terrorism:** SCO addresses security voids left by NATO, especially in **Afghanistan**, through mechanisms like the **Afghanistan Contact Group (ACG)**.
 - The **Regional Anti-Terrorist Structure (RATS)** of SCO in Tashkent, Uzbekistan strengthens cooperation against terrorism, separatism, and extremism.
- **Connectivity and Economic Integration:** SCO acts as a **connectivity catalyst** in Central Asia, fostering corridors and projects like the **International North-South Transport Corridor (INSTC)** and **Chabahar Port**, which enhance trade and trust.
 - The **SCO Business Council and Interbank Consortium** push forward multilateral economic projects.
- **Platform for Civilisational and Developmental Cooperation:** India's initiatives within SCO (start-ups, traditional medicine, Buddhist heritage, digital inclusion) show its potential to go beyond governments and foster people-to-people ties.
 - SCO is positioning itself as a forum for **inclusive development**, aligning with the aspirations of the Global South.
- **Reforming Global Institutions:** SCO members push for **UN reform** and more inclusive global governance, challenging the dominance of **post-World War II structures**.
 - By advocating sovereign equality and multipolarity, SCO seeks a **more democratic and just world order**.

Challenges Undermine SCO's Effectiveness

- **Weak Security Mechanisms:** The RATS organizes exercises but **does little against actual terrorist organizations**. Inclusion of states like Pakistan themselves linked with terrorism undermines credibility.
- **Unequal Power Dynamics:** Central Asian states often feel dominated by **China and Russia**, rather than treated as equal partners.
 - The "**Shanghai Spirit**" of **equality and mutual respect** remains more rhetoric than reality.
- **Ineffective Economic Integration:** SCO agreements (like the Transport Agreement) remain poorly implemented. Intraregional trade within Central Asia remains in single digits, **far behind ASEAN's 25%**.
 - Trade growth in Central Asia is driven by **local dynamics**, not by **SCO initiatives**.
 - Unlike ASEAN, which manages disputes while keeping institutions functional, the **SCO is increasingly compared to SAARC**, active in summits but weak in delivering results.

- **Failure to Institutionalize Cooperation:** Despite multiple attempts, SCO has failed to establish strong frameworks in development, energy, and free trade.

- Formal structures (banking, finance, business councils) function more as networking forums than decision-making bodies.

India's Concerns Regarding SCO

- **China's Dominance:** China is trying to reshape the SCO into a **China-led platform** serving its geo-economic and strategic interests, especially to promote the **BRI**, which India opposes. This risks sidelining India's role within the grouping.
- **Connectivity Projects:** India opposes BRI (especially **China Pakistan Economic Corridor (CPEC)** through PoK), but majority of SCO members strongly support it.
 - India remains outside key connectivity initiatives, limiting its economic and strategic influence.
 - China's **String of Pearls** strategy (naval bases in Maldives, Sri Lanka, South China Sea) threatens India's regional security. India counters with its "**Necklace of Diamonds**" strategy, but this rivalry weakens trust within SCO.
- **Anti-Western Perception:** SCO is often seen as an **anti-West bloc**, dominated by China, Russia, and now Iran. This complicates India's foreign policy, as India maintains strong ties with the **US, EU, and QUAD partners**.
- **Terrorism and Pakistan Factor:** Despite SCO's RATS, Pakistan continues to support cross-border terrorism. India's push for naming Pakistan-based groups is often blocked by China and Pakistan.

India's Approach to Balancing Differences and Fostering Cooperation within the SCO

- **Strategic Multialignment:** India avoids rigid bloc politics, engages in both **Western-led (Quad, G20) and China-led (SCO, BRICS) platforms**. It reflects **India's pursuit of strategic autonomy and multipolarity**.
- **Selective Engagement:** India engages selectively in SCO initiatives like RATS, avoids **commitments that threaten sovereignty**, separates contested (borders, security) from cooperative areas (trade, technology), and limits China cooperation to **non-sensitive sectors such as renewables, EVs, and AI**.
- **Leverage Strategic Partnerships:** Cooperation with Russia ensures India has an equal voice and counters Chinese dominance. Russia acts as a bridge in India-China multilateral engagement.
 - **Russia** is pushing to revive the **RIC (Russia-India-China) trilateral** suspended since the 2020 Galwan clash; for India, it provides a channel to engage China without bilateral isolation.

- **Border Management with Dialogue:** India maintains LAC troop readiness while pursuing disengagement agreements (**Depsang, Demchok 2024**) and high-level dialogue to reduce friction.
- **Regional and Global Forums:** India uses SCO/BRICS to influence Eurasian and Global South narratives while using **Quad/Indo-Pacific frameworks to balance China's regional assertiveness.**

Revisiting India-Japan Relations

Prime Minister Narendra Modi's visit to Japan reinforced the **India-Japan Special Strategic and Global Partnership**, resulting in **13 key agreements** and a pledge of **10 trillion yen (USD 68 billion) investment** in private investment from Japan over the next decade.

Key Highlights of the Visit

The key announcements and developments made during the Prime Minister's visit are as follows:

- **Joint Vision Roadmap:** Announcement of the **India–Japan Joint Vision for the Next Decade**, outlining **8 priority areas**- economic partnership, security, mobility, ecological sustainability, technology and innovation, health, people-to-people ties, and state-prefecture engagement.
- **Defence & Security Cooperation:** India and Japan signed a **Joint Declaration on Security Cooperation**, marking a substantial update and expansion of their 2008 agreement.
 - Institutionalised **NSA-level dialogue** and expanded tri-service exercises (Dharma Guardian, Veer Guardian, Milan).
 - **DRDO–ATLA collaboration** on missile defence and maritime surveillance; movement towards **co-production** of defence equipment.
- **Technology & Space Collaboration:** Launched **Digital Partnership 2.0** and **India-Japan AI Initiative for Large Language Models (LLMs)** and R&D.
 - Signed ISRO–JAXA pact for **Chandrayaan-5 joint lunar polar mission**.
 - Cooperation in **robotics, semiconductors, shipbuilding, space awareness**, and nuclear energy.
- **Infrastructure & Connectivity:** Progress on **Bullet Train project** with next-gen Shinkansen (**360 kmph**) in both countries by **2030**, suited for **seismic zones**.
 - Launched **Next-Gen Mobility Partnership** across transport sectors.
 - Japan's continued support through projects like **Delhi Metro** (USD 2.6 Billion investment) and vision for 7,000-km high-speed rail by 2047.
- **Green Energy & Climate Cooperation:** Operationalised **Joint Crediting Mechanism (JCM)** under Paris Agreement.
 - Signed declarations on **Clean Hydrogen & Ammonia**; launched **Sustainable Fuel Initiative**.
- **People-to-People Cooperation: Action Plan on Human Resource Exchange** to enable mobility of 5 lakh people, including 50,000 Indian workers.
 - Launched **Next-Gen State Prefecture Partnership**, cultural MoUs, and diplomacy training programs.

India-Japan Bilateral Relationship

- **Historical Ties:** India and Japan share civilizational links through **Buddhism**.
 - **Prime Minister Jawaharlal Nehru** donated an elephant to Japan (1949), symbolizing the beginning of a renewed relationship after **World War II**.
 - India established diplomatic relations with Japan in 1952 with the signing of a peace treaty.
- **Strategic Partnership:** The relationship was elevated over time with the signing of **Global Partnership (2000)**, **Strategic & Global Partnership (2006)**, and **Special Strategic & Global Partnership (2014)**.
 - '**India–Japan Vision 2025**' was announced in 2015, outlining a framework for cooperation.
- **Defence & Security:** India-Japan defence ties have strengthened since **2015**, with agreements on **Defence Equipment and Technology Cooperation** and **Security of Classified Military Information**.
 - Key milestones include **2+2 Ministerial Dialogue (2019)** and **Acquisition and Cross-Servicing Agreement (ACSA) (2020)**.
 - Regular **Joint Working Group on Defence Equipment and Technology Cooperation (JWG-DETC)** meetings.
 - Amendments to the **Three Principles for Transfer of Equipment and Technology (2023)**, and the first **Joint Services Staff Talks (2023)** have enhanced **tri-service interoperability**.
 - Exercises include **Malabar, Milan, JIMEX, Dharma Guardian**, and **Coast Guard cooperation**, with focus on **technology transfer**.
- **Indo-Pacific & Regional Cooperation:** India's **Act East Policy** and **Indo-Pacific Oceans Initiative (IPOI)** align with Japan's **Free and Open Indo-Pacific (FOIP)** vision.
 - The **Act East Forum (2017)** and joint statements emphasising a **"Free and Open Indo-Pacific"** guide strategic cooperation.
 - Japan is India's **largest Official Development Assistance (ODA) donor**, and both cooperate in **Quad, ISA, CDRI, and SCRI**.
- **Trade & Investment:** As part of the **China+1 strategy**, Japan views India as a key **manufacturing base and market**.

- The review of **CEPA** and promotion of **GIFT City** aim to boost trade and financial ties, while **Japan's USD 68 billion investment pledge by 2035** reflects strong confidence in India's growth.
- The Joint Action Plan on Economic Security further reinforces supply chain resilience, marking a transformative phase in bilateral economic relations.

Challenges in India–Japan Relations

- **Trade Imbalance:** Despite the CEPA, bilateral trade remains skewed in Japan's favour.
 - In FY24, Japan exported goods worth USD 17.69 billion to India, while India's exports stood at only USD 5.15 billion.
- **Non-tariff barriers, stringent import standards** (especially on agriculture and textiles), and slow progress in CEPA reform are the **major contributing factors**.
- **Divergent Strategic Outlooks:** India's strategic autonomy contrasts with Japan's formal alliance with the U.S., leading to differences in response to issues like Russia sanctions.
 - This divergence affects coordination in multilateral forums and weakens strategic alignment.
- **Regional Priorities:** India focuses on **South Asia, and the Indian Ocean**, while Japan is preoccupied with **East Asian security, North Korea, and US alliance obligations**, limiting full engagement.
- **Delays in Development:** The **Mumbai–Ahmedabad High-Speed Rail (MAHSR) project** faces significant delays due to land acquisition hurdles and regulatory issues, pushing completion from 2022 to 2028.
 - The US-2 amphibious aircraft deal remains stalled over unresolved concerns on technology transfer and pricing.

Steps to Strengthen India–Japan Strategic Partnership

- **Economic Transformation:** Reform **CEPA** to unlock trade potential, anchor **Japanese FDI** in **semiconductors, critical minerals, and manufacturing**, and expand the **Supply Chain Resilience Initiative (SCRI)** as a credible alternative to Chinese dominance.
- **Defence & Security:** Enhance defence collaboration focusing on **shared security, joint exercises, technology transfer, and co-development projects**.
- **Indo-Pacific & Regional Strategy:** Ensure **coherence in approach** at platforms such as **QUAD**, promoting **freedom of navigation** and the **rules-based order**, and engage diplomatically to **promote regional peace**, despite differences on global issues like Ukraine.

- **Infrastructure & Connectivity:** Accelerate **Bullet Train, industrial corridors, and connectivity projects**, including in India's Northeast and **ports linking India, Japan, and Indo-Pacific partners**, enhancing **multilateral infrastructure cooperation**.
- **People-to-People Exchanges:** Promote **academic exchanges, language programs**, tourism, diaspora engagement, and business forums, including skilled worker mobility and **digitalisation support by Indian IT professionals**, to strengthen **soft power and business-to-business collaboration**.

India-Israel Sign Bilateral Investment Agreement (BIA)

India and Israel have signed a **fresh bilateral investment treaty**, making Israel the **first OECD country** to adopt India's new investment treaty model.

- This replaces the older version of BIT signed between **India and Israel in 1996**, which was terminated in 2017.

Bilateral Investment Agreement (BIA)

- **About:** A **Bilateral Investment Agreement (BIA)** is a **legal agreement** between two countries to protect and promote investments in each other's territories.
 - BITs grant rights to investors, allowing them to seek remedies through **investor-state dispute settlement (ISDS) mechanisms**, or to home states, through state-to-state dispute settlement.
 - Recognized under **Article 38(1)(a)** of the **International Court of Justice** statute, as a **primary source of international obligations**.
- **India's BIT Evolution:** Old Model BIT (1993) replaced by **New Model BIT (2015)** and recent BITs signed with **Uzbekistan (2024), UAE (2024), and Kyrgyzstan (2025)**.
- **Key Feature of India- Israel BIT:**
 - **Investment Boost:** Expected to increase bilateral investments, currently worth around **USD 800 million**.
 - **Balanced Investor Protection:** The agreement safeguards investors against the risk of **government expropriation or nationalization of assets** and ensures that any such action must be accompanied by fair and prompt compensation.
 - **Dispute Resolution:** Includes an **arbitration-based mechanism** to settle disputes, promoting a stable investment environment.
 - **Transparency and Predictability:** Governments are required to maintain clear and predictable investment policies and regulations, reducing uncertainty and strengthening investor confidence.

Model BIT 2015

- **Definition & Protection:** Defines an investment as an enterprise that is constituted, organized, and operated in good faith by an investor according to the domestic laws of the host country.
 - Requires each party to provide full protection and security to investments and investors. Mandates that foreign investors be treated on par with domestic companies. Limits the host country's ability to take control of foreign investments.
- **Exclusions Clause:** Excludes areas like government procurement, taxation, subsidies, compulsory licenses, and national security from BIT obligations
- **ISDS Mechanism:** Requires foreign investors to first exhaust local remedies for a minimum of 5 years before resorting to the ISDS mechanism.

Bilateral Relationship Between India and Israel

- **Diplomatic Relations:** Though India officially recognized Israel in 1950, both countries established full diplomatic ties only on 29th January 1992.
- **Economic Ties:** Bilateral trade between India and Israel reached USD 6.53 billion (excluding defense) in FY 2023-24, with India maintaining a trade surplus.
- **Innovation & Technology:** Initiatives like the India-Israel Industrial R&D and Innovation Fund (I4F) (2023–2027) aim to foster joint research and technological advancements.
- **Regional Cooperation:** The I2U2 Partnership, involving India, Israel, the UAE, and the US, held its first summit in 2022 to strengthen regional collaboration.
- **Defense Cooperation:** India is one of the largest importers of weapons from Israel, contributing to approx 40% of its annual arms exports.
 - The two countries have co-developed the Barak-8 missile system, and India conducts regular port calls at Haifa, Israel.



- **Cultural Exchange Programs:** Collaboration extends to cultural exchange programs, health and medical cooperation, and MoUs on agriculture and water resource management.

Challenges Faced by India's BIT Framework	Suggested Measures
Lack of clarity in terms like "investment" and customary international law (CIL) leads to disputes.	Define terms like "investment" and "CIL" precisely to reduce legal ambiguities.
Delays in dispute resolution due to the requirement to exhaust local remedies.	Allow investors to choose between local courts or international arbitration upfront.
Exclusion of Most-Favored-Nation (MFN) and Fair and Equitable Treatment (FET) reduces investor confidence.	Incorporate MFN and FET Provisions with safeguards to prevent treaty shopping while ensuring non-discrimination.
Exclusion from the ICSID Convention limits enforcement options for foreign investors.	Become a signatory to ICSID to enhance investor confidence and provide a globally recognized dispute resolution mechanism.

Harnessing BRICS for India's Strategic Ambitions

At the virtual BRICS Leaders' Summit, India's External Affairs Minister cautioned against linking trade measures with political or non-trade issues in the backdrop of US tariff hikes.

- The importance of fair, transparent, and resilient trade systems amid global conflicts, climate shocks, and supply chain disruptions was also emphasised.

BRICS's Role in Cushioning**India Against Geoeconomic Shocks**

- **Alternative Financial Architecture:** BRICS offers India access to financial resources outside the Western-dominated institutions like IMF and World Bank.
 - NDB has approved nearly USD 10 billion in loans for 28 major infrastructure projects in India, including the Chennai, Indore, and Mumbai metro systems, the Delhi-Ghaziabad-Meerut Regional Rapid Transit System, and the Namo Bharat high-speed trains.
 - Such financing cushions India during global credit squeezes or when Western agencies impose conditionalities.
 - ❖ It also enhances India's bargaining power in negotiations with Bretton Woods institutions.
- **Energy Security and Diversified Supplies:** The grouping includes major energy exporters like Russia and Brazil and large consumers like India and China, making it a natural platform for energy cooperation.

- **India, which imports over 80% of its crude oil needs**, benefited after the Ukraine crisis when Russia emerged as a key supplier.
- Access to discounted Russian oil has helped India manage inflation and trade deficits. **BRICS discussions on an "Energy Alliance"** further promise stable supplies at predictable prices.
- **Local Currency Trade and De-dollarisation:** By promoting settlement in local currencies, BRICS cushions India against dollar volatility and sanctions risk.
 - Efforts toward a **BRICS reserve currency** and bilateral arrangements like rupee-ruble trade are significant steps.
 - For instance, **India and Russia agreed to increase bilateral trade to \$100 billion dollars by 2030**, including the use of national currencies to circumvent Western sanctions.
 - ❖ This reduces India's vulnerability to external shocks like **U.S. monetary tightening** or sanctions-driven disruptions in global payments systems such as **SWIFT**.
- **Market Access Amid Global Slowdowns:** The **expanded BRICS market** acts as a cushion for India when Western economies slow down or erect trade barriers.
 - **IMF data reveals that BRICS accounted for 40% of the global economy** (measured by **Purchasing Power Parity**) in 2024.
 - India's pharmaceutical exports, agri-products, and IT services can find steady demand within this bloc.
 - ❖ Thus, BRICS provides a buffer against demand shocks in traditional Western markets.
- **Technology and Digital Cooperation:** Geoeconomic shocks often manifest in technology sanctions, as **seen in U.S. restrictions on semiconductors and digital platforms**.
 - BRICS fosters cooperation in **AI, fintech, 5G, and space technologies**, creating alternative ecosystems.
 - NDB support for India's smart cities projects also illustrates how BRICS strengthens digital infrastructure, insulating India against external tech-driven shocks.
- **Food and Fertilizer Security:** Global crises often disrupt food and fertilizer supplies, threatening India's agrarian economy.
 - BRICS offers a safety net, as **Russia is among the largest suppliers of fertilizers and agri-inputs**.
 - Similarly, cooperation in agricultural research and supply chains ensures stability in grain and edible oil availability, safeguarding India's food security during global disruptions.

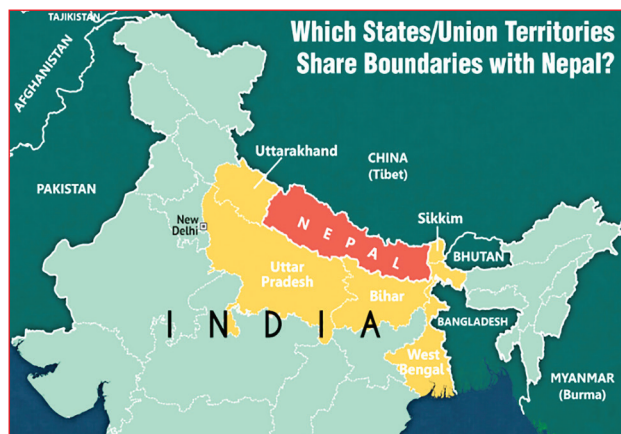
BRICS

- **About:** BRICS is a cooperative intergovernmental organization of **emerging economies that was originally formed to enhance economic collaboration** and increase the global political and economic influence of its members.
 - The name BRICS is an acronym for its five founding countries: **Brazil, Russia, India, China, and South Africa**.
- **Foundation:** The term "**BRIC**" was first coined in 2001 by **Jim O'Neill** to describe the rapidly growing economies of Brazil, Russia, India, and China.
 - **The first formal summit of the four countries was held in 2009 in Russia**, where they officially formed a diplomatic club.
 - **South Africa was invited to join in 2010**, which led to the group's name being changed to BRICS.
- **Purpose:**
 - **Promote Economic Cooperation:** This includes increasing trade, investment, and financial ties among member states.
 - **Counterbalance Western Influence:** The group seeks to create a more equitable and multipolar world order by advocating for reforms in global governance institutions like the **United Nations, IMF, and the World Bank**.
 - **Establish Alternative Financial Systems:** To reduce reliance on the U.S. dollar and Western-dominated institutions, the BRICS countries created the **New Development Bank (NDB)** and the **Contingent Reserve Arrangement (CRA)**.
- **Expansion of BRICS:** BRICS has expanded its membership to include **Egypt, Ethiopia, Indonesia, Iran, Saudi Arabia** (has reportedly accepted the membership, but has delayed officially joining without giving detailed further explanation), and the **United Arab Emirates**, a development often described as "**BRICS+**."

Challenges in India's Deeper Involvement in BRICS

- **China's Dominance and Strategic Rivalry:** China's economic size and political influence overshadow other BRICS members, limiting India's ability to shape agendas.
 - **With China's GDP nearly 5 times India's**, it sets the tone on issues like de-dollarisation and technology frameworks.
 - The border tensions at **Galwan (2020)** and **Beijing's opposition to India's UNSC bid** weaken mutual trust.
- **Divergent Strategic Alignments:** Member states often hold conflicting foreign policy stances, making cohesion difficult.
 - For instance, **Russia and China openly challenge Western dominance**, whereas India maintains strong ties with the **EU, and QUAD**.
 - Brazil, under different governments, has oscillated between West-leaning and South-South engagement.

- ❖ This divergence dilutes BRICS' effectiveness as a united front, and India risks being seen as an outlier between two camps.
 - **Limited Institutional Depth:** Unlike the EU or ASEAN, BRICS lacks binding structures, permanent secretariats, or enforcement mechanisms.
 - Most initiatives such as the **BRICS Contingent Reserve Arrangement—remain underutilized and symbolic.**
 - For India, which needs tangible economic and strategic benefits, the absence of strong institutional frameworks reduces BRICS' ability to act as a reliable buffer against shocks.
 - **Slow Progress on Financial Alternatives:** Although BRICS promotes de-dollarisation and local currency trade, actual implementation remains patchy.
 - **Intra-BRICS trade is still largely dollar-denominated,** and the much-discussed BRICS reserve currency is yet to materialize.
 - For India, which needs credible and quick financial alternatives to cushion against dollar shocks, this slow pace reduces the practical utility of BRICS promises.
 - **Overlap with Other Alliances and Strategic Balancing:** India's foreign policy is based on the principle of strategic autonomy, engaging with multiple blocs without being tied to any single one.
 - As a member of BRICS, **India also maintains strong ties with Western-led groups like the G7 and the Quadrilateral Security Dialogue (Quad).**
 - This requires a delicate balancing act. India must ensure that its participation in BRICS, which is often seen as a counterweight to the West, **does not alienate its strategic partners, particularly the United States.**
 - **Leverage Energy and Resource Partnerships:** India can institutionalize long-term energy partnerships with Russia and Brazil through **BRICS energy frameworks.**
 - For example, **ensuring stable access to oil, natural gas, and fertilizers** at predictable prices will shield India from global market volatility.
 - **Joint exploration and renewable energy projects** under BRICS can further diversify India's energy basket while supporting its **net-zero 2070 commitment.**
 - **Expand Digital and Technology Cooperation:** India should champion BRICS cooperation in **AI, fintech, cybersecurity, and space technology**, where it already has comparative advantages.
 - Promoting **UPI-like models across BRICS or collaborating on 6G and digital infrastructure** would position India as a digital leader.
 - This would reduce exposure to Western tech sanctions while creating export opportunities for India's IT sector.
 - **Pursue Issue-Based Pragmatism:** Given internal divergences, India must adopt a **selective engagement approach** focusing on areas like energy security, green finance, and digital cooperation where BRICS adds real value.
 - Simultaneously, it should avoid being drawn into anti-West blocs led by China or Russia.
 - This pragmatic strategy ensures that BRICS complements, rather than complicates, India's parallel engagements in **Quad, G20, and SCO.**
 - **Strengthen People-to-People and Cultural Linkages:** Beyond economics, India can promote academic exchanges, tourism, and joint research initiatives within BRICS to build long-term soft power.
 - Cultural cooperation with BRICS+ members like **Egypt, Saudi Arabia and Indonesia** can also foster goodwill, trust, and collaboration in strategic sectors.
- Measures that India can Adopt to Effectively Utilise BRICS for its Geoeconomic Ambitions**
- **Promote Local Currency Trade and Payment Systems:** To reduce vulnerability to dollar volatility, India can expand **rupee-based trade mechanisms** within BRICS.
 - **Linking UPI with Russia's SPFS** or promoting rupee-yuan settlements can reduce reliance on SWIFT.
 - **Push for Balanced Trade and Supply Chain Resilience:** India must negotiate for diversified supply chains within BRICS to **correct its large trade deficit with China.**
 - Deepening cooperation with **Brazil for agri-products, Russia for energy, and South Africa for minerals** and with newer **BRICS+ members like the UAE, Egypt, and Indonesia for trade, investment, and strategic sectors** can help India build more balanced and diversified economic linkages.
- Political Unrest in Nepal**
- Nepal is facing a phase of political unrest, with Prime Minister K P Sharma Oli resigning amid widespread **youth-led** (Generation Z) **demonstrations.** The unrest stems from long-standing concerns **over corruption, nepotism, unemployment, and widening inequalities,** alongside discontent with restrictions on social media platforms.
- The situation grew more volatile after police firing in **Kathmandu** resulted in casualties, deepening public grievances and instability.



Historical and Cultural Connections Between India and Nepal

- **Epic Ties:** In the *Ramayana*, Lord Rama (Ayodhya) married Goddess Sita (Janakpur, Nepal).
- **Ancient Republics:** In 6th century BC, Magadh and Shakyas Republics spanned both sides of the Indo-Nepal border.
 - Prince Siddhartha (Buddha) was born in Lumbini (Nepal) and attained Nirvana at Bodh Gaya (India).
- **Shared Freedom Struggles:** K.P. Bhattarai, born in Varanasi, actively participated in the **Quit India Movement** against the British and in Nepal's anti-Rana movements.
 - At the time, Banaras served as a key center for anti-Rana activism.
- **Military Ties:** The **1816 Treaty of Sugauli**, an agreement between the Gurkha chiefs of Nepal and the **British Indian government**, ended the **Anglo-Nepalese War (1814–16)** and paved the way for Nepali recruitment into the Indian (erstwhile British Indian) Army.
- **Treaty of Peace and Friendship 1950:** The **Treaty of Peace and Friendship 1950** granted national treatment to each other's citizens in economic participation, property ownership, trade, residence, and movement.

Effect of Nepal's Political Crisis on India

- **Security Concerns:** **Political instability in Nepal** creates gaps in governance, which can be exploited by insurgent groups, cross-border criminals, and illicit networks.
 - **India shares an open border with Nepal**, so any law-and-order vacuum or unrest directly threatens India's internal security and may increase cross-border smuggling, trafficking, or militant infiltration.
- **Economic Impact:** **India is Nepal's key trading partner**, exporting USD 7.32 billion worth of goods to Nepal in FY25, while importing USD 1.2 billion, giving **India a significant trade surplus**.
 - Due to the political crisis, Indian investments and supply chains in Nepal face uncertainty, while instability creates openings for China to step in.

- **Impact on Development Cooperation:** India's **High Impact Community Development Projects (HICDPs)** in Nepal (over 573 projects in health, education, electrification, sanitation, etc.) play a crucial role in strengthening bilateral ties and fostering positive relations.
 - Political instability weakens project implementation and creates space for competing influences like China's **Belt and Road Initiative (BRI)**.
- **Halt to Hydropower and Energy Cooperation:** Nepal is central to India's plans for cross-border electricity trade (e.g., the **India-Nepal long-term power trade agreement** and **trilateral energy trade with Bangladesh**).
 - Political instability could slow or derail major hydropower projects like Arun-3, Phukot Karnali, and Lower Arun.
 - ❖ **This affects India's goal of becoming a regional energy hub.**
- **Disturbance to Defence and Security Cooperation:** India and Nepal have strong military ties (e.g., **joint Surya Kiran exercises**).
 - But political crises weaken institutional continuity, disrupt defence exchanges, and give room for rival external actors like China to step in.

Note: Nepal's political unrest is not an isolated episode but a symptom of the broader fragility that grips India's neighbourhood. Such unrest does not remain confined within borders, it spills into security, connectivity, and regional cooperation, constraining India's strategic leverage.

Measures India Can Adopt to Enhance its Active Engagement in the Neighbourhood

- **Improving Border and Cross-Border Management:** Effective border management is key to preventing security threats and ensuring smooth trade.
 - This requires investing in **modernized border infrastructure**, including integrated check posts and digital customs systems to reduce delays
- **Comprehensive Security and Defence Cooperation:** Build regional crisis management frameworks in collaboration with **SAARC**, and **BIMSTEC** for coordinated response to natural disasters, political upheavals, and security threats.
 - Expand **joint military exercises with countries like Nepal, Maldives, and Myanmar**. Enhance maritime domain awareness and secure the Indian Ocean through shared resources.
- **Strengthen Regional Connectivity and Infrastructure:** Expand road, rail, and port linkages through initiatives like the **BBIN Motor Vehicle Agreement**, and **Kaladan Multi-Modal Transit Project**.

- Fast-track and complete infrastructure projects in Nepal, Sri Lanka, and other neighbours using a “**whole-of-government**” approach.
- **Economic and Connectivity-Driven Diplomacy:** India must prioritize economic cooperation by offering a more attractive and reliable alternative to **China’s “debt trap diplomacy.”**
 - This involves providing **soft loans and grants** with flexible terms for infrastructure projects and offering development assistance tailored to each country’s specific needs.
- **Leveraging Soft Power and People-to-People Ties:** A more effective neighborhood policy goes beyond government-to-government relations to include people-to-people connections.
 - India can enhance its soft power by expanding programs like the **Indian Technical and Economic Cooperation (ITEC)**, which offers training and scholarships to professionals from neighboring countries.

India–Sri Lanka Fishing Dispute

The **India–Sri Lanka fishing dispute** highlights the need for a “**humane approach**” that balances fishing livelihoods with ecological conservation in the **Palk Strait** and around **Katchatheevu island**.



India–Sri Lanka Fishing Dispute

- **Location:** The dispute centers around the **Palk Strait**, the narrow body of water separating Tamil Nadu (India) and the Northern Province of Sri Lanka. Palk Strait connects the Palk Bay to the Bay of Bengal.
- **Katchatheevu is a tiny, uninhabited islet in the Palk Strait.** The dispute concerns this 285-acre island, which was ceded to Sri Lanka under the **1974 Maritime Boundary Agreement**.
 - ❖ While sovereignty is legally settled in **Sri Lanka’s favour**, Indian fishermen are allowed to visit the islet for drying nets and for religious purposes.
- **Fishing rights** remain a separate matter governed by historic practice, international law (**United Nations Convention on the Law of the Sea (UNCLOS), 1982**), and bilateral agreements.
- **Communities involved:** Traditional Tamil Nadu fishers and Sri Lanka’s Northern Province fishers have shared these waters for centuries.
- **Key conflict:** Indian mechanised trawlers enter Sri Lankan waters, engaging in **bottom trawling**, which is **banned in Sri Lanka since 2017**. This damages coral reefs, shrimp habitats, and depletes fish stocks.
 - Small-scale artisanal fishers struggle to survive as mechanised trawlers pursue commercial profit, often damaging shared marine resources.
 - The conflict is thus both cross-border (India–Sri Lanka) and intra-community (artisanal vs trawler operators in Tamil Nadu).
- **High Seas Issues:** Due to depleted fish stocks, Indian fishermen are increasingly venturing into the **High Seas**, leading to arrests in **Maldivian waters** and by the **British Navy near Diego Garcia** for allegedly crossing maritime boundaries.

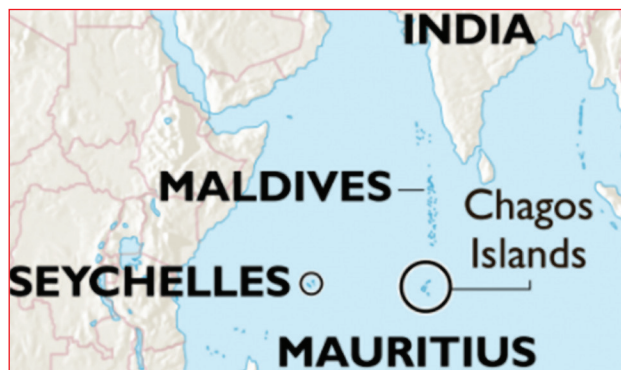
Way Forward

- **Distinguish livelihoods:** Prioritise artisanal fishers who depend on traditional, sustainable methods. **Phase out mechanised bottom trawling**, which harms ecosystems and deprives both Indian and Sri Lankan small-scale fishers.
- **Strengthen cooperation frameworks:** Establish an India–Sri Lanka Fisheries Management Council with fisher groups, scientists, and officials.
 - Use **UNCLOS Article 123** to guide cooperation in the semi-enclosed Palk Strait and Gulf of Mannar.
 - Consider joint quotas (similar to the **Baltic Sea Fisheries Convention’s** quota-sharing model), seasonal fishing rights, or regulated fishing days specifically for artisanal fishers.
- **Invest in alternatives:** Promote deep-sea fishing in India’s 200-nautical-mile **Exclusive Economic Zone (EEZ)** to reduce pressure on near-shore resources.
 - Provide training, modern vessels, and financial support for fishers to transition away from destructive practices.
- **Depoliticise Katchatheevu:** Accept that sovereignty over Katchatheevu is legally settled under the 1974 Treaty. **Debunk myths that it was “gifted” as historical records show Sri Lanka had stronger claims.**
 - Emphasise that **fishing rights are separate from sovereignty and can still be negotiated cooperatively.** Use Katchatheevu for **joint marine research stations** and as a hub for ecological cooperation.

- **Foster community empathy:** Highlight the wartime hardships of Sri Lankan Tamil fishers to build goodwill in Tamil Nadu. Encourage **people-to-people ties**, recalling **Tamil Nadu's humanitarian support during Sri Lanka's civil war**.

India-Mauritius Relations

During Mauritius Prime Minister's visit to Varanasi, India was described as a **trusted partner in Mauritius' socio-economic development** and as having steadfastly supported it at all times.



Key Outcomes of Mauritius PM's Visit to India

- **Economic Support:** Special package for **Port Louis development, Chagos MPA surveillance, infrastructure, employment & healthcare**.
 - First **Jan Aushadhi Kendra** outside India; support for **AYUSH CoE**.
 - **Community Development:** MoU signed for **Phase 2 of High Impact Community Development Projects**.
 - India will provide civil service capacity building for Mauritius using **Mission Karmayogi**.
 - **Energy:** MoU on **energy and power sector cooperation**, including **17.5 MW floating solar power plant**.
 - **Space:** MoU on space cooperation for satellite telemetry, navigation, remote sensing, & capacity building.
- **Trade and Investment:** India as a trading partner accounts for **11% of Mauritius' imports in 2024, ranking third among its top trading partners**.
 - **Key Indian exports** are petroleum, pharmaceuticals, cereals, cotton, shrimps, and bovine meat.
 - **Key Mauritian exports** are vanilla, medical devices, aluminium alloys, refined copper, and cotton shirts.
 - Mauritius has contributed a cumulative 180B USD in **foreign direct investment (FDI)** to India from 2000 to 2025, accounting for 25% of total inflows, facilitated by the **Double Taxation Avoidance Convention**.
 - ❖ In FY 2023–24, Mauritius was India's second-largest source of FDI after Singapore.
 - **Development and Cultural Ties:** India supports healthcare, education, and cultural institutions like the Mahatma Gandhi Institute and the Indian Cultural Centre (largest abroad), with over 2,500 Mauritian students benefiting annually.
 - **People-to-People Links:** Around 26,000 Indian nationals and 13,000 **Overseas Citizenship of India (OCI)** cardholders live in Mauritius.
 - OCI eligibility has been extended to Mauritians with **Indian ancestry up to seven generations**.
 - **Tourism and Education:** Tourism is strong between India and Mauritius, with visa-free entry for Indians and free visas for Mauritians.
 - **Strategic and Regional Cooperation:** Mauritius is key to India's Neighbourhood First Policy and Vision MAHASAGAR.
 - India, through exercises like **AIKEYME**, trains Mauritian personnel, refits coast guard vessels, and strengthens maritime capabilities.

India's Relations with Mauritius

- **Diplomatic and Political Relations:** India established diplomatic relations in 1948, before Mauritius' independence (1968).
 - The **India-Mauritius Comprehensive Economic Cooperation and Partnership Agreement (CECPA)**, **2021** is the first trade agreement signed by India with an African country. Ties elevated to an **Enhanced Strategic Partnership in 2025**.

Significance of Mauritius for India

- **Strategic Location:** Mauritius' position in the western Indian Ocean helps India secure sea lanes and maintain regional maritime security under **SAGAR/MAHASAGAR**.
 - It acts as a **counterbalance to China's growing influence** and strengthens India's regional role.
- **Economic Relations:** Mauritius is a gateway for India's trade and investment in Africa, as it is a part of **African Continental Free Trade Area (AfCFTA)**.

Significance of India for Mauritius

- **Development Partner:** India has provided over USD 1 billion in the past decade and helps protect **Mauritius' Exclusive Economic Zone** and trains its personnel.
- **Disaster Relief:** It acts as first responder during crises such as **Wakashio oil spill (2020) Cyclone Chido (2024), and Covid-19**.

Challenges in India- Mauritius Relations	Way Forward
■ Growing Chinese investments (e.g., Jinfei Smart City, port projects) and Mauritius' balancing with China, France, US dilute India's influence. ■ Indian public sector enterprises dominate economic activity in Mauritius, while private sector participation remains low. ■ Piracy, drug trafficking, and illegal fishing destabilise the Western Indian Ocean. ■ High logistics costs and poor direct shipping routes restrict trade growth. ■ Oil spills, coastal degradation, and climate change threaten Mauritius' tourism and economy. ■ Risk of misuse of Mauritius as a tax haven; regulatory challenges remain.	■ Enhance Agaléga Island infrastructure and cooperation under MAHASAGAR. ■ Encourage Indian private sector participation in tech, AI, and financial services. ■ Strengthen surveillance, maritime infrastructure, and joint security measures. ■ Expand CECPA; introduce Rupee–Mauritian Rupee payment system, improve trade facilitation. ■ Prioritise green energy, water security, blue economy, climate adaptation, marine conservation. ■ Boost anti-money laundering cooperation, reinforce Mauritius as a financial hub.

Positioning India in Global Power Dynamics

India, as it grows as the **world's fastest-growing economy**, faces debates over its **great power aspirations**, with critics highlighting weak strategy and its **limited global influence** when compared to China and the US.

Constraints Hindering India's Global Power Aspirations

- **Ambition vs. Strategic Capacity:** While India aspires to global power status, critics argue it lacks the **strategic clarity and institutional capacity** to translate ambition into influence.
 - For example, **India's military expenditure in 2024 stood at USD 86 billion**, far behind China's **USD 314 billion**, limiting its power projection capability.
 - India remains one of the **largest arms importers globally**, accounting for **9.5% of global imports (2016–2020)**, highlighting its dependency and underdeveloped indigenous defence capabilities.
 - India's dependence on **global supply chains for critical sectors like electronics and energy** exposes it to external shocks and geopolitical tensions.
- **Strategic Ambiguity in Global Alliances:** India's emphasis on strategic autonomy, demonstrated by its cautious stance on the **Russia-Ukraine** conflict and its balancing act between the **Quad and Shanghai Cooperation Organisation (SCO)**, has been beneficial in preserving its independence.
 - However, critics argue that this approach may undermine India's image as a reliable partner in times of crisis.
- **Human Development Constraints:** In 2023, India ranks **130 out of 193** countries on the **Human Development Index (HDI)**, indicating significant deficits in education, health, and income distribution.
 - Its **Inequality-Adjusted HDI (IHDI)** drops further to **0.475**, reflecting high **social and regional inequality** that impedes holistic development.

- **Economic Power vs. Per Capita Strength:** Despite being the **4th largest economy globally**, in 2024, **India's per capita GDP** was just **USD 2,711**, placing it among **lower middle-income countries**.

- Globally, **India ranked 144th (out of 196) in per capita GDP** at market exchange rates, and 127th in **Purchasing Power Parity terms**.
- This limits India's global leverage in economic diplomacy and soft power influence.

- **Technological Gaps and Innovation Challenges:** India ranked **39th on the Global Innovation Index 2024**, compared to China's 11th and the US's 3rd.

- While India has made digital strides (e.g., **UPI, Aadhaar**), gaps remain in cutting-edge sectors like **semiconductors, quantum computing, and biotech**.

- **Internal Social Fault Lines:** India's rank in the **World Press Freedom Index 2024** was **159 out of 180 countries**, impacting its global democratic credibility.

- Within India, states like Goa (HDI ~0.75) and Uttar Pradesh (~0.60) show stark development gaps.
- Such disparities weaken national coherence and limit India's ability to act as a unified global actor.

Foundations Supporting India's Aspiration to Become a Global Power

- **Economic Growth and Demographic Advantage:** India's economy is projected to grow at an average rate of 6-7% per year over the coming years, positioning it to become the **world's third-largest economy by 2030**.

- With a **median age of 28.2 years**, India has a **young and growing workforce**, which will drive innovation and industrial growth, further enhancing India's global influence.

- **Geopolitical Significance:** Strategically located at the crossroads of Asia, India controls key maritime chokepoints in the **Indian Ocean** and is central to global trade.

- India's active role in forums like the **Quad, SCO, and BRICS** enhances its geopolitical leverage in **Indo-Pacific security and global governance**.
- India is the de facto leader of **South Asia**, driving regional integration through initiatives like the **South Asian Free Trade Area (SAFTA)** and **Neighbourhood First Policy**.
- Its role in **ASEAN** helps shape the future of global trade and security in Asia, securing its position as a regional powerhouse with growing global influence.
- **Technological and Defence Strength:** India is emerging as a **digital and technological powerhouse**, with **UPI** as the world's leading mobile payment system and over **100 unicorns** in tech startups.
 - India's space missions (e.g., **Chandrayaan 3, Mangalyaan**) and growing **indigenous defence capabilities** (e.g., **Tejas, INS Arihant**) underscore its technological and military potential.
 - Additionally, India has the **second-largest military active personnel in the world**, after China, and one of the largest standing armies in Asia.
- **Strategic Autonomy and Soft Power:** India's strategic autonomy allows it to engage with multiple powers, balancing relations with the **US, Russia, and China**.
 - Its leadership in the **Non-Aligned Movement** and its push for **UNSC reforms** reflect its diplomatic vision of a **multipolar world order**.
 - India's global profile is strengthened by its diaspora of over 30 million, particularly in the advanced economies, and its rich cultural heritage.
 - ❖ The country exerts significant soft power worldwide through its film industry, yoga, and advocacy on issues like climate change.

Suggestions to Navigate Evolving Global Power Dynamics

- **Strengthen Domestic Foundations for Global Reach:** Focus on health, education, skilling, and infrastructure to **convert demographic advantage into economic dividends**.
 - Institutional reforms in judiciary, policing, and governance critical for rule-based development.
 - Guided by the principle of **Vasudhaiva Kutumbakam**, the goal is not to immediately match all metrics of the US or China, but to **build strategic autonomy**, enhance domestic capacity, and consolidate sustainable growth.
- **Strategic Communication of India's Vision:** Clear articulation of India's unique development path, **democracy with diversity, growth with inclusion**, can counter Western misperceptions.
 - India should proactively tell its **"civilisational state"** story on global platforms.

- **Balanced Partnerships with Competing Powers:** India is calibrating its foreign relations by balancing assertiveness (on territorial issues, trade, sovereignty) with pragmatism (working with multiple powers, avoiding full alignment).
 - It seeks to strengthen ties with the US, while also maintaining productive engagement with China and Russia in multilateral forums, **focusing on issue-based coalitions over bloc politics**.
 - India is not yet a peer competitor of China or the US, but it is increasingly an important **Great Power in the making**, especially in Asia and in the **Global South**.
- **Leverage Soft Power and Technological Leadership:** Continue investing in tech diplomacy (Data Governance, Digital Public Goods, AI ethics).
 - Promote Indian thought leadership in international regulatory and ethical discourse on tech, environment, and global health.
 - The real battle for global influence might be **less about guns & tanks**, more about **technology, data, diplomacy, soft power**, areas where India is making credible inroads.

EU Proposed 'New Strategic EU-India Agenda'

The European Union has unveiled a **New Strategic EU-India Agenda** aimed at elevating **bilateral relations with India**, focusing on **five strategic pillars** of shared interests and complementary strengths.

- The EU has committed to finalizing a **Free Trade Agreement (FTA)** with India by the end of **2025**, which will be the **largest deal of its kind** anywhere in the world.

Five Pillars of the 'New Strategic Agenda' Between India & the EU

- **Prosperity, Sustainability, Technology & Innovation:** The agenda highlights untapped potential in **trade and investment**, with priority on finalizing the **Free Trade Agreement (FTA)** and strengthening supply chains through the **Trade and Technology Council (TTC)**.
 - It advances **tech cooperation** through the **EU-India Startup Partnership** and **Horizon Europe**, while supporting the **green transition** and collaboration on **food security, health, climate resilience, and disaster management**.
- **Security & Defence:** It focuses on **maritime security, cyber defence, counterterrorism, crisis management**, and **defence industrial cooperation** to boost production, technology, and innovation.
- **Connectivity & Global Issues:** It supports the **India-Middle East-Europe Economic Corridor (IMEC)** and **Global Gateway**, promoting **trilateral cooperation** with third countries.

- It also emphasizes active engagement in **multilateral forums** to strengthen **international law, multilateral values, and global governance**.
- **People-to-People Cooperation:** It promotes **skills mobility** through the **European Legal Gateway Office** and a framework for **study, work, and research**.
 - It also encourages deeper engagement with **civil society, youth, think tanks, and businesses**, including a proposal for an **EU-India Business Forum**.
- **Enablers across pillars:** It aims to enhance **EU-India coordination** at all levels, build a **comprehensive strategic plan** based on shared priorities, and align with **EU Member States** via the **Foreign Affairs Council**.

Significance of India-EU Relations

Mutual Significance

- **Diplomatic Relations:** India established ties with the European Economic Community in 1962; elevated to a Strategic Partnership at the 5th India-EU Summit (2004, Hague).
- **Trade Partnership:** The EU is India's **second-largest trading partner** (€120 billion, 11.5% of trade).
- **Strategic Alignment:** India and the EU share interests in **security, renewable energy, climate action, and multilateralism**, through **bilateral dialogues** on **counter-terrorism, cyber security, migration, maritime security, human rights, non-proliferation, and disarmament**.
- **Infrastructure Cooperation:** The India-EU TTC fosters semiconductors, AI, clean energy, and digital finance cooperation, with the EU supporting **economic and technological ties** aligned to India's **multi-alignment** without security dependencies.
- **Global Governance:** The EU is reducing **economic reliance on China**, supporting India's **trade diversification**, with both advocating a rules-based order in multilateral forums like the G20, WTO, and UN Security Council.

Significance For India

- **Economic Relations:** India is the **EU's ninth-largest partner** (2.4% of EU trade, 2024). **FDI inflows** from the EU to India valued at **USD 107.27 Billion** (Apr 2000-December 2023), drives **industrial growth, job creation, and technology transfer** in India.
 - The EU offers opportunities for IT, pharmaceuticals, textiles, and agriculture exports; bilateral services trade rose 48% (2019–2022).
- **Security & Defence:** European defence companies support **India's defence modernization** under **Make in India**, e.g., manufacturing **Airbus C-295 aircraft** locally.
- **Technology & Innovation:** The India-EU TTC focuses on semiconductors, AI, and clean energy, while **digital payments and fintech cooperation** expands via **cross-border transactions**.

Significance For EU

- **Market Access:** India offers the EU access to a **large, growing market**, exemplified by the **2024 Trade and Economic Partnership Agreement (TEPA)** with the **European Free Trade Association (EFTA)** countries (Iceland, Liechtenstein, Norway, Switzerland).
- **Cultural & Educational Ties:** India's **young, skilled workforce** strengthens **Europe's talent pool** and **academic collaborations**.
- **Geopolitical Cooperation:** India's **strategic Indo-Pacific position** and growth enhance the EU's **influence in the Global South**.
- **Security & Stability:** India ensures **Indian Ocean security**, safeguarding over **35% of Europe-Asia trade**.

Barriers to India-EU Relations

- **Stalled FTA Negotiations:** FTA talks are **delayed** because the EU wants **lower tariffs** on **automobiles, spirits, and dairy**, while India seeks **market access** for **pharmaceuticals and IT services**;
 - The EU's **Carbon Border Adjustment Mechanism (CBAM)** adds extra challenges for **Indian exporters**.
- **Investment & Regulatory Barriers:** The EU's **restrictive trade regulations**, including **technical barriers to trade (TBT)** and **sanitary & phytosanitary (SPS)** measures, affect **Indian businesses**.
 - While **European investors** seek a **predictable policy environment** and stronger **investment protection**, highlighted by **Switzerland suspending the Most Favoured nation (MFN) clause** in its **Double Taxation Avoidance Agreement (DTAA)** with India.
- **Data Privacy Challenges:** Strict EU data laws make **digital exports** costly. India's lack of **EU data adequacy status** forces **small IT firms** to incur high **compliance costs**, limiting **competitiveness**.
- **Foreign Policy Divergences:** India's involvement in **Russian military exercises** and purchase of **Russian oil** hinder closer EU ties, as the EU expects stronger alignment on **Russia sanctions**, while India continues its **neutral diplomacy**.
- **Supply Chain Risks:** Despite efforts to diversify trade, China continues to be a major partner for both India and the EU, posing significant risks to supply chains.
 - This dependency exposes both regions to **geopolitical tensions and disruptions**, underlining the need for more resilient and diversified trade routes.

Strategies to Adopt to Strengthen India-EU Relations

- **Accelerate FTA and Trade Facilitation:** Resolve **tariff disputes** and fast-track **FTA negotiations** to strengthen **supply chains** and reduce trade barriers.

- Promote **high-tech exports** and attract **European investment** in India's **manufacturing sector** to drive growth.
- **Establish a Data-Sharing Framework:** Negotiate an **EU-US style Privacy Shield** for seamless **cross-border data flows** and implement **mutual recognition frameworks** to lower compliance costs for Indian firms.
- **Green Technology Partnerships:** Enhance cooperation in **renewable energy, fintech, and data privacy**, while collaborating on **green hydrogen, electric vehicles, and carbon-neutral technologies**.
- **Reform Investment Policies:** India needs to strengthen **intellectual property rights (IPR) protections** and **ease of doing business** to encourage **European tech firms** to set up R&D hubs.
- **Enhance Security Cooperation:** Expand **joint naval exercises, cyber defense partnerships, and intelligence sharing**, while aligning India's **Indo-Pacific strategy** with European **defense priorities** to counter **China's regional assertiveness**.

US Sanctions on Chabahar Port

The Trump administration has **revoked the sanctions waiver** for **Chabahar Port**, affecting India's access to **Afghanistan and Central Asia** and undermining its strategic position in the region.

- The **exemption**, granted in **2018** under the **Iran Freedom and Counter-Proliferation Act (IFCA)**, allowed India to advance its long-term plan to develop **Chabahar Port** as a gateway to **Afghanistan and Central Asia**.

Implications for India

- **Strategic Implications:** The **revocation** of Chabahar's waiver can undermine India's **regional leverage**, limiting its ability to counterbalance **Gwadar Port**, integrate into the **International North-South Transport Corridor (INSTC)** connecting **Russia and Europe**, and maintain influence in **Afghanistan and Central Asia**.
- **Economic and Trade Implications:** India's **exports to Iran and Afghanistan**—including **textiles, engineering goods, pharmaceuticals, and food products**—face disruption, while **investments of USD 120 million** and commitments of **USD 250 million** are at risk.
 - The revocation coincides with **India-US trade talks** and **50% duties** on labor-intensive goods, pressuring India's export strategy.
- **Operational and Legal Risks:** Companies like **Indian Ports Global Limited (IPGL)** face exposure to **US sanctions** under the **IFCA** potentially causing **delays or suspension** of Chabahar trade and expansion projects.

- **Geopolitical Implications:** The revocation puts pressure on **India-US relations** and marks a major setback for India's plan to use **Chabahar Port** as a vital gateway for **trade and humanitarian aid**, especially to **Afghanistan**.

Chabahar Port

- **About:** It is a **deep-water port** in **Sistan-Baluchistan, Iran**, on the **Makran coast** near the **Gulf of Oman**, outside the **Strait of Hormuz**.
 - It is Iran's only **deep-sea port** with **direct open-ocean access**, providing India secure and direct access for **large cargo ships**.
 - It has two main terminals—**Shahid Beheshti** and **Shahid Kalantari**—with India actively involved in developing the **Shahid Beheshti Terminal**.
- **Development & Management:** The **Chabahar Agreement (2016)** was signed between **India, Iran, and Afghanistan** to establish the **International Transport and Transit Corridor**.
 - **IPGL**, through its subsidiary **India Ports Global Chabahar Free Zone (IPGCFZ)**, took over **Chabahar Port operations** in **December 2018**.
- **Operational Performance:** To date, **Chabahar Port** has trans-shipped **2.5 million tonnes of wheat** and **2,000 tonnes of pulses** from India to **Afghanistan**, facilitated **40,000 litres of Malathion** (environment-friendly pesticide) to **Iran** in 2021 for locust control, and supported **humanitarian aid**, including during the **Covid-19 pandemic**.



Significance of Chabahar Port for India

- **Alternative Trade Route:** It provides **India an alternative route to Afghanistan and Central Asia**, bypassing **Pakistan**, and improves access to **Iran and the INSTC** via shorter routes from **Kandla Port**.
- **Ensuring Connectivity:** The ongoing conflicts and tensions in the **West Asian region**, such as the **Yemen crisis** and the recent escalation between **Iran and Pakistan**, have disrupted vital maritime trade routes.
 - Chabahar provides India with an alternative route for its commercial interests, reducing dependence on traditional chokepoints like the **Strait of Hormuz**.
- **Economic Benefits:** It strengthens **India's trade with Central Asia and Afghanistan**, diversifies routes, and

enhances access to **Russia, Europe, Iran, and Afghanistan**. Chabahar Port, a key **INSTC node**, links the **Indian Ocean to Northern Europe**, cutting trade costs by **30%** and transit time by **40%**, while giving landlocked nations access to the **Indian Ocean and Indian markets**.

- **Humanitarian Assistance:** Serves as a crucial entry point for **humanitarian aid** and reconstruction in **Afghanistan**.
- **Strategic Influence:** It strengthens **India's strategic presence** in the **Indian Ocean**, counters **China's Gwadar Port and Belt and Road Initiative (BRI)**, and enhances **anti-piracy capabilities**.

Saudi-Pakistan Defence Pact

Saudi Arabia and Pakistan have formalized decades of informal **military cooperation** by signing a **Strategic Mutual Defense Agreement (SMDA)**, a pact that could notably affect **India's national interests** in **South Asia** and the **Gulf region**.

- The pact includes a **collective defence clause**, **joint military mechanisms**, and **intelligence-sharing**.
- For **Pakistan**, it offers financial lifelines and strategic relevance, while for **Saudi Arabia**, it provides a hedge against regional threats like **Iran, Houthis, and Israel's aggression**.



Implications of the Saudi-Pakistan Pact on India

- **Geopolitical Setback in the Middle East:** The **Saudi-Pakistan defence pact** revives historical ties between the two countries, posing a **geopolitical challenge** to **India's Gulf diplomacy**.
 - It may enable **Pakistan** to leverage its strengthened position with **Riyadh** to push **anti-India narratives** on **Kashmir** within the **Organisation of Islamic Cooperation**, complicating India's influence in the Islamic world.
- **Impact on Energy Security and Diaspora:** India's **energy security** and reliance on **Saudi crude oil** could face challenges due to a deeper **Saudi-Pakistan strategic alignment**.
 - Additionally, India's **2.6 million-strong diaspora** in Saudi Arabia, a key source of **remittances**, could be affected by shifts in the regional political landscape.

- **Pressure on Counter-Terrorism Efforts:** India's efforts to **isolate Pakistan internationally** over terrorism could be affected, as Saudi Arabia's **deepened strategic partnership with Pakistan** may temper its otherwise growing **cooperation with India on counter-terrorism**, potentially limiting Riyadh's support for India's diplomatic initiatives.
- **Fueling a Destabilizing Arms Race in Advanced Technologies:** Saudi financial support could allow Pakistan to rapidly modernize its military, investing in **combat drones, hypersonic missiles, and cyber warfare** with backing from partners like **Turkey and China**, over which India has limited influence.
 - This pressures **New Delhi** into an accelerated, costly **arms race in AI, space, and electronic warfare** to counter a technologically advanced adversary on its western border.

Significance of Saudi Arabia for India

- **Energy Security:** One of the largest crude oil suppliers for India.
- **Economic Partnership:** India is Saudi's **2nd largest trade partner**, with USD 3 Bn in Indian investments (Aug 2023); Saudi Arabia ranks **5th** for India.
- **Defence Cooperation:** Joint exercises— **EX-SADA TANSEEQ & Al Mohed Al Hindi**.
- **Geopolitical Leverage:** Crucial for **India-Middle East-Europe Economic Corridor**.
- **Future Collaboration:** India's green energy & tech initiatives align with **Saudi Vision 2030**.

Way Forward

- **Double Down on Diplomacy:** India must ensure its **relationship with Saudi Arabia** is defined by **economic interests**, not the **Pakistan prism**, emphasizing its role in **energy security, investment ties** (like the **West Coast Refinery project**), and **future-oriented projects** in **renewables, technology, and finance**.
- **Execute a Pragmatic Re-engagement with Iran:** The **Saudi-Pakistan pact** positions **Iran** as a strategic partner for India, prompting New Delhi to **fully leverage Chabahar Port** and accelerate the **International North-South Transport Corridor (INSTC)**, securing a direct, secure route to **Afghanistan and Central Asia** while countering Pakistan's western flank.
- **Strengthen the Look West Policy:** India must **diversify its Gulf strategy** by deepening **ties with the UAE and Qatar**, through **trade deals, LNG supply, and defence cooperation** and maintaining a **pragmatic relationship with Iran** to ensure **regional balance**. Additionally, leverage **minilateral frameworks** like **I2U2** reinforces India's role as a **stabilising, non-threatening partner**.

Environment & Ecology

Invasive Alien Species

A recent study estimates that the **global economic cost** of **Invasive Alien Species** (1960–2022) exceeds **USD 2.2 trillion**, with **management costs** underreported up to **16 times**.

- For India, the study highlights a **hidden cost discrepancy** of **1.16 billions of times** higher than reported figures indicating **gross underestimation of financial and administrative measures** to manage **invasive species**.

Invasive Alien Species (IAS)

- **About:** IAS are **non-native organisms** (plants, animals, fungi, or even microbes) introduced beyond their **natural range**, forming **self-sustaining populations**.
 - They **outcompete native species**, **disrupt ecosystems**, and cause significant **ecological, economic, and social impacts**.
 - According to the **Convention on Biological Diversity (CBD)**, IAS are species that can “**arrive, survive, and thrive**”, often **outcompeting native species** for resources.
 - In India, the **Wildlife Protection Act, 1972**, defines IAS as **non-native species** that **threaten wildlife or habitats**.
- **Key Invasive Alien Species in India:** Animal species like **African catfish**, **Nile tilapia**, **red-bellied piranha**, **alligator gar**, **Red-eared Slider** (a North American turtle) and plants like **Lantana**, **Water Hyacinth**, and **Prosopis juliflora**, are among the most widespread invasive species in India.
- **Factors Responsible for the Rise of Invasive Alien Species:**
 - **Globalisation-Linked Dispersal:** Increased **trade and travel** facilitate unintentional spread of species via **cargo**, **ballast water**, and **transport vehicles**.
 - ❖ For instance, the **Black Rat**, introduced to Australia in the 1800s, is listed among the “**World’s Worst**” **invasive species** by the IUCN.
 - ❖ Also, the **Zebra mussel**, native to Eurasia, was introduced to the **Great Lakes of North America** via the **ballast water of cargo ships**.
 - **Climate-Driven Proliferation:** Changes in **temperature and precipitation** create favourable conditions for invasive species and **disrupt native species’ life cycles**, making them vulnerable to competition and predation.
 - ❖ **Eg:** Warmer conditions accelerate spread of **invasive insects**, **cinnamon fungus**, and **aquatic species** (fish, mollusks), intensifying **competition and predation** on native species.

- **Habitat Disturbance and Degradation:** Human activities that **disturb or degrade natural ecosystems**, like **deforestation**, **urbanization**, and **agriculture**, can create opportunities for invasive species to colonize.

- ❖ **Eg: Parthenium hysterophorus**, commonly known as **carrot grass**, thrives in **disturbed habitats like roadsides and agricultural fields**. Its presence is often a sign of environmental degradation.

- **Human Introduction of Exotic Species:** Across the world, many invasive alien species have been deliberately introduced by humans for purposes such as **ornamental gardening**, **landscaping**, **aquaculture**, or **pest control**.

- ❖ However, these introductions often backfire, as species escape into the wild and outcompete native biodiversity.

- ❖ For instance, **Water hyacinth** or “**Terror of Bengal**” was introduced in India because of its beautiful foliage and flowers.

Impacts of Invasive Alien Species

- **Ecological Impact:** Globally, **Invasive Alien Species** are one of the **5 major direct drivers of biodiversity loss**.
 - They cause the **decline or extinction of native species** through **competition**, **predation**, or **disease**, disrupting **ecosystem functions** and leading to **ecological imbalance and habitat loss**.
 - **Eg: Brown tree snake**, accidentally introduced to **Guam after World War II**, has caused significant ecological damage, leading to the **extirpation (local extinction)** of **many native forest bird species**.
- **Economic Impact:** They impose substantial **financial burdens** on countries and sectors worldwide, affecting **livelihoods** in developing countries by impacting **agriculture**, **forestry**, and **fisheries**.
 - Among Invasive Alien Species, **plants** are the most economically damaging, with **management costs of USD 926.38 billion**, followed by **arthropods** and **mammals**. Aquatic species like **Water Hyacinth** in Lake Victoria have led to **tilapia depletion**, impacting local fisheries.
 - **Europe** incurs the highest absolute costs (**71.45% of global expenditure**) due to higher **agricultural values** and **management expenses**.
- **Health Impact:** Invasive Alien Species such as **Aedes albopictus** and **Aedes aegypti** transmit **malaria**, **Zika**, and **West Nile Fever**, affecting human health.

- Many Invasive Alien Species are **allergenic or toxic**, e.g., **Parthenium** causes respiratory disorders and skin allergies.
- Also, **crop contamination by invasive weeds** also introduces **toxic alkaloids into food chains**, impacting long-term health.
- Threat Multiplier:** IAS like **Lantana** alter **fire regimes**, displace **native flora**, reduce **carbon sequestration**, and weaken **climate regulation**.
- Climate change accelerates their spread, making them a **threat multiplier** that undermines **ecosystem resilience** and **adaptation capacity**.

Initiatives Related to the Management of Invasive Alien Species

Global	India-Specific Initiatives:
CBD: Urges Parties, including India, to prevent, control, or eradicate alien species (Article 8(h)) and provides guidelines, priorities, and coordination. Kunming-Montreal Global Biodiversity Framework: Target 6 aims to reduce IAS impacts on biodiversity and ecosystem services by 50% by 2030. IUCN Invasive Species Specialist Group (ISSG): Manages the Global Invasive Species Database (GISD) and Global Register of Introduced and Invasive Species, providing information for global IAS management. CITES (1975): Regulates international trade of wild fauna and flora to ensure it does not threaten their survival.	National Biodiversity Action Plan (NBAP): Focuses on prevention and management of invasive species. National Action Plan on Invasive Alien Species (NAPINVAS): Launched by MoEFCC, emphasizes prevention, early detection, control, and management of invasive species. National Invasive Species Information Center (NISIC): Provides information, resources, and awareness on invasive species in India. Plant Quarantine Order, 2003: Administered by Department of Agriculture and Cooperation (DAC), regulates import of plants and plant material to prevent invasive species introduction.

Challenges	Way Forward / Management Strategies
Underreporting & Lack of Data: Limited centralised databases and fragmented reporting lead to underestimation of ecological and economic costs .	Strengthening Data & Monitoring Systems: Establish a centralised database for invasive species , strengthen data collection, monitoring, scientific documentation, and expenditure tracking.
Resource Constraints: Limited financial and human resources hinder effective surveillance, control, and eradication.	Allocating Dedicated Resources: Allocate dedicated funding and enhance human resources, ensure surveillance, control, and eradication programs are adequately supported
High Eradication Costs: Large-scale removal of invasive species (e.g., Lantana, Prosopis) requires huge financial and human resources .	Community-Centric Solutions: Adopt cost-effective biological control methods ; promote community participation in eradication drives. For instance, the Kadar tribe of Vazhachal, Kerala , has taken on active restoration of natural forests degraded by invasive alien species.
Policy Gaps: Fragmented coverage under Biodiversity Act, 2002, Wildlife Protection Act, and Plant Quarantine Rules . Weak enforcement of existing biosecurity norms	Institutional and Policy Fortification: Ensure effective operationalisation of the Biological Diversity Act, 2002 through stricter enforcement, robust institutional coordination, and integration with sectoral policies. - Enhance coordination among MoEFCC, State Forest Departments, agricultural universities, and research bodies. - Mainstream invasive species management into National Action Plan on Climate Change (NAPCC) and related biodiversity policies.

Gangotri Glacier Retreat Signals Climate Peril

A study by IIT Indore and ICIMOD (Nepal) reveals that the **Gangotri Glacier System (GGS)**, the primary source of the Ganga, has **lost 10% of its snowmelt flow over 1980–2020** due to **rising temperatures and climate change**.

- Himalayan glaciers** are thinning at an **average of 46 cm/year**, and Gangotri's snout is steadily receding. Increasing rainfall-runoff and base flow indicate **climate-induced hydrological changes**.
- Glacial lakes** and other water bodies across the Himalayan region saw a **10.81% increase in area**

from 2011 to 2024 due to climate change (Central Water Commission).

Gangotri Glacier

- About:** Gangotri Glacier, located in **Uttarkashi, Uttarakhand** is one of the **largest Himalayan glaciers** originating from the northern slopes of the **Chaukhamba range**.
- It is a **compound valley glacier**, fed by several tributary glaciers like **Raktvarn, Chaturangi, and Swachand glaciers**. It is fed by peaks including **Shivling, Thalay Sagar, Meru, and Bhagirathi III** & it terminates at

Gaumukh, from where the **Bhagirathi River** emerges and later joins the **Alaknanda** to form the **Ganga at Devprayag**.

- **Gangotri National Park**: Established in **1989**, it encompasses **Gaumukh**, the source of the Ganga, and the popular **Gaumukh-Tapovan Trek**.
 - It has dense **temperate coniferous forests** including **chirpine, deodar, fir, spruce, oak, and rhododendron**, and is home to **rare and endangered species** such as **Black Bear, Brown Bear, Himalayan Monal, Himalayan Snowcock, Himalayan Tahr, Musk Deer and Snow Leopard**.



Global Biodiversity Pattern

A global study published in *Nature Ecology & Evolution* reveals a **universal pattern in species distribution** across biogeographical regions, offering new insights into **global biodiversity organization**.

Findings	Implications for Conservation
■ Dense, species-rich cores transition to outer zones with low diversity, dominated by generalist species. (Onion-like Structure) ■ Despite regional differences, birds, mammals, and amphibians show a common biogeographical structure. ■ Temperature and rainfall predict species distribution with 98% accuracy, highlighting climate's key role.	■ Shift focus from protected areas to ecological corridors & biodiversity hubs, vital for climate-sensitive zones (Himalayas). ■ Underrepresentation of tropical regions, Global South & taxa (e.g., dragonflies, trees) highlights the need for region-specific studies in India. ■ Monitoring rainfall and temperature shifts can support adaptive conservation planning.

National Designated Authority for Carbon Markets

The **Ministry of Environment, Forest and Climate Change (MoEFCC)** has set up a **National Designated Authority (NDA)** to implement a **carbon emissions trading system** under **Article 6 of the Paris Agreement (2015)**.

- This is a key step in India's climate strategy to meet its **Nationally Determined Contributions (NDCs)**.

National Designated Authority (NDA)

- **Role & Composition**: NDA will oversee and authorize carbon credit projects.
 - It is a **21-member committee** headed by the **Secretary of the Environment Ministry**, with representatives from key ministries such as **External Affairs, Renewable Energy, NITI Aayog, and the Steel Ministry**.
- **Key Functions**:
 - The NDA will **recommend projects eligible for carbon credit trading** under **Article 6.4** of Paris agreement.
 - It will approve these projects for **participation in the carbon market** and authorize the **emission reduction units (ERUs)** generated.
 - The committee will ensure that the **projects align with India's Sustainable Development Goals (SDGs)**, focusing on initiatives like **green hydrogen, carbon capture, and afforestation**.
- **Contribution to Climate Goals**: The main goal of the NDA's projects is to **help reduce India's carbon emissions intensity by 45% by 2030** compared to 2005 levels.
 - The carbon credit market will be a vital tool in **supporting India's journey towards achieving these ambitious climate goals**.

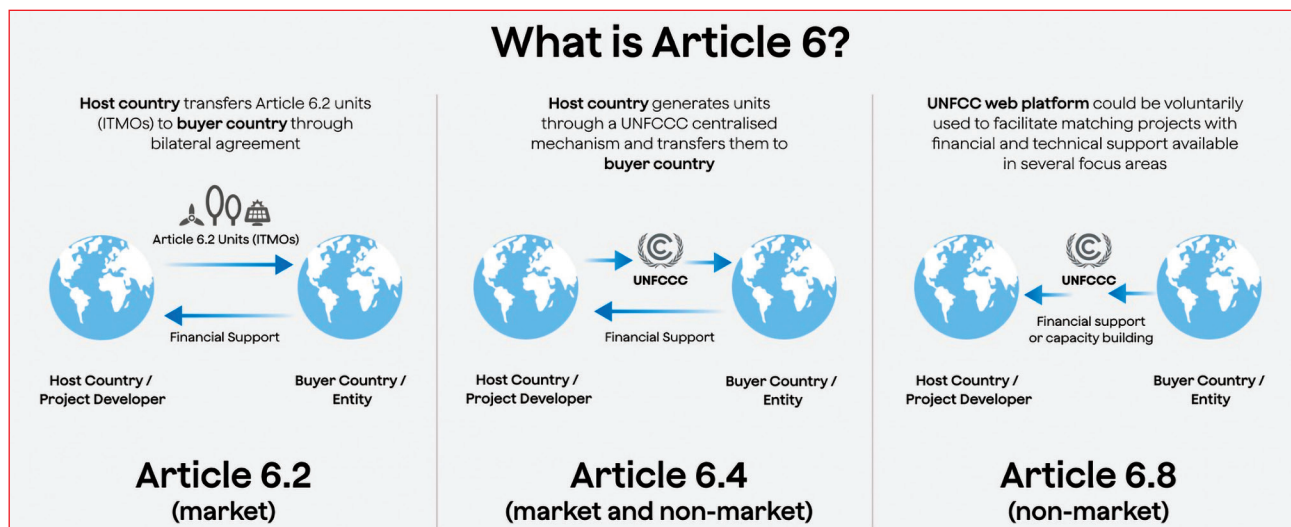
Carbon Markets

- **About**: Carbon markets allow trading of **carbon credits**, where one credit represents one ton of reduced, avoided, or sequestered **CO₂ or GHG emissions**.
 - These credits are **purchased by companies or countries** to offset their emissions, promoting transparency, accountability, and funding for sustainable projects while enabling international cooperation in emission reductions.
- **Types**:
 - **Compliance Markets**: Legally binding, created under regulatory frameworks like **Emissions Trading Schemes (ETS)** or mechanisms like the **Clean Development Mechanism (CDM)**. They have **penalties for non-compliance**. Participants include **governments, industries, businesses**. Eg: **EU ETS (2005)**: First international ETS, **China ETS (2021)**: World's largest, covering around **1/7th of global fossil fuel emissions**.
 - **Voluntary Carbon Markets (VCMs)**: Function **outside mandatory regulations**, operating on **voluntary demand and supply**.
 - ❖ **Supply** originates from **private projects or government-certified programs** that reduce, remove GHGs, while demand is driven by corporates (ESG goals), individuals (carbon footprint offsetting), and traders (resale profit).

Article 6 of the Paris Agreement (2015)

- It provides a framework for **international carbon markets** and **non-market approaches**, enabling **global cooperation** to address climate change.
- It was finalised at **COP29 (Baku, 2024)** to facilitate **finance and technology transfer** to developing countries.
- **India's NDCs**: As part of its commitments under the Paris Agreement, India has pledged to reduce its **GDP's carbon intensity by 45% by 2030** compared to 2005 levels, and to achieve **50% cumulative electric power capacity from non-fossil sources by 2030**.
 - Additionally, India aims to create an additional **carbon sink of 2.5-3 billion tonnes of CO₂ equivalent by 2030** through afforestation and reforestation.

What is Article 6?



■ India's Carbon Market:

- **Transition to Market-Based Mechanisms:** India is moving towards a rate-based **Emissions Trading System (ETS)** with the adoption of the **Carbon Credit Trading Scheme (CCTS)** in July 2024.

- ❖ The scheme focuses on emissions intensity, not **absolute emissions caps**.
- ❖ Credit Certificates will be issued to facilities that outperform benchmark emissions intensity levels.

● Institutional & Policy Support:

- ❖ **National Steering Committee for the Indian Carbon Market (NSCICM):** Key body guiding market design and implementation.
- ❖ **Incentives for Industries:** Encouraging adoption of **low-carbon technologies**.
- ❖ **Mission LiFE (Lifestyle for Environment):** Promotes **sustainable lifestyles** to reduce carbon footprints.
- ❖ **Green Credit Program:** Encourages **individuals and the private sector to participate** in emission-reduction projects.

- **Significance:** Positions India to align with **Paris Agreement goals** while leveraging **carbon markets as economic instruments**.

- ❖ Helps industries manage compliance costs and encourages **private sector innovation**.

- ❖ Supports India's **Net Zero 2070 commitment** by scaling up market-driven climate action.

India's Climate Adaptation Initiatives

- **Urban Resilience:** National Mission on Sustainable Habitat; AMRUT 2.0
- **Coastal Measures:** MISHTI; Coastal Protection Structures
- **Agriculture:** Climate-Resilient Seeds; Soil Health Practices; Groundwater Conservation
- **Water Management:** Jal Shakti Abhiyan for Rainwater Harvesting; Groundwater Recharge; Irrigation Systems
- **National Adaptation Plan:** Policy Integration; Capacity Building
- **Mission LiFE:** Individual Action; Community Engagement; Policy Support

Coral Reefs as Indicators of Rising Sea Levels

A study on **coral microatolls** in the **Maldives** shows that **sea-level rise** in the central **Indian Ocean** began earlier and progressed faster than previously thought, challenging the belief that significant rise started in the **1990s**, with major implications for climate science and coastal policy.

Coral Micro-atolls as Natural Recorders of Sea Level Rise

- **Natural Recorders:** Coral microatolls are **disk-shaped coral colonies** that stop growing upwards once constrained by the **lowest tide levels**. Their **upper surface** directly reflects **long-term sea-level changes**, making them natural recorders of past sea levels.

- **Longevity and Accuracy:** Coral microatolls can survive for **decades** or even **centuries**, providing **high-resolution, continuous data** on sea-level fluctuations.
 - The study conducted on the **Mahutigalaa reef** in the **Huvadho Atoll** of the **Maldives** studied a **Porites microatoll** to measure sea levels from **1930 to 2019**.
- **Acceleration of Sea-Level Rise in the Indian Ocean:** The research shows that sea levels in the **Indian Ocean** have risen by approximately **0.3 meters** over the last **90 years**.
 - **Rates of Rise:**
 - ❖ **1930–1959:** 1–1.84 mm/year
 - ❖ **1960–1992:** 2.76–4.12 mm/year
 - ❖ **1990–2019:** 3.91–4.87 mm/year
- **Key Revelation:** Sea-level rise in the region began much earlier than previously thought, starting in the **late 1950s** rather than around **1990** as assumed.
 - Over the last **50 years**, **Maldives, Lakshadweep, and Chagos** have experienced a **30–40 cm** increase in sea levels, increasing the risks of **flooding** and **coastal erosion**.
- **Coral Growth:** Coral micro-atolls are influenced by **environmental factors** like **El Niño**, the **Indian Ocean Dipole (IOD)**, and the **18.6-year lunar cycle**.
 - These factors can affect the coral growth patterns, which, in turn, provide data on sea-level fluctuations.
 - By studying the **growth bands** in coral micro-atolls, scientists can reconstruct **sea-level history**, tracking past fluctuations and understanding the **acceleration** of sea-level rise in specific regions like the **Maldives** and **Lakshadweep**.

Sea-Level Rise (SLR) and Its Impact on Island Nations

- **About: Sea-Level Rise (SLR)** refers to the **gradual, long-term increase in ocean levels**.
 - While the global average rise is **approximately 3.2 mm per year**, the **Indian Ocean** is experiencing a faster rate at **3.3 mm per year**, intensifying challenges such as coral bleaching in regions like the **Maldives, Lakshadweep, and the Chagos Archipelago**.
- **Causes of Sea-Level Rise:**
 - **Melting of Glaciers and Ice Sheets:** The melting of glaciers and ice sheets adds significant amounts of freshwater to the oceans. **Between 2005–2013**, melting glaciers contributed nearly **twice as much to sea-level rise as thermal expansion**.
 - ❖ Specifically, **Greenland's ice loss increased seven-fold** and Antarctica's ice loss nearly quadrupled between 1992 and 2016.
 - **Thermal Expansion of Seawater:** As the Earth's climate warms, seawater absorbs heat, causing it to expand and

increase the overall volume of the oceans. This thermal expansion contributes significantly to **sea-level rise**.

- **Groundwater Depletion and Land Water Shifts:** Groundwater depletion, along with changes in **aquifers, rivers, lakes, and soil moisture**, results in additional water being transferred to the seas, further contributing to rising sea levels.
 - ❖ **Since 1880**, global sea levels have risen by approximately **21–24 cm**, with the record high in 2023 being 101.4 mm above 1993 levels.
- **Impact of SLR on Island Nations:**
 - **Loss of Land and Habitats:** Rising seas **inundate coastal areas, cause freshwater salinization, and destroy habitats**. Eg: **Maldives and Tuvalu** face existential threats. **Coral bleaching and mangrove loss** further reduce natural defenses.
 - **Water and Food Insecurity:** Saltwater intrusion **contaminates aquifers and damages agriculture**, while coral reef degradation reduces fish stocks. Eg: **Kiribati and Marshall Islands** are facing severe drinking water shortages.
 - **Extreme Climate Events:** Intensified **cyclones, hurricanes, and floods** devastate infrastructure and economies. Eg: **Hurricane Dorian (2019)** caused USD 3 billion damage to the Bahamas.
 - **Socio-Economic Disruptions:** **Beach erosion and reef destruction** reduce **tourism revenues**, while storm damage diverts budgets from development. Eg: **Barbados** faces declining tourism. Entire communities may be displaced, creating **climate refugees**.
 - **Health and Cultural Risks:** Warmer temperatures spread **vector-borne diseases** (dengue, chikungunya), while **forced migration** leads to cultural erosion and identity loss.

Decarbonising Key Sectors in India

A recent study by **Centre for Social and Economic Progress (CSEP)** and **IMF** estimates India needs USD 467 billion by 2030 to decarbonize its power, steel, cement, and road transport sectors, which contribute over 50% of CO₂ emissions.

Decarbonisation & India's Target

- **Decarbonisation:** Systematic reduction of CO₂ emissions to mitigate global warming and achieve net-zero emissions.
 - Decarbonising steel, cement, and power sectors alone could mitigate about 6.9 billion tonnes of CO₂ by 2030.
- **India's Decarbonization Targets:** At **COP26 in Glasgow (2021)**, India presented its **Panchamrit** climate action plan, which includes five key targets:
 - Achieving **500 GW** of non-fossil fuel energy capacity by 2030.

- Meeting **50%** of energy needs from **renewables** by 2030.
- Reducing **CO₂ emissions** by **1 billion tons** by 2030.
- Cutting **carbon intensity** by **45%** by 2030.
- Targeting **Net-Zero emissions** by 2070.

Sector	Additional Funding and Key Decarbonization Measures
Steel	USD 251 billion, Carbon Capture & Storage (CCS) , shift to green hydrogen, energy efficiency
Cement	USD 141 billion, CCS, alternative fuels, clinker substitution.
Power (Electricity)	USD 47 billion, Renewable expansion (solar, wind), grid modernization.
Road Transport	USD 18 billion, Electric vehicles, biofuels, charging infrastructure.

- **Progress:** Achieved its **non-fossil fuel capacity target** in **2024-five years ahead of schedule (2030)**, with **242.78 GW (around 50%)** of its 484.82 GW total installed capacity from non-fossil sources.
 - India pledged to create **2.5–3 billion tonnes** of carbon sinks by 2030. By 2021, it had already achieved **2.29 billion tonnes**.
 - India aimed for a **45% reduction** in emissions intensity by 2030, and had already achieved **36%** by 2020.

Revised Norms of Green Credit Programme (GCP)

The MoEFCC has revised its **Green Credit Programme (GCP)** methodology for **awarding green credits for tree plantation**, now linking them to the **survival and canopy cover of the trees**, rather than just the number of trees planted.

Key Highlights of the Revised Framework under the GCP

- **Credits Awarded After 5 Years:** Green credits are given **only after 5 years** if the restored land has **more than 40% canopy cover**, with **1 credit per surviving tree**, focusing on real ecological improvement.
 - The **2024 notification** grants credits based on the **number of trees planted**, while the **2025 notification requires evaluation** of vegetation status and canopy density.
- **Verification Process:** Applicants submit **claim reports** with a **verification fee**. Designated agencies check tree survival and canopy before issuing credits, using **third-party verification**.
- **Non-Transferable Credits:** Credits are **non-tradable/non-transferable**, except between a company and its subsidiaries.
 - They can be exchanged only once for **Compensatory Afforestation (CA)**, **CSR**, or **project-linked obligations**; Once exchanged, credits cannot be reused.

Green Credit Programme (GCP)

- **About: Green Credit Rules, 2023** provides for a **market-based mechanism** to promote **voluntary plantation** and create an **inventory of degraded land** for afforestation by **individuals, communities, industries, and companies**.
 - Notified under the **Environment Protection Act, 1986**, it awards credits for environmental actions to support compliance, CSR, and climate-positive initiatives.
- **Key Objectives:** Develop a **dynamic inventory of degraded forest lands** through a **web portal**, accessible for plantation activities.
 - Encourage **Govt. institutions, PSUs, NGOs, private companies, philanthropies, and individuals** to adopt **plantation blocks** for afforestation.
 - Ensure **transparent registration, verification, and monitoring** via **technology-enabled platforms and registries**.
- **Governance Structure:** GCP is overseen by the **Indian Council of Forestry Research and Education (ICFRE)** and executed by **State Forest Departments**.
 - After plantation, **ICFRE reviews the site**, and each surviving tree is counted as **one Green Credit**.
 - Credits can be used for **compensatory afforestation** or **ESG/CSR obligations**;
 - A **Green Credit Registry** tracks credits, and a **domestic platform** manages their exchange.

The Eight Avenues Under the Green Credit Programme

- **Tree plantation:** To promote activities for increasing the green cover across the country.
- **Water management:** To promote water conservation, water harvesting and water use efficiency or water savings, including treatment and reuse of wastewater.
- **Sustainable agriculture:** To promote natural and regenerative agricultural practices and land restoration to improve productivity, soil health and nutritional value of food produced.
- **Waste management:** To promote circularity, sustainable and improved practices for waste management, including collection, segregation, and environmentally sound management.
- **Air pollution reduction:** To promote measures for reducing air pollution and other pollution abatement activities.
- **Mangrove conservation and restoration:** To promote measures for conservation and restoration of mangroves.
- **Ecomark label development:** To encourage manufacturers to obtain ecomark label for their goods and services.
- **Sustainable building and infrastructure:** To encourage the construction of sustainable buildings and other infrastructure using environment-friendly technologies and materials.

Green Credit Vs Carbon Credit		
Aspect	Green Credits	Carbon Credits
Focus	It is a unit of incentive awarded for an activity that positively impacts the environment. ■ Governed by GCP, operating under The Environment (Protection) Act, 1986.	Primarily reducing greenhouse gas emissions. ■ Carbon credits allow the holder to emit 1 ton of CO₂ (or equivalent GHGs) per credit. ■ It is governed by the Energy Conservation Act, 2001 in India.
Eligibility	Open to individuals and communities.	Typically for entities reducing emissions or investing in projects
Incentives	Monetary rewards for eco-friendly actions	Revenue from international credit trading

Protected Areas

A recent study highlights the importance of **Protected areas (PAs)** in **balancing conservation with community livelihoods**.

Protected Areas

- **About:** A protected area in India is a **designated region** focused on conserving biodiversity and protecting wildlife from human interference.
 - India has a network of **over 1,000 Protected Areas**, including **107 National Parks**, covering approximately **5.32%** of the country's **total geographical area**.
 - These areas are categorized into **different types**, each with varying levels of protection and regulation.
- **Different Types of Protected Areas:**
 - **National Parks:** National Parks are the **most strictly protected areas in India**, offering the highest level of legal protection.
 - ❖ Declared under the **Wildlife (Protection) Act, 1972**, these parks **prohibit all human activities** except for **scientific research and controlled tourism**.
 - ❖ Activities such as mining, logging, and grazing are strictly prohibited.
 - ❖ While the **State Government is primarily responsible** for their management, bodies like the **National Wildlife Board (NWL B)** and **National Tiger Conservation Authority (NTCA)** may also oversee specific projects, especially for species like tigers.
 - **Wildlife Sanctuaries:** Wildlife Sanctuaries, also established under the WPA, 1972, allow **more flexibility than National Parks**.
 - ❖ Certain human activities, such as **grazing and the collection of forest products**, are **permitted**, as long as they do not harm wildlife.
 - ❖ These sanctuaries are managed by the **State Forest Departments**, with support from wildlife organizations and experts.
 - **Conservation Reserves:** Conservation Reserves are **designated areas under the WPA that aim to protect**

wildlife and biodiversity while allowing **controlled human activities** such as grazing and firewood collection.

- ❖ These reserves are **intended to buffer critical habitats**, protect wildlife corridors, and conserve biodiversity outside of heavily protected zones.
- ❖ They allow local communities to participate in conservation efforts while maintaining sustainable livelihoods.
- ❖ The **State Government** oversees these areas, with active involvement from local stakeholders and conservationists.
- **Community Reserves:** Community Reserves are areas that **involve direct participation from local communities in conservation efforts**.
 - ❖ These reserves can be established on **private or community-owned land** and **aim to enhance biodiversity** conservation and sustainable resource management.
 - ❖ Activities like **tourism, agriculture, and small-scale forest product extraction** are **allowed**, provided they support conservation goals.
 - ❖ The management of these reserves is carried out by the **State Government**, with significant input from local communities and NGOs.

Key Regulatory Authorities for Protected Areas in India

- **Ministry of Environment, Forest, and Climate Change (MoEFCC):** Responsible for wildlife conservation, policy formulation, and funding for protected areas. The Wildlife Division ensures compliance with the Wildlife Protection Act (WPA), 1972.
- **National Board for Wildlife (NBWL):** Advisory body that provides recommendations on conservation, approves new protected areas, and evaluates projects near protected zones.
- **State Forest Departments:** Manage protected areas within their jurisdiction, enforce protection laws, and monitor wildlife populations. They also implement the Forest (Conservation) Act, 1980.
- **Wildlife Protection Societies and NGOs:** Organizations like Wildlife Protection Society of India (WPSI) and WWF India, play a key role in on-ground protection, monitoring illegal activities, and advocating for stronger conservation efforts.

Environment Audit Rules, 2025

The **Ministry of Environment, Forest and Climate Change (MoEFCC)** has notified the **Environment Audit Rules, 2025**, under the **Environment (Protection) Act, 1986**, to establish a comprehensive framework for **environmental accountability** across India.

Key Features of the Environment Audit Rules, 2025

- **Certification and Registration of Environmental Auditors:** **Environment Auditors (EAs)** are to be Certified and Registered by the MoEFCC-notified **Environment Audit Designated Agency (EADA)**, which is responsible for:
 - Certification, registration, and oversight of auditors.
 - Monitoring performance and providing training.
 - Taking disciplinary action when required.
- **Registered Environment Auditors (REAs):** Audits will be conducted by **REAs**. REAs will be assigned projects randomly to ensure impartiality. REAs will undertake activities including sampling, analysis, compensation calculation, and audits under various environmental and forest-related legislations.
- **Two-Tiered System of Compliance:**
 - **Tier-1:** Government regulators (**CPCB, SPCBs, MoEFCC regional offices**) will review compliance.
 - **Tier-2:** Audits will be conducted by REAs for third-party verification.
- **Oversight and Monitoring:** A **Steering Committee**, led by an Additional Secretary from MoEFCC, will oversee the implementation of these rules.

Biodiversity Beyond

National Jurisdiction (BBNJ) Agreement

The **Ministry of Earth Sciences** has set up a 12-member panel to implement a new law to safeguard its interests in **international ocean waters**, aligning with the **Biodiversity Beyond National Jurisdiction (BBNJ) Agreement (High Seas Treaty)** agreement.

Biodiversity Beyond

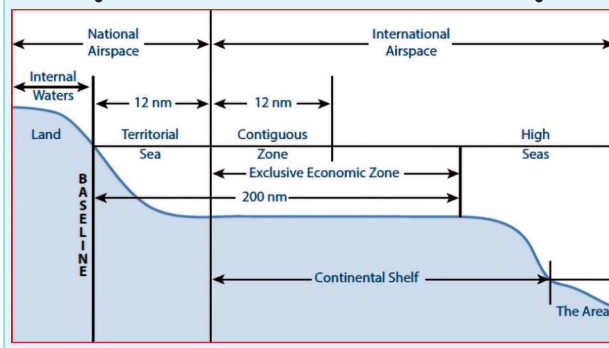
National Jurisdiction (BBNJ) Agreement

- **About:** The **BBNJ Agreement or High Seas Treaty** is a legal framework under the **United Nations Convention on the Law of the Sea (UNCLOS)** to safeguard the ecological health of oceans.
 - Adopted in **2023**, it aims to **curb pollution, conserve biodiversity, and ensure sustainable use of marine resources** in waters beyond national boundaries.
- **Scope of the Treaty:**
 - Establish **Marine Protected Areas (MPAs)** like **national parks and wildlife sanctuaries** to regulate activities and conserve ocean ecosystems.

- **Regulates extractive activities** such as **seabed mining** & ensures **fair distribution of benefits from marine resources and organisms**.
- Make **EIAs mandatory for major oceanic projects** that may **harm the high seas**, even if carried out within national waters.
- **Support developing nations** in accessing marine technologies and resources while ensuring conservation.
- **Signing and Ratification:** As of August 2025, **over 140 countries have signed the treaty and 55 have ratified it**.
 - India had **signed the BBNJ Agreement in 2024** but has **not yet ratified it**.
 - **Signing shows intent**, while **ratification legally binds a country to the treaty**, with the process differing across nations.

High Seas

- **About:** High seas refer to **regions beyond the national jurisdiction** of any country.
 - Generally, national jurisdictions extend up to **200 nautical miles (370 km)** from a country's coastline, known as the **Exclusive Economic Zone (EEZ)**.
 - No country has **jurisdiction or responsibility for resource management** in these waters.
 - Only about **1% of the high seas** are currently protected.
- **Significance:** The high seas cover **64% of oceans and 50% of Earth's surface** & are vital for **marine biodiversity, climate regulation, carbon absorption, solar energy storage, and heat distribution**.
 - They provide key resources like **seafood, raw materials, genetic resources, and medicinal compounds**.
- **United Nations Convention on the Law of the Sea (UNCLOS)**
 - **UNCLOS, also called Law of the Sea**, is an international treaty adopted and signed in **1982**, replacing the **1958 Geneva Conventions**.
 - It provides the **legal framework for marine and maritime activities**.
- It divides ocean space into **5 zones- Internal Waters, Territorial Sea, Contiguous Zone, Exclusive Economic Zone (EEZ), and High Seas**.



Great Nicobar Island Project

Great Nicobar Island (GNI) Project has drawn attention as one of India's most ambitious infrastructure plans in the **Indian Ocean Region (IOR)**.

- Despite environmental concerns, the project is crucial for turning **Great Nicobar into a global maritime hub** while considering ecology and tribal welfare.

Great Nicobar Island (GNI) Project

- **About:** The GNI Project, conceived by **NITI Aayog** and **launched in 2021**, aims to build an **International Container Transshipment Terminal (ICTT)**, a **greenfield international airport**, a **township**, and a **gas-solar power plant**.

- It is implemented by **Andaman and Nicobar Islands Integrated Development Corporation (ANIIDCO)**.
- It aligns with **India's Maritime Vision 2030** and is one of the key projects under the **Amrit Kaal Vision 2047**.

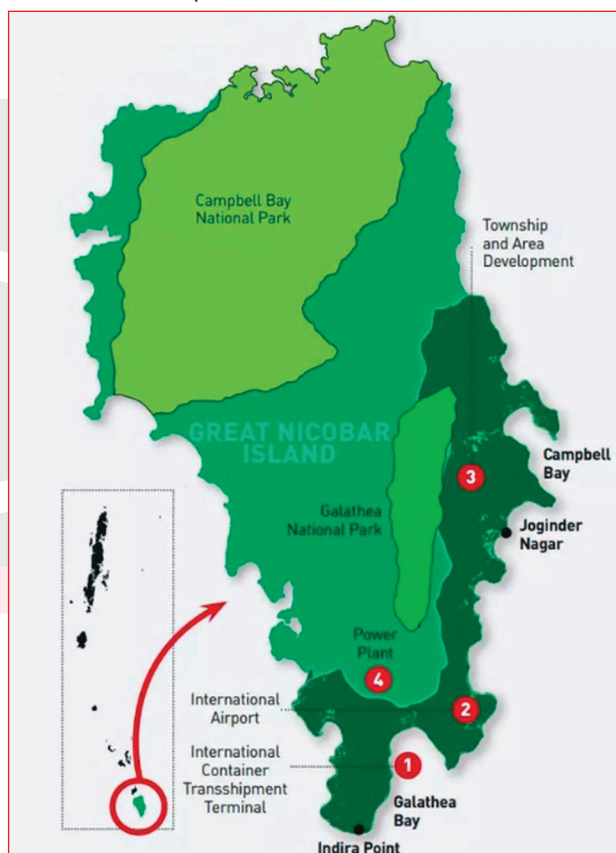
Strategic Significance:

- **Transshipment Hub:** The **ICTT** reduces India's reliance on foreign ports like **Singapore and Colombo**, integrating India into global supply chains.
- **Greenfield Airport:** Enhances civilian connectivity, tourism, and dual-use defence capability.
- **Strategic Positioning Advantage:** Nicobar's location near the **Malacca, Sunda, and Lombok Straits** allows India to monitor vital sea lanes for global trade and energy supply.
 - ❖ Great Nicobar's location gives India proximity to **Sabang (Indonesia), Coco Island (Myanmar), and the proposed Kra Canal (Thailand)**, underscoring its central role in Indo-Pacific sea routes.
 - ❖ Great Nicobar lies almost **equidistant from Colombo, Port Klang, and Singapore**, placing India at the centre of regional sea trade.
- **Maritime Security:** The Andaman & Nicobar Islands serve as **India's first line of maritime defence** and share sea boundaries with **Myanmar, Thailand, Indonesia, and Bangladesh**, giving India a vast **exclusive economic zone and continental shelf** under **United Nations Conference on the Laws of the Sea, 1982 (UNCLOS)**.
 - ❖ GNI strengthens India's naval reach in the Indo-Pacific, countering piracy, trafficking, terrorism, and great-power rivalries.
 - ❖ Positions India as a proactive maritime power amidst rising presence of China and other navies in the IOR.
- **Policy Alignment:** Supports **Act East Policy (2014)** and the **QUAD's Indo-Pacific strategy**, strengthening India's role in regional security.

- **Tribal Safeguards:** Large-scale development in GNI is permitted only after consultations with the **Ministry of Tribal Affairs, Directorate of Tribal Welfare and Andaman Adim Janjati VikasSamiti (AAJVS)**, as mandated by the **Jarawa Policy (2004) and Shompen Policy (2015)**.

- The policies appoint AAJVS as the trustee of **Particularly Vulnerable Tribal Groups (PVTGs)** and ensure the Shompen community's welfare is given top priority in all major projects.

- ❖ In line with this, the Empowered Committee, after mandatory consultation with the **National Commission for Scheduled Tribes (NCST)** under **Article 338A(9)**, confirmed that tribal interests will remain protected.



- **Environmental Safeguards:** The Project incorporates strict environmental safeguards, following the **Environmental Impact Assessment (EIA) Notification, 2006**, and based on detailed EIAs and an **Environmental Management Plan (EMP)**.

- To protect wildlife, **8 corridors have been planned** to ensure the safe movement of **arboreal animals, snakes, crabs, and crocodiles**, minimizing ecological disruption during development.

- To compensate for tree felling caused by the GNI project, compensatory **afforestation is planned in Haryana**, as the Andaman & Nicobar Islands already have over 75% forest cover.

Great Nicobar Island

- The **Andaman and Nicobar Islands** comprise 836 islands, divided by the **Ten Degree Channel** into the **Andamans (north)** and **Nicobars (south)**.
- **Great Nicobar**, the largest Nicobar island (910 sq km of rainforest). It hosts **Indira Point**, India's southernmost tip, just 90 nautical miles from Sumatra (Indonesia).
- Great Nicobar has two national parks, a biosphere reserve, small populations of the **Shompen and Nicobarese tribal peoples**, and a few thousand non-tribal settlers.
- **Great Nicobar Biosphere Reserve** was included in the list of **Man and Biosphere (MAB)** Program of UNESCO in 2013.

Mitigating Flood and Landslide Risks

The current **monsoon** has brought unusually **intense rainfall** to **hilly states** such as **Uttarakhand** and **Himachal Pradesh**, exacerbating the incidence of **landslides** and pushing **river systems** to **perilous levels**, thereby heightening risks to both **lives** and **infrastructure**.

Factors Contributing to the Increasing Vulnerability of Hilly Regions to Floods and Landslides

- **Steep Slopes and Gravity:** Water flows down **steep slopes** much faster than on flat land, preventing **infiltration**. This causes water to quickly accumulate in **streams and rivers**, leading to **rapid-onset flash floods**.
 - For instance, landslides in **Mandi, Kullu, Dharali, Tharali, and Jammu**.
- **Geology and Soil Type:** Many **young mountain ranges** (like the **Himalayas**) are **geologically active** and made of **fractured, weak, or weathered rocks** that are easily dislodged.
 - **Mountain soils** are often thin and lack **deep root systems**, making them prone to being washed away.
 - ❖ Frequent **landslides** in **Darjeeling and Sikkim** are due to **weak rock formations** and **fragile soils**.
- **Hydrological Factors:** A **valley funnels rainfall** into a narrow **stream or river**, and the **steep gradient** with **high energy flow** gives water strong **erosive power**, which erodes **riverbanks and slopes**, making **floods** worse.
 - For instance, **Alaknanda and Mandakini river valleys** in **Uttarakhand** frequently witness **flash floods**.
- **Trigger Factors:** Continuous **rain** or intense **cloudbursts** **saturate soil**, reduce **friction**, and trigger **landslides, flash floods, and debris flows**.
- Sudden **temperature rise** or **rain on snow** causes **snowmelt**, releasing large **water volumes**, saturating the ground, and flooding **streams**.
- E.g., For the season (June-September 2025), the **northwestern region** has received **more than 30% surplus rainfall**.
- **Human-Induced Factors:** **Road cutting, construction on steep slopes, blocked natural drainage, unsustainable agriculture, and overgrazing** destabilize slopes, increasing the risk of **landslide**.
 - The **Joshimath land subsidence (2023)**, linked to **unregulated construction**, highlights **human-induced vulnerability**.

Role of Climate Change in Increasing Flood and Landslide Vulnerability

- **Increased Extreme Rainfall Events:** A warmer atmosphere holds more **moisture ($\approx 7\%$ per 1°C)**, causing intense **rainfall** and **cloudbursts**, which trigger **flash floods** as the ground cannot absorb water fast enough, overwhelming **streams and rivers**.
 - **Climate change** disrupts **monsoon patterns**, causing droughts followed by intense **rain**, where dry, hardened **soil** reduces absorption, increasing **runoff, flood, and erosion risk**.
- **Glacial Lake Outburst Floods (GLOFs):** Rising **temperatures** cause **glacier retreat** and the formation of **unstable lakes** dammed by **moraines**, which can breach in **GLOF events**, releasing massive **water and debris**, leading to **catastrophic flooding** downstream.
 - The **2023 South Lhonak GLOF (Sikkim)** destroyed the **Rs 16,000 crore Chungthang hydropower project**, caused **silting in the Teesta river**, and increased **downstream flood risk**.
- **Permafrost Thaw:** In **high-altitude hilly regions**, rising **temperatures** thaw **permafrost**, causing **slope destabilization, rockfalls, and landslides**, which add debris to **rivers** and increase **flood risks**.
- **Increased Wildfires:** **Climate change** makes hilly areas hotter and drier, increasing **wildfires** that destroy **vegetation**, create **water-repellent soil**, and cause **fast-moving debris flows** when rain hits.
 - For instance, the **India State of Forest Report (ISFR) 2023** showed that **Uttarakhand** alone recorded **5,351 forest fire incidents** between **November 2022 and June 2023**.

Measures to Mitigate the Vulnerability of Regions to Floods and Landslides

- **Environmental Measures:** **Afforestation and Reforestation** with native trees and **Van Panchayats** empower

communities to bind **soil**, absorb **rainwater**, and protect **forests**. **Contour trenching**, **terrace farming**, and **check dams** slow **runoff**, allow **infiltration**, trap **sediment**, and reduce **erosive power**.

- **Engineering Measures:** Rock bolts, soil nails, retaining walls, and debris flow barriers/screens stabilize slopes and prevent rocks and debris from reaching roads or settlements.
 - **Channel improvement, diversion channels, and sediment traps** increase river capacity, redirect excess water, and capture silt and debris to reduce flood risk.
 - **Urban flood resilience** can be enhanced through proper drainage, sponge city models, and rainwater harvesting.

- **Policy Measures:** Enforce carrying capacity studies, stringent land use planning, and hazard zone identification to restrict construction on steep slopes, riverbeds, and floodplains, relocate vulnerable settlements, and implement stringent building codes.

- Develop robust early warning systems integrating weather forecasts, rainfall data, and river levels, and support them with community sirens and drills to ensure timely evacuation to safe zones.

- **Economic & Financial Measures:** Establish dedicated disaster risk reduction budgets for states and districts.

- Shift to Parametric Insurance Models for quick payouts based on rainfall/flood-level triggers (avoiding lengthy claims).

NDMA Guidelines on Flood Management

■ Structural Measures

- **Diversion of Flood Water:** Use natural/artificial channels to reduce river water levels.
- **Catchment Area Treatment/Afforestation:** Watershed management, soil conservation, check dams, detention basins to reduce flood peaks
- **Embankments/Levees/Walls:** Prevent overflow; effective on Yamuna near Delhi.
- **Drainage Improvement:** Restore natural drainage blocked by roads/canals/railways.
- **Channel Improvement/Desilting/Dredging:** Increase discharge capacity, selective desilting at outfalls/confluences.
- **Reservoirs/Dams/Water Storages:** Store excess floodwater.

■ Non-Structural Measures

- **Flood Management Plans (FMPs):** Mandatory for all government departments/agencies.
- **Flood Forecasting & Warning:** Based on real-time discharge & rainfall data from CWC and IMD.
- **Flood Proofing:** Raised platforms, utility installations, double-storey shelters for safety.
- **Integrated Water Resources Management (IWRM):** Manage water at basin/watershed scale.
- **Flood Plain Zoning:** Regulate land use; map areas as extremely or partially affected zones.

NDMA Guidelines on Landslides

- **Landslide Hazard Zonation:** Landslide Hazard Zonation maps should be prepared at macro (1:50,000/25,000) and meso (1:10,000) scales, using advanced tools like UAVs, Terrestrial Laser Scanners, and high-resolution EO data.
- **Early Warning System (LEWS):** An effective LEWS must include rainfall threshold-based modelling, wireless instrumentation, and real-time monitoring for both rainfall- and earthquake-triggered landslides.
- **Capacity Building & Training:** Capacity building requires a Nationwide Training Need Assessment (TNA) in Landslide Risk Management, the use of new technologies in training, and a focus on grassroots communities.
- **Mountain Zone Regulations & Policies:** The strategy recommends formulating and enforcing land-use policies, updating building regulations, revising BIS codes, and including hazard zoning provisions in town and country planning laws to ensure safety in landslide-prone areas.

Stubble Burning in India

To address the **Delhi pollution crisis**, the **Supreme Court** directed **Punjab, Haryana, and Uttar Pradesh** to fill **State Pollution Control Board vacancies** within **three months** and urged the **Union Government** to impose **penal measures** against **stubble burning**.

Stubble Burning

- **About:** It refers to the practice of setting fire to the leftover straw after harvesting crops like paddy and wheat.

- It is commonly used to clear paddy crop residues from fields before sowing wheat, typically between late September and early November.

- This practice is most prevalent in the states of Punjab, Haryana, and Uttar Pradesh during this period.

■ Reason:

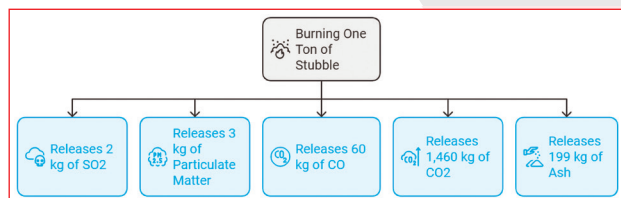
- **Mono-Cropping Patterns:** MSP system primarily favors wheat and rice, encouraging mono-cropping patterns.
- **Cost-Effectiveness:** It is much cheaper compared to other methods of residue disposal, such as incorporating

the stubble into the soil or using machinery like **balers or shredders**, which require significant investment and labor.

- **Weed Management:** Fire helps in **eliminating weeds** and their seeds present in the crop residues, reducing the **need for additional herbicides**. It is a simple way to control weed growth before sowing the next crop.
- **Limited Residue Management Options:** There is **inadequate infrastructure or awareness** about alternative residue management practices, such as **composting or using crop residue for bioenergy**. This makes stubble burning a default practice.
- **Impact of Climate Variability:** **Erratic monsoons and rising temperatures** delay harvesting, pushing farmers to burn stubble to meet **sowing deadlines**.

■ Impacts:

- **Air Pollution:** Stubble burning releases **major air pollutants** like **PM10, PM2.5, NOx, methane (CH₄), carbon monoxide (CO), and volatile organic compounds (VOCs)**.
 - ❖ These pollutants create **smog** that spreads in the air and raises the risk of **asthma, COPD, bronchitis, and lung cancer**.
- **Greenhouse Gas Emissions:** The practice contributes to **greenhouse gas emissions**, thereby **accelerating global warming**.
- **Soil Fertility Loss:** Burning crop residue **destroys nutrients** in the soil, reducing **fertility**. The **heat penetration** also leads to **loss of soil moisture** and kills **beneficial microbes**, further degrading soil health.



Challenges in Controlling Stubble Burning in India

- **Technology and Infrastructure Gaps:** Standard combine harvesters leave behind **10–15 cm of stubble**, which is difficult to manage without specialized equipment.
 - **Custom Hiring Centres (CHCs)** often **lack sufficient machinery**, and many farmers face **logistical challenges** in accessing these resources.
 - The **high silica content** in paddy straw can damage machinery when used as feedstock, and the **absence of an efficient supply chain** for biomass collection and processing exacerbates the problem.

- **Policy Hurdles:** Unclear definitions of **stubble burning and environmental compensation**, along with confusing **Red Entry** compliance markings, create challenges that further burden farmers.

- Current policies often emphasize penalties over incentives, discouraging farmers from adopting eco-friendly practices.

- **Economic and Funding Limitations:** Limited subsidies for **machinery adoption** and weak frameworks for utilizing the **environmental compensation fund** hinder effective implementation.

- **Other Barriers:** There is a significant gap in **training programs on sustainable alternatives** to stubble burning, leading to a reliance on traditional practices.

India's Initiatives to Tackle Stubble Burning

■ Framework by the Commission for Air Quality Management (CAQM):

- **In-Situ Crop Residue Management:** Focuses on managing crop residues on the field using farm machinery, Custom Hiring Centers (CHCs), faster-growing paddy varieties, staggered harvesting, and bio-decomposers.
- **Ex-Situ Crop Residue Utilization:** Encourages alternative uses of paddy straw, such as **biomass power, co-firing in thermal plants, 2G ethanol and compressed biogas production**, and making packaging materials.
- **Ban and Enforcement:** Imposes prohibition on stubble burning through **monitoring, enforcement, and environmental compensation** to reduce air pollution from crop residue.

- **Financial Support:** Under the **Sub-Mission on Agricultural Mechanization (SMAM)**, farmers receive financial assistance for procuring **agricultural machinery and equipment**, especially small and marginal farmers.

■ Technological Interventions:

- **Happy Seeder:** Tractor-mounted device, sows wheat, paddy fields, cutting straw, avoiding burning, saving time, improving soil health.
- **Pusa Decomposer:** Microbial formulation, converts stubble, compost, enhancing soil fertility.
- **Pelletization:** Crop residues, biomass pellets, energy, reducing burning, generating income.
- **Biochar Production:** Stubble converted, biochar, improving soil fertility, water retention, microbial activity, carbon sequestration.

■ Local Initiatives:

- **Chhattisgarh:** Gauthans-village plots where collected stubble is converted into **organic fertilizer** using cow dung and natural enzymes, creating **employment for rural youth**.
- **Punjab:** Mobile apps **i-Khet and Cooperative Machinery Tracker** facilitate farmers' access to **crop residue management machinery**.

Mitigating River Pollution in India

The **Central Pollution Control Board (CPCB)** study indicates a slight decrease in **unfit** and **highly polluted river stretches (PRS)** in India. However, the report highlights persistent **challenges**, with many **PRS** still needing **immediate remediation**.

- The polluted locations in a **continuous sequence** are defined as **PRS**.

Key Findings of the CPCB

- **Marginal Overall Improvement:** The total number of **river locations unfit for bathing** fell slightly from **815 (2022)** to **807 (2023)**, and **Polluted River Stretches (PRS)** declined from **311 to 296**.
 - A **Biological Oxygen Demand (BOD)** greater than 3 mg/L indicates rising pollution and is considered unfit for bathing.
 - **BOD** measures **organic matter in water**; low BOD indicates a healthy river.
- **State-wise River Pollution:** **Maharashtra** leads with **54 PRS**, followed by **Kerala (31)**, **Madhya Pradesh & Manipur (18 each)**, and **Karnataka (14)**.
 - States with the most **Priority 1 (highest urgency) PRS** are **Tamil Nadu, Uttar Pradesh, and Uttarakhand (5 each)**.
 - ❖ **Priority 1** rivers have **Biological Oxygen Demand (BOD)** levels above 30 mg/L and require **immediate remediation**.
- **Trend in River Cleaning:** Since 2022, '**Priority 4**' stretches fell from **72 to 45**, while '**Priority 2**' and '**Priority 3**' stretches increased.
 - The success of **river-cleaning programs** is measured by stretches moving from **Priority 1 to 2, 2 to 3**, and so on, up to **Priority 5**, which needs the least intervention.

Key Factors Contributing

to River Pollution in India (R-I-V-E-R)

- **R-Ritualistic Pollution:** Religious and cultural activities—idol immersion and cremation—release pollutants like **Plaster of Paris, toxic paints, plastics, and floral waste**, severely impacting rivers.
- **I-Industrial Effluents:** Industries like **textiles, tanneries, and chemicals** pollute rivers with **toxic metals** (lead, mercury, arsenic), notably the **Ganga at Kanpur, Yamuna in Delhi, and Damodar in Jharkhand**. Many **bypass or dilute effluents**, evading treatment standards.
- **V-Vast Agricultural Contamination:** Excessive **fertilizers and pesticides** cause **agricultural runoff** with nitrates and phosphates, triggering **eutrophication** and harming aquatic life, as in Punjab's **Sutlej River**.

- **Stubble burning** in Punjab and Haryana adds ash and residues, worsening river pollution.

- **E-Environmental and Thermal Stress:** **Power plants**, such as **Farakka and other NTPC facilities**, **discharge heated water**, causing **thermal pollution** that harms aquatic life.
- **R-Reckless Solid Waste:** As the **world's largest plastic emitter**, India's rivers, like Mumbai's **Mithi**, are clogged with **plastic debris**, while unregulated landfills, such as Delhi's **Ghazipur**, leach **toxins** into rivers and groundwater.

India's Initiatives Related to River Cleaning in India

- **Namami Gange Programme (NGP)**
- **Ganga Action Plan**
- **National River Ganga Basin Authority (NRGBA)**
- **Clean Ganga Fund**
- **Bhuvan-Ganga Web App**
- **Ban on Waste Disposal**

Strategic Interventions for Effective Mitigation of River Pollution in (S-A-C-R-E-D)

- **S-Strict Enforcement of Regulatory Measures:** Strictly enforce the **Water Act (1974)**, enabling **CPCB/SPCBs** to monitor water quality and take action against violators, while the **National Green Tribunal (NGT)** offers fast-track legal mechanisms to ensure river cleanup and the development of sewage infrastructure.
- **A-Agricultural Chemical Control:** Reduce **agricultural runoff** by promoting **organic farming and integrated pest management**, creating **vegetative riverbank buffers**, and providing **subsidies for eco-friendly inputs**.
- **C-Community-Led Conservation:** Engage local communities to improve **solid waste management** through **collection, source segregation, and scientific processing**, prevent riverbank dumping via **fencing and patrolling**, and enforce a **ban on single-use plastics**.
- **R-Rigorous Industrial Regulation:** Enforce **Zero Liquid Discharge (ZLD)** for polluting industries, install **real-time Effluent Treatment Plants (ETPs) monitoring**, and impose **strict penalties** for illegal dumping and non-compliance.
- **E- Ecological Restoration Measures:** Restore **river health** via **desilting, catchment reforestation, wetland revival**, and **protecting floodplains** from illegal encroachment to preserve natural purification.
- **D- Digital Monitoring Network:** Use **AI, IoT sensors, GIS, and drones** for continuous **water quality monitoring** and detecting illegal dumping, while supporting **water-tech innovation**.

Science & Technology

Integrated Air Drop Test for Gaganyaan Mission

ISRO successfully conducted its **first Integrated Air Drop Test (IADT-1)** for the **Gaganyaan mission**.

- IADT-1 aimed to validate the performance of the parachute-based deceleration system for the **Crew Module (CM)** of the **Gaganyaan mission** in a real-world scenario.
- The test involved collaborations between ISRO, **DRDO**, the Indian Air Force, Indian Navy, and Indian Coast Guard.

Gaganyaan Mission

- **Overview:** India's first human spaceflight program, aiming to send a crew of **3 astronauts** to **Low Earth Orbit (LEO)** at **400 km** for **3 days** and return them safely to Earth.
- **Phases:** Includes **unmanned test missions** followed by the **first manned mission** expected to happen in early 2027.
- **Significance:** Gaganyaan's success will place India among the **elite group of nations** (US, Russia, China) with human spaceflight capability.
- **Crew Training for Gaganyaan:** Group Captain Prasanth Balakrishnan Nair, Group Captain Ajit Krishnan, Group Captain Angad Pratap, and Wing Commander Shubhanshu Shukla are India's astronauts-designated for Gaganyaan.
- **Key Technologies for Crew Safety:**
 - **Human-Rated Launch Vehicle (HLVM3):** It is a modified version of ISRO's **LVM3 rocket**. It includes **solid, liquid, and cryogenic stages**, re-configured to meet human rating requirements.
 - ❖ The rocket is capable of launching the **Orbital Module to a Low Earth Orbit (400 km)** and features a **Crew Escape System (CES)** with high burn rate solid motors to ensure crew safety during emergencies at launch or ascent.
 - ❖ CES ensures safe abort in case of emergencies during launch or ascent.
 - **Orbital Module (OM):** Houses the **Crew Module (CM)** and **Service Module (SM)** with life support, avionics, and propulsion systems.
 - ❖ The CM is a habitable space with an **Earth-like environment**, with a pressurized inner structure and unpressurized external structure. It houses crew interfaces, life support systems, and avionics, and is designed for re-entry.
 - ❖ The **SM supports the CM in orbit**, providing thermal, propulsion, power systems, avionics, and deployment mechanisms, but remains unpressurized.

Mira Variable Stars

A new study by the **Inter-University Centre for Astronomy and Astrophysics (IUCAA)**, co-authored by Nobel Laureate Adam Riess, uses oxygen-rich **Mira variable stars** to measure the **Hubble constant** with **3.7% precision**.

Mira Stars (Omicron Ceti)

- **About:** Mira is a **pulsating red giant star** whose brightness varies regularly, with periods ranging from **100 to 1,000 days**, due to expansion and contraction cycles in its outer layers.
 - It was the **first known variable star** (a star that doesn't shine with a constant brightness), identified in the 17th century.
 - They are **relatively cool**, with surface temperatures around **3,000 Kelvin**, and are in the **late stages of stellar evolution**.
- **Significance:** They **help measure cosmic distances** and calibrate the **extragalactic distance ladder** (a series of methods to determine distances to far-off galaxies).
 - They assist in determining the **Hubble constant** and resolving the Hubble tension (difference in the Universe's expansion rate measured from early vs. late-Universe observations) in cosmology.

Biosensor For Parkinson's Disease

Scientists at the **Institute of Nano Science and Technology (INST)**, Mohali have developed a **nanotechnology-based biosensor** for the early detection of **Parkinson's Disease (PD)**.

Nanotechnology-based Biosensor

- **Mechanism:** The biosensor works using **gold nanoclusters (AuNCs)** coated with **natural amino acids** to selectively attach to specific forms of the **α -synuclein protein** (normally harmless but can misfold into toxic clumps (amyloids), damaging brain cells).
- **Significance:** This biosensor enables **distinction between healthy and toxic α -synuclein**, allowing **early detection of PD** before symptoms appear.
 - It is **low-cost, label-free, and suitable for point-of-care testing**, and has potential applications for **Alzheimer's disease and other protein misfolding disorders**.

Parkinson's Disease

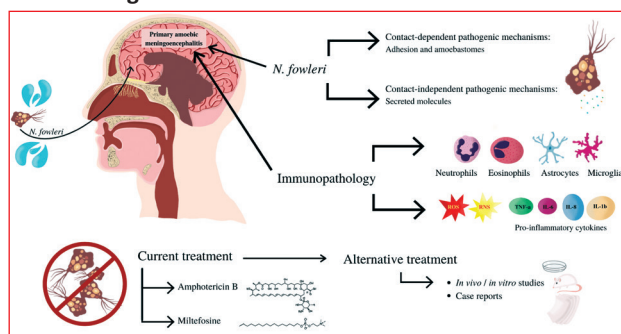
- **About:** PD is a **progressive neurodegenerative disorder** marked by **motor symptoms** (tremors, rigidity, postural instability) and **non-motor symptoms** (cognitive decline, mood disorders).

- **Causes & Prevalence:** Caused by **loss of dopamine-producing neurons** in the **substantia nigra (region in the midbrain)** leading to impaired movement.
 - It is believed to result from a combination of **genetic mutations** and **environmental factors** like **pesticides and pollution**. Affected **8.5 million people** in 2019, India accounts for **approx. 10% of cases (0.58 million)**.
 - By 2050, India's cases are projected to **rise 168% to 2.8 million**, while global cases may reach **25.2 million**.
- **Treatment & Management:** No cure exists, management includes **medications (Levodopa/Carbidopa)**, surgery, and rehabilitation to reduce symptoms.
 - National Parkinson Network (NPN) was established in **2024** by **Movement Disorder Society of India (MDSI)**.

Brain-Eating Amoeba

Kerala has reported several cases of **Primary Amoebic Meningoencephalitis (PAM)**, a **brain infection** caused by **"brain-eating amoeba"**.

- **About:** PAM is a rare and often **fatal brain infection** caused by **Naegleria fowleri amoeba** or **brain-eating amoeba**, found in **contaminated warm, freshwater sources** like wells and ponds.
- **Transmission:** **Naegleria fowleri** enters the body through the **nose** during **swimming** or **bathing** in **contaminated freshwater**, travels to the **brain**, causing **tissue destruction** and **swelling**. It is **not transmitted** through **drinking water** or **person-to-person**.
- **Symptoms:** Early symptoms include **headache, fever, nausea, vomiting**, progressing to **stiff neck, confusion, seizures, hallucinations, and coma**.
 - **Mortality is extremely high (>95%)**, with most patients dying within **1–18 days**, often within **5 days** of onset.
- **Treatment:** No effective treatment available, currently combination of drugs including **amphotericin B, azithromycin, fluconazole, and others** are recommended to **manage the infection**.



Strengthening India's Nuclear Supply Chain

India is planning to introduce **legal reforms** in its **civil nuclear sector** to allow controlled **private and foreign**

investment, address **supplier liability**, and align with **global norms**—focusing on expanding low-carbon nuclear capacity through LWRs and SMRs.

Nuclear Energy

- **About:** It is a form of **energy released from the nucleus, the core of atoms**, made up of protons and neutrons.
 - This source of energy can be produced in **two ways: fission** – when nuclei of atoms split into several parts – or **fusion** – when nuclei fuse together.
 - It is a **low-carbon, high-density energy source** providing **base-load power** and contributing to **energy security** and **sustainable development**.
- **Status in India:** India's current **nuclear power capacity** stands at **8.18 GW**, with plans to expand to **22.48 GW by 2031-32** and 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.
 - Key developments, such as the **Prototype Fast Breeder Reactor** at **Kalpakkam**, showcase India's expanding **nuclear capabilities**.
- **Government Support:** The **Union Budget 2025-26** allocated **Rs. 20,000 crore** to the **Nuclear Energy Mission**, targeting the deployment of **five Bharat Small Reactors (BSRs)** by **2033** to diversify **energy infrastructure**.

Significance of Nuclear Energy for India

- **Ensuring Reliable Energy Supply:** Nuclear power can play a pivotal role in meeting India's rapidly growing energy demand by providing **continuous, 24/7 electricity**.
 - **Small Modular Reactors (SMRs)** and microreactors can deliver **clean energy to remote locations** without dependence on the conventional grid.
 - Nuclear plants provide a **stable power supply even during natural disasters or geopolitical disruptions**, offering a reliable alternative when conventional grids are compromised.
- **Achieving Net-Zero Goals:** Nuclear energy plays a pivotal role in India's strategy to reduce dependency on fossil fuels and meet its **net-zero emissions target by 2070**.
- **Boosting Industrial Development:** Nuclear energy can support **high-capacity, energy-intensive sectors** such as **steel, cement, and data centers** that require stable power.
 - SMRs can further enable **remote industrial operations, hydrogen production, and large-scale desalination projects**.
- **Strengthening Strategic Position:** Indigenous technological achievements, such as the **Prototype Fast Breeder Reactor (Kalpakkam)**, demonstrate India's **technological self-reliance**, reduce strategic vulnerabilities, and enhance the country's **negotiating power** in **global energy and technology partnerships**.

Small Modular Reactors

- **About: SMRs** are next-generation nuclear reactors with a **power output of up to 300 MW(e) per unit**, roughly one-third that of conventional nuclear reactors.
- **Features:** They are defined by **three key features**:
 - **Small:** Much smaller than traditional nuclear power reactors, making them suitable for limited-space installations.
 - **Modular:** Designed for **factory-assembly and transport**, systems and components can be **pre-assembled** and moved as a **complete unit** to the installation site.
 - **Reactors:** **Harnessing nuclear fission** to generate heat for producing energy.

Major Challenges Associated with Modernisation of India's Nuclear Sector

- **Supply Chain and Quality Control Challenges:** The **mid- and lower-tier supplier base** lacks **quality standards, modern processes, and capacity**, causing gaps in supporting advanced technologies like **Light Water Reactors (LWRs)** and **SMRs**, and reliance on a **single foreign company** for specialized systems.
 - **Quality assurance (QA) issues** and **outdated expertise** lead to **project delays** and **production stoppages** due to a shortage of **qualified QA professionals**.
- **Cybersecurity Challenges:** Global **vendors** warn of weak **cybersecurity** in India's **nuclear sector**, risking loss of **critical plant data** and vulnerability to **cyber-attacks** and **ransomware**.
- **Regulatory Hurdles:** The **Atomic Energy Regulatory Board (AERB)** oversees **design certification**, while **NPCIL** manages **quality control**, leading to **coordination challenges** across the **supply chain**.
- **Capacity Challenges:** For critical areas like **control and instrumentation**, **indigenisation efforts** are heavily dependent on a single **public sector enterprise** like **Electronics Corporation of India Ltd** whose **capacity** was recorded as **"limited"**.
- **Laps in Legal Framework:** The **Atomic Energy Act, 1962** restricts **private participation** in India's **nuclear projects**, limiting **investment, technology development**, and slowing progress. **Foreign and domestic suppliers** fear **unlimited liability** because of **unclear insurance rules**, ambiguous definitions of **"nuclear damage"**, and the risk of **civil suits**.

Way Forward

- **Strengthening Supply Chain:** Implement a **National Quality Upgradation Programme** to train **mid- and lower-tier nuclear suppliers** on **manufacturing processes** and **quality standards** for **LWRs** and **SMRs**.

- Simultaneously, **develop and certify new vendors** for **core equipment** and **specialised systems** to expand domestic **capacity**.
- **Enhance Quality Control:** Increase **manpower** by deploying **qualified QA professionals** for **24/7 coverage**, use **Third-Party Inspection (TPI)** to support in-house **QA**, and station **full-time QA teams** at all critical **supplier sites**.
- **Address Cybersecurity Gaps:** Implement a **state-of-the-art cybersecurity framework** across the **nuclear ecosystem**, covering **plant operators** and **suppliers**, to safeguard **control systems** and **critical data** from **cyber attacks**.
- **Modernise Legislative Framework:** Prioritise passing **policy and legal reforms**, including major amendments to the **Electricity Act**, the **Atomic Energy Act**, and the **Civil Liability for Nuclear Damage Act**, to align with **global standards**, address **investor concerns**, and encourage **foreign collaboration and investment**.
- **Strategic Development and Competitiveness:** Execute the **SMR strategy** by advancing **indigenous SMR development** with clear **timelines** for **prototype demonstrations** to ensure **technology readiness**.
 - **Facilitate global exports** for qualified **Indian suppliers** to boost **capacity, competitiveness, and quality**.

CEREBO: Indigenous Brain Diagnostic Tool

India has developed **CEREBO**, an indigenous, hand-held **diagnostic device** to detect **traumatic brain injuries (TBIs)**.

- **Key Features of CEREBO:**
 - **Technology:** Developed by **Indian Council of Medical Research**, it uses **advanced near-infrared spectroscopy** combined with **machine learning** to detect **intracranial bleeding and edema**.
 - **Speed:** Provides results **within a minute**, enabling rapid diagnosis in emergency situations.
 - **Safety:** It is **non-invasive and radiation-free**, making it safe for **infants, pregnant women, and repeated use**.
 - **User-Friendly:** Offers **color-coded outputs** for easy interpretation by healthcare personnel.
 - ❖ It is portable and designed for **ambulances, trauma centers, rural clinics, and disaster response units** where access to **CT (Computed Tomography)** or **MRI (Magnetic Resonance Imaging)** scans is limited.
 - **Cost-Effective:** Provides an affordable alternative to **CT scans** in resource-limited settings. **CEREBO** complements but does not replace **CT scans** for deep tissue assessment.
- **Traumatic Brain Injury (TBI):** It is brain damage caused by an **external force**. Mild TBIs affect thinking, movement, or behavior temporarily, while severe TBIs can cause **permanent disability or death**.

History, Art & Culture

Vithalbhai Patel

All India Speakers' Conference was hosted by the Delhi Legislative Assembly to mark the **100th anniversary** of **Vithalbhai Patel** becoming **President of the Central Legislative Assembly**.

- **Early Life:** Brother of Sardar Vallabhbhai Patel; studied law in England and practiced in Bombay.
- **Political Career:**
 - Elected to Bombay Legislative Council (1912) and Imperial Legislative Council (1918).
 - **Co-founded the Swaraj Party** in 1923 along with C.R. Das and Motilal Nehru.
 - Became **President of the Central Legislative Assembly in 1925** (member in 1924).

Contributions to India's Parliamentary Traditions:

- Introduced the **ward and watch system for Parliament** security, ensuring Speaker's control, which continued until 2024.
- Preserved Speaker's authority after the 1929 bombing incident (Bhagat Singh, Batukeshwar Dutt).
- Established an **independent Parliament Secretariat**, reporting solely to the Speaker.
- Created a **separate Legislative Assembly Department** in 1929 to strengthen the Speaker's autonomy.

Role of Women in the Freedom Struggle

India's **79th Independence Day** emphasizes women's **vital role in the freedom struggle**, fighting against British rule and social restrictions.

Woman	Role in Freedom Struggle
Rani Laxmibai	Fought in the First War of Independence (1857) , resisted the Doctrine of Lapse
Rani Chennamma	Led the Kittur Rebellion (1824) against British for refusing to recognize her adopted son as heir
Savitribai Phule	First female teacher in India , promoted girls' education, opposed child marriage, caste discrimination, and advocated widow remarriage
Sarojini Naidu	First Indian Woman President of INC (1925) , key in Salt March, Civil Disobedience, & QIM
Sucheta Kripalani	Active in Civil Disobedience and QIM , became India's first woman CM (UP, 1963)
Kamala Devi Chattopadhyay	Key role in All India Women's Conference (AIWC) , first woman to contest a legislative seat in Madras, & urged Gandhi to include women in Salt Satyagraha
Annie Besant	Launched Madras Home Rule League , first woman INC President in 1917.
Aruna Asaf Ali	Hoisted Congress flag during QIM , title of ' Heroine of 1942 '
Rani Gaidinliu	Led Heraka Movement (after Haipou Jadonang's execution), promoted Naga identity and resisted British rule.
Fatima Sheikh	Pioneer of girls' education , laid the foundation for women's empowerment .
Matangini Hazra (Gandhi Buri)	Led protests in QIM , martyred while holding the tricolour and chanting " Vande Mataram "
Bina Das	Attempted to assassinate Bengal Governor Stanley Jackson in 1932 , protested by wearing khadi, writing about banned literature, and distributing revolutionary materials
Pritilata Waddadar	Led Pahartali European Club attack (1932) , embraced martyrdom to protest racial discrimination
Kalpana Datta	Participated in Chittagong Armoury Raid (1930)
Pandita Ramabai	Founded Sharada Sadan for widows, promoted women's education and suffrage
Begum Rokeya Sakhawat Hossain	Feminist , established schools for Muslim girls in Kolkata and promoted gender equality; novella Sultana's Dream
Usha Mehta	Underground Congress Radio during QIM
Rukmini Devi Arundale	Revived and promoted Indian classical dance and arts
Kasturba Gandhi	Actively involved in civil disobedience , protests, and imprisonment with Mahatma Gandhi
Bhikaji Cama	Saptarishi Flag designed by Bhikaji Cama, Vinayak Savarkar, and Shyamji Varma, it was the first Indian flag hoisted abroad in Stuttgart, Germany (22nd August 1907) at the International Socialist Congress

Contd...

Woman	Role in Freedom Struggle
Kamala Das Gupta	Supported the freedom movement by hiding fugitives, carrying messages, and smuggling arms.
Labanya Prabha Ghosh	Promoted literacy as a weapon, organised reading groups, wrote for nationalist publications like Mukti, and hosted underground nationalist meetings in rural Bengal.
Aruna Roy	Modern activist; instrumental in the enactment of the Right to Information Act for transparency and accountability.

100 Years of the Self-Respect Movement

2025 marked the centenary of the **Self-Respect Movement**, which advocated **rationalism, social equality, and anti-caste ideology**.

Self-Respect Movement

- **About:** It was launched by **EV Ramasamy (Periyar)** in 1925 in Tamil Nadu, who later established the **Dravidar Kazhagam** and started the Tamil weekly **Kudi Arasu (Republic)**.
 - Periyar was influenced by social reformers like **Jyotirao Phule** and **BR Ambedkar**, and also participated in the **Vaikom Satyagraha**.
- **Objectives:** It aimed to **eradicate the caste system, reject Brahminical dominance**, and promote **rational thinking and individual dignity**, as outlined in its pamphlets **Namathu Kurikkol** and **Tiravittakalaka Lateiyam**.
- **Key Features:**
 - **Pioneered Self-Respect Marriages**- simple priest-less ceremonies that were **legally recognized**.
 - **Fought against social evils** like the **Devadasi system**, **caste discrimination**, and **restrictions on widow remarriage**.

- **Promoted women's leadership**, with notable figures like **Annai Meenambal** and **Veeramam**.

❖ **Meenambal** bestowed the title '**Periyar**' on **EV Ramaswamy**, and was referred to as "**my sister Meena**" by **BR Ambedkar**.

Gyan Bharatam Mission

The Ministry of Culture, at the **first Gyan Bharatam International Conference on 'Reclaiming India's Knowledge Legacy through Manuscript Heritage'** under the **Gyan Bharatam Mission**, invited experts to present research on deciphering the **Harappan (Indus Valley) script**.

Gyan Bharatam Mission

- **About:**
 - The **Gyan Bharatam Mission**, announced in **Union Budget 2025-26**, is a national initiative to preserve, digitise, and disseminate **India's vast manuscript heritage**, combining tradition with modern technology for future generations.
- **Nodal Ministry:** Ministry of Culture.



- **Mission Components:**
 - **Survey & Documentation:** Nationwide identification and cataloguing of manuscripts.
 - **Conservation & Restoration:** Safeguard fragile texts through scientific and traditional methods.
 - **Digitisation & Repository:** AI-assisted digitisation and creation of a **National Digital Repository**.
 - **Technology & AI Innovation:** Tools like **Handwritten Text Recognition** and **Gyan-Setu AI Challenge**.
- **Significance:** With over 44 lakh manuscripts documented in **Kriti Sampada (National Database of Manuscripts)**, it preserves India's **civilisational knowledge** spanning philosophy, science, medicine, mathematics, arts, literature, and spirituality.



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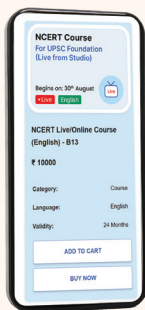
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Harappan (Indus Valley) Script

- **About:** It is used by Indus Valley Civilization (2600–1900 BCE) in present-day Pakistan and north-west India.
 - Discovered in the 1920s by Sir John Marshall's team, the Indus Valley script found on seals, terracotta tablets, and metal is still undeciphered and features pictograms, animals, and human motifs.
- **Writing Style & Nature:** It is generally written right to left; longer texts sometimes in Boustrophedon style (alternating lines).
 - Inscriptions are brief, averaging 5 symbols, the longest text has 26 symbols.
 - Likely a logosyllabic system, combining pictograms and syllables, similar to other scripts of its era.
 - ❖ Scholars propose a rebus principle, where symbols represent sounds or ideas indirectly.
- **Purpose and Function:** Used for trade, taxes, and identification, though full role is unclear. Some symbols may have educational or religious significance.
- **Major Theories on Harappan Script:**
 - **Dravidian Hypothesis:** Some argue that the script has Dravidian roots, using the rebus principle; e.g., the fish symbol may represent "star" in Dravidian. Supported by Brahui language in Balochistan and Old Tamil links.
 - **Sanskrit Connection:** Some suggest a link to Vedic Sanskrit, but this is largely rejected because the Aryan migration occurred after 2000 BCE.
 - **Tribal Language Links:** A few researchers connect it to Adivasi languages such as Santali and Gondi.
 - **Non-linguistic Symbols Theory:** The script may have been used for trade, taxation, or religious purposes, and may not represent a full language.



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Social Issues

Bonded Labour

The **Haryana Human Rights Commission** flagged a case of a 14-year-old allegedly held as **bonded labour** and abandoned after a serious injury, calling it a violation of human dignity and sparking discussion on bonded labour.

Bonded Labour

The term 'bonded labour' has been defined by the **National Commission on Labour** as "labour which remains in bondage for a specific period for the debt incurred". Individuals are forced to work for creditors, either without pay or for minimal wages.

Constitutional and Legal Frameworks Prohibiting Bonded Labour in India

■ Constitutional Dimensions:

- **Article 21:** Guarantees the right to life and personal liberty, which includes living with dignity.
- **Article 23:** Explicitly prohibits human trafficking and forced labour, declaring it unconstitutional.
- **Article 24:** Prohibits employment of children below 14 years in factories, mines, or hazardous occupations.
- **Directive Principles of State Policy: Article 42** aims to ensure just and humane working conditions. **Article 43** calls for the State to secure a living wage and decent working conditions.
 - ❖ Additionally, **Article 46 promotes the educational and economic interests of Scheduled Castes, Scheduled Tribes, and weaker sections**, who are disproportionately affected by bonded labour, thereby aiming to protect them from exploitation.

■ India's Legal Framework:

- **Bonded Labour System (Abolition) Act, 1976:** Abolishes bonded labour, frees bonded labourers from obligations, and criminalises such practices.
- **Child and Adolescent Labour (Prohibition and Regulation) Act, 1986 (amended 2016):** Prohibits children under 14 from working, and restricts adolescents (14–18 years) from hazardous occupations.
- **Juvenile Justice (Care and Protection of Children) Act, 2015:** Provides for care, protection, rehabilitation, and reintegration of children in need.
- **Bharatiya Nyaya Sanhita (BNS), 2023:** Addresses the offense of **unlawful compulsory labor**, providing legal provisions to prevent and punish forced labor practices.

■ International Legal Obligations:

- **United Nations Convention on the Rights of the Child (CRC), 1989:** Article 32 mandates protection of children from economic exploitation and hazardous work.
- **International Labour Organization Conventions: Convention 182 (Worst Forms of Child Labour, 1999)** and **Convention 29 Forced Labour Convention, 1930** both are ratified by India.

Systemic Drivers Behind Bonded Child Labour in India (B-O-N-D-A-G-E)

- **B - Bureaucratic Inefficiency:** Poor enforcement of laws and regulations makes bonded labor persistent.
 - ❖ Labour trafficking spans states, but enforcement is localized with no real-time tracking or sharing of missing children databases across states.
- **O - Overwhelming Poverty:** Families living in extreme poverty often resort to bonded child labour as a means of survival, driven by the need to **meet basic economic demands**.
- **N - No Education:** Lack of education opportunities forces children into labor instead of schooling.
 - ❖ Additionally, child work is often seen as acceptable in rural settings, especially if disguised as "apprenticeship".
- **D - Debt Traps:** Families often fall into debt, and children work to repay loans with high interest rates.
- **A - Agricultural and Allied Sectors:** Large informal sectors like agriculture exploit children for cheap labor.
- **G - Gender Discrimination:** Gender inequality exacerbates the exploitation, as girls are often more vulnerable to bonded labor.
- **E - Exploitation by Employers:** Employers in unregulated sectors exploit weak laws and poor enforcement, forcing children to work in harsh and exploitative conditions.

Measures to Effectively

Curb Bonded Child Labour (R-E-S-C-U-E)

- **R - Revive Law Enforcement:** Strengthen enforcement of the **Bonded Labour System (Abolition) Act, 1976**, by mandating **State Governments to establish Vigilance Committees** with legal authority and digital tracking of complaints.
- **E - Educate Children:** Ensure access to education for all children, as guaranteed under **Article 21A** of the

Constitution, preventing exploitation and promoting dignity. Provide **vocational education and skill development programs** to offer viable employment alternatives.

- **S - Support Families:** Expand welfare schemes like **Public Distribution System (PDS)** and **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)** to provide financial stability to vulnerable families.
 - ❖ Implement **direct cash transfers to reduce reliance on children's income** and break the **cycle of debt bondage**.
- **C - Create Awareness:** Raise awareness about human dignity and the legal prohibitions on child labor and exploitation, as outlined in the **Universal Declaration of Human Rights (UDHR), 1948**, which prohibits slavery and servitude in all forms.
- **U - Unite Communities:** Build community awareness by **encouraging collective responsibility so exploitation is socially unacceptable and harder to hide**.
- **E - Empower NGOs:** Collaborate with **NGOs** to implement the **Central Sector Scheme for Rehabilitation of Bonded laborers (2021)**, focusing on the social and economic reintegration of freed bonded laborers.

Related Keywords for Mains

- **"Childhood, Not Chains":** End bonded labour and protect minors' rights.
- **"Dignity Over Duty":** Treat humans as ends, not tools of profit.
- **"Education, Not Exploitation":** Ensure every child's right to learn.
- **"Protect Today, Prosper Tomorrow":** Safeguard children to secure society's future.
- **"Laws in Action, Not Just Words":** Enforce anti-bonded labour and child protection laws.
- **"Justice for All, Inequality for None":** Break cycles of caste and social exploitation.
- **"Care, Not Cruelty":** Society must uphold the duty of care to vulnerable minors.
- **"From Slavery to Freedom":** Abolish bonded labour, empower communities.

India at the Forefront of Global Food Security

India and the **World Food Programme (WFP)** signed a Letter of Intent for India to supply **fortified rice to vulnerable populations worldwide**, using its agricultural surplus to support **global food security**.

India's Role in Shaping the Global Food Security Landscape

- **Major Global Producer and Exporter:** India is a food surplus country today, standing as the **largest producer of milk, pulses, and spices**, and the **second largest producer**

of food grains, fruits, vegetables, cotton, sugar, tea, and farmed fish. India exports a wide range of products, including **milk, pulses, horticulture, shrimp, and spices**, supporting global nutrition and generating economic gains.

- **Research & Innovation:** Indian institutions like **Indian Council of Agricultural Research (ICAR)** share agri-tech, high-yield seeds, and sustainable farming practices with Africa and Asia under South-South Cooperation.
- **India as an Architect of Food Security Solutions:** Programs like the **National Food Security Act (2013)**, **POSHAN Abhiyaan** and **Pradhan Mantri Garib Kalyan Anna Yojana** strengthen domestic food security and nutrition, offering **replicable solutions for other developing nations**.
- **Humanitarian Assistance:** India provides emergency food aid to countries in crisis, such as **Afghanistan, African nations**, as seen during the Covid-19 pandemic, using mechanisms like the WFP for distribution.
- **World Trade Organization (WTO) Negotiations:** India champions the cause of developing nations' **right to public stockholding**, protecting food security of billions.
- **Promotion of Climate-Smart Practices:** India promotes millets (**International Year of Millets 2023**) as climate-resilient crops, offering sustainable solutions to global hunger.

Dimensions of Food Security

- **Food Availability:** Ensures an adequate food supply through production and trade.
- **Access to Food:** Refers to the economic and physical ability to obtain food.
- **Food Utilization:** Focuses on proper nutrient intake and absorption practices.
- **Stability:** Describes consistent access to food that is resilient to external shocks.

Food Security Scenario in India

- **NFSA, 2013** shifted India's food security from **welfare to a rights-based approach**, covering up to **75% of rural and 50% of urban populations**. Currently, about **80 crore people** receive highly subsidized foodgrains.
- Measures like digitizing ration cards and the **One Nation, One Ration Card scheme (ONORC)** improved transparency, allowing beneficiaries to access entitlements nationwide.
- There was also a growing focus on nutritional security through programs like **POSHAN Abhiyaan** and **bio-fortified crops** to address malnutrition and **"hidden hunger"** by diversifying the **Public Distribution System** basket.
- Additionally, the government promoted sustainable farming practices through schemes like **Paramparagat Krishi Vikas Yojana (organic farming)** and the **National Mission for Sustainable Agriculture** to ensure long-term food security.

Challenges and Measures Related to Food Security in India

Challenge	Measures to Tackle It
■ Decreasing Per capita Food Availability: 510.1 grams per day per person in 1991 to 507.9 grams in 2021. ● According to the United Nations India ranks second in food wastage globally, following China. In the 2024 Global Hunger Index, India ranks 105th out of 127 countries. ■ Rising Vulnerability to Climate Change: Rising temperatures, erratic rainfall, and extreme weather reduce crop yields and disrupt supply chains. ■ Nutritional Challenge: 35.5% of children under age five years are stunted. 67% of children and 57% of women affected by anemia. ● According to the State of Food Security and Nutrition in the World (SOFI) 2025, about 12% of India's population is undernourished. ■ Public Distribution System (PDS) Issues: 28% of allocated grains failing to reach beneficiaries due to leakage. ● Ghost beneficiaries and duplicate ration cards persist despite Aadhaar linkage, with 47 million bogus cards canceled between 2013-2021.	■ Improve storage and transportation infrastructure to reduce food waste. Invest in cold chain systems to prevent loss of perishable goods like fruits and dairy. ■ Speeding up the implementation of the National Innovations in Climate Resilient Agriculture (NICRA) Scheme in vulnerable villages. Promote crop diversification and expand drip irrigation to enhance resilience, soil fertility, and yield stability. ■ Fortify foods with essential micronutrients like iron and vitamin B12. Implement iron supplementation programs for women and children. ■ Implement blockchain and IoT for digital tracking from procurement to distribution. Transform fair price shops into smart shops with biometric and QR code-based quality checks. ■ Strengthen One Nation One Ration Card Plan with centralized databases and migration tracking for seasonal migrants.

Related Keywords for Mains

- **"Nutrition Without Borders":** Delivering fortified food to the most vulnerable worldwide.
- **"From Entitlement to Empowerment" :** Self-reliant food systems.
- **"Food Aid is Soft Aid" :** Diplomacy through wheat, rice, pulses.
- **"Leakages to Linkages" :** PDS reforms through JAM trinity.

Civil Society Organizations in India

Civil Society Organizations (CSOs) have once again come into focus for its role in **mobilising communities, protecting rights, and filling gaps in governance**. Beyond the state and markets, it drives collective action, ensures citizen participation, and strengthens democracy in India.

Civil Society Organization

- **About:** CSO society refers to **non-state, non-profit entities** that unite people voluntarily to work collectively toward shared social, cultural, or ethical goals.
- **Regulatory Framework for Civil Society in India:**
 - **Societies:** Societies Registration Act, 1860; for literary, scientific, and charitable purposes.
 - **Trusts:** Indian Trusts Act, 1882; states also have Public Trust Acts (e.g., Bombay Public Trusts Act, 1950).
 - **Companies:** Section 8 of Indian Companies Act, 2013; for not-for-profit activities like education, social welfare, environment, etc.
 - **Foreign Contribution Regulation Act (FCRA), 2010:** Applies to all CSOs receiving foreign contributions.

Types of Civil Society Organizations

- **Community-Based Organizations:** Local groups addressing community needs.

- **Non-Governmental Organizations (NGOs):** Independent entities working on social welfare.
- **Youth & Student Organizations:** Groups focusing on youth development.
- **Social Movements:** Citizen-led causes for social change.
- **Religious & Faith-Based Groups:** Social welfare efforts by religious organizations.
- **Think Tanks:** Research bodies conducting studies.
- **Membership Associations:** Trade unions and professional groups.

Role of Civil Society in a Democracy

- **Ensuring Accountability:** CSOs act as a watchdog, scrutinizing state actions and checking political abuses and corruption. The Mazdoor Kisan Shakti Sangathan, Rajasthan, was instrumental in the passage of the national Right to Information (RTI) Act of 2005.
 - CSOs play a crucial role in monitoring elections, detecting fraud, and affirming legitimacy.
- **Empowering Citizens and Promoting Democratic Norms:** Educates citizens about **laws, rights, and governance**, sustaining an informed citizenry.
 - Fosters **tolerance, respect for dissent, and compromise**, promoting democratic social norms.
 - Provides platforms for **marginalized groups** (women, poor, persons with disabilities) to participate in governance, as seen in the role of CSOs advocating for the **Rights of Persons with Disabilities Act, 2016**.
- **Women Empowerment:** Organizations like **Jagori and Swayam** have raised awareness about women's rights and promoted political participation.

- The Institute of Social Sciences' "Women's Political Empowerment Program" has trained over 15,000 women for leadership roles in Panchayati Raj Institutions.
- **PRIDE India** has supported advocacy for women's rights through research and data collection.
- **SEWA (Self-Employed Women's Association)** empowers women in the informal sector, helping them gain economic independence and social status.
- **Leadership Development and Representation:** Facilitates articulation and aggregation of **diverse societal interests**.
 - CSOs act as a training ground for future political leaders, breaking traditional party monopolies.
 - CSOs act as a shock-absorbing institution by cross-cutting rigid political polarities. Helps maintain social cohesion in conflict-prone settings.
- **Supporting Reforms and Public Service Delivery:** Mobilizes public opinion for **economic and political reforms**.
 - CSOs fill gaps in essential services like **healthcare, education, sanitation, and disaster relief** (e.g., During the **Covid-19 pandemic**, **Goonj** launched the '**Rahat**' initiative to support vulnerable communities).
- **Global Governance:** Civil society not only promotes national democracy but also influences global governance.
 - International norms on human rights, women's rights, disability rights, and environmental concerns are leveraged to shape domestic policies.

Challenges Related to Civil Society in a Democracy

- **Undermining Democratic Values:** Not all CSOs pursue democratic purposes, some promote **private interests, racism, nationalism, or fundamentalism**, undermining democratic values.
- **Funding Constraints** CSOs face financial instability due to limited foreign funding (post-**FCRA 2020 amendment**) and inadequate domestic philanthropy.
 - State funding can corrupt CSOs, diverting focus from democratic objectives to short-term gains. Additionally, many CSOs lack effective monitoring systems, making it difficult to assess their impact and attract funding.
- **Inadequate Government Response:** Government agencies may be **ill-equipped to handle CSO inputs**, resulting in friction, ineffective policymaking, and undermined democratic engagement.
- **Inadequate Representation:** Lack of equal access for marginalized groups in civil society can **perpetuate structural inequalities** and undermine democratic inclusivity.
- **Cultural Insensitivity:** Global civil society efforts may overlook **local cultural contexts**, especially in the **Global South**, leading to ineffective or irrelevant interventions.

- **Internal Undemocracy:** Many CSOs lack internal democracy, such as transparency or inclusive decision-making, contradicting the democratic principles they advocate.
- **External Manipulation:** Civil society organizations may be influenced or used by **foreign powers to advance political or economic agendas**, distorting their role in promoting democracy.
- **Volunteer Retention:** High volunteer turnover and inconsistent engagement make it difficult to sustain long-term projects and community relationships.

Measures that can be Adopted to Enhance the Role of CSOs

- **Enhance Transparency and Accountability:** Develop a **national CSO database** including financial reports, program outcomes, and impact assessments. Standardized reporting and voluntary third-party audits can build credibility.
- **Support Evidence-Based Policymaking:** Institutionalize CSO involvement in policy through **representation on government committees, consultation forums, and the use of CSO data** in decision-making.
- **Diversify Funding Sources:** Encourage domestic philanthropy, Corporate Social Responsibility (CSR) partnerships, and social impact investments to reduce dependency on foreign funds.
- **Simplify Regulatory Framework:** The government could simplify FCRA and streamline CSO registration and compliance through a single-window digital system,
- **Boost Volunteerism:** Launch national campaigns to promote volunteering, integrate community service into education, maintain volunteer databases, and use digital platforms to connect volunteers with CSOs.

WHO's World Mental Health Report

WHO has released two key reports *World Mental Health Today* and *Mental Health Atlas 2024*, reports reveal that over a **billion people globally live with mental health conditions** and that **suicide accounts for 1 in 100 deaths**.

- For India, where stigma and mental health access gaps remain huge, this data raises **not just a health policy concern but an ethical responsibility**.

Key Findings of the Report

- **Global Burden:** **13.6% of the world's population** currently has a mental disorder (age-standardized prevalence). Prevalence has risen faster than global population growth between 2011–2021.
- **Most Common Disorders:** **Anxiety and depressive disorders** together account for over two-thirds of all cases.

- Anxiety disorders usually start earlier (childhood/adolescence), while depression becomes more common after 40 years and peaks between 50–69 years.
- **Demographic Trends:** Young adults (20–29 years) have seen the highest rise (1.8%) in the prevalence of mental disorders since 2011.
- Globally, males have higher rates of **attention-deficit/hyperactivity disorder (ADHD)**, autism spectrum disorders, and intellectual disabilities.
- Females have higher rates of anxiety, depression, and eating disorders.
- **Suicide: 1 in every 100 deaths** globally is due to suicide. Suicide is the **leading cause of death among young people** worldwide.
- **SDG Concern:** At the current pace, suicide mortality is projected to decline by only **12% by 2030**, which falls far short of the **United Nations Sustainable Development Goal (SDG) target of a one-third reduction**.

Mental Health in India

- **Prevalence:** **National Mental Health Survey (NMHS) 2015-16** found that about 10.6% of Indian adults suffer from mental disorders, with urban prevalence (13.5%) higher than rural (6.9%).
- **Treatment Gap:** 70–92% do not receive proper treatment due to stigma, lack of awareness, and shortage of professionals.
 - India has 0.75 psychiatrists per 100,000 people (WHO recommends 3 per 100,000).

Mental Health Infrastructure

- **National Mental Health Programme (NMHP, 1982):** Integrates mental healthcare into general healthcare.
- **Ayushman Bharat:** Sub Health Centres and Primary Health Centres upgraded to provide mental health services.
- **NIMHANS Act, 2012:** **National Institute of Mental Health and Neurosciences** declared an Institute of National Importance; expanded training and research.
- **RPwD Act, 2016:** Recognizes mental illness as a disability; strengthens legal protection and aligns with **United Nations Convention on the Rights of Persons with Disabilities (UNCPRD), 2006**
- **Mental Healthcare Act, 2017:** Guarantees right to mental healthcare, decriminalizes suicide, and protects dignity.
- **National Health Policy, 2017:** Integrates mental health into primary care and strengthens human resources.
- **National Suicide Prevention Strategy (NSPS, 2022):** Aims to reduce suicide mortality by **10% by 2030**. Focuses on early intervention, crisis management, and mental health promotion. Targets high-risk populations like students, farmers, and young adults.
- **Digital Initiatives:**
 - **iGOT-Diksha (2020):** Trains healthcare professionals and community workers in mental health.
 - **National Tele Mental Health Programme (Tele MANAS), 2022:** Provides free 24/7 mental health support via a toll-free helpline in 20 languages.

Mental Health as an Ethical Issue

- **Equitable Mental Health Access:** Mental health is an essential part of the **right to life under Article 21**. Neglecting it undermines human dignity and the ability to live a meaningful life.
 - Access to mental health care is often uneven, with **rural areas receiving the least support**. Ethical responsibility demands **equitable distribution of resources to protect the well-being of all**, especially the most vulnerable.
- **Autonomy and Freedom of Choice:** Stigma, discrimination, and social exclusion prevent individuals from **seeking care or making informed decisions**.
 - An ethical approach ensures people can exercise autonomy and access support without fear or prejudice.
- **Duty to Prevent Harm:** Workplaces, schools, and governments have a **moral obligation to reduce harmful stressors** and prevent avoidable suffering, such as suicides or work-related mental distress. Ignoring these responsibilities is ethically wrong.
- **Compassion and Empathy:** Everyday acts of **respect, inclusion, and kindness are moral duties** that directly impact mental well-being.
 - Recognizing and responding to the suffering of others is central to an ethical society.
- **Collective Good:** Untreated mental health issues affect productivity, social cohesion, and public safety. Addressing them is not just charity but a social obligation.

Related Keywords for Mains

- **"Silence is the Real Stigma":** Breaking barriers to treatment
- **"Tele Care, Anywhere":** Digital solutions like Tele MANAS for rural and urban India.
- **"Community Heals":** Local, inclusive, and collective mental health care.
- **"Save Minds, Save Lives":** Suicide prevention as a national mission.
- **"Train, Treat, Transform":** Capacity-building for mental health professionals.

Safeguarding Transgender Rights in India

The **National Human Rights Commission (NHRC)** hosted a **National Conference on Transgender Rights** aimed at addressing **systemic discrimination, strengthening institutional support, and reaffirming constitutional guarantees** for transgender persons in India.

- As per the Transgender Persons (Protection of Rights) Act (TPA), 2019, a transgender person is someone whose gender identity does not match the gender assigned at birth
- India has ~ 4.8 million transgender persons (Census 2011)

Legal and Constitutional

Framework for Transgender Persons in India

- **Transgender Persons (Protection of Rights) Act, 2019:** Created a comprehensive legal structure for the protection and empowerment of transgender persons.

Key Provisions Include:

- ❖ **Non-Discrimination Clause:** Prohibits exclusion or unfair treatment in education, employment, healthcare, housing, and access to public services.
- ❖ **Self-Identification:** Recognises the right to self-perceived gender identity, allowing individuals to obtain identity certificates from the District Magistrate without the requirement of medical or psychological assessments.
- ❖ **Healthcare Access:** Mandates provision of gender-affirming medical care, HIV surveillance, and inclusion in public health insurance schemes.
- ❖ **Statutory Institutional Mechanism:** Establishes the **National Council for Transgender Persons (NCTP)** to advise the central government on welfare policies, monitor implementation, and coordinate inter-ministerial efforts.

Landmark Judgments:

- **NALSA v. Union of India (2014):** Marked a historic shift by recognising transgender persons as the “**third gender**”.
 - ❖ Affirmed that gender identity is integral to dignity, equality, and personal autonomy under **articles 14, 15, 19 and 21 of the Constitution**.
 - ❖ Framed transgender rights as a matter of human rights, not just legal identity.
- **Karnataka High Court in Ms. X vs State of Karnataka, 2024** upheld the right of transgender persons to **change name and gender on birth certificates**, as permitted under the **Transgender Persons (Protection of Rights) Act, 2019** and **Transgender Persons (Protection of Rights) Rules, 2020**.

- **Election Commission Directive (2009)** introduced an “**others**” option in voter registration forms, allowing transgender individuals to avoid male or female classification.

Challenges Faced by Transgender Persons in India

- **Marginalisation:** Historical invisibility continues to impact **social and economic inclusion**, despite progressive laws judgements (**NALSA v. Union of India-2014**).
 - Transgender persons face **stigma, bullying, and rejection**, which leads to their **poor mental health**. A **NALSA survey** found **27% were denied healthcare** due to gender identity.
 - **Gender-affirming treatments** cost Rs 2–5 lakh and are often not covered in insurance. **Ayushman Bharat TG Plus** provides medical coverage but its **awareness and accessibility** remain limited.
 - The **literacy rate** among transgender persons stands at **56.1%** (2011 Census), significantly lower than the national average of **74%**, highlighting the lack of a **gender-sensitive curriculum** across the country.
- **Economic Exclusion:** Transgenders face **employment bias, workplace hostility, and lack of gender-neutral facilities**, limiting economic opportunities.
 - **92% experience economic exclusion** (NHRC 2018) and **48% are unemployed** (ILO 2022).
 - Despite a **2024 RBI circular** allowing **transgender and queer persons to open joint bank accounts** and **nominate partners**, access to **financial services** remains limited due to **institutional gaps** and **low awareness**.
- **Law Enforcement and Social Protection Gaps:** **Garima Greh shelters**, though progressive in intent, face issues like **inadequate funding, poor awareness**, and limited state coverage.
 - Despite the **2019 Act**, challenges in **ID issuance, complex certification processes**, and issues like **police harassment** and **family rejection** continue to **hinder self-identification and timely support** for transgender persons.
 - Institutional mechanisms for child protection and elder care often exclude gender-diverse individuals.

Way Forward

- **Legal Framework:** The **Transgender Persons (Protection of Rights) Act, 2019** must be fully implemented by setting up **grievance redressal cells**, a **central digital portal** for applications, conducting **audits**, and training **police, health, and education officials** on transgender rights and **gender sensitivity**.
- **Economic Empowerment:** Promote **gender-inclusive policies, diversity hiring, financial schemes**, and

entrepreneurship support, scaling successful corporate models like **Tata Steel's diversity program**.

- A **World Bank report (2021)** estimates that integrating transgender persons into the workforce could boost India's **GDP by 1.7%**.
- **Access to Social Services** : Schools and colleges should implement **inclusive policies**, provide **teacher training**, prevent **bullying and discrimination**, expand **counselling services**, ensure **gender-neutral washrooms**, and promote **peer and teacher support** for transgender students.
 - Ensure **insurance coverage** for gender-affirming treatments, establish **dedicated clinics**, expand **mental health services**, and provide **sensitivity training** for providers.
- **Awareness Campaign**: Conduct **gender sensitisation programs**, encourage **diverse media representation**, support **cultural events** like the **Koovagam Festival**, and promote campaigns like **"I Am Also Human"** to reduce stigma.

Key Measures For Transgender Welfare in India

- **SMILE Scheme & Garima Greh** provides **rehabilitation, skill development, healthcare, and livelihood support** for transgender persons.
- **Ayushman Bharat TG Plus** offers **health insurance coverage** for gender-affirming treatments and healthcare needs.
- **National Portal for Transgender Persons** facilitates **access to schemes, services, and grievance redressal**.
- Transgender individuals are included under the **disability pension scheme** with a specific **"transgender" option**.
- The **Ministry of Home Affairs (2022)** directed prisons to ensure **privacy and dignity** for third-gender inmates.
- Under **state-level Initiatives**, **Maharashtra** has set up **transgender cells in colleges**, while **Kerala** provides **university reservations and hostel facilities** for transgender students.

Should the 50% Reservation Cap Be Raised?

Bihar's Opposition leader has proposed increasing **quotas to 85%** if voted to power, while the **Supreme Court** has sought the Centre's response on applying the **'creamy layer' concept to SCs and STs**.

- These debates on **reservations** challenge the **50% constitutional cap** and raise concerns about an equitable distribution of benefits among marginalised groups.

Key Provisions Related to Reservations in India

- **About**: Reservation is a form of **positive discrimination aimed at promoting equality for marginalized groups** and addressing social and historical injustices. It provides **preferential treatment in education and employment** to uplift disadvantaged communities.

- At the central level, reservations include **27% for OBCs, 15% for SCs, 7.5% for STs, and 10% for EWS**, making a **total of about 59.5%**, though the **share differs across States** as per their policies and demographics.

Articles under Part III on Reservation

Article 15(3)	Empowers the State to make special provisions for women and children.
Article 15(4)	Enables the State to make special provisions for the advancement of socially and educationally backward classes (SEBCs), including SCs & STs.
Article 15(5)	Allows for reservation in educational institutions for SEBCs, SCs, and STs.
Article 15(6)	Introduced via the 103rd Constitutional Amendment (2019) , allows the State to make special provisions, including reservations, for EWS among unreserved categories.
Article 16(4)	Permits reservation in appointments/posts for any backward class of citizens not adequately represented in state services.
Article 16(4A)	Allows reservation in promotions for SCs & STs (77th Amendment Act, 1995 , modified by the 85th Amendment Act, 2001 , to include consequential seniority).
Article 16(4B)	Allows the State to carry forward unfilled reserved vacancies from previous years without breaching the 50% ceiling (81 st Amendment Act, 2000).
Article 16(6)	Provides for reservation in public employment for EWS, distinct from the backward class reservations.

Articles under Part XVI on Reservation

Articles 330 & 332	Provide for the reservation of seats for SCs & STs in the Lok Sabha and SLAs, respectively.
Article 233T	Ensures reservation of seats for SCs and STs in every Municipality.
Article 243D	Mandates reservation for SCs & STs in every Panchayat.
Article 335	States that the claims of SCs & STs shall be taken into account in the making of appointments to public services and posts , consistent with the maintenance of administrative efficiency.

Key Judicial Rulings Shaping the Reservation Framework:

- **State of Madras v. Champakam Dorairajan, 1950**: Led to the introduction of the First Amendment to the Constitution, which invalidated the judgement.
- **In Balaji vs. State of Mysore, 1962** case, SC held that reservations under Articles 15 and 16 must be within **"reasonable limits"** and should not exceed 50%, viewing them as an exception to equality of opportunity (formal equality).

- In the State of Kerala vs. N.M. Thomas 1975 case, SC recognized ‘substantive equality’, stating that reservations are not an exception but an extension of equality of opportunity.
- **Indra Sawhney & Others v. Union of India, 1992:** The court upheld separate reservation for OBCs but excluded the "creamy layer". It rejected economic reservation and set a ceiling of 50% for all reservations.
- **M. Nagraj & Others v. Union of India and Others, 2007:** The court ruled that promotions satisfy the test of backwardness, inadequate representation,

and the need for efficiency. Backing vacancies were exempted from the 50% limit.

- **Janhit Abhiyan v. Union of India, 2022:** Upheld 103rd Amendment which introduced 10% reservation for Economically Weaker Sections in education and public employment.
- In State of Punjab vs. Davinder Singh, 2024, the SC suggested that policies be framed for applying the creamy layer principle within SC/ST reservations. However, the Union Cabinet clarified that the creamy layer exclusion does not apply to SC/ST quotas.

Arguments For and Against Exceeding the 50% Reservation Cap	
Arguments For	Arguments Against
■ Demographic Justification: Backward classes (OBCs, SCs, STs) constitute over 60% of India's population, and the current 50% ceiling limits proportional representation. ■ Addressing Unequal Benefits: The Rohini Commission (2017-23) found 97% of OBC benefits go to 25% of sub-castes; raising quotas and introducing sub-categorisation could correct this imbalance. ■ Promoting Substantive Equality: The SC in State of Kerala vs. N.M. Thomas (1975) stated that reservations are a continuation of equality, not an exception, and should not be limited by numerical caps. ■ State-Level Precedent: States like Tamil Nadu, Haryana, and Maharashtra have implemented reservations beyond 50%, reflecting the need to adapt policies to social realities.	■ Legal Constraints: The SC in Indra Sawhney (1992) reaffirmed the 50% ceiling to balance merit and social justice, allowing exceptions only in extraordinary circumstances. ■ Implementation Challenges: 40–50% of reserved seats remain unfilled, indicating that raising quotas without improving implementation will not increase representation. ■ Creamy Layer Concerns: As the Davinder Singh (2024) case emphasized, intra-caste inequalities within SCs and STs must be addressed. Expanding reservations without excluding the creamy layer could worsen disparities. ■ Administrative Efficiency: Raising quotas excessively could compromise administrative efficiency by sidelining merit, potentially affecting governance.

Suggestions for Effective Implementation of Reservation

- **Data on Population:** Undertake a **comprehensive caste census** to collect **accurate data on population distribution** and **socio-economic status of various communities**.
- **Sub-Categorisation & Creamy Layer:** Implement **Rohini Commission recommendations** such as **sub-categorisation for OBCs** and consider **creamy layer exclusion** for SCs/STs to ensure **equitable distribution** within communities.
- **Two-Tier Reservation for SC/STs:** Prioritise **more marginalised sections** before extending benefits to relatively better-off members within these communities.
- **Address Backlogs:** Focus on **filling vacant reserved posts** and improving **administrative efficiency** to make reservation policies effective.
- **Skill Development & Employment:** Complement reservations with **training programs and job creation initiatives** to meet the aspirations of India's **large youth population**.

Rethinking India's Strategy Against Aedes Mosquitoes

India faces rising **dengue, chikungunya, and Zika cases transmitted by the Aedes mosquitoes**, yet authorities still depend on less effective fumigation.

- Experts call for personal protection, community action, and innovative, cost-effective measures.

Reasons for Failure of Measures Against Aedes Mosquitoes

- **Mosquito Behaviour:** Aedes mosquitoes **bite mainly indoors** during the daytime and **at night under artificial light**. Hence, outdoor fogging miss most of their activity.
 - Local authorities still conduct **large-scale fumigation**, though national health agencies do not recommend it as a routine method. It provides little long-term impact.
- **Chemical Resistance:** Mosquitoes are developing tolerance to **pyrethroid-based vaporizers** and **temephos larvicides**, reducing their effectiveness.
- **High Cost of New Technologies:** Promising innovations like **Wolbachia mosquitoes** or **spatial repellents** remain underused due to high costs and lack of institutional support.
- **Incomplete Vaccine Protection:** While dengue vaccine trials such as **DengiAll** are ongoing, there is still no approved and effective vaccine for chikungunya or Zika in India.

Most common mosquito-borne diseases

Mosquito	Type of Mosquito	Disease caused
	Aedes	Chikungunya Dengue Lymphatic filariasis Rift Valley fever Yellow Fever Zika
	Anopheles	Lymphatic filariasis Malaria
	Culex	Japanese encephalitis Lymphatic filariasis West Nile fever

Measures that can Strengthen the Fight Against Aedes Mosquitoes

- **Shift Focus from Fogging to Source Reduction:** Fogging kills few mosquitoes because *Aedes* rest indoors. The government should prioritise **larval source management** by cleaning stagnant water in homes, rooftops, tyres, and construction sites.
 - Example: **Delhi's "10 Hafte, 10 Baje, 10 Minute"** campaign encourages households to check water containers weekly.
- **Strengthen Community Participation:** *Camino Verde trial in Latin America* showed significant dengue reduction when communities managed breeding sites.
 - India can replicate such evidence-based community mobilisation at **ward/village level**. Like Polio campaigns, India needs a **"Dengue Free India Mission"** combining school education, TV, and digital outreach.
 - Accredited Social Health Activists (ASHAs) can be frontline educators for household-level awareness.
- **Ensure Affordable and Safe Repellents:** Widespread use of **DEET (N,N-diethyl-meta-toluamide)-based repellents** (proven most effective) should be promoted.
 - The government can subsidise or include repellents under **Jan Aushadhi Kendras** for mass accessibility.
- **Promote Personal Protection:** Encourage use of long sleeves, treated nets for daytime sleepers, and insecticide-treated school uniforms.
 - Awareness campaigns must stress that *Aedes* bite during the **daytime**, unlike malaria mosquitoes.
- **Support Innovative Interventions:** Integrate **Wolbachia-infected mosquitoes** (being scaled up in Brazil, Indonesia, Australia) to reduce dengue transmission.
 - Vaccine development should be supported but used cautiously due to limited efficacy.
- **Environmental and Waste Management:** *Aedes* thrive in plastic waste and discarded containers. India needs stronger **solid waste management** and plastic recycling initiatives. Smart cities and Swachh Bharat Mission can integrate anti-dengue waste management drives.

Kerala Model for Sustainable Urbanisation in India

Kerala is the first State in India to set up an **Urban Policy Commission (KUPC)** with a 25-year roadmap to manage **rapid urbanisation** sustainably.

- KUPC report, submitted to the State government, has drawn national attention as the Kerala model offers lessons for other States in **balancing growth with climate resilience, governance reform, and financial empowerment**.

Recommendations of the KUPC Report

- **Climate-Sensitive Urban Planning:** Use **hazard maps** (floods, landslides, coastal risks) in zoning rules to prevent disaster-prone development.
- **Real-Time Urban Data System:** Set up a digital observatory using tools like **LiDAR (Light Detection and Ranging)** satellite data, and weather sensors to guide municipalities.
- **Green Fees & Climate Insurance:** Introduce **green fees** for eco-sensitive projects and **parametric climate insurance** to fund resilience and disaster response.
- **Municipal and Pooled Bonds:** Major cities can issue **municipal bonds**, while smaller towns **should adopt pooled bond models** for infrastructure funding.
- **Urban Governance Reforms:** Create elected **city cabinets** led by mayors. Form expert teams in municipalities for waste, climate, transport, etc. Launch **"Jnanashree"** to recruit skilled youth into local governance.
- **Place-Based Urban Growth and Inclusive Planning:** Recognize and promote **unique strengths of each city** (e.g., Kochi as a FinTech hub, Thiruvananthapuram & Kollam as a knowledge corridor, Kozhikode as a literary city, and Palakkad & Kasaragod as smart-industrial centres).
 - Restore wetlands, waterways, and heritage zones to preserve local ecosystems and cultural heritage.
 - Establish **City Health Councils** to provide healthcare and welfare support for **migrants, gig workers, and students**, ensuring equitable urban services.
- **Community-Driven Data:** Advocates blending community experiences (like those of fisherfolk and street vendors) into urban data systems, making planning participatory and grounded.

Urbanisation in India

- According to the World Bank, India's urban population will reach **600 million (40%) by 2036**, up from 31% in 2011, with cities driving nearly 70% of GDP.
- **Key Drivers of Urbanisation in India:**
 - **Demographic Transition & Migration:** Rural-urban migration driven by jobs, education, healthcare, and better amenities. Agrarian distress, shrinking landholdings, and climate change push migration further.
 - **Economic Transformation:** Shift from agriculture to industry and services. Expansion of IT, manufacturing, and services makes cities engines of growth, innovation, and employment.
 - **Policy Push & Urban Missions:** Smart Cities Mission, AMRUT (Atal Mission for Rejuvenation and Urban Transformation), Pradhan Mantri Awas Yojana – Urban (PMAY-U) 2.0, and National Infrastructure Pipeline reshape urban infrastructure, improve housing, and promote entrepreneurial hubs.
 - **Technological Integration:** AI, Internet of Things (IoT), and digital public infrastructure (DPIs) enable smart governance, efficient service delivery, and better resource management in cities.
 - **Globalisation & Aspirations:** Integration into global markets and rising aspirations of the youth accelerate demand for urban lifestyles, consumption patterns, and modern urban spaces.

India's Urban Development Initiatives



Measures Kerala Model Offer for India's Urban Planning (K-E-R-A-L-A)

- **K – Knowledge & Community Data:** Blend satellite and sensor data with citizen inputs, ensuring policies reflect lived realities.
- **E – Elected & Specialist Governance:** Shift from bureaucratic inertia to elected city cabinets, specialist municipal cells, and youth technocrats.
 - Set up time-bound urban commissions tailored to local geography, culture, and climate instead of relying only on centralised frameworks.
- **R – Resilience & Climate Integration:** Make hazard mapping and resilience integral to every stage of planning, not an afterthought.
- **A – Autonomy in Finances:** Equip municipalities with tools like **pooled bonds, green fees**, and climate insurance for fiscal autonomy.
- **L – Livelihood & Land-sensitive Planning:** Promote **regional economic hubs** rooted in local strengths while safeguarding commons, culture, and heritage.
- **A – Awareness & Citizen Participation:** Strengthen voluntarism, community engagement, and public participation in urban planning decisions.

Reforming the PDS in India

A recent study by Crisil using a 'thali index' shows that up to **50% of rural and 20% of urban Indians cannot afford two balanced meals a day**, revealing widespread food deprivation. This contrasts with the **World Bank's Poverty and Equity Brief**, based on the **2024 Household Consumption Expenditure Survey**, which claims extreme poverty fell from **16.2% in 2011-12 to 2.3% in 2022-23**.

- Even with **Public Distribution System (PDS)** support, food deprivation remained **40% in rural and 10% in urban areas**, revealing deeper food insecurity than income-based poverty estimates.

Thali Index

- Unlike conventional poverty measures **based only on calories or income**. The "thali index" approach measures food deprivation by assessing whether households can afford a **basic, balanced meal** (the thali, which includes rice, dal, roti, vegetables, curd, and salad).
- It reflects **both nutrition and satisfaction, not just calories**. Reveals hidden deprivation, as **many households cannot afford even two thalis a day despite low official poverty levels**.
- This approach highlights the need to **restructure the PDS to promote equity in primary food consumption**.

Need to Restructure the PDS to Promote Equity in Primary Food Consumption

- **Limitations of Current PDS:** The PDS has succeeded in **equalising cereal consumption** across income groups. However, the PDS mainly provides rice and wheat, which are rich in calories but low in proteins and other nutrients. This **helps with hunger, but not with balanced nutrition**.
- **Pulse Consumption Gap:** A healthy diet requires **proteins, vitamins, and minerals, not just calories**. Pulses, often the only protein source for the poor, remain unaffordable without subsidy.
 - As a result, the **poorest 5% of rural households consume only half as many pulses as the richest 5%**, highlighting a serious nutritional gap driven by cost barriers.
- **Subsidy Misdirection:** In rural India, individuals in the **top 10% consumption bracket receive up to 88% of the subsidy** that the poorest 5% receive.

- This group spends three times more on food than the poorest, yet continues to benefit from PDS subsidies, implying leakage and misallocation.
- In urban areas, although the system is more progressive, **80% still receive PDS subsidies**, even if they exceed the “two-thali” consumption norm.
- **Fiscal Burden and Resource Misuse:** In January 2024, the central government extended free food grain supply (under **National Food Security Act (NFSA) 2013**) to 80 crore people.
 - However, **Household Consumption Expenditure Survey (HCES) 2023-24** data shows many of these households already consume enough cereals. Such large-scale entitlement does not reflect actual need and wastes public funds.
 - Over-allocation also increases procurement, storage, and distribution costs for the **Food Corporation of India (FCI)**.

Poverty Committees in India Based on Consumption

- **Working Group (1962):** Quantified poverty line based on minimum food and non-food needs. Separate rural (Rs 20) and urban (Rs 25) per capita per month at 1960-61 prices.
- **VM Dandekar & N. Rath (1971):** Derived poverty line based on expenditure required to meet 2,250 kcal/day per capita.
- **Y.K. Alagh (1979):** The poverty line was based on the **per capita consumption** required to meet basic calorie needs: 2,400 kcal/day in rural areas and 2,100 kcal/day in urban areas, corresponding to Rs 49.09 per month for rural and Rs 56.64 per month for urban households (1973-74 prices).
- **Lakdawala Expert Group (1993):** Retained Alagh Committee poverty lines at national level and introduced state-specific lines to reflect price differences.
- **Tendulkar Expert Group (2009):** Used a **single all-India urban poverty line** basket to derive state-level rural and urban poverty, replacing the earlier practice of separate rural and urban baskets.
 - It recommended **shifting from calorie-based to target nutritional outcomes** and recommended a uniform **all-India poverty line for rural and urban areas**.
- **Rangarajan Committee (2014):** Reintroduced separate rural and urban poverty lines with consumption baskets including food and non-food items.
 - The poverty line is estimated as Monthly Per Capita Expenditure of Rs. 1407 in urban areas and Rs. 972 in rural areas. The government did not officially adopt the report.

Challenges Exist in Implementing Nutrition-sensitive PDS

- **Accurate Targeting of Beneficiaries:** Identifying households that genuinely consume below the “two thalis a day” norm is difficult.
 - There is a high risk of **exclusion errors** (poor families left out) and **inclusion errors** (better-off households still receiving benefits).
- **Political Sensitivity in Reducing Cereal Entitlements:** Many households, including middle-class and better-off groups, currently benefit from **subsidised rice and wheat**.
 - Cutting or eliminating their entitlements **may trigger political resistance and public backlash**.
- **Procurement and Distribution of Pulses:** Unlike rice and wheat, pulses are produced in smaller quantities, have greater price volatility, and require better storage facilities.
 - Scaling up their procurement and distribution through PDS would be logistically challenging.
- **Financial Sustainability:** Expanding subsidies for pulses while continuing to support cereals could place a heavy burden on the food subsidy bill.
 - Without restructuring PDS, it **may not be fiscally sustainable for the government**.
 - Subsidised food items often get diverted to open markets. Expanding the basket to include costlier items like pulses increases the incentive for black marketing and corruption.
- **Administrative and Monitoring Capacity:** Implementing a nutrition-sensitive PDS needs reliable data systems, digital tracking, and strong oversight.
 - Weak monitoring can undermine efficiency and prevent benefits from reaching the truly needy.

Way Forward

- **Define a Nutrition-Based Food Norm:** Establish a “**minimum balanced diet**” standard (e.g., two thalis/day) including cereals, pulses, vegetables, and dairy.
 - Make it region-specific to reflect **local dietary patterns** and costs. As recommended by the **Tendulkar Committee (2009)**, poverty estimation should **move beyond calorie norms to a broader consumption basket, including food, health, and education**.
- **Target Subsidies Based on Need:**
 - Update and use latest **HCES data** to identify households **below the nutrition norm**. Provide **full PDS support** to the most deprived and **reduce or eliminate** subsidies for those above the norm.
- **Expand Pulse Inclusion in PDS:**
 - Increase the distribution of key pulses (tur, moong, chana) in PDS to address protein deficiency. Prioritise supply for low-income households with low protein intake and link procurement with **Minimum Support Price** and **buffer stocking** mechanisms.

■ **Reduce Excess Cereal Allocation:**

- Trim cereal quotas where consumption has already met desired levels. Use savings to diversify the food basket and improve nutritional outcomes.

■ **Pilot and Scale Gradually:** Implement **state-wise pilot programs**, monitor impacts on nutrition, fiscal costs, and supply chains before national rollout.

- Align with **Poshan Abhiyaan (National Nutrition Mission (NNM), Integrated Child Development Scheme, and Mid-Day Meal schemes** to maximise impact.

■ **Leverage Technology for Better Targeting:** Use digital ration cards, Aadhaar linking, and real-time data to improve transparency and reduce leakages.

- Promote nutrition literacy among beneficiaries to increase uptake of pulses and diversified diets.

Manual Scavenging in India

The **Supreme Court (SC)** has fined Delhi's Public Works Department (PWD) Rs 5 lakh after labourers were found cleaning sewers outside its premises without protective gear.

- The Court held this to be a violation of directives issued by the SC in its landmark 2023 judgment (**Dr. Balram Singh v/s Union of India**), aimed at eradicating the **inhuman and caste-based practice of manual scavenging and hazardous sewer cleaning**.

SC's Directives in Dr. Balram Singh v/s UOI, 2023 Case

- | | |
|--|--|
| ■ Conduct a national survey to identify manual scavengers. | ■ Provide rehabilitation, compensation, & integrate with social security schemes (NAMASTE) ; create an online portal for tracking related issues. |
| ■ Fully mechanize sewer & septic tank cleaning ; human entry only when mechanical cleaning isn't possible. No worker in sewers without proper gear; violations treated as breaches of Articles 21 & 23 . | ■ Ensure full enforcement of the Prohibition of Employment as Manual Scavengers and their Rehabilitation (PEMSR) Act, 2013 . |

- Manual scavenging is officially **banned since Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993**.
 - **PEMSR Act** bans employment of manual scavengers, ensures their rehabilitation, and makes **every offence cognizable & non-bailable**.
- Out of 766 districts, **732 are manual scavenging-free**, but ~58,000 manual scavengers remain as of 2024.

Challenges Faced by Manual Scavengers

- **Health Risks:** Exposure to human waste & toxic gases (hydrogen sulphide) leads to diseases– Hepatitis, Tetanus, asphyxiation, etc.
- **Social Stigma:** Labeled as “untouchables,” they face caste-based discrimination & social exclusion.
- **Economic Challenges:** Paid below minimum wage, with no job security or social protection, keeping them in poverty.
- **Psychological Issues:** Social stigma, harsh conditions & marginalization cause anxiety, depression, and low self-esteem.
- **Substance Abuse:** Many turn to alcohol or drugs to cope with stress & physical hardship.

Suggestions

- **Mechanisation:** Promote 100% mechanized cleaning; equip Sanitation Response Units (SRUs) with machines & train skilled manpower.
- **Institutional Framework:** Appoint Responsible Sanitation Authorities in each district; set up SRUs with 24x7 helplines.
- **Strict Enforcement:** Enforce PEMSAR Act with penalties, treat sewer deaths as culpable homicide & ensure compensation.
 - Distinguishing sanitation workers from manual scavengers & regulating de-sledging market (NHRC).

- **Financial Support:** Provide concessional loans under **Swachhta Udyami Yojana (SUY)** & expand **Self Employment Scheme for Rehabilitation of Manual Scavengers (SRMS)**.
- **Sustainable Livelihoods:** Train manual scavengers under **PM-DAKSH & MGNREGA**.

India's Initiatives to Curb Manual Scavenging

- Safaimitra Suraksha Challenge
- Swachhta Abhiyan App
- Rashtriya Garima Abhiyan
- National Commission for Safai Karamchari
- Swachhta Udyami Yojana (SUY)
- Recognition of Prior Learning (RPL)
- NAMASTE (National Action for Mechanised Sanitation Ecosystem)
- **Technological Initiatives:**
 - **Bandicoot Robot:** Autonomously or remotely cleans, inspects, and removes blockages in sewer lines.
 - **Endobot & Swasth AI:** Diagnose pipelines to detect and mitigate water contamination, wastage, and sewer overflows.
 - **Robo-Drain System:** Automated robotic technology for cleaning underground sewers.
 - **Vacuum Trucks:** Use powerful pumps to remove sewage waste without human entry.

FACTS FOR PRELIMS

REPORTS & INDICES

Climate Change & Workplace Heat Stress Report

Released by WHO and WMO; the report highlights growing health risks of extreme heat for workers worldwide due to climate change.

Key Findings

- **Extreme Heatwaves:** Rising temps (>40-50°C) affect outdoor/indoor workers globally.
- **Productivity Drop:** 2-3% loss per °C above 20°C.
- **Health Risks:** Heatstroke, dehydration, kidney, neurological disorders (impacts 50% of the global population).
- **Vulnerable Groups:** Manual workers; low-income; elderly & children in developing countries.
- **Impact:** 2.4 bn workers face excessive heat, leading to 22.85 mn occupational injuries annually (ILO).
- **Recommendations**
 - Develop occupational **heat-health policies**.
 - Raise **awareness** among workers, employers, and health professionals.
 - Engage stakeholders in **local strategies**.
 - Implement **affordable** and **sustainable solutions**.
 - **Align with UN SDGs 3** (Good Health), **8** (Decent Work), **10** (Reduced Inequalities).

NIRF India Rankings 2025

The **Ministry of Education** released the **National Institutional Ranking Framework (NIRF) India Rankings 2025**, which reaffirmed **Indian Institute of Technology Madras** as the top institution in the Overall Category for the 7th consecutive year.

- NIRF 2025 covered 7,692 institutions, the highest ever, across 17 categories, including a **new SDG** category to measure “**green**” practices, highlighting the government’s focus on sustainable and accountable higher education.
- **NIRF:** Launched in 2015 by the Ministry of Education, it ranks institutions on five parameters: **Teaching, Learning & Resources (30%)**, **Research & Professional Practice (30%)**, **Graduation Outcomes (20%)**, and **Outreach & Inclusivity and Peer Perception (10% each)**.

Global Biodiversity Pattern

A global study published in *Nature Ecology & Evolution* reveals a **universal pattern in species distribution** across biogeographical regions, offering new insights into **global biodiversity organization**.

Findings	Implications for Conservation
Dense, species-rich cores transition to outer zones with low diversity, dominated by generalist species. (Onion-like Structure)	Shift focus from protected areas to ecological corridors & biodiversity hubs , vital for climate-sensitive zones (Himalayas).
Despite regional differences, birds, mammals, and amphibians show a common biogeographical structure .	Underrepresentation of tropical regions, Global South & taxa (e.g., dragonflies, trees) highlights the need for region-specific studies in India.
Temperature and rainfall predict species distribution with 98% accuracy , highlighting climate’s key role.	Monitoring rainfall and temperature shifts can support adaptive conservation planning.

Sample Registration System (SRS) Statistical Report 2023

SRS Statistical Report 2023 highlights significant demographic shifts in fertility, mortality in India.

- **Total Fertility Rate (TFR):** TFR fell to **1.9 in 2023**, below the replacement level fertility of **2.1**.
 - **Highest TFR:** Bihar (**2.8**), **Lowest TFR:** Delhi (**1.2**).
 - **TFR**– average number of children a woman is expected to have during her reproductive years (**15-49 years**).
 - **Replacement level TFR**– average number of children required per woman for one generation to replace itself.
- **Crude Birth Rate (CBR):** CBR declined from **19.1 (2022)** to **18.4 (2023)**.
 - CBR– indicates the number of live births occurring during the year, **per 1000 population**.
- **Sex Ratio at Birth (SRB):** SRB for India in 2021–23 was 917 girls per 1,000 boys.
 - Highest: **Chhattisgarh (974)**. Lowest: **Uttarakhand (868)**.

- **Mortality Trends:** The **Crude Death Rate (CDR)** was **6.4** in **2023**, while the **Infant Mortality Rate (IMR)** stood at **25** in **2023**.

About SRS

- The **SRS**, conducted by the **Office of the Registrar General of India**, is a large-scale demographic survey that collects population data by **age, sex, and marital status**.
- It measures indicators like **CBR, TFR, Age-Specific Fertility Rate (ASFR), General Fertility Rate (GFR)**, and related statistics at **national and sub-national levels**.

IMPORTANT DAYS

National Sports Day 2025

National Sports Day is observed annually on **29th August** to commemorate the birth anniversary of one of the **greatest field hockey players of India, Major Dhyan Chand**.

- **About:** This day was declared a **national observance** in **2012**. In **2019**, the **Fit India Movement** was launched on this day, marking a milestone in **India's fitness and sports journey**.
- **Theme 2025:** *"Ek Ghanta, Khel ke Maidan Main"*.
- **Key National Sports Awards:** Annual award presented on **29th August** by President includes:

Award	Description
Major Dhyan Chand Khel Ratna Award	Highest sporting honour in India. Instituted in 1991–92 , earlier known as the Rajiv Gandhi Khel Ratna Award & renamed in 2021 to honour hockey legend Major Dhyan Chand .
Arjuna Award	Second highest sporting honour .
Dronacharya Award	Highest honour for coaches
Rashtriya Khel Protsahan Puruskar	For organisations promoting sports in the last three years.

Major Dhyan Chand (1905–1979)

- Known as the **Hockey Wizard**
- Awards & Medals–
 - **Olympics:** **Gold** (1948, 1952, 1956 & 1964); **Silver** (1960)
 - **Padma Bhushan** (1956)

2nd Anniversary of PM Vishwakarma Yojana

The **Ministry of Micro, Small & Medium Enterprises (MSME)** organised a '**PM Vishwakarma and National SC-ST Hub Mega Conclave**' in **Bodh Gaya, Bihar** to mark the **2nd anniversary** of the **PM Vishwakarma Scheme**.

PM Vishwakarma Scheme

- **About:** Launched on **17th Sept 2023**, it is a **Central Sector Scheme** offering comprehensive support to **traditional**

artisans and craftspeople involved in **manual and tool-based work**.

- **Implementation:** The scheme will be **jointly implemented** by the Union Ministries of **MSME, Skill Development, and Finance**.
- **Eligibility:** The applicant must be an **artisan or craftsman** in one of the **18 traditional trades** in the **unorganized sector, self-employed, above 18 years, and actively working** at the time of registration.
 - The **18 eligible trades** include **Carpenter, Boat Maker, Armourer, Blacksmith, Locksmith, Goldsmith, Potter** among others.
- **Exclusion:** Beneficiaries who have availed loans under **similar credit-based schemes of the Centre or State** for self-employment or business development in the past 5 years.
- **Achievements:** Over **two years, 23 lakh people** received **free skill training, 8 lakh toolkits** were provided, and **₹4,100 crore** in **collateral-free loans** were disbursed.

DEFENCE & SECURITY

Integrated Air Defence Weapon System Under Mission Sudarshan Chakra

DRDO successfully conducted the first flight tests of the **Integrated Air Defence Weapon System (IADWS)** under **Mission Sudarshan Chakra**.

- **Mission Sudarshan Chakra:** Announced on the **79th Independence Day**, it is a **national security initiative** that aims to develop an indigenous **Iron Dome-like air defence system** (with advanced technologies and multi-layered defence systems) by **2035** to protect critical civil and defence infrastructure
 - The mission aims to **neutralize enemy attacks and enable swift counterstrikes**, ensuring rapid, precise defence and strengthening India's strategic autonomy.
- **IADWS:** It is an advanced, indigenous multi-layered **air defence system** with **QRSAM** (Quick Reaction Surface-to-Air Missiles), **VSHORADS** (Very Short Range Air Defence System), and **DEW** (Directed Energy Weapon) (a laser-based high-energy system).
 - Controlled by a **Centralised Command and Control Centre**, IADWS ensures real-time detection and neutralization of targets like **Unmanned Aerial Vehicles (UAVs)** and missiles.
 - IADWS builds on **India's use of S-400, Barak-8, and Akash systems** during **Operation Sindoor** to intercept Pakistani drones and missiles.

Project 17A: INS Himgiri & INS Udaygiri

Two advanced **Nilgiri-class (Project 17Alpha (P-17A)) multi-mission stealth frigates, INS Udaygiri and INS Himgiri**, have been commissioned, marking a significant step in India's naval modernization

- **Project 17A:** P-17A ships feature enhanced stealth capabilities compared to their predecessors P17 (Shivalik) class, with improvements in hull design and weapon systems.
 - The seven ships under Project 17A are **INS Nilgiri**, **INS Udaygiri**, **INS Himgiri**, **INS Taragiri**, **INS Mahendragiri**, **INS Dunagiri**, and **INS Vindhyagiri**.
 - The Project 17A design incorporates '**State of the Art weapons and sensors**' that include supersonic surface-to-surface missiles, medium-range surface-to-air missiles, and rapid-fire Close-in Weapon Systems.
 - These **multi-mission frigates** are designed to operate in a '**Blue Water**' environment, meaning they can handle both **conventional** and **non-conventional threats** within India's maritime interests.
 - An **Integrated Platform Management System (IPMS)** is also installed to optimize the ship's functionality and crew coordination.
- **INS Himgiri:** First P-17A stealth frigate built by Garden Reach Shipbuilders & Engineers (GRSE).
- **INS Udaygiri:** Second P-17A stealth frigate built by Mazagon Dock Shipbuilders Ltd (MDL), also the 100th ship designed by Navy's Warship Design Bureau.
- **Project 17 Bravo (P-17B):** In 2024, the **Defence Acquisition Council** approved **Project 17 Bravo** stealth frigates, the next phase after Project 17A.

CDS Released 3 Joint Doctrines for Armed Forces

Chief of Defence Staff released **3 joint doctrines for armed forces** to enhance integration, interoperability, and operational effectiveness.

- **Joint Doctrine for Special Forces Operations:** Aims to ensure interoperability of Para Special Forces (Army), Marine Commandos (MARCOS) (Navy), and Garud Commando Force (IAF).
 - Recommends **Joint Service Training Institutes (JsSTIs)** as **Centres of Excellence**.
 - It focuses on advanced joint training for night operations, adverse weather missions, electronic warfare, and precision-guided munition support.
- **Joint Doctrine for Airborne and Heliborne Operations:** Stresses on integration of **advanced technology**, **joint services training**, and **tactical synergy**.
 - Ensures readiness from **peacetime engagements** to **high-intensity conflicts**.

- **Multi-Domain Operations (MDO) Doctrine:** It covers integration across **land, sea, air, space, cyber, and cognitive domains**. Aims to empower decision-making and enhance battlefield responsiveness.

CDS
■ Highest-ranking military officer in India. ■ Serves as the principal military advisor to the Defence Minister on tri-service matters. ■ Heads the Department of Military Affairs (DMA), Permanent Chairman of Chiefs of Staff Committee (COSC) & member of Defence Acquisition Council (DAC).

Exercise Bright Star 2025

India joins the 19th edition of Exercise Bright Star in Egypt.

- **Type:** Biennial, Multilateral, Tri-service
- **Host:** Egypt + US | **Started:** 1980
- **Region:** Middle East–North Africa (MENA)

Multilateral Naval Military Exercises Involving India

Exercise	Other Key Partners
Malabar	US, Japan, Australia
MILAN	Indonesia, Singapore, Sri Lanka, Thailand and others
RIMPAC	US, Australia, Canada, Japan, etc.
IBSAMAR	Brazil & South Africa

Exercise Yudh Kaushal 3.0

The **Indian Army** conducted **Exercise Yudh Kaushal 3.0** in the **Kameng region of Arunachal Pradesh**.

- **About:** It is a series of **Indian Army exercises** designed to strengthen **combat readiness, operational effectiveness, and the integration of modern technologies**.
- **Yudh Kaushal 3.0:** Conducted by the **IV (Gajraj) Corps**, it saw the **operational debut of ASHNI platoons**, the Indian Army's **dedicated drone units** that combine **advanced technology with proven combat tactics**, giving infantry a decisive edge in next-generation warfare.

ZAPAD Exercise 2025

Indian Armed Forces contingent, led by a battalion of the **Kumaon Regiment**, participated in the **multilateral joint military exercise ZAPAD 2025** in Nizhniy, Russia.

- The Zapad exercise series was began during the Soviet era, has been conducted by Russia since 2009.
- **Objective:**
 - The exercise aims to **enhance military cooperation, improve interoperability**, and provide a platform for exchanging tactics in conventional warfare and counter-terrorism.

- It will focus on **joint company-level operations in open terrains**, integrating emerging technologies to improve joint capabilities in a multinational combat environment.

Drone Defence with Advanced Radars

Post-Operation Sindoor, the Indian Army plans to bolster **drone defence** by procuring **advanced radars** to detect and neutralise **low radar cross-section (RCS) aerial threats**.

- These radars will plug into the Army's **Akashteer air defence command-and-control network**, improving real-time tracking.
- Key Technological Features of Advanced Radars:**

Radar System	Key Features
Low Level Light Weight Radars (Improved)- LLLR-I	AESA-based 3D radar; tracks 100+ aerial targets within 50 km across terrains
LLLR-E (Enhanced)	Adds Electro-Optical Tracking System (EOTS) & passive RF detection for day-night and silent drone tracking
Air Defence Fire Control Radar – Drone Detector-ADFCR-DD	Vehicle-mounted ; integrates radar, fire control, and IFF for gunfire & VSHORADS coordination

Samudra Pradakshina

Defence Minister flagged off '**Samudra Pradakshina**', the **world's first-ever Tri-service all-women sailing circumnavigation expedition**, symbolising **Nari Shakti**, jointness of **Armed Forces**, **Aatmanirbhar Bharat**, and **India's maritime vision**.

- Expedition:** The crew consists of 10 women officers who will sail on the **indigenously built Indian Army Sailing Vessel (IASV) Triveni** for 9 months, covering 26,000 nautical miles.
 - Their route crosses the **Equator twice** and rounds the three great Capes (**Leeuwin, Horn, and Good Hope**), including the **Southern Ocean and Drake Passage**.
 - They will make international port calls at **Fremantle (Australia)**, **Lyttelton (New Zealand)**, **Port Stanley (Canada)**, and **Cape Town (South Africa)**, strengthening **India's maritime diplomacy**.
 - It also has a scientific component, with collaboration from the **National Institute of Oceanography** to study microplastics, marine biodiversity, and ocean health.
- Global Standards:** Follows **World Sailing Speed Record Council norms**—no canals/powering transit; must cross all longitudes and cover 21,600+ nautical miles under sail.

PASSEX and EEZ Surveillance in Mauritius

The ships of the **Indian Navy's First Training Squadron (1TS)** made port calls at **La Réunion (France)** and **Port Louis (Mauritius)** as part of their **Long Range Training Deployment**.

- France:** **INS Tir** and **ICGS Sarathi** held a **Passage Exercise (PASSEX)** with the French Navy and discussed regional security and strengthening the **India–France naval partnership**.
- Mauritius:** **INS Shardul** conducted joint **Exclusive Economic Zone (EEZ)** patrols, training, and outreach with Mauritius, boosting **India–Mauritius ties**.
- These port calls **highlight India's commitment to maritime cooperation**, regional stability, and the **MAHASAGAR vision in the Indian Ocean Region**.

INS Tir	It is the first dedicated Indian Navy cadet training ship, designed by the Navy and built by Mazagon Dock Ltd., Mumbai . It is based at Kochi and equipped with a Decca collision avoidance plot and a SATNAV (Satellite Navigation) system.
Indian Coast Guard ship Sarathi	It is the third indigenously built offshore patrol vessel (OPV) by Goa Shipyard Ltd. , it enhances the Coast Guard's operational capability along India's western coastline and island territories.
INS Shardul	It is the lead ship of its amphibious warfare class , and is based at Kochi. It has conducted cadet training, Indian Ocean surveillance , and humanitarian missions , including relief to Madagascar in 2020, the largest relief load by an Indian warship.

INS Aravali Commissioned in Gurugram

INS Aravali, **Indian Navy's latest Naval Base**, was commissioned at **Gurugram** to strengthen **Maritime Domain Awareness (MDA)** capability.

INS Aravali

- INS Aravali**, deriving its name from the unwavering **Aravali range**.
- Designed to strengthen the Navy's information and communication infrastructure.** It would not only be a **hub of technology**, but also of a **collaborative vision of MAHASAGAR**.
- The base is guided by its **motto: 'सामुद्रकिसुरक्षायाः सहयोगं' (Maritime Security through Collaboration)**.
- Reinforce India's position as the **Preferred Security Partner** in the **Indian Ocean Region**.

Exercise Yudh Abhyas 2025

The **21st edition of Exercise Yudh Abhyas 2025** was held at **Fort Wainwright, Alaska**, aiming to enhance **interoperability, readiness, and cooperation** between the **Indian and US armies**.

- Historical Background:** Started in **2004** as **counterinsurgency training**; evolved to include **conventional, unconventional, hybrid threats**, and **peacekeeping operations**.

- **Strategic Importance:** Alaska offers **Arctic and Indo-Pacific operational experience**; Indian forces gain **cold-weather training** alongside US Arctic-experienced troops.
- **Broader Significance:** Part of the **US-India Major Defense Partnership**, including joint exercises, defense trade, and personnel exchanges to **enhance combined capabilities**.
- **Other Exercises Between India and US:** Exercise Vajra Prahar (Special Forces' Exercise), SALVEX (Navy), Cope India (Air Force), and Malabar Exercise (Quadrilateral naval exercise).

SUMMITS & CONFERENCES

India-US 2+2 Interseasonal Dialogue

India and the US held the **2+2 Interseasonal Dialogue** (a mid-cycle review of the broader **2+2 Ministerial Dialogue**), focusing on advancing a **new 10-year defense framework** to boost defense production, while also strengthening trade and energy security.

- Both sides agreed to strengthen cooperation under the **US-India COMPACT (Catalyzing Opportunities for Military Partnership, Accelerated Commerce & Technology)** framework and reaffirmed their commitment to a **safer, stronger, and more prosperous Indo-Pacific through the Quad**.
 - It is important as India is set to host the 2025 **Quad Leaders Summit**, with the US, Japan, and Australia reaffirming their commitment to a stronger Indo-Pacific.
- **2+2 Ministerial Dialogue:** It is an annual diplomatic summit, initiated in 2018, originally between India and the US. It later expanded to **include Japan, Australia, Russia, and the United Kingdom**.
 - The dialogue, involving the **Foreign and Defense Ministers** of the participating countries, focuses on strengthening **bilateral relations** and addressing **shared security concerns**.

Indian Ocean Naval Symposium

The Indian Navy hosted the Emerging Leaders Panel under **Indian Ocean Naval Symposium (IONS)** at Kochi, providing young naval leaders a platform to discuss maritime cooperation, and regional security in the **Indian Ocean Region (IOR)**.

Indian Ocean Naval Symposium (IONS)

- **About:** The IONS is a **voluntary initiative** aimed at enhancing maritime cooperation among the navies of **IOR littoral states**.
 - It provides an open forum for discussing regional maritime issues, sharing information, and fostering common understanding for cooperative solutions.

- **Members:** IONS has a **collective strength of 34 states** (25 Members, including India, and 9 Observers).
- **Inaugural Seminar:** The inaugural IONS conclave was held in 2008 in New Delhi, with the **Indian Navy as Chair (2008–2010)**. India is set to chair IONS again (2025–27) during the 9th Conclave of Chiefs (CoC) planned in India at the end of 2025.
- **Functional Areas & Working Groups (IWG):**
 - **Humanitarian Assistance & Disaster Relief (HADR):** Planning and conducting joint relief operations during natural disasters.
 - **Capacity Building:** Member states regularly host **maritime training exercises and workshops** under IONS to enhance skills and interoperability among regional navies.
 - **Counter-Piracy & Maritime Crime:** Develop Strategies to combat piracy, smuggling, and illegal maritime activities.

International Conference on Space 2025

India inaugurated the **International Conference on Space 2025**, highlighting the country's ambitious space goals, its evolving space strategy, and its future role in **global space exploration**.

- Theme: ***Harnessing Space for Global Progress: Innovation, Policy, and Growth***.

India's Major Space Ambitions

- To establish a **Bharatiya Space Station by 2035** and send an **Indian astronaut to the Moon by 2040**.
- Future exploration missions to **Mars, Venus, and asteroids** are part of the roadmap.
- The **Gaganyaan human spaceflight programme** is being developed as a priority.
- India's **international collaborations** include the **NASA-ISRO NISAR mission** with the United States and the upcoming **Chandrayaan-5 mission** with Japan, showcasing space as a platform for global engagement.

Recent Achievements in India's Space Journey

- Success of **Chandrayaan-3**, making India the **first country to land near the lunar south pole**.
- **Group Captain Shubhanshu Shukla** became the **first Indian Air Force officer** to travel to the International Space Station.

National Conference on Adi Karmayogi Abhiyan

The **Ministry of Tribal Affairs** organized the **National Conference on Adi Karmayogi Abhiyan** with Project Officers of **Integrated Tribal Development Agencies (ITDAs)** at **Bharat Mandapam, New Delhi**.

- The event focused on flagship tribal development initiatives like—
 - **Adi Karmayogi Abhiyan:** The world's largest grassroots tribal leadership programme, **mobilizing 20 lakh change leaders across 1 lakh villages** to act as catalysts of social transformation.
 - **Dharti Aaba Janjatiya Gram Utkarsh Abhiyan:** It is a convergence-driven mission aimed at delivering essential services, schemes, and infrastructure comprehensively in tribal villages through coordinated planning
 - **PM-JANMAN:** A focused initiative to ensure housing, health, education, water, electrification, and livelihoods for **PVTGs**.
- A major highlight was the launch of **Adi Sanskriti**. It is **envisioned as the world's first Digital University to preserve and promote the culture and traditional knowledge of tribal communities**.
- **Components:**
 - **Adi Vishwavidyalaya:** Currently offers 45 courses on tribal arts
 - **Adi Sampada:** Curates over 5,000 documents on tribal culture
 - **Adi Haat:** A marketplace for tribal artisans linked with TRIFED

ITDAs, established in the 1970s and 1980s, are designed as specialized institutions to ensure effective delivery of public services and development programs to **Scheduled Tribes**.

India-AI Impact Summit 2026

MeitY has revealed the official logo and key flagship initiatives for the **India-AI Impact Summit Feb 2026**. This event marks a historic occasion as it is the first time a **Global South nation will host the summit**.

- **Flagship Initiatives:** **AI Pitch Fest (UDAAN)** (showcasing Tier 2 & 3 AI startups), **Global Innovation Challenges** (promoting AI solutions for public issues), and **AI Expo**.
- **Official Logo:** The logo features the **Ashoka Chakra**, symbolizing **ethical governance and constitutional values**, with **neural network flares** representing AI's transformative impact across languages, industries, and geographies.

India-AI Impact Summit 2026

- Hosted by MeitY, it will be held in Feb 2026 in New Delhi.
- **Summit Sutras:** Guided by the principles or Sutras of People, Planet, and Progress.
 - **People:** AI must serve all humans inclusively, respecting culture and ensuring accessibility.
 - **Planet:** AI should be resource-efficient, eco-friendly, and aligned with sustainability goals.

- **Progress:** AI benefits must be equitable, with open access to data, compute, and applications in key sectors.

- **Seven Chakras:** Sutras are implemented via seven Chakras, focusing on multilateral cooperation to achieve tangible AI outcomes.

The Seven Chakras

- **Human Capital:** Focuses on employment, skilling, and workforce transformation.
- **Inclusion for Social Empowerment:** AI reflecting languages, cultures, disabilities, and gender/diversity equity.
- **AI for Economic Development & Social Good:** Scale AI in public interest sectors; promote cross-border knowledge sharing.
- **Democratizing AI Resources:** Equitable access to resources, open data, cloud, models, and infrastructure.
- **Safe and Trusted AI:** Safety testing, transparency, auditing, and governance mechanisms.
- **Resilience, Innovation, and Efficiency:** Resource-efficient AI, adaptable to local needs.
- **Science:** Responsible AI use in research; open, interdisciplinary collaboration.
- MeitY also launched **eight indigenous AI foundational model projects** targeting multilingual, healthcare, scientific, industrial, governance, and agricultural applications.

India's Eight Foundational AI Model Projects

- **Avatar AI:** Domain-specific AI avatars optimized for Indian languages and domains.
- **Bharat Gen:** Multilingual and multimodal models with varying parameters.
- **Fractal Analytics:** Large reasoning model for STEM and medical problem-solving.
- **Tech Mahindra Maker's Lab:** Model for Indic languages.
- **Zentech's BrahmAI:** Science-driven foundational model for industrial innovation.
- **GenLoop's Yukti, Varta, Kavach:** Small language models for all 22 scheduled Indian languages.
- **Intellihealth:** AI for ECG signal analysis to aid in medical screening.
- **Shodh AI:** AI-driven material discovery for scientific research.

PLACES IN NEWS

Sir Bani Yas Island

A 1,400-year-old **Christian cross** has been unearthed from the ancient monastery on **Sir Bani Yas Island, Abu Dhabi**. Similar artifacts found in **Iraq and Kuwait**, linked to the historic Church of the East, point to the legacy of cultural harmony in the Gulf region.

- It is the largest island **off the coast of the Al Dhafra Region** in Abu Dhabi. It was declared a nature reserve in 1971 and is now the Arabian Wildlife Park, hosting free-roaming animals, breeding programs.
- Sir Bani Yas Island was **first mentioned in European records in 1590 by Italian merchant Gasparo Balbi** for its pearls, a trade that remained significant until the early 20th century.



Typhoon Kajiki

Typhoon Kajiki lashed both China and Vietnam; equivalent to **Category 2 storm** on Saffir-Simpson scale.

- **Typhoons** are **tropical cyclones** originating from the **western Pacific Ocean**, particularly in **Southeast Asia & China**.

Vietnam

- **Vietnam** (capital **Hanoi**) is a **Southeast Asian** country bordered by **China** to the north, **Laos** and **Cambodia** to the west, and the **South China Sea** to the east.
- **Mekong** (south) and the **Red River** (north) are its key rivers that flow into the **South China Sea** & **Annamite Cordillera** is a major mountain range.



UN Declares Famine in Gaza

The UN has officially **declared a famine in Gaza**, marking the **first famine in West Asia**, with over half a million people facing extreme hunger due to conflict and restricted access to food.

- **Famine: The Integrated Food Security Phase Classification (IPC)** defines Famine as a situation in which **at least one in five households has an extreme lack of food and face starvation and destitution**, resulting in extremely critical levels of acute malnutrition and death.
 - IPC Phase 5 is the highest phase of the **IPC Acute Food Insecurity scale**, and is attributed when an area has at least **20% of households, acute malnutrition in at least 30% of children under five**, and mortality of at least two per 10,000 people daily.
- **Cause:** Sharp escalation of Israel-Hamas conflict, massive displacement, and severe restriction of humanitarian and commercial food supplies.

Gaza Strip

- It is a coastal territory in **West Asia**, approximately 41 km long and 10 km-wide territory, situated **northeast of the Sinai Peninsula**.
- It borders **Israel to the north and east**, **Egypt to the southwest**, and the **Mediterranean Sea to the west**.
- The Gaza Strip remains a strategically important and densely populated enclave, central to the **Israeli-Palestinian conflict**, with ongoing humanitarian, political, and security challenges.



Devastating Earthquake Strikes Afghanistan

Afghanistan was struck by a **6.0-magnitude earthquake**, killing over **800 people** highlighting the country's extreme vulnerability to seismic hazards.

- Located at the **Indian-Eurasian plate collision**, Afghanistan is highly prone to earthquakes.
- **Major Earthquake Zones:**
 - **Hindu Kush (Northern Afghanistan):** Known for both shallow & deep-focus quakes due to the sinking of the Indian Plate's lithosphere.
 - ❖ **Hindu Kush region** (spans Afghanistan, Bangladesh, Bhutan, China, India, Nepal, Myanmar & Pakistan).
 - ❖ Forms part of **Alpide Belt**, the world's 2nd most seismically active zone after **Circum-Pacific Belt**.
 - **Sulaiman Range (Southeastern Afghanistan & Western Pakistan):** Characterized by destructive shallow, thrust fault quakes.
- **Active Fault Systems: Chaman Fault & Main Pamir Thrust (or Pamir Frontal Thrust)--** major sources of seismic activity.



Indian Navy's First Training Squadron in Seychelles

The Indian Navy's First Training Squadron (**INS Tir, INS Shardul, and ICGS Sarathi**) arrived at **Port Victoria, Seychelles** during a **long-range training mission** in the **South West Indian Ocean Region**.

- The deployment part of India's **MAHASAGAR vision (Mutual and Holistic Advancement for Security and Growth Across Regions)**.

Seychelles

- The Seychelles is an island nation located **northeast of Madagascar off the east coast of continental Africa**.
- It is the **smallest nation in Africa** in both **land area and population**.
- It is an **archipelago of 155 islands** located in the western Indian Ocean. **Mahe**, the largest and most diverse island in the archipelago.
- The islands of Seychelles are situated on the **Mascarene Plateau**, an extensive submarine plateau in the Indian Ocean.



Himachal Pradesh Declared 'Fully Literate' State

The declaration was made on the occasion of **International Literacy Day** on 8th September, under the **ULLAS program**.

- Himachal Pradesh has become the **fourth state to achieve full functional literacy**, joining **Tripura, Mizoram, and Goa** in this significant milestone.
- In June **2024**, Ladakh was declared the **first Union Territory** to be fully literate.
- Himachal Pradesh literacy rate has reached **99.30%**, exceeding the **national benchmark of 95%**, which the Ministry of Education considers equivalent to full literacy(100%).

ULLAS Program

- **ULLAS (Understanding Lifelong Learning for All in Society)** Nav Bharat Saaksharta Karyakram, is a **centrally sponsored scheme** being implemented from 2022 to 2027.
- It is also known as the **New India Literacy Programme (NILP)** targets non-literate adults **aged 15 and above**.
- It aims to **provide literacy, digital literacy**, and critical life skills such as **financial literacy**.
- It has enrolled over **3 crore learners and 42 lakh volunteers**, with 1.83 crore learners having completed **foundational literacy assessments** with a 90% success rate.
- The program now offers materials in **26 Indian languages**, emphasizing inclusive literacy.

Scarborough Shoal

The **Philippines** has strongly opposed **China's announcement** to establish a **nature reserve** in the **South China Sea** at the disputed **Scarborough Shoal**, which has long been a **flashpoint of tensions** and **standoffs** between the two countries.

Scarborough Shoal

- **About:** It is a **triangular atoll**, located **200 km from the Philippines coast**, and within its **exclusive economic zone (EEZ)** under UNCLOS (1982).

- It is part of the broader South China Sea disputes (**Spratlys, Paracels, Nine-Dash Line**), where **China's nine-dash line** overlaps with the EEZs of Vietnam, Malaysia, Brunei and Indonesia.
- **Significance:** Rich in fish stocks and provides natural shelter for vessels.
 - Strategically placed near shipping lanes that handle **USD 3 trillion annual global trade**.
 - Control gives a geopolitical and military edge in one of the busiest waterways.
- The **2016 Permanent Court of Arbitration** ruling rejected China's broad **South China Sea claims** and its **blockade of the shoal**, but left the **sovereignty issue unresolved**, causing ongoing tensions.



Democratic Republic of Congo (DRC)

The conflict in **eastern DRC** saw two major developments—a US-brokered **peace agreement** between **Rwanda and the DRC**, and a **ceasefire** between the **DRC and M23 (March 23 Movement) rebels**, mediated by Qatar.

- Despite these efforts, M23 resumed its offensive, undermining the peace objectives.

DRC

- **Political Features:**
 - The DRC, Africa's **2nd-largest country**, shares borders with **Angola, the Republic of the Congo, the Central African Republic, South Sudan, Uganda, Rwanda, Burundi, Tanzania, and Zambia**.
 - The country also has a coastline on the **Atlantic Ocean** to the southwest.

- The main areas of conflict are **North Kivu, South Kivu, and Ituri**.

- **Geographical Features:** It has the **mineral-rich Katanga Plateau (cobalt, copper, tin, uranium, diamonds)**.

- Its capital **Kinshasa** lies on the **Congo River**, the only African river to cross the equator twice.
- The country contains the **Congo Basin**, a vast central lowland rainforest, as well as savanna regions.
- **Significant lakes— Lake Tanganyika, Lake Albert, Lake Edward, and Lake Kivu.**
- **Mount Nyiragongo**, an **active volcano** in the **Virunga Mountains**, is one of the country's notable geological features.



Achanakmar Tiger Reserve

Tiger population in ATR (Chhattisgarh) **rose from 5 in 2022 to 18 in 2025**.

- **Wildlife sanctuary (1975), tiger reserve (2009); part of Achanakmar-Amarkantak Biosphere Reserve.**
- **Links Kanha and Bandhavgarh Tiger Reserves**, supporting tiger movement & genetic diversity.
- Home to **Baigas (PVTG), Gond & Yadav communities**.
- **Maniyari River** (known as its lifeline) merges with **Seonath River** in the **Mahanadi Basin**.
- Dominated by **tropical moist deciduous forests** (Sal, Saja, Teak, etc); **wildlife—** Tigers, Leopards, Bison, Flying Squirrel, etc.

Bagram Air Base

US President **warned Afghanistan of consequences** if **Bagram Air Base isn't returned**; vacated by US forces before their **2021 withdrawal**.

- Located **60 km north of Kabul** in **Parwan province**; Afghanistan's **largest military base & a strategic gateway**.
 - Connects Kabul to key cities— **Mazar-e-Sharif, Ghazni, Kandahar & Bamiyan**.

- **History:** Built by the Soviet Union in 1950s; gained prominence during **Cold War & Soviet-Afghan War (1979–89)**.
 - Served as the main hub for American forces in the War on Terror after the **US invasion (2001)**.
- **Strategic Significance:** Proximity to sensitive Chinese sites (**Lop Nur nuclear test site & Koko Nur nuclear facility**).



PORTAL & APPS

Aadi Vaani: AI Translator for Tribal Languages

The Union government launched the beta version of **Aadi Vaani**, India's First AI-powered Translator for Adivasi languages.

BHASHINI (BHASHa INterface for India)

- As a **National Language Translation Mission**, BHASHINI under **Digital India**, uses **AI and natural language processing (NLP)** to make digital content and services accessible in multiple Indian languages.
 - It is implemented by the **Digital India BHASHINI Division** under the **Ministry of Electronics and IT**.
- **Purpose:** Provides translation across **22+ Indian languages**, promoting digital inclusion and accessibility. BHASHINI aimed at democratizing access to digital content and services across India's linguistic spectrum.
- **Applications:** Enables translation of text, video, documents, web content, and real-time speech, ensuring multilingual access and inclusivity.
- **Integration with Government Platforms:** Integrated with **e-Shram, e-Gram Swaraj, CPGRAMS, All India Council for Technical Education (AICTE)** and **University Grants Commission (UGC)** for content translation.
- **Purpose:** Translate speech and text between Hindi, English, and **six Adivasi languages**: Bhili, Mundari, Gondi, Santali, Kui, and Garo.

- **AI Model & Target Use:** Based on **NLLB (No Language Left Behind)** and **IndicTrans2**, adapted for low-resource languages.
 - Tested through **Adi Karmayogi**, a nationwide capacity-building initiative in tribal districts covering 1 lakh villages and 20 lakh volunteers.

SPECIES IN NEWS

Palmyra Palm Trees

Odisha has restricted the felling of **Palmyra palm trees** due to their **ecological and social benefits**.

Palmyra Palm Tree (*Borassus flabellifer*)

- **About:** It is indigenous to South and Southeast Asia, **highly drought-resistant** and recognised as the **State Tree of Tamil Nadu**.
 - It is found mainly in **Odisha, Andhra Pradesh, West Bengal, and Tamil Nadu**.
 - It is revered in **Tamil culture** as **Karpaga Vruksham** ("celestial tree that gives everything"), and its palm leaf manuscripts were vital in preserving Tamil language and literature for centuries.
- **Ecological Role:** Its tall structure acts as a **natural lightning conductor**, lowering monsoon fatalities.
 - Its **deep root system** aids **groundwater recharge, drought resilience, and soil erosion prevention** along water bodies and coasts.
- **Significance:** Its fruit kernel (**nungu**) serves as a **mineral-rich summer coolant**, while **palm sugar (panai karuppatti) & jaggery**, and beverages like **padaneer (sap)** and **toddy** offer **healthier traditional alternatives** to modern products. **Leaves** support **roofing, mats, and handicrafts**, and **wood** provides **construction material and fuel**.

Vaquita Porpoise

A report reveals **only ~10 vaquita porpoises** (world's rarest marine mammal) remain, due to entanglement in illegal gillnets used to catch totoaba, an endangered fish.

- **About:** The **vaquita porpoise (little cow in Spanish)** is the **world's most endangered marine mammal**, discovered in 1958. **Porpoises** are the **smallest members** of the **cetacean family** (whales, dolphins, porpoises) and are **distant relatives of dolphins**, diverging around 15 million years ago.
- **Habitat:** **Marine**, restricted to the **northern Gulf of California (Sea of Cortez), Mexico**, mostly in shallow waters up to **50 m deep**.
- **Physical Characteristics:** Vaquitas have **dark rings around the eyes**, dark patches on lips stretching to the fins. Newborns are darker with a gray fringe.

- Their large dorsal fin helps release body heat in warm waters.
- **Behavior:** **Shy** and usually stay **near the shore**. They **avoid boats** and are mostly **solitary or in very small groups**, unlike other **cetaceans** that travel in large pods.
- **Protection Status:**
 - **IUCN Red List:** Critically Endangered.
 - **CITES:** Appendix I

Fireflies as Ecological Indicators

A Tamil Nadu Forest Department study in the **Anamalai Tiger Reserve (ATR)** identified eight **firefly** species and their population dynamics, emphasizing their role as **ecological indicators**.

Fireflies (*Lampyridae*)

- **Classification & Habitat:** **Bioluminescent beetles**, also known as lightning bugs or fireflies, are crucial for environmental balance.
 - Found in diverse habitats, including **tropical forests and temperate grasslands**, they belong to the ***Lampyridae* family**. They thrive in undisturbed soils, high humidity, clean water, and low artificial light.
- **Morphology:** Seasonal, active **during or after rains**, otherwise remain as **larvae in soil** and they live around **2 months**.
- **Ecological Significance:** Bioluminescent beetles produce **cold, efficient light** in abdominal organs through a biochemical reaction involving **luciferin, luciferase, oxygen, and ATP (Adenosine Triphosphate)**, with light colors ranging from green to yellow.
 - This bioluminescence plays key roles in mating signal and **predator deterrence**.
 - **Large-scale synchronous flashing** of fireflies are **bioindicators of pollution-free areas**, with population changes signaling environmental disruptions.
 - Which can impact other species like **moths, bats, and amphibians**.
- **Threats:** **Threats** like urbanization, deforestation, pesticides, and light pollution are linked to their declining populations.

Anamalai Tiger Reserve (ATR)

- Declared a Tiger Reserve (2007), surrounded by **Parambikulam Tiger Reserve, Chinnar Wildlife Sanctuary & Eravikulam National Park**.
- **Kariyan Shola, Grass Hills & Manjampatti**—recognized as **UNESCO World Heritage Site**.
- Hosts **evergreen, deciduous, shola forests, montane & marshy grasslands**; fauna—**tiger, Asiatic elephant, leopard**, etc.

Great Indian Bustard and Phosphate Rock Mine

The **Union Environment Ministry's Expert Appraisal Committee (EAC)** has approved an **Environmental Impact Assessment (EIA)** for the **Birmania Rock Phosphate Mine**, which is proposed to be developed in the **potential habitat area** of the **Great Indian Bustard (GIB)** in **Jaisalmer, Rajasthan**.

Key Facts Related to the Great Indian Bustard

- **About:** GIB is one of the heaviest flying birds in the world, and mainly found in Rajasthan's Thar Desert, with small populations in Gujarat, Maharashtra, Karnataka, and Andhra Pradesh.
 - GIB is one among four bustard species found in India, **alongside the Lesser Florican, Bengal Florican, and Macqueen's Bustard**.
 - GIB is **omnivorous and vulnerable** to power line collisions due to **lack of frontal vision**.
- **Ecological Significance:** GIB is considered a **keystone species**, acting as an **indicator of the health of grassland ecosystems** and reflecting the overall pulse of grassland biodiversity.
- **Protection Status:**
 - **Wildlife Protection Act, 1972:** Schedule I
 - **IUCN:** Critically Endangered
 - **CITES:** Appendix I
- **Main Threats: Loss of Habitat** due to development activities such as **mining, industry, wind turbines**, and the expansion of related infrastructure.
 - Due to their narrow frontal vision and large size, GIBs are vulnerable to collisions with power lines. A 2020 study by the Wildlife Institute of India found that 18 GIBs die each year due to power line strikes.
 - **Pollution:** Exposure to **pesticide-contaminated feed** poses a risk to GIBs and threatens their survival.
 - **Hunting and poaching:** GIBs are hunted for their meat, feathers, and other body parts, despite legal protections.
 - **Slow reproductive rate:** Grazing, recreation, and tourism disrupt the nesting and foraging habitats of the GIB, affecting their populations.
- **Conservation Efforts:**
 - **National Bustard Recovery Plan:** The Bustard Recovery Program focuses on the conservation of the GIB, the Lesser Florican, with other bustard species in India including the Bengal Florican and Macqueen's Bustard.
 - ❖ The recovery efforts began in 2013 and evolved into the **Bustard Recovery Project in 2016**, initially planned for five years (2016-2021) but now extended until 2033.

- ❖ There are around 140 Great Indian Bustards and fewer than 1,000 Lesser Floricans remaining in the wild (As of 2024).
- ❖ The project is led by the **Wildlife Institute of India and funded by the National Compensatory Afforestation Fund Management and Planning Authority (CAMPA)**, with partner agencies.
- ❖ The main objectives of the program include conservation breeding to secure ex-situ populations, applied research to identify critical conservation areas and threats to their survival, and capacity building to strengthen protection laws and raise awareness.

Phosphate Rock

- **About:** It refers to **any rock containing high phosphorus content**, used mainly for agricultural fertilizers. It is an **essential element** that provides **vital nutrients to plants**, supporting their growth and development.
- **Formation:** Phosphate rock is a **sedimentary rock formed millions of years ago** through the accumulation of organic matter on the ocean floor. In India, phosphate rock is primarily produced in Rajasthan and Madhya Pradesh.

Black Aspergillus in Western Ghats

Scientists have discovered **two new species of black aspergillus** (*Aspergillus dhakephalkarii* and *Aspergillus patriciawiltshireae*), from the **Western Ghats**, marking India's first study in this group using advanced polyphasic taxonomy.

Black Aspergillus

- It comprises a diverse group of **filamentous fungi** that are **ubiquitously distributed across various ecological niches** and are of considerable **medical, industrial, and ecological significance**.
- Also known as '**workhorses of industrial application**' especially in citric acid production, food mycology, fermentation technology, and agriculture.

World's 8 'Hottest Biodiversity Hotspots'

- | | |
|-----------------------------|--|
| ■ Madagascar | ■ Caribbean Islands |
| ■ Philippines | ■ Indo-Burma Region (NE India to Vietnam) |
| ■ Sundaland (SE Asia) | ■ Western Ghats (UNESCO World Heritage site) & Sri Lanka |
| ■ Brazil's Atlantic Forests | ■ Eastern Arc & Coastal Forests (Tanzania & Kenya) |

Project Cheetah and Gandhi Sagar Wildlife Sanctuary

Madhya Pradesh plans to introduce a **female cheetah** to **Gandhi Sagar Wildlife Sanctuary**, aiming to establish it as a **second home for cheetahs after Kuno National Park**, as a part of **Project Cheetah**.

Project Cheetah

- | | |
|--|---|
| ■ About: Launched in 2022 to reintroduce cheetahs; world's first intercontinental carnivore translocation project under Project Tiger. | ■ Objective: Establish cheetah populations in safe habitats, restore ecosystems, promote eco-development & ecotourism, and reduce human-wildlife conflict . |
| ■ Implementation: Managed by NTCA , in collaboration with MP Forest Dept. & WII; Cheetah Project Steering Committee was formed in 2023. | ■ Achievements: 8 cheetahs from Namibia & 12 from South Africa relocated to KNP; 350+ 'Cheetah Mitras' educate locals & mitigate conflict. |

Gandhi Sagar Wildlife Sanctuary

- **Location:** Northwestern MP, bordering Rajasthan, in the Khathiar-Gir dry deciduous forests ecoregion.
- **Ecosystem:** Features **savanna** (suitable for cheetah reintroduction like **Maasai Mara in Kenya**); **Important Bird and Biodiversity Area (IBA)**.
- **Topography:** Includes Gandhi Sagar Dam & **Chambal River** (bifurcates the sanctuary into two nearly equal parts).
- **Historical Sites:** Chaurasigarh, Chaturbhuj Nala rock shelters, Bhadkaji rock paintings, & Hinglajgarh Fort.

International Red Panda Day

Observed on the 3rd Saturday of Sept each year.

- Also called **Firefox, Lesser Panda, or Red Cat-Bear**, found across the Himalayas, from Nepal to China's Sichuan & Yunnan provinces.
- **Great Bend of the Brahmaputra** divides population into Himalayan & Chinese Red Panda populations.
- Prefers altitudes of 2,200–4,800 m in mixed deciduous & conifer forests with bamboo.
- Sikkim's state animal & mascot of Darjeeling Tea Festival.
- **IUCN Red List**- Endangered, **CITES**- Appendix I, **WPA, 1972**- Schedule I

Himalayan Musk Deer

Central Zoo Authority reports no captive Himalayan musk deer in recognized zoos, indicating no breeding program has started despite **Himalayan Musk Project (1982)**.

- Mainly found in **India, Nepal, Bhutan & China**.
- **Physical description**—Sandy brown, hare-like, lacks antlers, has a gall bladder (diff. from other deer).
- Solitary, sedentary, **crepuscular**, marks territory with a **caudal gland**, and has a bounding gait, jumping up to 6m to evade predators.
- **IUCN Red List**— Endangered, **CITES**— Appendix I, **WPA, 1972**— Schedule I.

MISCELLANEOUS

UN High Commissioner for Refugees

UNHCR has temporarily suspended the voluntary repatriation of Sri Lankan Tamil refugees from India due to the arrests of returnees in Sri Lanka.

Key Points

- **About:**
 - **Established:** 1950 by UN General Assembly.
 - **HQ:** Geneva (Switzerland), operates in 137 countries.
 - **Mandate:** Protection, aid, and durable solutions (asylum, repatriation, integration, resettlement).
- **Legal Framework (1951 Refugee Convention & 1967 Protocol):**
 - Defines **refugee** status. Enforces **non-refoulement** (no return to danger).
 - Provides rights: **housing, education, work, legal protection.**
 - Excludes those guilty of **war crimes/serious crimes.**
- **India's Position: Not a signatory** to the 1951 Convention or 1967 Protocol.
 - Refugees are managed under **general immigration laws. Hosts major refugee groups:** Sri Lankan Tamils, Tibetans, Afghans, Rohingyas.
 - Works with **UNHCR** on **humanitarian grounds.**

National Pharmaceutical Pricing Authority

The **Parliamentary Standing Committee** criticized NPPA for approving a 50% price hike on 11 essential drugs in 2024 under the **Drugs Prices Control Order, 2013**, guided by **CAMPH (Committee on Affordable Medicines and Health Products)**, NITI Aayog.

Observations

- **Public Health Impact:** Concerns about the negative effects of price hikes on public health and medicine affordability.
- **Limited Justification:** NPPA's rationale (cost of production, APIs, exchange rates) didn't adequately address affordability.
- **Regulatory Gaps in Cancer Drug Pricing:** Many oncology drugs remain outside price control, making them unaffordable for patients.

Recommendations

- **Reevaluate Price Hike Mechanism:** NPPA should ensure future price hikes are reasonable and affordable.
- **Expand Price Control on Critical Drugs:** Include more oncology drugs under price control for wider access.

- **Strengthen Oversight on Non-Essential Drugs:** Limit price hikes on non-essential drugs to 10% annually without justification by manufacturers.
- **Regular Monitoring:** Continuously monitor drug prices and expand price control coverage.

NPPA

- **Role:** Independent regulator for drug pricing – balancing affordability and industry growth.
- **Established:** 1997 under the Ministry of Chemicals & Fertilizers.
- **Outreach:** Operates Price Monitoring Units in 31 States/UTs and offers platforms like **Pharma Sahi Dam** and **Pharma Jan Samadhan** for transparency and grievance redressal.
 - Has developed **Integrated Pharmaceutical Database Management System 2.0 (IPDMS).**
- **Industry Value:** Indian pharma industry worth \$50 billion (2023–24), projected to reach \$130 billion by 2030.

PM SVANidhi 2.0

The Union Cabinet approved the **restructuring and extension** of the **Prime Minister Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi) Scheme**, until **31st March 2030** with an aim to benefit 1.15 crore street vendors, including 50 lakh new beneficiaries.

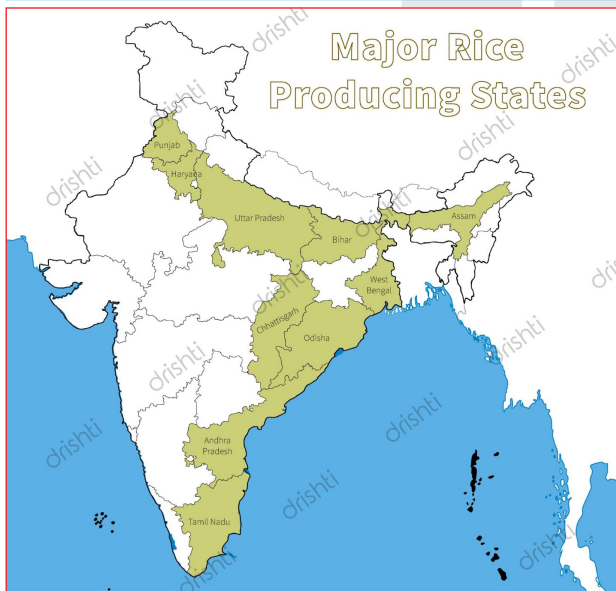
- **PM SVANidhi Scheme:** Launched by the **Ministry of Housing & Urban Affairs (MoHUA)** in 2020. It aims to support street vendors affected by the Covid-19 pandemic by providing **working capital loans to restart their businesses and promoting financial inclusion and digital transactions.**
 - PM SVANidhi offers **interest subsidy on timely loan repayment, cashback for digital transactions**, and eligibility for enhanced next tranche of loans.
 - **'SVANidhi se Samridhhi'** component under PM SVANidhi provides social security benefits to street vendors.
 - As of July 2025, over 96 lakh loans worth Rs 13,797 crore were disbursed to **68 lakh street vendors.**
 - The scheme won the **PM's Award for Excellence in Public Administration (2023)** and the **Silver Award for Government Process Re-engineering (2022).**
- **PM SVANidhi 2.0:** Implementation of the scheme would be the joint responsibility of **MoHUA** and **Department of Financial Services (DFS).**
 - Enhanced loan amounts **across first and second tranches, providing greater working capital.**
 - Provides **UPI-linked RuPay Credit Card** for vendors who have repaid the second loan, ensuring quick access to credit for business or personal needs.

- **Expanded coverage** beyond statutory towns to census towns and peri-urban areas in a graded manner.
- **‘SVANidhi se Samriddhi’ initiative** will be strengthened further through monthly Lok Kalyan Melas to ensure beneficiaries access multiple government schemes.
- The scheme focuses on building **vendors’ capacity in entrepreneurship, digital skills, and food safety** in partnership with **FSSAI**.

Genetic Determinants of Rice Quality and Resilience

Scientists in China have discovered the **Chalk9 gene** responsible for **rice chalkiness**, a trait that makes **grains brittle and opaque** during milling, **lowering yield and commercial value**.

Gene/Quantitative Trait Locus	Function	Trait Significance
Pi54, Pi9	Blast disease resistance	Used in breeding for broad, durable disease tolerance
BADH2	Aroma regulation	Unique to fragrant rice, marker for premium varieties
Sd1	Plant height (semi-dwarfing)	Central to Green Revolution, boosts yield, reduces lodging
Saltol QTL	Salt tolerance (seedling stage)	Important for coastal & saline areas, key for stress-resilient breeding



UN Charts New Path for Global AI Governance

UNGA has launched the **Independent International Scientific Panel on AI** and the **Global Dialogue on AI Governance**, marking a key step to harness AI benefits while managing its risks.

- **Global Dialogue on AI Governance:** Inclusive platform for discussions on AI’s global challenges.
- **Independent International Scientific Panel on AI:** Links AI research and policy, providing independent assessments for global regulation. Reports to be presented in 2026 (Geneva) & 2027 (New York).

Project Aarohan

The **NHAI** has launched **Project Aarohan** to support the education of **children of toll plaza employees**.

- A **scholarship and mentorship initiative** by SMEC Trust’s Bharat Cares in partnership with Vertis Infrastructure Trust.
- Aims to **remove financial barriers, ensure equal access to education**, and nurture talent.
- **Priority:** Girls, First-generation learners, SC, ST, OBC, minorities, and EWS.

Beneficiaries	Support Provided
500 students (Class 11 th –UG level)	₹12,000/year scholarship
50 PG Students	₹50,000/student scholarship

Samudrayaan Project

Two Indian aquanauts dived into the **Atlantic Ocean** aboard **France’s submersible Nautilus** as part of preparations for the **Samudrayaan Project**.

Samudrayaan Project

- **About:** Samudrayaan is India’s first human deep-sea mission. It is a key component of the **Deep Ocean Mission**.
 - The project aims to send **three humans in a manned submersible (Matsya-6000)** to a depth of **6,000 metres** in the ocean by 2027.
 - It will strengthen India’s strategic position by joining the select group of countries (US, Russia, China, Japan, France) with manned deep-sea capability.
- **Key Objectives:** Develop technologies for **deep-sea mining, submersibles, and ocean robotics**.
 - Conduct surveys for mineral deposits, especially polymetallic nodules (containing iron, manganese, cobalt, nickel, rare earths).
- **Matsya-6000:** It is **India’s first self-propelled manned submersible**. It is made of **titanium-alloy** in a **spherical shape** and can carry three aquanauts for 12 hours, with the capability to sustain them for up to 96 hours in emergencies.
 - It is expected to withstand an external pressure up to **600bar under low temperature conditions of -3°C**.
 - It is equipped with **life-support, acoustic communication, Li-Po batteries, drop-weight escape, and bio-vests for crew health monitoring**.

- The development of MATSYA 6000 is a collaboration between the **National Institute of Ocean Technology (NIOT)**, the **Ministry of Earth Sciences (MoES)**, and the **Vikram Sarabhai Space Centre (VSSC)** of ISRO.

Vikram 32-bit Microprocessor and Semicon India 2025

At **Semicon India 2025**, the Prime Minister of India was presented with the **Made-in-India Vikram 32-bit Launch Vehicle Grade microprocessor**, marking a major milestone in semiconductor self-reliance.

VIKRAM3201

- VIKRAM3201 was developed by **ISRO's Vikram Sarabhai Space Centre** and **Semiconductor Laboratory (SCL), Chandigarh**, along with **KALPANA3201** (32-bit microprocessor designed to work with open-source software tools.)
- It is an advanced version of the **16-bit VIKRAM1601**, used in **ISRO launch vehicle avionics** since 2009.
- It is designed for **spaceflight applications**, capable of withstanding extreme temperatures of **-55°C to 125°C**.
 - Initial validation in space of VIKRAM3201 achieved with **SpaDeX Mission (PSLV-C60 mission)**, proving reliability for future space missions.
- It boasts a custom instruction set architecture that is tailored for the **Ada programming language**, which is widely used in safety-critical systems. It is also capable of handling complex tasks like **floating-point computation**.
- It enables **Atmanirbhara** in navigation, guidance, and control systems for launch vehicles.

Semicon India 2025

- Theme: *"Building the Next Semiconductor Powerhouse."*
- The SEMICON India Programme, implemented through the **India Semiconductor Mission (ISM)**, showcases India's growing capabilities in chip design, packaging, and fabrication.
- It also facilitates global collaborations, research commercialization, skill development, and strengthens India's position in the **global semiconductor value chain**.

BHARATI Initiative

The **Agricultural and Processed Food Products Export Development Authority (APEDA)** has launched the **BHARATI initiative**.

BHARATI Initiative

- **About:** BHARATI (**Bharat's Hub for Agritech, Resilience, Advancement and Incubation for Export Enablement**) aims to promote innovation, strengthen India's agri-food startups, and boost exports.

- **Objectives:** To empower **100 agri-food startups through innovation and incubation**, supporting APEDA's goal of **USD 50 billion** in agri-food exports by **2030**.
 - Also aims to address challenges in perishability, quality, logistics, and sustainability.
- **Key Features:** Targets **high-value agri-food products** such as **GI-tagged, organic, superfoods, processed foods, livestock, AYUSH products**.
 - It will also promote **advanced technologies** like **AI, blockchain, IoT, and agri-fintech**, addressing **packaging, perishability, sustainability, and logistics**.
 - Connects startups and innovators to provide **export-ready solutions** by helping them **meet international food safety and quality standards** through a **3-month acceleration programme**.
 - It also aligns with **Atmanirbhar Bharat, Vocal for Local, Digital India, and Start-Up India** programme.
 - APEDA partners with **state boards, universities, IITs/NITs, industry bodies, and accelerators** to strengthen the **ecosystem** and enable **annual scalability**.

IgM: The Largest Human Antibody

A study has discovered that **IgM**, the **largest antibody** in the human body, **does not kill bacteria** but instead **neutralizes their toxins by stiffening them**.

- This new finding could lead to the development of **next-generation therapies** for tough bacterial infections.

Immunoglobulin M (IgM)

- **About:** IgM is the **first antibody produced** during infection, crucial for early defense.
 - **Pentameric (five antibody units joined)** in structure, it has high binding capacity and is effective in **neutralization, complement activation, and agglutination**, despite limited tissue penetration.
 - **Immunoglobulins (antibodies)** are **glycoproteins produced by white blood cells (B-lymphocytes and plasma cells)**, which recognize and neutralize pathogens like bacteria, viruses, and toxins.
- **Mechanism:** IgM acts as a **mechanical brace** for bacterial toxins. The study finds **Protein L** from the bacterium ***Finexgoldia magna***, which disrupts the immune system.
 - Using single-molecule force spectroscopy, the researchers found that when IgM binds to Protein L, it makes the toxin much more resistant to breaking apart.
 - Its **large size and multiple binding sites** allow IgM to engage several points on the toxin simultaneously, stabilizing it, a feature absent in smaller antibodies.
 - ❖ The effect is **concentration-dependent**, with higher IgM levels providing stronger protection.

Bioproducts

The **Department of Biotechnology (DBT)**, under its **BioE3 Policy**, is setting up **16 biomanufacturing hubs** across India to **boost domestic production of bioproducts** such as **APIs, biofuel enzymes, and reagents for biofertilizers**.

- These hubs, also known as **National Bio-Enablers or Mulankur**, are specialized facilities supporting **indigenous production of bioproducts** and fostering innovation across sectors like **health, agriculture, energy, environment, and AI-driven biomanufacturing**.

Bioproducts

- **About:** Bioproducts are **fuels, materials, and chemicals** derived from **renewable biomass** such as **crops, trees, algae, and agricultural waste**.
 - Eg: **Biofuels (ethanol, biogas), bioplastics, bio-based cosmetics, and plant-derived medicines**.
- **Production Methods:** Generated using **fermentation, pyrolysis, enzymatic conversion, or chemical synthesis**.
 - They are made from **soybeans, sugarcane, algae, mycelium, etc.**, and often use **agri-forestry residues**, reducing stress on food crops. Eg: **Sunflower residue** converted into **biofuel**.

NOTE: Despite being the world's 3rd largest pharmaceutical producer (volume) and the largest supplier of generic drugs, India relies heavily on imports for key bioproducts.

- Nearly 70% of APIs are sourced from China, with India being 100% dependent on China for 45 out of 58 critical APIs.

Government Initiatives in Biotechnology

- **National Biotechnology Development Strategy:** A roadmap for advancing the biotechnology sector in India.
- **Atal Jai Anusandhan Biotech Mission:** Supporting high-risk, high-reward innovations in biotechnology.
- **Biotech Parks:** Specialized facilities to promote and grow biotech startups and businesses.
- **Genome India Project:** Mapping the genetic variations of Indian populations.
- **National Biopharma Mission:** Strengthening India's capabilities in the biopharmaceutical sector.
- **One Health Consortium:** Promoting an integrated approach to human, animal, and environmental health.
- **BIRAC:** Fostering industry-academia partnerships and supporting biotech startups and SMEs.

Nepal Enters the International Big Cat Alliance

- **About:** It is an **India-led global multi-country, multi-agency coalition** of more than 90 big cat range and non-range countries dedicated to conserving **7 big cat species and their habitats**.

- It was proposed by the **Prime Minister of India in 2019**, officially launched in **April 2023 (Mysuru, Karnataka)** on the **50th anniversary of Project Tiger**.

- **Founding Members (16):** India, Armenia, Bangladesh, Bhutan, Cambodia, Egypt, Ethiopia, Ecuador, Kenya, Malaysia, Mongolia, Nepal, Nigeria, Peru, Suriname, & Uganda.
- **Focus Species:** Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar, Puma.
 - India hosts 5 of the 7 (Puma and Jaguar are not found in India).
- **Objective:** To curb illegal wildlife trade, conserve natural habitats, mobilise financial and technical resources, mitigate climate change impacts on big cats.
- **Governance:** Modelled on the International Solar Alliance (ISA) and comprises an **Assembly of Members** as the main decision-making body, a **Standing Committee** for policy execution, and a **Secretariat based in India (New Delhi)**.

Plastic-Degrading Microbes

A **Sundarban forest** study found a link between **plastic-degrading microbes** and **antibiotic resistance genes (ARGs)**, worsening the **AMR** crisis.

- **Sundarbans** (world's largest mangrove forest) receives **3 Bn microplastics daily**, promoting microbes with **plastic-degrading enzymes (PDEs)** and **ARGs**.
- Non-biodegradable plastics like **PET** persist, accumulating pollutants and fostering bacteria with **resistance genes**.

Microplastics

- Plastic fragments **<5 mm** (nanoplastics **<100 nm**); formed from breakdown of larger plastics via **UV radiation, wind & ocean currents**.
- Addressed globally by– **UNEP Plastics Treaty**
 - In India– **Single-Use Plastics Ban & Plastic Waste Management Rules (2016 & 2024)**

Total Lunar Eclipse and 'Blood Moon'

A total lunar eclipse occurred on 7th September 2025. During this event, the **moon was completely covered by the Earth's shadow**, causing it to turn a copper red (**Blood Moon**).

Total Lunar Eclipse

About: A **total lunar eclipse** occurs when the **Moon** passes **entirely through Earth's umbra** (darkest part of its shadow), with the **Earth, Sun, and Moon** perfectly aligned, completely blocking direct sunlight.

Blood Moon

- A **Blood Moon** refers to the **reddish or coppery appearance of the Moon** and occurs **only during total lunar eclipses**, which take place **two to three times a year**.

- During total lunar eclipses, the **Earth blocks direct sunlight** from reaching the Moon.
 - However, **sunlight passes through Earth's atmosphere**, where it is **bent (refraction) and scattered**.
 - The **blue wavelengths** of light are scattered away, while the **red and orange wavelengths** pass through and fall on the Moon's surface.
 - This gives the Moon its **distinctive deep red or reddish-orange colour**.

National Maritime Heritage Complex

The **Chief of the Naval Staff** visited the **National Maritime Heritage Complex (NMHC)** at **Lothal, Gujarat**.

National Maritime Heritage Complex

- **About:** It is an ambitious **cultural and tourism project** that aims to **highlight India's rich and diverse 4,500-year-old maritime heritage** and establish the **largest maritime heritage complex in the world**.
 - Key projects include a **world-class Lighthouse Museum**, coastal state pavilions, and a maritime-themed eco-resort.
- **Development and Funding:** Under India's **Sagarmala Programme**, the **Ministry of Ports, Shipping & Waterways (MoPSW)** is developing the **NMHC**, with its **Directorate General of Lighthouses and Lightships (DGLL)** funding the **world's tallest Lighthouse Museum**.

Lothal

- **About:** It is one of the **southernmost sites of the Harappan civilization**, located in the **Bhal region of Gujarat**, between the **Bhogavo and Sabarmati rivers** near the **Gulf of Khambhat**.
 - The name **Lothal** in Gujarati means "**mound of the dead**", similar to **Mohenjo-daro** in Sindhi.
 - The site was **discovered in 1954 by S.R. Rao** was **nominated as a UNESCO World Heritage Site in April 2014**.
- **Significance:** It is famous for having the **world's earliest known dock**, which connected the city to an ancient course of the **Sabarmati river**.
 - It was also famous for **bead workshops**, and **maritime trade links with Mesopotamia and Egypt** dating back nearly **4,000 years**.

Stellar Parallax

Astronomers have demonstrated a **pioneering technique** using **stellar parallax** to **navigate spacecraft** in deep space **without relying on Earth-based beacons**.

- **Stellar parallax:** As the earth orbits the sun, a star's position relative to other stars might seem to shift. This is because

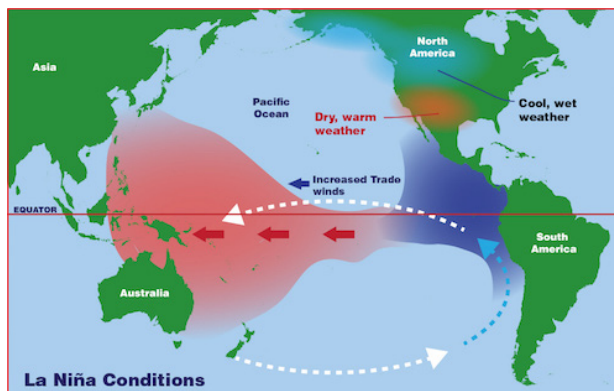
every six months, the earth is on opposite sides of the sun, providing two different viewpoints.

- The **New Horizons** spacecraft observed **Proxima Centauri (4.2 light-years away)** and **Wolf 359 (7.9 light-years away)** from a distance of **7 billion km from Earth**.
- **Other Space Navigation Methods:**
 - **Stellar Astrometric Navigation:** It uses **stars** and **special relativity** to estimate a **spacecraft's 3D position and velocity** by measuring the **angular separation** between two stars.
 - **Pulsar Navigation:** It uses **rapidly spinning neutron stars** like **lamps in space** to guide the way.
- **NASA** launched **New Horizons** in 2006 to study the **dwarf planet Pluto**, its **moons**, and objects in the **Kuiper Belt**, a **disc of icy rocks and dust** at the **solar system's outer edge**.

WMO Projects La Niña Resurgence in 2025

The **World Meteorological Organization (WMO)** has projected that the **La Niña weather** phenomenon may return between **September and November 2025**.

- **La Niña:** **La Niña** is a natural climate phenomenon that occurs when the surface waters of the central and eastern Pacific Ocean become unusually cold due to stronger-than-normal trade winds pushing warm water towards the **Western Pacific (near Asia and Australia)**.
 - It is opposite to **El Niño**, which is characterized by unusually warm sea surface temperatures in the same region.
- **Effects of La Niña on India's Monsoon:** **La Niña** boosts southwest monsoon rainfall, benefiting **Kharif crops** and replenishing rivers, lakes, and groundwater.
 - However, **excessive or uneven rain** can cause flooding and waterlogging in low-lying regions like **Assam and Bihar**.
 - It also often **brings colder-than-normal winters** to northern states such as **Jammu & Kashmir** and **Himachal Pradesh**.



La Niña and El Niño

Feature	El Niño	La Niña
Oceanic Condition	Sea surface temperatures rise in central & eastern tropical Pacific	Sea surface temperatures drop in central & eastern tropical Pacific
Trade Winds	Weaken or reverse, allowing warm water to move eastward	Strengthen, pushing warm water westward toward Asia
Global Weather Effects	Floods in western South America & southern North America. Droughts in Australia, Southeast Asia, and parts of India.	Floods in India, Southeast Asia & Australia. Droughts in Western South America and Southern US

CP Radhakrishnan Elected as Vice President

CP Radhakrishnan has been elected as India's 15th Vice President, defeating former Supreme Court Judge B Sudershan Reddy in the election following the resignation of Jagdeep Dhankhar.

Key Facts About the Vice President (VP) of India

- **About:** VP is the **second-highest constitutional authority** in India, following the President (Article 63).
- **Election & Eligibility:** Elected by **MPs from both Houses of Parliament** via proportional representation. The VP must be at least 35 years old, an Indian citizen, and **qualified for Rajya Sabha membership**.
- **Term & Vacancy:** Serves a **five-year term**, with the possibility of continuing until a successor is elected.

SPREE 2025 & AMNESTY Scheme

The **Employees' State Insurance Corporation (ESIC)** has launched two major initiatives- **SPREE-2025** and the **AMNESTY Scheme**.

SPREE-2025

- **About:** The **SPREE-2025 (Scheme for Promoting Registration of Employers and Employees)** aims to expand social security coverage under the **ESI Act, 1948**.
 - Active from **1st July to 31st Dec 2025**, it offers a **one-time opportunity for unregistered employers** and employees, **including temporary and contractual workers**, to enroll without facing inspections or past dues.
- **Key Features:**
 - Employers **can digitally register** through the **ESIC/ Shram Suvidha/MCA portals**, with registration valid from the employer's declared date.
 - No contributions or benefits will apply for periods before registration, and no inspections or past record demands will be made for that period.
 - It **removes the fear of retrospective penalties** and simplifies the process, encouraging voluntary compliance.

AMNESTY Scheme

- This is a **one-time dispute resolution initiative** designed to settle issues related to damages, interest, and coverage under the ESI Act.
- It will be in effect from **1st Oct 2025 to 30th Sept 2026**.
- The scheme seeks to provide employers with an opportunity to **resolve pending disputes and strengthen compliance**, thereby reducing the number of lawsuits and ensuring the smooth delivery of social security benefits to employees.

Isobutanol Blending with Diesel

India is now exploring **isobutanol blending with diesel** after unsuccessful **ethanol-diesel trials**, highlighting the government's push for biofuels to support farmers, reduce oil imports, and ensure sustainable energy use.

- **Isobutanol:** It is a four-carbon alcohol ($C_4H_{10}O$), **flammable**, **colorless**, and traditionally used as a **solvent** in paints, coatings, and chemical industries. It is produced both from **petrochemical processes and fermentation of biomass**.
- **Properties (vs. Ethanol):** Higher energy density than ethanol (closer to diesel). It has lower **hygroscopicity** (absorbs less water than ethanol), reducing risks of corrosion in engines and pipelines.
- **Isobutanol Blending Trials: Automotive Research Association of India (ARAI)** is testing 10% isobutanol–diesel blends. Isobutanol is also being explored as an **independent fuel** and in **CNG-isobutanol flex-fuel options** for tractors and agri-machinery.
- **Benefits for India:** Isobutanol enhances energy security while promoting a cleaner alternative to fossil fuels. Supports India's **National Biofuel Policy (2018)** goals of energy transition and farmer income support.

India Explores Rare-Earth Deal with Myanmar

India is **collaborating with Myanmar to secure rare-earth mineral samples**, aiming to diversify its supply chain away from China.

Rare Earth Minerals

- **About:** 17 elements – **15 silvery-white metals** (lanthanides/lanthanoids) + scandium + yttrium.

- **Rare earth elements include** Scandium, Yttrium, Lanthanum, Cerium, Praseodymium, Neodymium, Promethium, Samarium, Europium, Gadolinium, Terbium, Dysprosium, Holmium, Erbium, Thulium, Ytterbium, and Lutetium.
- **Occurrence:** Abundant but thinly spread; deposits are difficult to find & costly to extract.
- **Environmental Impact:** Extraction uses solvents, creates toxic waste; some ores have **thorium/uranium**; **faces health & regulatory hurdles**.
- **Uses:** Found in electronics, EVs, aircraft engines, medical equipment, oil refining, missiles, radar.
- **Biggest Producer:** China – **60% global mine production**, 90% of processed and permanent magnet output.

Rare Earth Elements in India

- **Reserves:** 5th largest, 6.9 MMT; no domestic magnet production; imports mainly from China.
- **Mining:** Restricted to IREL (Miniratna) – supplies Atomic Energy Dept. for nuclear & defence.
 - REL has a rare earths extraction plant in Odisha & a refining unit in Kerala.
 - IREL seeking Japan/Korea partnerships for commercial magnet manufacturing.
- **Exploration:** Atomic Minerals Directorate for Exploration and Research (AMD) exploring coastal, inland, riverine placer sands to augment resources.
- **Policy:** National Critical Mineral Mission (NCMM, 2025); GSI to conduct 1,200 exploration projects (FY25–31).

India's First Bamboo-Based Ethanol Plant

The Prime Minister inaugurated India's first **bamboo-based bioethanol plant** in Golaghat, Assam, marking a major step toward **energy self-sufficiency and green energy promotion**.

- **Economic Impact:** Bioethanol plant will source **5 lakh tonnes of bamboo annually** from Assam and other northeastern states. The project will **benefit local farmers and tribal communities**, providing a **Rs 200-crore boost** to Assam's rural economy.
 - After the amendment to the **Indian Forest Act, 1927**, **bamboo is no longer classified as a tree**, lifting the ban on its cutting. This change supports the **livelihoods of forest communities** and private growers.
 - It aligns with **India's Viksit Bharat vision**, focusing on **hydrocarbon exploration and green energy initiatives**, and aims to reduce dependence on **fossil fuels**.
- **Bioethanol:** It is a high-octane biofuel (C_2H_5OH) produced **biologically from biomass like corn, sugarcane, grains, bamboo and vegetable residues**.

- It is mainly used as a **gasoline additive**, with engines now capable of burning pure ethanol.
- Key production steps include fermentation of sugars, pretreatment of **starch or cellulose**, **distillation**, and dehydration to fuel-grade ethanol.

Manki-Munda System and Ho Tribe

Adivasis from the **Ho tribe in Jharkhand's Kolhan region** protested against alleged **administrative interference in the Manki-Munda system**, with tensions driven by vacant posts, hereditary inefficiencies, and calls for reforms.

Manki-Munda System

- **About:** It is a centuries-old **self-governance framework of the Ho adivasi community**.
 - Each village is led by a **hereditary Munda**, responsible for resolving local disputes, while a group of **8–15 villages, called a pidh**, is overseen by a **Manki**, handling cases unresolved at the village level.
 - The system is **decentralized and purely socio-political**, with no role in **revenue collection, land management, or taxation**.
- **British Intervention: Post-Battle of Plassey (1757) and Buxar (1764)**, East India Company gained **diwani rights**, introducing taxation.
 - **Permanent Settlement Act (1793)** forced zamindars to extract land revenue, seizing Ho lands, triggering **Ho (1821–22) and Kol (1831) revolts**.
 - To manage the region, the British co-opted the Manki-Munda system instead of suppressing it.
 - **Captain Thomas Wilkinson (1833)** codified the system in **Wilkinson's Rules**, formally recognising Mundas and Mankis and integrating them into colonial administration.
 - This introduced **private property and pattas**, transforming collective landholding to individual ownership and led to demographic changes with influx of **outsiders (dikkus)**.
- **Post-Independence:** Kolhan largely retained **Wilkinson's Rules**, with courts recognizing them as valid customary practices until **Mora Ho vs State of Bihar (2000)**, in which the Patna High Court clarified they are **customs, not formal law, but allowed continued practice**.
 - **2021 Jharkhand initiative (Nyay Manch)** proposed reform, but not enacted.

India's Green Finance Plan

India is turning to **Contracts for Difference (CfD)** as a central mechanism to mobilize nearly **USD 1 trillion in green finance** for its **500 GW renewable energy target by 2030**.

- CfD is a financial agreement between **renewable energy producers and the government to stabilize revenues**. If market prices fall below an agreed strike price, the government pays the producer the difference and if prices rise above it, the producer returns the surplus.
 - CfDs reduce risk and are widely used in Europe for renewable projects.
- **Green finance** encompasses financial products and services designed to promote environmental sustainability. To meet its **Paris Agreement targets**, India needs **USD 2.5 trillion by 2030**.
- India needs **USD 10 trillion by 2070** for its **net zero goal**, focusing on **green finance as essential for development**.
- **Green Financing Initiatives in India:**
 - India finances renewable energy through the **National Clean Energy and Environment Fund (NCEEF)** funded by coal cess
 - **Indian Renewable Energy Development Agency (IREDA)** concessional loans
 - **Priority Sector Lending (PSL)** mandated by RBI
 - **Green, Social, and Sustainability (GSS) Bonds**
 - **Carbon markets and credits**, and crowdfunding platforms like Bettervest for rural projects

Sex Sorted Semen Facility under Rashtriya Gokul Mission

PM inaugurated the **Sex Sorted Semen facility** in Bihar, under the **Rashtriya Gokul Mission**, aimed at improving the dairy sector in Eastern and North-Eastern India.

- The facility will produce **5 lakh doses of sex-sorted semen per year** using the indigenously developed '**Gausort**' technology.
- **Sex Sorted Semen** is aimed at increasing the **birth of female calves**, helping dairy farmers by reducing economic burdens and enhancing income, especially benefiting small, marginal, and landless dairy farmers.
 - The Gausort technology, sorts semen to ensure a higher likelihood of female calves, with an accuracy of up to 90%.

Aluminium-ion Battery

Centre for Nano and Soft Matter Sciences, Bengaluru, has developed a flexible aqueous **aluminum-ion battery as a sustainable alternative to lithium-ion batteries**.

- **Material Used:** Aluminum (**one of the most abundant & eco-friendly metals**) & water-based electrolyte - making it cheap, non-explosive, and environmentally safe.
- **Components:** **Copper hexacyanoferrate (CuHCF)** cathode & **molybdenum trioxide (MoO₃)** anode.

- **Performance:** Works after **150 charge-discharge cycles**, flexible, bends/folds without losing performance.
- **Applications:** Potential for flexible smartphones, wearables & safer EVs.
- **Challenges:** Slow **Al³⁺ ion diffusion**, potential structural collapse of materials (graphite) limits cycle stability & aluminum anode corrosion affects longevity.

Moran Community

The **Moran community** in Assam's **Tinsukia district**—an area rich in **oil, coal, and tea**—has launched an **economic blockade**, stopping the movement of **goods** to and from the region to press their demand for **ST status**.

- **About:** The **Moran community** is an **aboriginal tribe of Assam** that once had an **independent kingdom** before the **Ahom rule**.
- **Religious Affiliation:** In the **17th century**, **Aniruddhadeva converted them to Vaishnavism**, sparking cultural and social regeneration.
 - They belong to the **Moamoria sect of Vaishnavism** and have a **small population in Arunachal Pradesh's Namsai district**.
- **Demand for ST Status:** The **Morans** are one of the **six communities**—along with **Tea Tribes/Adivasis, Motok, Tai Ahom, Chutia, and Koch-Rajbongshi**—that are **agitating for ST status**.
- **Recent Development:** In **March 2025**, the **Assam government** announced its decision to issue **Permanent Residence Certificates (PRCs)** to members of the **Moran community** residing in **Arunachal Pradesh**.

Swasth Nari, Sashakt Parivar Abhiyaan (SNSPA)

PM launched SNSPA and the **8th Rashtriya Poshan Maah**.

Swasth Nari, Sashakt Parivar Abhiyaan

- It is a landmark health initiative by the **Ministry of Health and Family Welfare** and the **Ministry of Women and Child Development**.
 - It aims to strengthen healthcare for women and children in India, **promoting access, quality care, and awareness**, with active participation from private hospitals under a **Jan Bhagidaari Abhiyaan model**.
- **Key Features:** **SNSPA** will deploy more than **one lakh health camps** across **Ayushman Arogya Mandirs and Community Health Centres** to ensure comprehensive screenings for women's health issues like anaemia, hypertension, diabetes, and cancer.
 - The **SASHAKT portal** will track progress in **real-time**, ensuring transparency and efficient implementation.
 - **SNSPA** encourages **community participation** through **Nikshay Mitras** and volunteer support, especially in **tribal and rural areas**.

- ❖ Promotes awareness on **menstrual hygiene, nutrition, and wellness** through education at Anganwadis and health camps.

Rashtriya Poshan Maah

- It is an annual campaign launched in 2018, celebrated every Sept as part of a Jan Andolan to **promote nutrition literacy, healthy practices, and behavior change**.
 - Over 7 editions of Poshan Maah and Poshan Pakhwada, **more than 130 crore nutrition-centric activities** have been conducted.
- The 8th edition in 2025 focuses on critical themes like **Anaemia prevention, Growth Monitoring, Complementary Feeding, “Poshan Bhi Padhai Bhi”, Technology for Better Governance, and the environmental initiative “Ek Ped Maa Ke Naam”**.

‘Snapback Mechanism’ & Iran Nuclear Deal (JCPOA)

Iran’s Foreign Minister is set to discuss the country’s nuclear program with the UK, France, and Germany to avert the **reimposition of international sanctions** under the ‘snapback mechanism’, which were lifted under the 2015 JCPOA.

- The E3 (Britain, France, Germany) have invoked the **30-day snapback mechanism** to reimpose **UN sanctions**, unless Iran restores **UN nuclear inspector access** to its nuclear sites and **re-engages** with the **US**.
- **Snapback Mechanism**: It allows any **Joint Comprehensive Plan of Action (JCPOA) participant**, to reimpose **UN sanctions** if Iran commits “significant non-performance.”
 - In such a case, the issue can be referred to the **JCPOA Joint Commission**, coordinated by the **European Union (EU)**, and addressed through its **Dispute Resolution Mechanism (DRM)**.
- **Iran’s Cooperation with IAEA**: Earlier, Iran agreed to resume cooperation with the IAEA, including nuclear site inspections, following a tense period in June when Israeli and U.S. strikes on Iranian facilities led to a **temporary suspension of inspections** over security concerns.

Bima Sugam: Unified Digital Marketplace for Insurance

The **Bima Sugam India Federation (BSIF)** has launched **Bima Sugam**, a **digital platform** envisioned as the **world’s largest integrated online insurance marketplace**.

Bima Sugam

- **About: Bima Sugam** is a **unified digital marketplace** for all insurance needs—**life, health, and general**, where users can **buy, renew, manage, and claim policies** on a single platform.

- It will securely store policy documents and function like **UPI**, creating a **Digital Public Infrastructure (DPI) for insurance**.

- It forms part of IRDAI’s **Bima Trinity**—Bima Vistaar, Bima Vahak, and Bima Sugam, and is supported by the **Life Insurance Council** and the **General Insurance Council**.

■ Coverage:

- **Life Insurance**: Term plans, savings (participating & non-participating), annuity, pension, ULIPs.
- **Health Insurance**: Comprehensive medical and wellness products.
- **Motor Insurance**: Third-party liability and own-damage policies.
- **Travel & Personal Accident Insurance** for individuals/families.
- **Commercial Insurance**: Property, marine, agricultural, industry-specific products.

- **Unique Feature: Bima Sugam** differs from **private distributors** by offering **end-to-end policy services and claim settlement at low cost**, unlike **private firms** that only sell policies and earn high commissions.

- **Significance**: It is the first step in building **Digital Public Infrastructure for insurance**, supporting ‘**Insurance for All by 2047**’ under **Viksit Bharat 2047**.

- It ensures **transparency, low-cost access, a centralised database**, and fosters **innovation** with quicker adoption of new products.

Bima Trinity

- **Bima Sugam**: Unified digital platform for buying, servicing, and settling insurance policies.
- **Bima Vistar**: Bundled policy covering life, health, property, and accidents with quick claim payouts.
- **Bima Vaahaks**: Women-led grassroots network promoting insurance awareness and Bima Vistar adoption.

Insurance Sector in India

- India is the **10th largest insurance market globally** and is **projected to become the 6th largest by 2032**, surpassing Germany, Canada, Italy, and South Korea.
- **Insurance Density** increased from USD 92 in FY23 to USD 95 in FY24, calculated as the per capita premium (ratio of premium to population).
- The **insurance penetration** declined from 4% in FY23 to 3.7% in FY24 (global average 7%). Insurance penetration is measured as the percentage of insurance premium to GDP.

Aquamonitrix: Portable Ion Chromatography

A portable ion chromatograph, **Aquamonitrix**, has been developed to enable **on-site analysis of nitrate and nitrites**, benefiting both environmental monitoring and classroom teaching.

- **Ion chromatography** is a laboratory technique used to **separate and measure ions** (charged particles) in a sample.
 - The technique involves passing a liquid sample through a long column that separates ions based on their individual properties.

Aquamonitrix

- **About:** It is a portable ion chromatograph developed by Australian scientists.
 - It is small, battery-operated, and **nearly ten times cheaper** than traditional lab-based equipment.
- **Working Mechanism:** Soil water is collected using a vacuum pump, filtered, and injected into the **Aquamonitrix unit**, where a sodium chloride solution carries the sample.
 - The unit's **UV light detector displays** distinct peaks for **nitrate and nitrite ions**, avoiding interference from other ions.
- **Applications:**
 - **Education:** Aquamonitrix serves as an effective teaching tool, **bridging the gap** between classroom learning and **real-world applications** in chemistry.
 - **Environmental Monitoring:** Aquamonitrix can be used to **monitor nitrate and nitrite pollution** in soil and water.
 - **Agriculture:** It helps optimize fertilizer use and prevents overuse.
 - **Water Safety:** The device can be used to **test drinking water quality** on-site.

Swachhata Hi Seva 2025

Government launched the **Swachhata Hi Seva (SHS) 2025 campaign**, conducting cleanliness drives nationwide.

- Swachhata Hi Seva (SHS) 2025 continues the momentum of the **Swachh Bharat Mission (2014)**, reinforcing India's commitment to sanitation and hygiene.

Swachh Bharat Mission (SBM)	
■ Launch & Objective: SBM (Grameen) and SBM (Urban) were launched in 2014 to eliminate open defecation and improve sanitation in rural and urban India.	
SBM-Grameen	SBM-U
■ Phase I (2014-19): Achieved 100% sanitation coverage, 10 cr+ household toilets & declared all villages ODF.	■ Phase I (2014-21): Targeted ODF cities & 100% scientific management of municipal solid waste across 4,041 statutory towns
■ Phase II (2020-25/26): Focus on sustaining ODF, waste management & transforming villages to ODF Plus Model	■ Phase II / SBM-U 2.0 (2021-26): Aims for "Garbage Free" cities and contributing to SDGs 2030.

- SHS 2025 theme, **"Swachhotsav"**, blends the spirit of festive celebrations with the responsibility of cleanliness.
- The campaign focuses on **voluntarism, collective action, and public participation**, promoting the **three R's – Reduce, Reuse, Recycle** to engage citizens in maintaining clean surroundings.

India's Approach to Safeguarding Satellites

India is **planning "bodyguard satellites" to protect its space assets**. These satellites will escort high-value spacecraft, detect threats, and counter hostile maneuvers in orbit.

Key Threats to Satellites
■ Physical Risks: Space debris can damage satellites at speeds up to 28,000 km/h.
■ Digital Risks: Vulnerable to radio jamming, spoofing, and cyberattacks.
■ Natural Threats: Solar storms can damage electronics and affect orbits.
■ Geopolitical Threats: Hostile actors can target or shadow satellites using proximity operations.

India's Satellite Protection Strategies:

- **IS4OM:** Tracks satellites and space debris, issues collision warnings.
- **Project NETRA:** Enhances space surveillance with radars and telescopes.
- **NMA:** Tests NavIC authentication to prevent spoofing.
- **Cybersecurity:** CERT-In provides satellite security guidelines.
- **Solar Storm Preparedness:** Aditya-L1 mission offers early warnings.
- **LiDAR Satellites:** Explores LiDAR tech for threat detection.
- **International Cooperation:** Participates in global space forums on debris and space safety.

■ International Space Protection Systems: ● COPUOS: 2019 guidelines for space sustainability and debris mitigation. ● IADC: Coordinates global space debris management. ● CSO: 10-country partnership for responsible space behavior. ● NATO Space Policy: Treats space as an operational domain.
■ US: ● Space Fence: Tracks small space objects. ● Protected Tactical Waveform: Secures satellite communications. ● AEHF Satellites: Secure communication with resistant frequencies. ● Encrypted GPS M-code: Enhances GPS security. ● ISAC: Coordinates cyber threat intelligence.
■ Europe: ● EUSST: Monitors space debris and warns operators. ● Galileo OSNMA: Prevents spoofing of navigation messages.

India Adds 7 Natural Sites to UNESCO Tentative List

India has added seven natural sites to UNESCO's Tentative List of **World Heritage Sites (WHS)**, taking its total to **69 (49 cultural, 17 natural, and 3 mixed properties)**. This highlights the country's commitment to preserving its rich natural and cultural heritage.

UNESCO's Tentative List of World Heritage Sites

- **About:** It is the first step toward **UNESCO World Heritage nomination**. Countries identify cultural or natural sites of outstanding universal value and submit them to UNESCO at least a year before nomination.
 - Only sites on the **Tentative List can be considered for full inscription**. In India, the **Archaeological Survey of India (ASI)** compiles and submits these nominations.
- **India's Newly Added Sites:**
 - **Deccan Traps at Panchgani and Mahabaleshwar, Maharashtra:** Home to some of the best-preserved and studied lava flows in the world, these sites form part of the **massive Deccan Traps** and are located within the **Koyna Wildlife Sanctuary** (already a UNESCO World Heritage Site).
 - **Geological Heritage of St. Mary's Island Cluster, Karnataka:** Known for its **rare columnar basaltic rock formations**, this island cluster dates back to the **Late Cretaceous period (101 to 66 million years ago)**.
 - **Meghalayan Age Caves, Meghalaya:** The stunning cave systems of Meghalaya, particularly the **Mawmluh Cave**, serve as the global reference point for the **Meghalayan Age in the Holocene Epoch** (last 11,000 years of the Earth's history till date), reflecting significant climate and geological transitions.
 - **Naga Hill Ophiolite, Nagaland:** A rare exposure to **ophiolite rocks**, these hills represent **oceanic crust uplifted onto continental plates** (offering deep insights into tectonic processes and mid-ocean ridge dynamics).
 - **Erra Matti Dibbalu (Red Sand Hills), Andhra Pradesh:** Red sand formations near Visakhapatnam showcase unique **paleo-climatic and coastal geomorphological features** that reveal Earth's climatic history and dynamic evolution.
 - ❖ Erra Matti Dibbalu was declared a GeoHeritage Monument by Geological Survey of India (GSI) in 2016.
 - **Natural Heritage of Tirumala Hills, Andhra Pradesh:** Featuring the **Eparchaeon Unconformity** and the iconic **Silathoranam (Natural Arch)**, this site holds immense geological significance, representing over 1.5 billion years of Earth's history.
 - ❖ They are part of **Seshachalam Biosphere Reserve and Venkateswara National Park**.

- **Varkala Cliffs, Kerala:** Cliff along **Kerala's coastline expose the Warkalli Formation of the Mio-Pliocene age**, along with natural springs and striking erosional landforms, offering both scientific and touristic value.

Bonnard Standard

SC has reaffirmed the **Bonnard standard**, emphasizing strict conditions for granting **pre-trial injunctions in defamation cases**, particularly involving journalists, to safeguard **freedom of speech and public interest**.

Bonnard Standard

- **About:** Established in **Bonnard vs Perryman (1891, United Kingdom)**; sets the standard that an **injunction** can only be granted if the court is satisfied the **defendant cannot justify the defamation claim**, and not just based on suspicion. An **injunction** is a **court order that requires someone to do or stop doing a specific action**.
- **2024 Bloomberg Case:** The SC in 2024 **upheld this principle or standard**, striking down an **ex parte injunction** against Bloomberg.
 - The Court emphasized the **importance of protecting free speech and public debate**, stating such injunctions should be granted **only when not granting them would cause greater injustice**.
- **Violation in Adani Case:** A Delhi trial court order barred journalists from publishing allegedly **defamatory content** about **Adani Enterprises Ltd (AEL)** and permitted the **plaintiff (Adani)** to demand **takedowns within 36 hours** violated this standard by:
 - Issuing an **ex parte ad interim injunction** without hearing the **journalists' defenses**.
 - Acting as a **"prior restraint"** on **publication**, seen as an **unconstitutional restriction on the fundamental right to free speech under Article 19(1)(a)**.
- **Legal Framework:** **Article 19(2)** of the Constitution outlines **reasonable restrictions on free speech, including defamation**. However, restrictions must be justified.
 - The SC has repeatedly criticized the **granting of ex parte injunctions without a proper trial**, emphasizing the severe consequences these may have on freedom of speech and the public's right to know.

NE-SPARKS

The Union Minister of Development of North Eastern Region interacted with school students from the **North Eastern Region (NER)** who participated in the **NE-SPARKS program**.

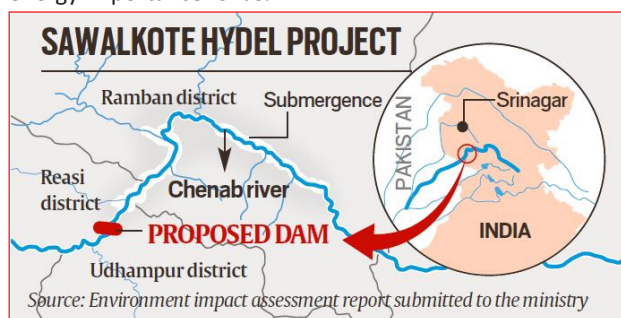
NE-SPARKS

- **About:** The **'North East Students' Programme for Awareness, Reach, and Knowledge on Space' (NE-SPARKS)** is a flagship initiative to promote **STEM (Science, Technology, Engineering, and Mathematics)** from NER.

- **Collaborative Effort:** It is supported by the **Ministry of Development of North Eastern Region (MDoNER)** in collaboration with the **8 North Eastern States, North Eastern Space Applications Centre (NESAC)-ISRO**.
- **Funding:** The program is funded by the **MDoNER and the state Govt. in 60:40 ratio** respectively. **NESAC is the nodal agency**.
- **Scale & Reach:** The program aims to facilitate **exposure visits for 800 meritorious science students** (100 from each NE state) to **premier ISRO centres**.

Sawalkote Hydropower Project

After **suspension of Indus Waters Treaty (IWT)** following Pahalgam terror attack, the **stalled Sawalkote Hydropower Project is being fast-tracked** for clearance due to strategic & energy importance for J&K.



- **Initiated in 1984** (now declared a national priority); **1,856 MW run-of-the-river project** on Chenab River (**western river under IWT**).
- Concrete **gravity dam** with a reservoir.
- Expected to **generate 7,000 Mn+ units of electricity annually** (making it one of the largest hydroelectric projects in India).
- Chenab River hosts **390-MW Dulhasti project (Kishtwar), 890-MW Baglihar project (Ramban) & 690-MW Salal project (Reasi)**.

Unified Pension Scheme (UPS)

The government has given central government employees the option to switch to the **Unified Pension Scheme (UPS)** by 30th September 2025. However, the adoption has been slow, with only 40,000 out of **23.94 lakh eligible employees** opting for the UPS so far.

Unified Pension Scheme (UPS)

- **About:** The UPS, recommended by the **T.V. Somanathan committee (2023)** to review the **National Pension System (NPS)**, was announced in August 2024 and came into effect on 1st April 2025 as an **optional pension scheme for Central Government employees** under the NPS.
 - It provides **assured, inflation-indexed, and adequate retirement benefits**, addressing concerns related to

longevity protection and pension predictability. UPS is regulated by the **Pension Fund Regulatory and Development Authority (PFRDA)**, and is available to both serving and retired employees, subject to specific conditions.

- **Eligibility:** Central Government employees under NPS as on 1st April 2025. New recruits joining Central Government service on or after 1st April 2025.
 - Retired NPS subscribers who superannuated or retired on or before 31st March 2025, with at least 10 years of qualifying service, provided retirement was not a penalty under Fundamental Rules (FR) 56(j) (relates to the premature retirement of government servant).
 - Legally wedded spouse of a deceased NPS subscriber (who retired before opting for UPS).
- **Contributions under UPS**
 - **Employee Contribution:** 10% of Basic Pay + Dearness Allowance (DA).
 - **Government Contribution:** Matching 10% of Basic Pay + DA.
 - **Additional Government Contribution (Pool Corpus):** Around 8.5% of Basic Pay + DA, used to ensure assured payouts.
 - **PRAN (Permanent Retirement Account Number):** All contributions and transactions are recorded under the employee's PRAN account.
- **Corpus Contribution under UPS**
 - **Individual Corpus (IC):** Actual savings from employee and government contributions.
 - **Benchmark Corpus (BC):** A notional amount calculated assuming regular contributions and no withdrawals.

NPS vs UPS

Parameter	NPS	UPS
Nature	Mandatory for new employees (post-2004)	Voluntary for eligible employees
Contribution	10% (Employee) + 14% (Govt.)	10% (Employee) + 10% (Govt.) + 8.5% (Pool Corpus)
Assured Payout	No	Yes (subject to conditions)
Minimum Pension	No	₹10,000/month
Dearness Relief	No	Yes
Final Withdrawal	Up to 60%	Up to 60%
Family Benefits	Depends on annuity	60% of subscriber's payout
Partial Withdrawal	Yes	Yes